

SOIL LOG SHEET

Client :	Department of State Growth	LOCATION No. BH01	SHEET 1 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510336.0 E, 5415057.0 N GDA2020\	Surface RL : -9.60m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : UP
Date Started :	29 Aug 22	Date Completed : 1 Sep 22	Checked : JRN
		Logged by : Kia.I	Date : 28 Feb 23

DRILLING					MATERIAL					ADDITIONAL DATA		
SCALE (m)	Method	Hole Support	Run	Water	Depth/ (RL)metres	Graphic Log	Description				Comments/Observations Insitu test results	SCALE (m)
							Soil Name (USC Symbol) Other Minor Components, Plasticity or Particle Characteristics, Colour, Moisture Condition, Consistency, Structure					
							SILT trace sand, high plasticity, dark grey, sand is fine grained, w>LL, (QUATERNARY ALLUVIUM)	MH	W	VS		
1												
2											SPT	SPT1 (1.8 - 2.25 m) 0/0/0 N = 0 (Apparatus penetrated under self-weight only), Recovery=450mm
3	HW Wash Boring											
	HW casing				3.30 (-72.90)		SAND, trace gravel, medium to coarse grained, grey, gravel is fine, subrounded, (QUATERNARY ALLUVIUM)	SP	W	L - MD	U63	U63 (3.3 - 3.75 m) No Recovery
4												
5												

GEO SOIL BOREHOLE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

See standard sheets for details of abbreviations & basis of descriptions



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 CONSULTING GEOTECHNICAL ENGINEERS AND GEOLOGISTS

Job No.
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SOIL LOG SHEET

Client :	Department of State Growth	LOCATION No. BH01	SHEET 2 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510336.0 E, 5415057.0 N GDA2020\	Surface RL : -9.60m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : UP
Date Started :	29 Aug 22	Date Completed : 1 Sep 22	Checked : JRN
		Logged by : Kia.I	Date : 28 Feb 23

DRILLING					MATERIAL					ADDITIONAL DATA			
SCALE (m)	Method	Hole Support	Run	Water	Depth/ (RL)metres	Graphic Log	Description Soil Name (USC Symbol) Other Minor Components, Plasticity or Particle Characteristics, Colour, Moisture Condition, Consistency, Structure	Group Symbol	Moisture Condition	Consistency / Relative Density	Samples & Tests	Comments/Observations Insitu test results	SCALE (m)
6	HW Wash Boring				5.10 (-14.70)	[Graphic Log: Gravel content increasing, fine to coarse, subrounded to subangular (quartz and iron stone)]	Gravel content increasing, fine to coarse, subrounded to subangular (quartz and iron stone)	CL-CI	W	L- MD	SPT	SPT2 (5.1 - 5.55 m) 9/12/7 N = 19, Recovery=350mm	6
7					5.30 (-14.90)	[Graphic Log: CLAY with sand, low to medium plasticity, banded orange brown to grey brown; sand is fine grained, w=PL, (QUATERNARY ALLUVIUM)]	CLAY with sand, low to medium plasticity, banded orange brown to grey brown; sand is fine grained, w=PL, (QUATERNARY ALLUVIUM)	CL-CI	D-M	VSt			7
8					5.80								8
9													9
10													10

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CORE LOG SHEET

Client : Department of State Growth
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations
Location : Tamar River, Launceston

LOCATION No. BH01

SHEET 3 OF 13

Position : 510336.0 E, 5415057.0 N GDA2020 \ **Surface RL :** -9.60m Riverbed AHD **Angle from Horiz. :** 90° **Processed :** UP

Contractor : KMR Drilling **Rig Type :** Hydrapower Trekker 2100 (Rig No. 7) **Checked :** JRN

Date Started : 29 Aug 22 **Date Completed :** 1 Sep 22 **Logged by :** Kia.I **Date :** 28 Feb 23

DRILLING			MATERIAL							ADDITIONAL DATA				
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	20 Core Recovery (%)	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
6		1		5.80 (-15.40) 5.90 (-15.50)		CORE LOSS (100 mm)								
				6.80 (-16.40) 6.95 (-16.55)		Sandy SILT, high plasticity, pale brown to grey, sand is fine grained, hard, organic layering, w=PL, (QUATERNARY ALLUVIUM)						SPT	SPT3 (6.3 - 6.8 m) 9/23' N =R, Recovery=400mm	6
7		2		8.20 (-17.80)		(7.8 - 7.85 m): Weakly cemented						PP	PP @ 7.0 m > 500kPa (UCS)	7
				8.70 (-18.30)		CLAY, trace sand, high plasticity, very stiff, grey; sand is fine grained, w=PL, (QUATERNARY ALLUVIUM)						PP	PP @ 7.5 m = 500kPa (UCS)	
						Sandy SILT, high plasticity, very stiff, pale grey; sand is fine to medium grained, trace wood fragments, w=PL (QUATERNARY ALLUVIUM)						Is(50)	7.9 m, Is(50) = 0.07 MPa	8
												PP	PP @ 8.0 m = 450-500kPa (UCS)	
												SPT	SPT4 (8.2 - 8.65 m) 5/7/11 N = 18, Recovery=450mm	
												PP	PP @ 8.5 m = 450-500kPa (UCS)	
												PP	PP @ 9.4 m = 400 kPa (UCS)	9
												SPT	SPT5 (9.5 - 9.95 m) 6/10/13 N = 23, Recovery=450mm	

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CORE LOG SHEET

Client : Department of State Growth
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations
Location : Tamar River, Launceston

LOCATION No. BH01

SHEET 4 OF 13

Position : 510336.0 E, 5415057.0 N GDA2020\ **Surface RL :** -9.60m Riverbed AHD **Angle from Horiz. :** 90° **Processed :** UP
Contractor : KMR Drilling **Rig Type :** Hydrapower Trekker 2100 (Rig No. 7) **Checked :** JRN
Date Started : 29 Aug 22 **Date Completed :** 1 Sep 22 **Logged by :** Kia.I **Date :** 28 Feb 23

DRILLING				MATERIAL						ADDITIONAL DATA				
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)		Defect Spacing (mm)	Samples & Tests	Additional Data Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
									20	80				
		4				(10.0 - 10.2 m): Weakly cemented						SPT	PP @ 10.0 m > 600 kPa (UCS)	
11				10.70 (-20.30)		hard						SPT	SPT6 (10.7 - 11.0 m) 14/18" N = R, Recovery=350mm	11
		5										PP	PP @ 11.2 m > 600 kPa (UCS)	
												PP	PP @ 11.7 m > 600 kPa (UCS)	12
												PP	PP @ 12.2 m > 600 kPa (UCS)	
	HQ Coring	6				Sand becoming fine to coarse grained (12.8 - 12.83 m): Weakly cemented						PP Is(50) SPT	PP @ 12.7 m > 600 kPa (UCS) 12.7 m, Is(50) = 0.10 MPa SPT7 (12.8 m) 5" N = R	13
		7				(13.35 - 13.45 m): Weakly cemented						PP	PP @ 13.3 m > 600 kPa (UCS)	
		8				(14.55 - 14.65 m): Weakly cemented						PP	PP @ 13.8 m > 600 kPa (UCS)	14
						(14.8 - 14.9 m): Weakly cemented							No further SPT attempted due to risk of rod entrapment in ground	15

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CORE LOG SHEET

Client :	Department of State Growth	LOCATION No. BH01	SHEET 5 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510336.0 E, 5415057.0 N GDA2020\	Surface RL : -9.60m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : UP
Date Started :	29 Aug 22	Date Completed : 1 Sep 22	Checked : JRN
		Logged by : Kia.I	Date : 28 Feb 23

DRILLING			MATERIAL						ADDITIONAL DATA							
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	20 Core Recovery (%)	80	RQD (%)	20 40 100 300 1000	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
		8														
16		9												PP	PP @ 16.5 m > 600 kPa (UCS)	16
	HQ Coring	10				(17.15 - 17.2 m): Gravel band, fine to coarse, angular to subrounded								PP	PP @ 17.0 m > 600 kPa (UCS)	17
		11												PP	PP @ 17.5 m > 600 kPa (UCS)	
18														PP	PP @ 18.5 m > 600 kPa (UCS)	18
		12				(18.9 - 19.0 m): Weakly cemented								PP	PP @ 19.5 m > 600 kPa (UCS)	19
						(19.85 - 20.65 m): Sand predominantly coarse grained										20

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CORE LOG SHEET

Client :	Department of State Growth	LOCATION No. BH01	SHEET 6 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510336.0 E, 5415057.0 N GDA2020\	Surface RL : -9.60m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : UP
Date Started :	29 Aug 22	Date Completed : 1 Sep 22	Checked : JRN
		Logged by : Kia.I	Date : 28 Feb 23

DRILLING			MATERIAL							ADDITIONAL DATA						
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	20 Core Recovery (%)	80	RQD (%)	20 40 100 300 1000	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
		12														
		13				(20.88 - 20.9 m): Weakly cemented								PP	PP @ 21.0 m > 600 kPa (UCS)	21
						(21.32 - 21.35 m): Weakly cemented								Is(50)	21.7 m, Is(50) = 0.15 MPa	
				22.00 (-31.60)		Becoming gravelly, fine to coarse, subrounded to rounded										22
				22.20 (-31.80)		SILT, trace sand, high plasticity, hard, dark brown; sand is fine grained, trace carbonaceous fragments, W=PL (TERTIARY SEDIMENTS)										
				22.70 (-32.30)		Colour change to pale grey										
														PP	PP @ 23.0 m > 600 kPa (UCS)	23
														PP	PP @ 24.0 m > 600 kPa (UCS)	24
				24.30 (-33.90)		Colour change to pale brown/grey										
				24.90 (-34.50)		Colour change to pale dark brown										

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CORE LOG SHEET

Client : Department of State Growth
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations
Location : Tamar River, Launceston

LOCATION No. BH01

SHEET 7 OF 13

Position : 510336.0 E, 5415057.0 N GDA2020\ **Surface RL :** -9.60m Riverbed AHD **Angle from Horiz. :** 90° **Processed :** UP
Contractor : KMR Drilling **Rig Type :** Hydrapower Trekker 2100 (Rig No. 7) **Checked :** JRN
Date Started : 29 Aug 22 **Date Completed :** 1 Sep 22 **Logged by :** Kia.I **Date :** 28 Feb 23

DRILLING			MATERIAL							ADDITIONAL DATA				
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
		16		25.20 (-34.80)		Sandy SILT, high plasticity, hrad, brown with black banding, w<PL; sand is fine to medium grained, (TERTIARY SEDIMENTS)						PP	PP @ 25.0 m > 600 kPa (UCS)	
												Is(50)	25.7 m, Is(50) = 0.07 MPa	
												PP	PP @ 26.0 m > 600 kPa (UCS)	26
						Sand becoming fine to coarse grained								
												Is(50)	26.75 m, Is(50) = 0.07 MPa	
		17		26.30 (-35.90)								PP	PP @ 27.0 m > 600 kPa (UCS)	27
												PP	PP @ 27.5 m > 600 kPa (UCS)	
												Is(50)	27.85 m, Is(50) = 0.05 MPa	28
		18										PP	PP @ 28.5 m > 600 kPa (UCS)	
												PP	PP @ 29.0 m > 600 kPa (UCS)	29
						SILT, trace sand, high plasticity, hard, grey, dry, w<PL; sand is fine grained; organic fragments, (TERTIARY SEDIMENTS)						Is(50)	29 m, Is(50) = 0.10 MPa	
		19		29.10 (-38.70)								PP	PP @ 29.5 m > 600 kPa (UCS)	
												Is(50)	29.8 m, Is(50) = 0.07 MPa	30
						Sandy CLAY, medium plasticity, hard, pale brown, w~PL; sand is fine to coarse grained; organic layering, (TERTIARY SEDIMENTS)								

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CORE LOG SHEET

Client : Department of State Growth	LOCATION No. BH01	
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	SHEET 8 OF 13	
Location : Tamar River, Launceston	Position : 510336.0 E, 5415057.0 N GDA2020\	Surface RL : -9.60m Riverbed AHD
	Angle from Horiz. : 90°	Processed : UP
Contractor : KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Checked : JRN
Date Started : 29 Aug 22	Date Completed : 1 Sep 22	Logged by : Kia.I
		Date : 28 Feb 23

DRILLING			MATERIAL							ADDITIONAL DATA				
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
		19										PP CS (63.5)	PP @ 30.0 m > 600 kPa (UCS) CS (63.5) : (30.05 - 30.25 m)	
						(31.2 - 31.7m): Sand predominantly coarse grained; trace gravel, fine to medium, subrounded to rounded						Is(50)	30.7 m, Is(50) = 0.10 MPa	
31		20										PP	PP @ 31.0 m > 600 kPa (UCS)	31
												Is(50)	31.7 m, Is(50) = 0.16 MPa	
				32.00 (-42.00) (-41.66)		CARBONACEOUS MUDSTONE, dark brown, (TERTIARY SEDIMENTS)	HW	VL		100		PP	PP @ 32.0 m > 600 kPa (UCS)	32
				32.18 (-41.78)		CLAYSTONE, pale brown, (TERTIARY SEDIMENTS)	HW	M						
						CARBONACEOUS MUDSTONE, dark brown, (TERTIARY SEDIMENTS)	HW	VL						
				32.46 (-42.06)		CONGLOMERATE, blue-grey, clasts 40mm to 100mm, rounded, matrix:clast is 30%:70%, (TERTIARY SEDIMENTS)	HW	VL				PP Is(50)	PP @ 32.5 m > 600 kPa (UCS) 32.6 m, Is(50) = 0.36 MPa	
33		21												
				33.50 (-43.10)		CARBONACEOUS MUDSTONE, (TERTIARY SEDIMENTS)	HW	VL		100		PP Is(50)	PP @ 33.5 m > 600 kPa (UCS) 33.6 m, Is(50) = 0.13 MPa	
				33.70 (-43.30)		Becoming less carbonaceous and sand increasing, organic fragments								
34		22												
				34.60 (-44.20)		SANDSTONE, coarse grained, brown-grey, organic fragments, silty matrix, (TERTIARY SEDIMENTS)	HW	VL		100		Is(50)	34.7 m, Is(50) = 0.05 MPa	
35		23												

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CORE LOG SHEET

Client : Department of State Growth	LOCATION No. BH01	
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	SHEET 9 OF 13	
Location : Tamar River, Launceston	Position : 510336.0 E, 5415057.0 N GDA2020\	Surface RL : -9.60m Riverbed AHD
	Angle from Horiz. : 90°	Processed : UP
Contractor : KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Checked : JRN
Date Started : 29 Aug 22	Date Completed : 1 Sep 22	Logged by : Kia.I
		Date : 28 Feb 23

DRILLING			MATERIAL							ADDITIONAL DATA					
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)			Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
									20	80	100				
		23		35.15 (-44.75)		Grain size increasing, gravel fragments up to 50mm, subrounded to rounded							Is(50)	35.5 m, Is(50) = 0.05 MPa	
36		24					HW				100		Is(50)	36.5 m, Is(50) = 0.05 MPa	36
	HQ Coring			37.40 (-47.00)		CONGLOMERATE, blue-grey, clasts up to 40mm, rounded, (TERTIARY SEDIMENTS)	HW	L			100		Is(50)	37.4 m, Is(50) = 0.16 MPa 37.55 m: Jt, 90°, Cu, Cn, Healed	
				37.75 (-47.35)		SANDSTONE, coarse grained, brown-grey, organic fragments, (TERTIARY SEDIMENTS)	HW	L							
38		25		38.00 (-47.60)		CONGLOMERATE, blue-grey, (TERTIARY SEDIMENTS)	HW	L					Is(50)	37.9 m: Jt, 5°, Cu, Cn, Rf 38 m, Is(50) = 0.16 MPa 38.1 m: Jt, 85°, Cu, Cn, Healed	38
				38.60 (-48.20)		(38.45 - 38.47m): Weakly cemented SANDSTONE, coarse grained, brown, organic layering, (TERTIARY SEDIMENTS)	HW	L							
				38.90 (-48.50)		Grain size increasing					100				
39		26		39.20 (-48.80)		CONGLOMERATE, blue-grey, clasts up to 100 mm, (TERTIARY SEDIMENTS) (39.22 - 39.27m): Weakly cemented	HW	L							39
40															40

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CORE LOG SHEET

Client : Department of State Growth	LOCATION No. BH01	
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	SHEET 10 OF 13	
Location : Tamar River, Launceston	Position : 510336.0 E, 5415057.0 N GDA2020\	Surface RL : -9.60m Riverbed AHD
	Angle from Horiz. : 90°	Processed : UP
Contractor : KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Checked : JRN
Date Started : 29 Aug 22	Date Completed : 1 Sep 22	Logged by : Kia.I
		Date : 28 Feb 23

DRILLING			MATERIAL							ADDITIONAL DATA					
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	20 Core Recovery (%)	80	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
		26									100				
41		27		40.70 (-50.30)		CARBONACEOUS MUDSTONE, dark grey to dark brown, (TERTIARY SEDIMENTS)	HW	L			100				
				41.40 (-51.00)		SANDSTONE, coarse grained, brown, (TERTIARY SEDIMENTS)	HW	L			100				
				41.50 (-51.10)		CONGLOMERATE, blue-grey, (TERTIARY SEDIMENTS)	HW	L							
42		28		41.90 (-51.50)		CARBONACEOUS MUDSTONE, grey-brown, black banding, (TERTIARY SEDIMENTS)	HW	VL							
				42.20 (-51.80)		CONGLOMERATE, blue-pale grey, medium grained, matrix:clast is 70:30, (TERTIARY SEDIMENTS)	HW - MW	VL							
43		29		42.80 (-52.40)		Gravel fragments up to 80 mm, subrounded to rounded, colour change to green-blue, quartz veins	HW - MW				100				
				44.30 (-53.90)		Gravel fragments up to 100 mm subrounded to rounded	HW - MW				100				
45		30													

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 CONSULTING GEOTECHNICAL ENGINEERS AND GEOLOGISTS

Job No.
12570434

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

CORE LOG SHEET

Client : Department of State Growth	LOCATION No. BH01	
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	SHEET 11 OF 13	
Location : Tamar River, Launceston	Position : 510336.0 E, 5415057.0 N GDA2020\	Surface RL : -9.60m Riverbed AHD
	Angle from Horiz. : 90°	Processed : UP
Contractor : KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Checked : JRN
Date Started : 29 Aug 22	Date Completed : 1 Sep 22	Logged by : Kia.I
		Date : 28 Feb 23

DRILLING			MATERIAL						ADDITIONAL DATA							
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	20 Core Recovery (%)	80	RQD (%)	20 40 100 300 1000	Defect Spacing (mm)	Samples & Tests	Additional Data Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
		30			(45.93 - 45.98 m): Weakly cemented		MW			100				Is(50)	45.18 m: Jt, 55°, Rf, Pln, Cn 45.3 m, Is(50) = 0.09 MPa	
		31			(46.3 - 46.4 m): Weakly cemented											
		32			(46.65 - 46.7 m): Weakly cemented		MW - SW			100						
	HQ Coring	33														
				49.50 (-59.10)	[Graphic Log]	CARBONACEOUS MUDSTONE, dark grey-brown, (TERTIARY SEDIMENTS)	HW	VL								
				49.80 (-59.40)	[Graphic Log]	CONGLOMERATE, grey-brown to brown-blue, (TERTIARY SEDIMENTS)	HW	VL							Is(50)	48.6 m, Is(50) = 0.08 MPa

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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CORE LOG SHEET

Client : Department of State Growth
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations
Location : Tamar River, Launceston

LOCATION No. BH01

SHEET 12 OF 13

Position : 510336.0 E, 5415057.0 N GDA2020\ **Surface RL :** -9.60m Riverbed AHD **Angle from Horiz. :** 90° **Processed :** UP
Contractor : KMR Drilling **Rig Type :** Hydrapower Trekker 2100 (Rig No. 7) **Checked :** JRN
Date Started : 29 Aug 22 **Date Completed :** 1 Sep 22 **Logged by :** Kia.I **Date :** 28 Feb 23

DRILLING				MATERIAL						ADDITIONAL DATA				
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
		33										Is(50)	50 m, Is(50) = 0.0 MPa	
										100		Is(50) Is(50)	50.4 m, Is(50) = 0.0 MPa 50.45 m, Is(50) = 0.14 MPa	
51		34		50.80 (-60.40)		SANDSTONE, highly weathered, coarse grained, brown, (TERTIARY SEDIMENTS)	HW	VL						
				51.00 (-60.60)		CONGLOMERATE, pale grey-blue, defect surfaces is XW SANDSTONE, medium grained, (TERTIARY SEDIMENTS)	HW	VL						
										100		Is(50)	51.8 m, Is(50) = 0.06 MPa	
52		35												
53				52.90 (-62.50)		Clasts up to 100 mm, subrounded to rounded, colour change to blue-green				100		Is(50)	52.8 m, Is(50) = 0.0 MPa	
												Is(50)	53.35 m, Is(50) = 0.07 MPa	
54		36										Is(50)	54.1 m, Is(50) = 0.07 MPa	
												Is(50)	54.35 m, Is(50) = 0.09 MPa	
55		37		54.40 (-64.00)		Clast:matrix proportion approximately 30:70, clasts up to 100mm, subrounded to rounded		VL-L		100				

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ_GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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Job No.
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CORE LOG SHEET

Client : Department of State Growth	LOCATION No. BH01	
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	SHEET 13 OF 13	
Location : Tamar River, Launceston	Position : 510336.0 E, 5415057.0 N GDA2020\	Surface RL : -9.60m Riverbed AHD
	Angle from Horiz. : 90°	Processed : UP
Contractor : KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Checked : JRN
Date Started : 29 Aug 22	Date Completed : 1 Sep 22	Logged by : Kia.I
		Date : 28 Feb 23

DRILLING				MATERIAL						ADDITIONAL DATA				
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)	RQD (%)	Defect Spacing (mm)	Samples & Tests	Additional Data	SCALE (m)
	HQ Coring	37		55.80 (-65.40)		Target depth reached. End of hole at 55.8 metres.						ls(50)	55.55 m: Jt, 4°, Cu, Cn, Healed 55.7 m, ls(50) = 0.17 MPa	
56														56
57														57
58														58
59														59
60														60

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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SPT1 (1.8 - 2.25 m) 0/0/0 N = 0, Recovery=450mm



SPT2 (5.1 - 5.55 m) 9/12/7 N = 19, Recovery=350mm



SPT3 (6.5 - 6.8 m) 9/23/* N = R, Recovery=450mm



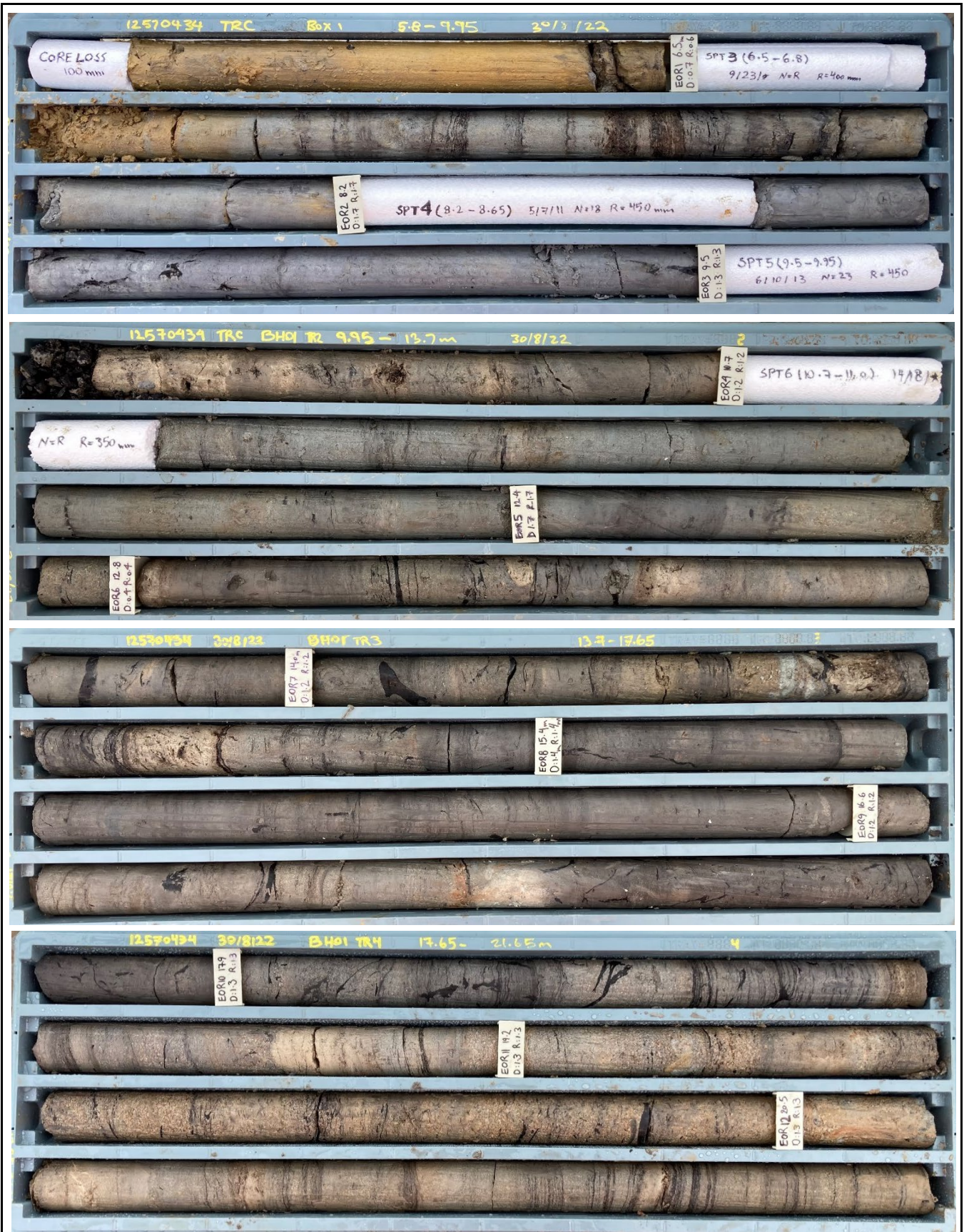

SPT4 (8.2 - 8.65 m) 5/7/11 N = 18, Recovery=450mm



SPT5 (9.5 - 9.95 m) 6/10/13 N = 23, Recovery=450mm



Drawn	Date	Job Number	A4	Title	Client
Kia.I	12/22/22	12570434			
					Project
					Tamar River Crossing Geotechnical Investigations
					Figure No

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Drawn	Date	Job Number	Title
Kia.I	12/22/22	12570434	A4
			Tamar River Crossing Geotechnical Investigations BH01

Client	Department of State Growth
Project	Tamar River Crossing Geotechnical Investigations
Figure No	



X indicates drilling/handling break



Drawn	Date	Job Number	Title	Client
Kia.I	12/22/22	12570434	Tamar River Crossing Geotechnical Investigations BH01	Department of State Growth
				A4
				Figure No



X indicates drilling/handling break



Drawn	Date	Job Number	Title	Client
Kia.I	12/22/22	12570434	Tamar River Crossing Geotechnical Investigations BH01	Department of State Growth
				A4
				Figure No

SOIL LOG SHEET

Client :	Department of State Growth	LOCATION No. BH02	SHEET 1 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510220.0 E, 5415123.0 N GDA2020\	Surface RL : -6.60m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : LH
Date Started :	5 Sep 22	Date Completed : 8 Sep 22	Checked : JRN
		Logged by : Kia.I	Date : 28 Feb 23

DRILLING				MATERIAL				ADDITIONAL DATA					
SCALE (m)	Method	Hole Support	Run	Water	Depth/ (RL)metres	Graphic Log	Description Soil Name (USC Symbol) Other Minor Components, Plasticity or Particle Characteristics, Colour, Moisture Condition, Consistency, Structure	Group Symbol	Moisture Condition	Consistency / Relative Density	Samples & Tests	Comments/Observations Insitu test results	SCALE (m)
1				▼		---	SILT trace sand, high plasticity, dark grey, sand is fine grained, w>LL, (QUATERNARY ALLUVIUM)	MH	W	VS			1
2						---							2
3	Washbore	HW casing			3.20 (-9.80)	---	Trace sand and gravel, sand is medium grained, gravel is fine, subrounded				SPT	SPT1 (3.2 - 3.65m) 0/0/0 N=0 (Apparatus penetrated under self-weight only), R=450mm	3
4						---							4
5					4.90 (-11.50)	---	Sand proportion increasing, fine to coarse grained			S	U63	U63 (4.9 - 5.35m) R=450mm	5

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SOIL LOG SHEET

Client :	Department of State Growth	LOCATION No. BH02	SHEET 2 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510220.0 E, 5415123.0 N GDA2020\	Surface RL : -6.60m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : LH
Date Started :	5 Sep 22	Date Completed : 8 Sep 22	Checked : JRN
		Logged by : Kia.I	Date : 28 Feb 23

DRILLING				MATERIAL				ADDITIONAL DATA				
SCALE (m)	Method	Hole Support	Run	Water	Depth/ (RL)metres	Graphic Log	Description Soil Name (USC Symbol) Other Minor Components, Plasticity or Particle Characteristics, Colour, Moisture Condition, Consistency, Structure	Group Symbol	Moisture Condition Consistency / Relative Density	Samples & Tests	Comments/Observations Insitu test results	SCALE (m)
6						[Graphic Log Pattern]				PP	PP @ 5.35m = 30 - 40 kPa (UCS)	6
7						[Graphic Log Pattern]				SPT	SPT2 (6.5 - 6.95m) 0/0/0 N=0 (Apparatus penetrated under self-weight only), R=450mm	7
8	Washbore	HW casing			8.00 (-14.60)	[Graphic Log Pattern]			S - F	U63	U63 (8.0 - 8.45m) R=450mm	8
9						[Graphic Log Pattern]				PP	PP @ 8.45m = 50 - 60 kPa (UCS)	9
10					9.80 (-16.40)	[Graphic Log Pattern]			VS	SPT	SPT3 (9.8 - 10.25m) 0/0/0 N=0 (Apparatus penetrated under self-weight only), R=450mm	10

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SOIL LOG SHEET

Client : Department of State Growth
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations
Location : Tamar River, Launceston

LOCATION No. BH02

SHEET 3 OF 13

Position : 510220.0 E, 5415123.0 N GDA2020\ **Surface RL :** -6.60m Riverbed AHD **Angle from Horiz. :** 90° **Processed :** LH
Contractor : KMR Drilling **Rig Type :** Hydrapower Trekker 2100 (Rig No. 7) **Checked :** JRN
Date Started : 5 Sep 22 **Date Completed :** 8 Sep 22 **Logged by :** Kia.I **Date :** 28 Feb 23

DRILLING					MATERIAL				ADDITIONAL DATA				
SCALE (m)	Method	Hole Support	Run	Water	Depth/ (RL)metres	Graphic Log	Description Soil Name (USC Symbol) Other Minor Components, Plasticity or Particle Characteristics, Colour, Moisture Condition, Consistency, Structure	Group Symbol	Moisture Condition	Consistency / Relative Density	Samples & Tests	Comments/Observations Insitu test results	SCALE (m)
11													11
	Washbore	HW casing			11.95 (-18.55)					S - F	PP	U63 U63 (11.5 - 11.95m) R=450mm PP @ 11.95m = 50-60 kPa (UCS)	12
					13.20 (-19.80)					VS	SPT	SPT4 (13.2 - 13.65m) 0/0/0 N=0 (Apparatus penetrated under self-weight only), R=450mm	13
											U63	U63 (14.9 - 15.35m)	14
15													15

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SOIL LOG SHEET

Client : Department of State Growth
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations
Location : Tamar River, Launceston

LOCATION No. BH02

SHEET 4 OF 13

Position : 510220.0 E, 5415123.0 N GDA2020 \ **Surface RL :** -6.60m Riverbed AHD **Angle from Horiz. :** 90° **Processed :** LH
Contractor : KMR Drilling **Rig Type :** Hydrapower Trekker 2100 (Rig No. 7) **Checked :** JRN
Date Started : 5 Sep 22 **Date Completed :** 8 Sep 22 **Logged by :** Kia.I **Date :** 28 Feb 23

DRILLING				MATERIAL					ADDITIONAL DATA				
SCALE (m)	Method	Hole Support	Run	Water	Depth/ (RL)metres	Graphic Log	Description Soil Name (USC Symbol) Other Minor Components, Plasticity or Particle Characteristics, Colour, Moisture Condition, Consistency, Structure	Group Symbol	Moisture Condition	Consistency / Relative Density	Samples & Tests	Comments/Observations Insitu test results	SCALE (m)
	Washbore	HW casing			16.40 (-23.00)		Sand is becoming fine			VS	SPT	PP @ 15.35m = 70 kPa (UCS) SPT5 (16.4 - 16.85m) 0/0/0 N=0 (Apparatus penetrated under self-weight only), R=450mm,	
					17.90 (-24.50)		Sandy CLAY, trace gravel, low plasticity, grey/brown, sand is fine to coarse grained, gravel is fine to coarse, angular to subrounded, sandstone & quartz, trace organic fragments, W > PL, (TERTIARY SEDIMENTS)	CL	M-W	VSt	U63 SPT	U63 (17.9m) Refusal SPT6 (17.9 - 18.35m) 10/9/18 N=27, R=450mm	
					19.40 (-26.00)		Sand proportion increasing, gravel content decreasing, colour change to pale grey/pale brown with black banding, W < PL		D-M	H	SPT	SPT7 (19.4 - 19.7m) 11/25/* N=R, R=300mm	
					20.00								

GEO SOIL BOREHOLE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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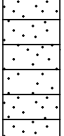



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SOIL LOG SHEET

Client :	Department of State Growth	LOCATION No. BH02	SHEET 5 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510220.0 E, 5415123.0 N GDA2020\	Surface RL : -6.60m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : LH
Date Started :	5 Sep 22	Date Completed : 8 Sep 22	Checked : JRN
		Logged by : Kia.I	Date : 28 Feb 23

DRILLING					MATERIAL					ADDITIONAL DATA			
SCALE (m)	Method	Hole Support	Run	Water	Depth/ (RL)metres	Graphic Log	Description Soil Name (USC Symbol) Other Minor Components, Plasticity or Particle Characteristics, Colour, Moisture Condition, Consistency, Structure	Group Symbol	Moisture Condition	Consistency / Relative Density	Samples & Tests	Comments/Observations Insitu test results	SCALE (m)
	Washbore				(-26.60)		Clayey SAND, trace gravel, fine to coarse grained, clay is high plasticity, pale grey/pale brown with black banding, gravel is fine to coarse, angular to subrounded, sandstone & quartz, trace organic fragments, W<PL, (TERTIARY SEDIMENTS)	SC	D-M	D - VD			
					20.50 (-27.10) 20.65		Sandy SILT, high plasticity, pale grey/brown with black banding, sand is fine to medium grained, trace wood fragments, W < PL, (TERTIARY SEDIMENTS)	MH	D-M	H	SPT	SPT8 (20.5 - 20.9m) 13/25/15* N=40*, R=400mm	
21													21
22													22
23													23
24													24
25													25

GEO SOIL BOREHOLE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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CORE LOG SHEET

Client : Department of State Growth	LOCATION No. BH02	
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	SHEET 6 OF 13	
Location : Tamar River, Launceston	Position : 510220.0 E, 5415123.0 N GDA2020\	Surface RL : -6.60m Riverbed AHD
	Angle from Horiz. : 90°	Processed : LH
Contractor : KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Checked : JRN
Date Started : 5 Sep 22	Date Completed : 8 Sep 22	Logged by : Kia.I
		Date : 28 Feb 23

DRILLING			MATERIAL						ADDITIONAL DATA						
SCALE (m)	Method Run Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)		Defect Spacing (mm)				Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
							20	80	20	40	100	300			
21	1	20.65 (-27.29)		Sandy SILT, high plasticity, hard, pale grey/brown with black banding, sand is fine to medium grained, trace wood fragments, W < PL, (TERTIARY SEDIMENTS)								Is(50) PP	20.65 m, Is(50) = 0.04 MPa PP @ 21m = 600kPa (UCS)	21	
		21.50 (-28.68)		(21.5 - 21.55 m): Sand content increasing, fine to coarse grained								PP	PP @ 21.5m = 600kPa (UCS)		
		21.75 (-28.35)		Sandy SILT, high plasticity, hard, pale grey/brown with black banding, sand is fine to medium grained, trace wood fragments, W < PL, (TERTIARY SEDIMENTS)								PP	PP @ 22m > 600kPa (UCS)	22	
		22.30 (-28.90)		(22.3 - 22.35 m): Weakly cemented								PP	PP @ 22.5m > 600kPa (UCS)		
		22.47 (-29.07)		(22.47 - 22.53 m): Weakly cemented								PP	PP @ 22.5m > 600kPa (UCS)	23	
		23.84 (-30.44)		(23.8 - 23.84 m): Weakly cemented								Is(50) PP	23.8 m, Is(50) = 0.08 MPa PP @ 24m > 600kPa (UCS)	24	
		23.98 (-30.58)		(23.98 - 24.03 m): Weakly cemented								PP	PP @ 24m > 600kPa (UCS)		
		24.50 (-31.10)		(24.5 - 24.65 m): Sand is fine to coarse grained										25	
				(24.57 - 24.59 m): Weakly cemented											

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CORE LOG SHEET

Client :	Department of State Growth	LOCATION No. BH02	SHEET 7 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510220.0 E, 5415123.0 N GDA2020\	Surface RL : -6.60m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : LH
Date Started : 5 Sep 22	Date Completed : 8 Sep 22	Logged by : Kia.I	Date : 28 Feb 23

DRILLING			MATERIAL							ADDITIONAL DATA					
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	20 Core Recovery (%)	80	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
		4		26.00 (-32.60)	[Graphic Log]	Appearance of layers of organic fragments							CS (63.5)	CS (63.5) : (25.6 - 25.75 m)	26
		5		27.10 (-33.70)	[Graphic Log]	(27.1 - 27.2 m): Sand is becoming fine to coarse grained							PP	PP @ 26.5m > 600kPa (UCS)	
				27.30 (-33.90)	[Graphic Log]	27.3 m: Colour change to pale grey							PP	PP @ 27m > 600kPa (UCS)	27
	HQ Coring	6		28.50 (-35.10)	[Graphic Log]	(28.5 - 28.65 m): Weakly cemented							PP	PP @ 27.5m > 600kPa (UCS)	
				28.65 (-35.25)	[Graphic Log]	SANDSTONE, medium to coarse grained, silt sized matrix, matrix:clast is 15:85 (Arenite), brown/grey, black organic fragments, (TERTIARY SEDIMENTS)	MW - HW	VL			100		PP	PP @ 28m > 600kPa (UCS)	28
		7		29.25 (-35.85)	[Graphic Log]	(29.25 - 30.2 m): Sand is predominantly coarse, organic layers							PP	28.95 m: Jt, 2°, Cu, Healed PP @ 29m > 600kPa (UCS)	29
					[Graphic Log]								CS (63.5)	CS (63.5) : (29.22 - 29.48 m) 29.5 m: Jt, 2°, Healed	
					[Graphic Log]									29.95 m: Jt, 3°, Cu, Healed	30

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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CORE LOG SHEET

LOCATION No. BH02

SHEET 8 OF 13

Client : Department of State Growth	Surface RL : -6.60m Riverbed AHD		Angle from Horiz. : 90°	Processed : LH
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)		Checked : JRN	
Location : Tamar River, Launceston	Date Started : 5 Sep 22	Date Completed : 8 Sep 22	Logged by : Kia.I	Date : 28 Feb 23

DRILLING				MATERIAL						ADDITIONAL DATA					
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	20 Core Recovery (%)	80	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
31	HQ Coring	7		30.20 (-36.80)		Trace gravel/cobble sized clasts, 20 - 100 mm, rounded, pale blue/grey, highly weathered dolerite							PP	PP @ 30m > 600kPa (UCS) 30.5 m: Jt, 3°, Cu, Cn, Healed	31
32		8				Silty SAND, fine grained, dense to very dense, brown/grey, silt is low to medium plasticity, black organic layering, (TERTIARY SEDIMENTS)							Is(50)	31.65 m, Is(50) = 0.05 MPa	32
33		9											PP	PP @ 33.5m > 600kPa (UCS) 33.62 m: Jt, 4°, Cu, Healed	33
34		10											PP	PP @ 34.5m > 600kPa (UCS)	34
35		11		34.60 (-41.20)		SILTSTONE, brown/grey, black organic layering, (TERTIARY SEDIMENTS)	MW - HW	VL - L			100				35

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ_GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

See standard sheets for
details of abbreviations
& basis of descriptions



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CONSULTING GEOTECHNICAL ENGINEERS AND GEOLOGISTS

Job No.

12570434

CORE LOG SHEET

Client : Department of State Growth	LOCATION No. BH02	
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	SHEET 9 OF 13	
Location : Tamar River, Launceston	Position : 510220.0 E, 5415123.0 N GDA2020\	Surface RL : -6.60m Riverbed AHD
	Angle from Horiz. : 90°	Processed : LH
Contractor : KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Checked : JRN
Date Started : 5 Sep 22	Date Completed : 8 Sep 22	Logged by : Kia.I
		Date : 28 Feb 23

DRILLING				MATERIAL						ADDITIONAL DATA				
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
		11		35.75 (-42.35)		SANDSTONE, medium to coarse grained, brown, silt sized matrix, matrix:clast is 15:85 (Arenite), brown/grey, black organic fragments, (TERTIARY SEDIMENTS)	MW - HW	L				PP	PP @ 35.5m > 600kPa (UCS)	
36				36.10 (-42.70)		Appearance of gravel/cobble sized dolerite clasts, pale grey/blue, rounded, highly weathered, SANDSTONE with CONGLOMERATE matrix	MW			100		Is(50)	36.1 m, Is(50) = 0.11 MPa	36
		12		36.90 (-43.50)		CONGLOMERATE, pale grey/blue clasts, variable orientations, 10 - 65 mm, rounded to subrounded, moderately weathered dolerite clasts, brown/grey matrix, fine grained, matrix:clast is 30:70, (TERTIARY SEDIMENTS)	MW - SW	VL - L				Is(50)	37.08 m: Jt, 10°, Pln, Healed 37.15 m: Jt, 40°, Pln 37.3 m, Is(50) = 0.08 MPa	37
	HQ Coring			38.20 (-44.80)		SANDSTONE, fine to medium grained, grey/brown with black banding/organic layering, patches of blue, (TERTIARY SEDIMENTS)	HW - MW	L		92		Is(50)	38.05 m: Jt, 8°, Cu, Healed 38.2 m: Jt, 45°, Rf, Pln, Cn 38.3 m, Is(50) = 0.17 MPa 38.35 m: Jt, 8°, Rf, Pln, Cn 38.5 m, Is(50) = 0.07 MPa 38.75 m: Jt, 4-6°, Cu, Cn, Healed	38
39		13		39.00 (-45.60)		Grain size increasing				100		Is(50)	39.3 m, Is(50) = 0.06 MPa	39
		14		40.00										40

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ_GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

See standard sheets for details of abbreviations & basis of descriptions



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Job No.
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CORE LOG SHEET

Client : Department of State Growth	LOCATION No. BH02	
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	SHEET 11 OF 13	
Location : Tamar River, Launceston	Position : 510220.0 E, 5415123.0 N GDA2020\	Surface RL : -6.60m Riverbed AHD
	Angle from Horiz. : 90°	Processed : LH
Contractor : KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Checked : JRN
Date Started : 5 Sep 22	Date Completed : 8 Sep 22	Logged by : Kia.I
		Date : 28 Feb 23

DRILLING			MATERIAL							ADDITIONAL DATA					
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	20 Core Recovery (%)	80	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
46		18		45.05 (-57.65)		SANDSTONE, fine to medium grained, grey/brown, thin black banding organic layering, (TERTIARY SEDIMENTS)	HW - MW	L			100				
47		19		46.60 (-53.20)		Trace gravel sized clasts, fine to medium, angular to subangular									
48	HQ Coring	20		46.96 (-53.56)		CONGLOMERATE, grey/pale blue clasts, variable orientations, 10 - 100 mm, rounded to subrounded, moderate to highly weathered dolerite clasts, brown/grey matrix, fine grained, matrix:clast is 30:70, (TERTIARY SEDIMENTS)	MW - SW	VL - L			100		Is(50)	47 m, Is(50) = 0.08 MPa	
49		21									100		Is(50)	48.65 m, Is(50) = 0.09 MPa	

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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CORE LOG SHEET

Client :	Department of State Growth	LOCATION No. BH02	SHEET 13 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510220.0 E, 5415123.0 N GDA2020\	Surface RL : -6.60m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : LH
Date Started : 5 Sep 22		Date Completed : 8 Sep 22	Checked : JRN
		Logged by : Kia.I	Date : 28 Feb 23

DRILLING				MATERIAL						ADDITIONAL DATA				
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
	HQ Coring	25		55.45 (-62.05)		matrix:clast change to 50:50			100			Is(50)	55.2 m, Is(50) = 0.27 MPa	
				55.80 (-62.40)		Colour change to blue/pale grey clasts with mottled brown and pale grey matrix, matrix:clast change to 30:70						Is(50)	55.45 m, Is(50) = 0.08 MPa	
		26		56.20 (-62.80)		Colour change to brown/orange (oxidized), matrix:clast change to 80:20								
				56.70 (-63.30)		Colour change to blue, matrix:clast change to 30:70	L						Is(50)	56.5 m, Is(50) = 0.19 MPa
						Target depth reached. End of hole at 56.7 metres.								

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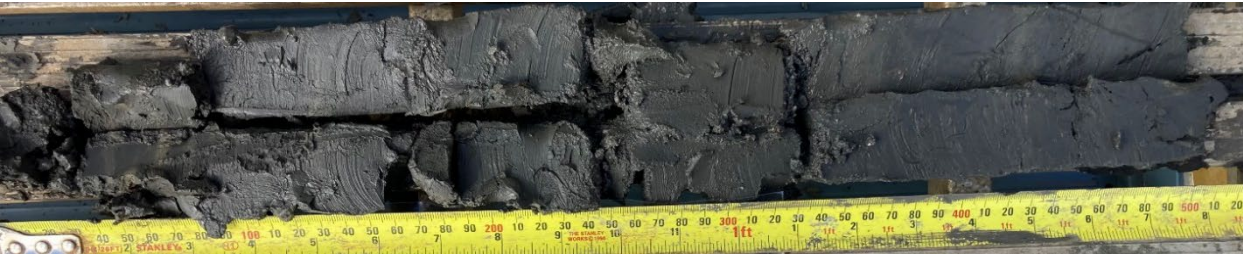
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SPT1 (3.2 - 3.65 m) 0/0/0 N = 0, Recovery=450mm



SPT2 (6.5 - 6.95 m) 0/0/0 N = 0, Recovery=450mm



SPT3 (6.5 - 6.8 m) 9/23/* N = R, Recovery=450mm




SPT4 (8.2 - 8.65 m) 5/7/11 N = 18, Recovery=450mm



SPT5 (16.4 - 16.85 m) 0/0/0 N = R, Recovery=450mm



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Drawn Kia.I	Date 09/19/22	Job Number 12570434	A4	Title Tamar River Crossing Geotechnical Investigations BH02	Client Department of State Growth
					Project Tamar River Crossing Geotechnical Investigations
					Figure No

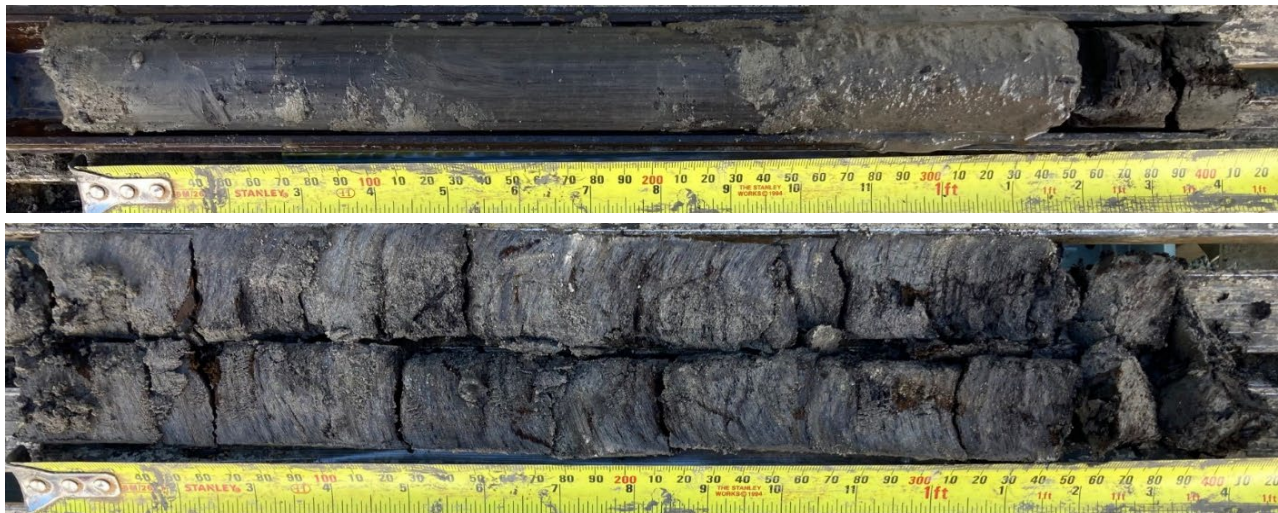
SPT6 (17.9 - 18.35 m) 10/9/18 N = 27, Recovery=450mm




SPT7 (19.4 - 19.7 m) 11/25/* N = R, Recovery=300mm

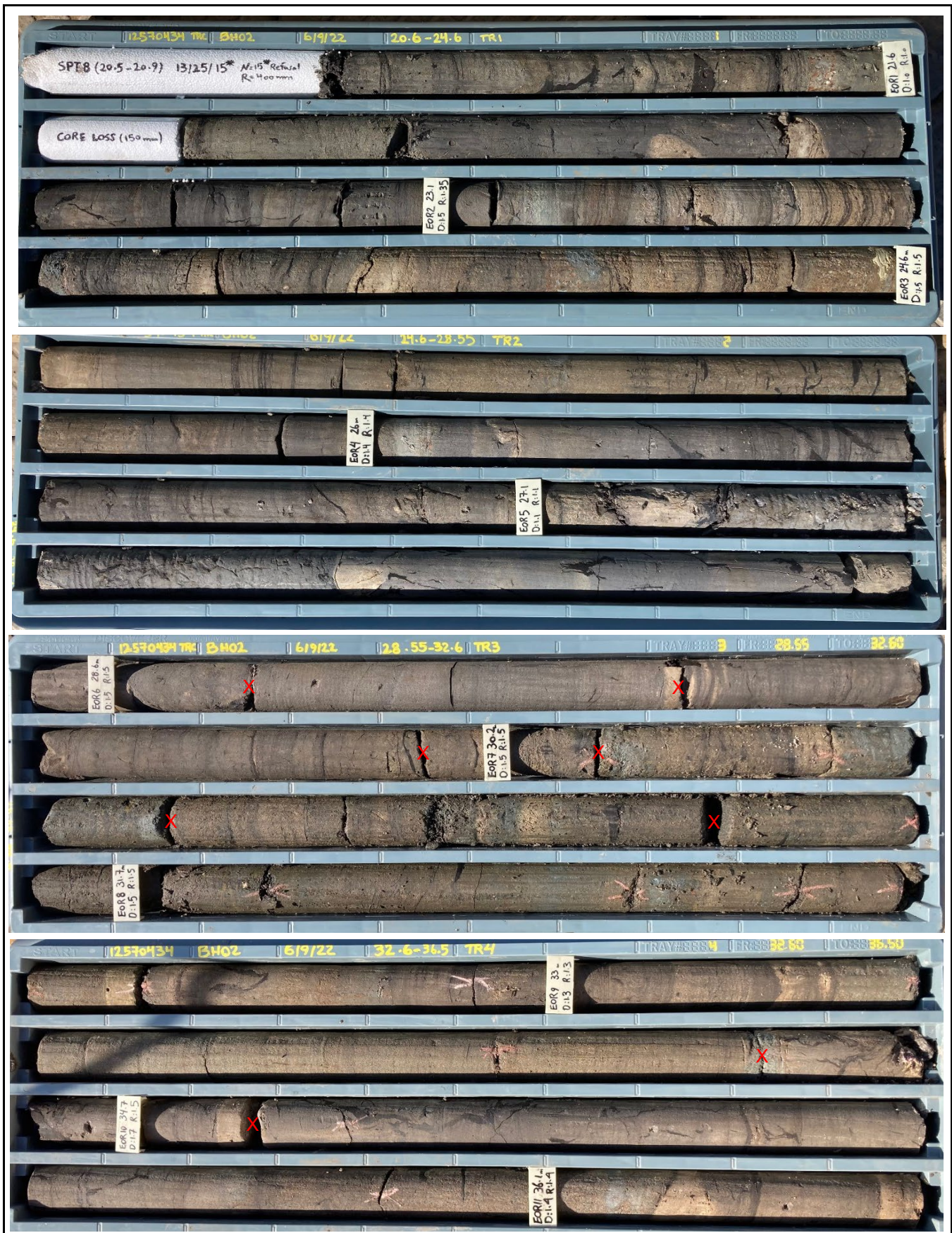


SPT8 (20.5 - 20.9 m) 13/25/15* N = 15*, Recovery=400mm



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Drawn	Date	Job Number	A4	Title Tamar River Crossing Geotechnical Investigations BH02	Client	Department of State Growth
Kia.I	09/19/22	12570434			Project	Tamar River Crossing Geotechnical Investigations
			Figure No			



X indicates drilling/handling break

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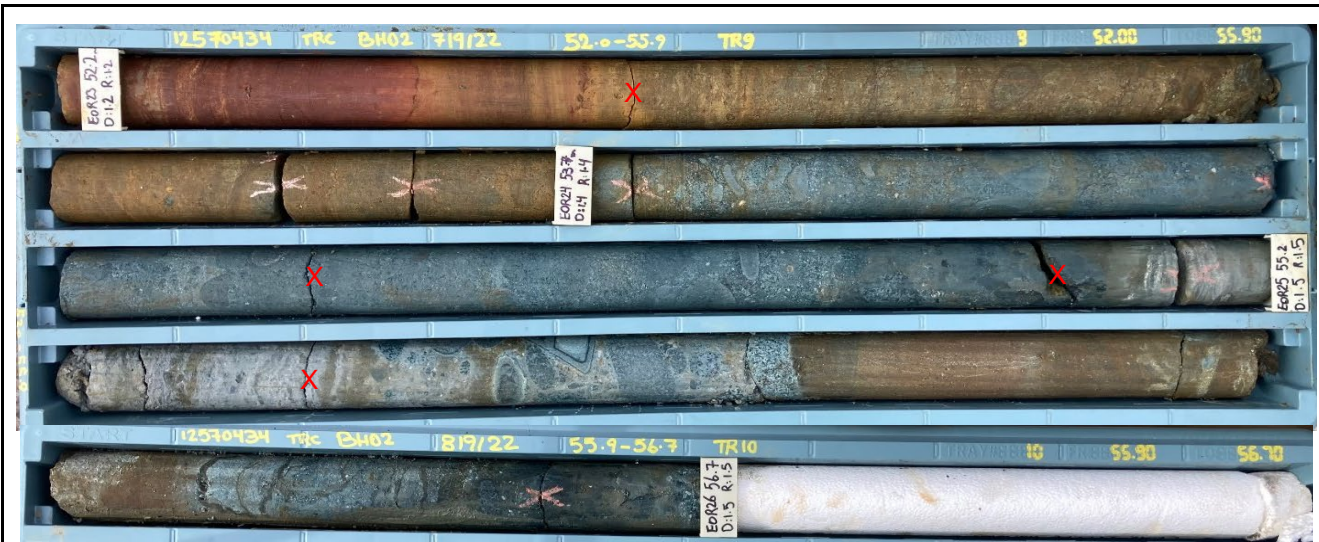
Drawn	Date	Job Number	Title	Client
Kia.I	09/19/22	12570434	Tamar River Crossing Geotechnical Investigations BH02	Department of State Growth
				Project
				Tamar River Crossing Geotechnical Investigations
				Figure No




X indicates drilling/handling break



Drawn	Date	Job Number	Title	Client
Kia.I	09/19/22	12570434	Tamar River Crossing Geotechnical Investigations BH02	Department of State Growth
				A4
				Figure No



X indicates drilling/handling break

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	Client Department of State Growth

Drawn Kia.I	Date 09/19/22	Job Number 12570434	Title A4	Tamar River Crossing Geotechnical Investigations BH02	Project Tamar River Crossing Geotechnical Investigations
					Figure No

SOIL LOG SHEET

Client : Department of State Growth
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations
Location : Tamar River, Launceston

LOCATION No. BH03

SHEET 1 OF 13

Position : 510277.0 E, 5415103.0 N GDA2020 \ **Surface RL :** -8.10m Riverbed AHD **Angle from Horiz. :** 90° **Processed :** LH
Contractor : KMR Drilling **Rig Type :** Hydrapower Trekker 2100 (Rig No. 7) **Checked :** JRN
Date Started : 8 Sep 22 **Date Completed :** 14 Sep 22 **Logged by :** Kia.I **Date :** 28 Feb 23

DRILLING					MATERIAL					ADDITIONAL DATA			
SCALE (m)	Method	Hole Support	Run	Water	Depth/ (RL)metres	Graphic Log	Description Soil Name (USC Symbol) Other Minor Components, Plasticity or Particle Characteristics, Colour, Moisture Condition, Consistency, Structure	Group Symbol	Moisture Condition	Consistency / Relative Density	Samples & Tests	Comments/Observations Insitu test results	SCALE (m)
1							SILT trace sand, high plasticity, grey, w>LL, sand is fine grained (QUATERNARY ALLUVIUM)	MH	W	VS		Rods sinking quickly due to very soft sediments	1
2					2.60 (-10.70)					S	SPT	SPT1 (2.6 - 3.05m) 0/0/0 N=0 (Apparatus penetrated under self-weight only), R=450mm	2
3	Washbore	HW casing											3
4					4.00 (-12.10)					VS - S	U63	U63 (4.0 - 4.45m) R=0	4
5					5.00						PP	PP @ 4.45m = 40-50kPa (UCS)	5

GEO SOIL BOREHOLE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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Job No.
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SOIL LOG SHEET

Client :	Department of State Growth	LOCATION No. BH03	SHEET 2 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510277.0 E, 5415103.0 N GDA2020\	Surface RL : -8.10m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : LH
Date Started :	8 Sep 22	Date Completed : 14 Sep 22	Logged by : Kia.I
			Date : 28 Feb 23

DRILLING					MATERIAL				ADDITIONAL DATA					
SCALE (m)	Method	Hole Support	Run	Water	Depth/ (RL)metres	Graphic Log	Description Soil Name (USC Symbol) Other Minor Components, Plasticity or Particle Characteristics, Colour, Moisture Condition, Consistency, Structure	Group Symbol	Moisture Condition	Consistency / Relative Density	Samples & Tests	Comments/Observations Insitu test results	SCALE (m)	
					(-13.10)									
					5.70 (-13.80)		Silty SAND, trace gravel, fine to medium grained, dark grey, silt is low plasticity, gravel is fine, angular (quartz), trace wood fragments, W > PL, (QUATERNARY ALLUVIUM)	SM	W	VL	SPT	SPT2 (5.7 - 6.15m) 0/0/0 N=0 (Apparatus penetrated under self-weight only), R=450mm		
					7.40 (-15.50)		Sandy CLAY, medium to high plasticity, grey to pale grey, sand is fine to medium grained, trace wood fragments, (QUATERNARY ALLUVIUM)	CH	M	F		SPT	SPT3 (7.3 - 7.75m) 1/3/4 N=7, R=450mm	
					8.50 (-16.60)		Sand proportion increasing					U63	U63 (8.5 - 8.95m) R=450mm	
					9.70 (-17.80)		Clayey SAND, fine to medium grained, grey/pale brown, clay is medium to high plasticity, trace organic fragments, W = PL, (QUATERNARY ALLUVIUM)	SC	M	MD		SPT	SPT4 (9.7 - 10.15m) 7/9/18 N=27, R=450mm	
					10.00									

GEO SOIL BOREHOLE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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SOIL LOG SHEET

Client : Department of State Growth	LOCATION No. BH03
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	SHEET 3 OF 13
Location : Tamar River, Launceston	
Position : 510277.0 E, 5415103.0 N GDA2020\	Surface RL : -8.10m Riverbed AHD Angle from Horiz. : 90°
Contractor : KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)
Date Started : 8 Sep 22	Date Completed : 14 Sep 22 Logged by : Kia.I
	Processed : LH
	Checked : JRN
	Date : 28 Feb 23

DRILLING					MATERIAL					ADDITIONAL DATA			
SCALE (m)	Method	Hole Support	Run	Water	Depth/ (RL)metres	Graphic Log	Description Soil Name (USC Symbol) Other Minor Components, Plasticity or Particle Characteristics, Colour, Moisture Condition, Consistency, Structure	Group Symbol	Moisture Condition	Consistency / Relative Density	Samples & Tests	Comments/Observations Insitu test results	SCALE (m)
	Washbore				(-18.10)	[Graphic Log]							
					10.40	[Graphic Log]							
11													11
12													12
13													13
14													14
15													15

GEO SOIL BOREHOLE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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CORE LOG SHEET

Client : Department of State Growth	LOCATION No. BH03	
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	SHEET 4 OF 13	
Location : Tamar River, Launceston	Position : 510277.0 E, 5415103.0 N GDA2020\	Surface RL : -8.10m Riverbed AHD
	Angle from Horiz. : 90°	Processed : LH
Contractor : KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Checked : JRN
Date Started : 8 Sep 22	Date Completed : 14 Sep 22	Logged by : Kia.I
		Date : 28 Feb 23

DRILLING			MATERIAL						ADDITIONAL DATA			
SCALE (m)	Method Run Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
11	1	10.40 (-18.50) 10.60 (-18.70) 10.70 (-18.80)		GRAVEL, coarse, subrounded to rounded, very dense, pale brown, (TERTIARY SEDIMENTS) SILT with sand, high plasticity, hard, pale grey/brown black banding, silt is high plasticity, organic fragments, W < PL, (TERTIARY SEDIMENTS) Sandy CLAY, medium plasticity, hard, pale grey/brown, sand is fine grained, black banding, organic fragments, W > PL, (TERTIARY SEDIMENTS)						Is(50)	10.6 m, Is(50) = 0.16 MPa	11
12										CS (63.5)	CS (63.5) : (11.17 - 11.35 m)	12
13	2	12.71 (-20.81) 12.96 (-21.07)		CONGLOMERATE, grey/pale blue clasts, variable orientations, 10-50mm, rounded to subrounded, moderate to highly weathered, highly weathered dolerite clasts, brown/grey matrix, fine grained, matrix:clast is 30:70 (TERTIARY SEDIMENTS) Silty SAND, fine grained, very dense, pale grey/brown black banding, silt is high to medium plasticity, organic fragments, W < PL, (TERTIARY SEDIMENTS) (12.97 - 12.98 m): Weakly cemented	HW	H	100			SPT	SPT5 (12.1 - 12.55m) 10/13/33 N=51, R=450mm	13
14	3									SPT	SPT6 (13.6 - 13.9m) 12/23* N=R, R=400mm	14
15	4									Is(50)	14.2 m, Is(50) = 0.06 MPa	15
										PP	PP @ 14.8m > 600kPa (UCS)	

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ_GHD_TEMPLATE_TASMANIA.GDT 28/2/23

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CORE LOG SHEET

Client :	Department of State Growth	LOCATION No. BH03	SHEET 5 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510277.0 E, 5415103.0 N GDA2020\	Surface RL : -8.10m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : LH
Date Started :	8 Sep 22	Date Completed : 14 Sep 22	Logged by : Kia.I
			Date : 28 Feb 23

DRILLING			MATERIAL						ADDITIONAL DATA							
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	20 Core Recovery (%)	80	RQD (%)	Defect Spacing (mm)	20 40 100 300 1000	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
		4		15.15 (-23.25)		(15.15 - 15.17 m): Weakly cemented										
				15.37 (-23.43)		(15.37 - 15.4 m): Weakly cemented										
				15.43 (-23.53)		(15.43 - 15.47 m): Weakly cemented										
16														PP	PP @ 15.8m > 600kPa (UCS)	16
		5														
				16.81 (-24.91)		(16.81 - 16.84 m): Weakly cemented										
17														PP	PP @ 17m > 600kPa (UCS)	17
	HQ Coring			17.40 (-25.50)		(17.4 - 17.45 m): Weakly cemented										
				17.51 (-25.61)		(17.51 - 17.56 m): Weakly cemented								PP	PP @ 17.5m > 600kPa (UCS)	
		6		18.00 (-26.10)		(18 - 18.2 m): Weakly cemented										
				18.20 (-26.30)		(18.2 - 18.5 m): Sand predominantly fine to medium grained										
				18.58 (-26.68)		(18.58 - 18.7 m): Weakly cemented										
18																
		7														
				19.60 (-27.70)		SILT, trace sand, high plasticity, hard, dark brown/grey, organic fragments, sand is fine grained, W<PL, (TERTIARY SEDIMENTS)								PP	PP @ 19.6m > 600kPa (UCS)	
19																
				20.00												
20																

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ_GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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CORE LOG SHEET

Client : Department of State Growth
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations
Location : Tamar River, Launceston

LOCATION No. BH03

SHEET 6 OF 13

Position : 510277.0 E, 5415103.0 N GDA2020 \ **Surface RL :** -8.10m Riverbed AHD **Angle from Horiz. :** 90° **Processed :** LH

Contractor : KMR Drilling **Rig Type :** Hydrapower Trekker 2100 (Rig No. 7) **Checked :** JRN

Date Started : 8 Sep 22 **Date Completed :** 14 Sep 22 **Logged by :** Kia.I **Date :** 28 Feb 23

DRILLING				MATERIAL						ADDITIONAL DATA				
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)		Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
									20	80				
				(-28.10)		Silty SAND, fine to medium grained, organic layering, dense to very dense, dark brown/grey, silt is low plasticity, W<PL, (TERTIARY SEDIMENTS)						PP	PP @ 20.5m > 600kPa (UCS)	
21		8		20.86 (-28.96)		(20.86 - 20.91 m): Weakly cemented						PP	PP @ 21m > 600kPa (UCS)	21
				21.25 (-29.35) 21.35 (-29.45)		(21.25 - 21.35 m): Sand predominantly coarse grained (21.35 - 21.41 m): Colour change to blue/grey						Is(50)	21.2 m, Is(50) = 0.07 MPa	
22		9										PP	PP @ 21.5m > 600kPa (UCS)	
				22.80 (-30.90)		(22.8 - 23.15 m): Weakly cemented						PP	PP @ 22.2m > 600kPa (UCS)	22
23		10										PP	PP @ 23m > 600kPa (UCS)	23
				23.80 (-31.90)		(23.8 - 23.88 m): Sand predominantly coarse grained								
24				24.00 (-32.10)		(24 - 24.3 m): Gravel band, fine to coarse grained, subangular to subrounded, sand predominantly coarse grained								
				24.30 (-32.40) 24.46 (-32.56)		Sandy SILT, high plasticity, hard, dark grey, sand is fine grained, organic fragments, W<PL, (TERTIARY SEDIMENTS) (24.3 - 24.35 m): Weakly cemented (24.46 - 24.57 m): Weakly cemented						PP	PP @ 24.5m > 600kPa (UCS)	
25		11		24.78 (-32.88)		(24.78 - 24.83 m): Weakly cemented								25

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See standard sheets for details of abbreviations & basis of descriptions



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 CONSULTING GEOTECHNICAL ENGINEERS AND GEOLOGISTS

Job No.
12570434

CORE LOG SHEET

Client : Department of State Growth	LOCATION No. BH03	
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	SHEET 7 OF 13	
Location : Tamar River, Launceston	Position : 510277.0 E, 5415103.0 N GDA2020\	Surface RL : -8.10m Riverbed AHD
	Angle from Horiz. : 90°	Processed : LH
Contractor : KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Checked : JRN
Date Started : 8 Sep 22	Date Completed : 14 Sep 22	Logged by : Kia.I
		Date : 28 Feb 23

DRILLING			MATERIAL						ADDITIONAL DATA							
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	20 Core Recovery (%)	80	RQD (%)	Defect Spacing (mm)	20 40 100 300 1000	Samples & Tests	Additional Data Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
		11		25.40 (-33.50)		Sandy SILT, high plasticity, hard, dark grey, sand is fine grained, w<PL, (TERTIARY SEDIMENTS) (24.3 - 24.35 m): weakly cemented								PP	PP @ 25m > 600kPa (UCS)	
26		12												PP	PP @ 25.5m > 600kPa (UCS)	26
														Is(50)	26.5 m, Is(50) = 0.21 MPa	
27															PP @ 27m > 600kPa (UCS)	27
						SAND with silt, fine grained, dense to very dense, pale brown, organic black layering, silt is low to medium plasticity, W<PL, (TERTIARY SEDIMENTS)								PP	PP @ 27.5m > 600kPa (UCS)	
28														PP	PP @ 28m > 600kPa (UCS)	28
														PP	PP @ 29m > 600kPa (UCS)	
29																29
30																30

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ_GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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CORE LOG SHEET

Client :	Department of State Growth	LOCATION No. BH03	SHEET 8 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510277.0 E, 5415103.0 N GDA2020\	Surface RL : -8.10m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : LH
Date Started :	8 Sep 22	Date Completed : 14 Sep 22	Logged by : Kia.I
			Date : 28 Feb 23

DRILLING				MATERIAL							ADDITIONAL DATA			
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	20 Core Recovery (%)	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
				30.06 (-38.16)		(30.06 - 30.1 m): Moderately cemented								
		15		31.70 (-39.80) 31.80 (-39.90)		CONGLOMERATE, grey/pale blue clasts, variable orientations, 10 - 50 mm, rounded to subrounded, moderate to highly weathered dolerite clasts, brown/grey FeO stained matrix, fine grained, matrix:clast is 30:70, (TERTIARY SEDIMENTS) SANDSTONE, medium grained, pale grey/brown, organic layering, (TERTIARY SEDIMENTS)	HW - VL MW - VL HW - VL			100		Is(50)	31.85 m, Is(50) = 0.07 MPa	
		16		32.48 (-40.58)		CARBONACEOUS MUDSTONE/SILTSTONE, dark grey to dark brown, (TERTIARY SEDIMENTS)	HW - VL MW - VL			100				
		17		33.85 (-41.95)		CONGLOMERATE, grey/pale blue clasts, variable orientations, 10 - 50 mm, rounded to subrounded, moderate to highly weathered dolerite clasts, brown/grey matrix, fine grained, matrix:clast is 40:60, (TERTIARY SEDIMENTS) CARBONACEOUS MUDSTONE/SILTSTONE, (TERTIARY SEDIMENTS)	HW - VL - L HW - VL			100				
		18		34.10 (-42.20)		CARBONACEOUS MUDSTONE/SILTSTONE, (TERTIARY SEDIMENTS)	HW - VL			100				
				34.90 (-43.00)		CONGLOMERATE, grey/pale blue clasts, variable	HW - VL - L			100				

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CORE LOG SHEET

Client : Department of State Growth	LOCATION No. BH03	
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations	SHEET 9 OF 13	
Location : Tamar River, Launceston	Position : 510277.0 E, 5415103.0 N GDA2020\	Surface RL : -8.10m Riverbed AHD
	Angle from Horiz. : 90°	Processed : LH
Contractor : KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Checked : JRN
Date Started : 8 Sep 22	Date Completed : 14 Sep 22	Logged by : Kia.I
		Date : 28 Feb 23

DRILLING			MATERIAL							ADDITIONAL DATA				
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	20 Core Recovery (%)	RQD (%)	Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
		18				orientations, 10 - 100 mm, rounded to subrounded, moderate to highly weathered dolerite clasts, matrix is brown/grey, fine grained, matrix:clast is 30:70, (TERTIARY SEDIMENTS)	MW			100				
36				35.90 (-44.00)		CLAY with sand, trace gravel, high plasticity, hard, dark grey to dark brown, fine to medium grained, w>PL, (TERTIARY SEDIMENTS)				0				
		19				SANDSTONE, coarse grained, grey/brown, organic fragments, (TERTIARY SEDIMENTS)	HW	L		100			CS (63.5) CS (63.5): (36.7 - 36.9 m)	
38		20		37.80 (-45.90)		SANDSTONE, coarse grained, grey/brown, organic fragments, (TERTIARY SEDIMENTS)	HW	L		100		Is(50)	38.1 m, Is(50) = 0.11 MPa	
						CONGLOMERATE, grey/pale blue clasts, variable orientations, 10 - 100 mm, rounded to subrounded, moderate to highly weathered dolerite clasts, matrix is brown/grey, fine grained, matrix:clast is 30:70, (TERTIARY SEDIMENTS)	HW - MW	VL - L		100		Is(50)	38.7 m, Is(50) = 0.05 MPa	
39		21		39.15 (-47.25)		CONGLOMERATE, grey/pale blue clasts, variable orientations, 10 - 100 mm, rounded to subrounded, moderate to highly weathered dolerite clasts, matrix is brown/grey, fine grained, matrix:clast is 30:70, (TERTIARY SEDIMENTS)	HW - MW	VL - L		100		Is(50)	39.2 m: Jt, 85°, Pln, Cn, Healed 39.3 m, Is(50) = 0.05 MPa	
40				39.85 (-47.95)		SANDSTONE, medium grained, grey/brown, organic fragments, (TERTIARY SEDIMENTS)	HW - MW	L		100		Is(50)	39.7 m, Is(50) = 0.24 MPa	

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CORE LOG SHEET

Client : Department of State Growth
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations
Location : Tamar River, Launceston

LOCATION No. BH03

SHEET 11 OF 13

Position : 510277.0 E, 5415103.0 N GDA2020\ **Surface RL :** -8.10m Riverbed AHD **Angle from Horiz. :** 90° **Processed :** LH
Contractor : KMR Drilling **Rig Type :** Hydrapower Trekker 2100 (Rig No. 7) **Checked :** JRN
Date Started : 8 Sep 22 **Date Completed :** 14 Sep 22 **Logged by :** Kia.I **Date :** 28 Feb 23

DRILLING				MATERIAL						ADDITIONAL DATA				
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)		Defect Spacing (mm)	Samples & Tests	Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
									20	80				
46		25											45.05 m: Jt, 4°, Rf, Pln	46
47		26										Is(50)	45.7 m, Is(50) = 0.07 MPa	47
48	HQ Coring									100		Is(50)	46.3 m, Is(50) = 0.04 MPa	48
49		27										Is(50)	47.7 m, Is(50) = 0.03 MPa	49
				48.80 (-56.90)		Colour change to orange, oxidized, Matrix-supported, clasts up to 100 mm, rounded				100		Is(50)	48.6 m, Is(50) = 0.05 MPa	
				49.63 (-57.73)		Colour change to dark blue				100		Is(50)	48.9 m, Is(50) = 0.29 MPa	
50		28										Is(50)	49.6 m, Is(50) = 0.38 MPa	50

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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CORE LOG SHEET

Client : Department of State Growth
Project : Tamar River Crossing Centre Alignment Geotechnical Investigations
Location : Tamar River, Launceston

LOCATION No. BH03

SHEET 12 OF 13

Position : 510277.0 E, 5415103.0 N GDA2020 \ **Surface RL :** -8.10m Riverbed AHD **Angle from Horiz. :** 90° **Processed :** LH
Contractor : KMR Drilling **Rig Type :** Hydrapower Trekker 2100 (Rig No. 7) **Checked :** JRN
Date Started : 8 Sep 22 **Date Completed :** 14 Sep 22 **Logged by :** Kia.I **Date :** 28 Feb 23

DRILLING			MATERIAL						ADDITIONAL DATA					
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)		Defect Spacing (mm)	Samples & Tests	Additional Data Joints, partings, seams, zones and veins Fracture type, orientation, infilling or coating, shape, roughness, other Insitu test results	SCALE (m)
									20	80				
51		28		50.30 (-58.40)		Matrix-supported, colour change to orange/red, highly oxidized						Is(50)	50 m, Is(50) = 0.16 MPa	51
52		29				Colour change to blue/pale grey, rounded clasts up to 30 mm						Is(50)	50.75 m, Is(50) = 0.16 MPa	52
53		30				Colour change to blue/pale grey, rounded clasts up to 30 mm						Is(50)	51.25 m, Is(50) = 0.08 MPa	53
54		31				Colour change to blue/pale grey, rounded clasts up to 30 mm						Is(50)	52.1 m, Is(50) = 0.18 MPa	54
55				52.50 (-60.60)		Colour change to blue/pale grey, rounded clasts up to 30 mm						Is(50)	52.4 m, Is(50) = 0.11 MPa	55
						Colour change to blue/pale grey, rounded clasts up to 30 mm						Is(50)	53.1 m, Is(50) = 0.07 MPa	
						Colour change to blue/pale grey, rounded clasts up to 30 mm						Is(50)	53.8 m: Jt, 15°, Rf, Un, Cn	
						Colour change to blue/pale grey, rounded clasts up to 30 mm						Is(50)	54.1 m, Is(50) = 0.15 MPa	
						Colour change to blue/pale grey, rounded clasts up to 30 mm						Is(50)	54.23 m: Jt, 79°, Pln, Cn, Healed	
						Colour change to blue/pale grey, rounded clasts up to 30 mm						Is(50)	54.7 m, Is(50) = 0.11 MPa	

GEO CORE LOG SHEET 12570434 CENTRE ALIGNMENT.GPJ GHD_GEO_TEMPLATE_TASMANIA.GDT 28/2/23

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Job No.
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CORE LOG SHEET

Client :	Department of State Growth	LOCATION No. BH03	SHEET 13 OF 13
Project :	Tamar River Crossing Centre Alignment Geotechnical Investigations		
Location :	Tamar River, Launceston		
Position :	510277.0 E, 5415103.0 N GDA2020\	Surface RL : -8.10m Riverbed AHD	Angle from Horiz. : 90°
Contractor :	KMR Drilling	Rig Type : Hydrapower Trekker 2100 (Rig No. 7)	Processed : LH
Date Started :	8 Sep 22	Date Completed : 14 Sep 22	Checked : JRN
		Logged by : Kia.I	Date : 28 Feb 23

DRILLING				MATERIAL						ADDITIONAL DATA				
SCALE (m)	Method	Run	Water	Depth/ (RL)metres	Graphic Log	Description ROCK TYPE, colour, grain size, structure (texture, mineral composition, hardness, alteration, cementation, etc. as applicable) and SOIL TYPE, colour, structure, minor components (origin)	Weathering	Estimated Strength	Core Recovery (%)	RQD (%)	Defect Spacing (mm)	Samples & Tests	Additional Data	SCALE (m)
	HQ Coring	31			(Pattern: small circles)				100			Is(50)	55.2 m, Is(50) = 0.09 MPa	
		32			(Pattern: small circles)							Is(50)	56.19 m: Jt, 28°, Rf, Pln, Cn 56.4 m, Is(50) = 0.19 MPa	
				56.90 (-65.00)	(Pattern: small circles)	Target depth reached. End of hole at 56.9 metres.						Is(50)	56.8 m, Is(50) = 0.06 MPa 56.81 m: Jt, 20°, Rf, Pln, Cn	

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SPT1 (2.6 - 3.05 m) 0/0/0 N = 0, Recovery=450mm



SPT2 (5.7 - 6.15 m) 0/0/0 N = 0, Recovery=450mm




SPT3 (7.3 - 7.75 m) 1/3/4 N = 7, Recovery=450mm



SPT4 (9.7 - 10.15 m) 7/9/18 N = 27, Recovery=450mm



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	Client Department of State Growth

Drawn Kia.I	Date 09/20/22	Job Number 12570434	Title A4

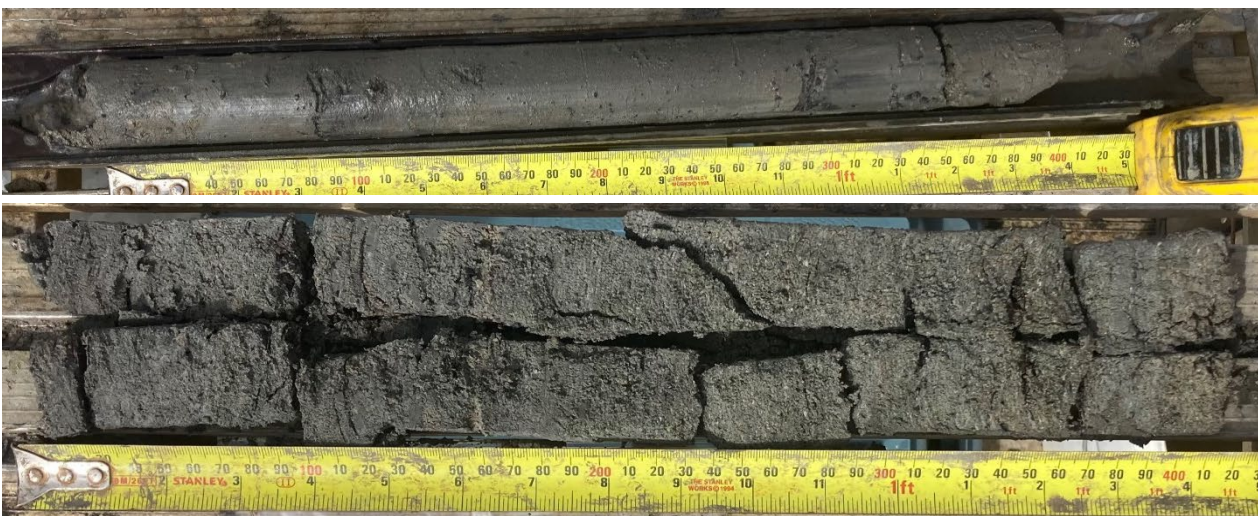
Tamar River Crossing
Geotechnical Investigations
BH03


Project Tamar River Crossing Geotechnical Investigations
Figure No

SPT5 (12.1 - 12.55 m) 10/18/33 N = 51, Recovery=450mm

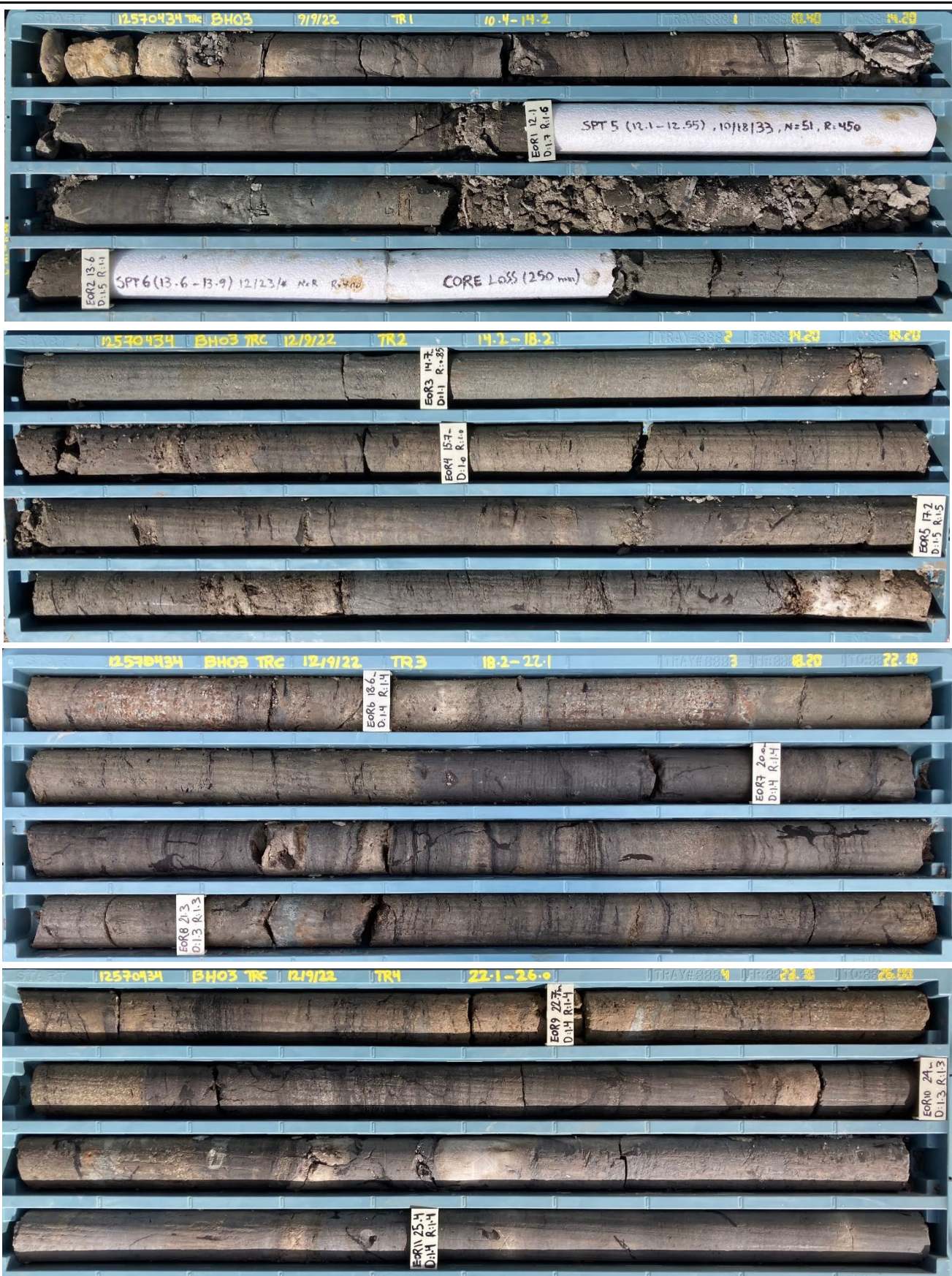


SPT6 (13.6 - 13.9 m) 12/23/* N = R, Recovery=400mm



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Drawn	Date	Job Number	A4	Title Tamar River Crossing Geotechnical Investigations BH03	Client
Kia.I	09/20/22	12570434			Department of State Growth
			Project		Tamar River Crossing Geotechnical Investigations
			Figure No		



Drawn	Date	Job Number	A4	Title	Client
Kia.I	09/20/22	12570434			
			Figure No		



X indicates drilling/handling break



Drawn Kia.I	Date 09/20/22	Job Number 12570434	A4	Title Tamar River Crossing Geotechnical Investigations BH03	Client Department of State Growth
					Project Tamar River Crossing Geotechnical Investigations
					Figure No

