



Borehole log

BH-004

Sheet 1 of 4

Project	Macquarie Point GI	Location	Macquarie Point	Client	MPDC
Coordinates	527464.22mE; 5252389.76mN	Drill type	Sonic	Hole started	13/5/24
Datum	GDA2020	Drill rig	MRS XL Max	Hole finished	14/5/24
RL	3.91mAH	Drill fluid(s)	Water (where indicated)	Drilled by	SWD (G. Bourke)
Inclination	Vertical			Logged by	W. Cromer
Bearing				Checked by	G. Bremner

Method	Penet. resist	Water	Notes	metres	Recovery (%)	Graphic log	USCS	Materials	Moisture condition	Consistency	Structure, geology, interpretation, additional observations	
			Samples and field tests	RLmAH	Depth			Soil type, colour, plasticity or particle characteristics, secondary and minor components		Density index		
Sonic					100		SP	Gravelly silty SAND: black; fine-med. gr	D	L-MD	Fill	
			ASS 0.5 - 0.6m	0.7m	100		SP	AS ABOVE: light yellowish grey				
			ASS 1.0 - 1.1m	1	100		SC	Clayey SAND: grey brown; f-mg; low plast.	M<>PL	F-St		
			ASS 1.5 - 1.6m	1.2m	70		SP	Gravelly SAND: variably light yellow, orange, brown, grey, olive grey; fine-medium; some silt; low plast.; occasional brick clasts to 25mm	D	MD		
			ASS 2.0 - 2.1m	2.1m	100		SC	Clayey SAND: grey brown; low plast	M<>PL	F-St		
			ASS 2.5 - 2.6m	2.1m	70		SP	Gravelly SAND: variably light yellow, orange, brown, grey, olive grey; fine-medium; some silt; with c.10% well graded, angular yellow/orange sandstone clasts to 100mm	D	MD		
			ASS 2.9 - 3.0m	3.0m								
			SPT 3.7m 2.6, 2 N=8 Recovery: 250/450	3.7m	50		GW	Silty sandy GRAVEL: grey brown; sand is fine-med; gravel is well-graded fine to coarse, doleritic; with 50% well-graded subangular to subrounded pebbles and occasional cobbles of MW-HW dolerite	W	MD		
			ASS 4.0 - 4.1m	4.15m								
			ASS 4.5 - 4.6m Harder, less moist interval	4.7m	50		GW	Silty sandy GRAVEL: dark grey to grey	M			
			ASS 5.0 - 5.1m	5.3m								
			ASS 5.5 - 5.6m	5.3m	100		SP	Silty SAND: dark grey to black; occasional angular to subangular dolerite clasts to 50mm	W			
			ASS 6.0 - 6.1m	5.8m	100		SP	Silty SAND: black; fine grained; trace clay; some shells and 10% shell fragments <5mm; mod-rapid dilatancy		L-MD	Estuarine sediments	
			SPT 6.45m 1, 1, 1 N=2 Recovery: 100/450	6.45m								
			ASS 6.5 - 6.6m	7								
		ASS 7.0 - 7.1m	7									
		ASS 7.5 - 7.6m	7.9m									
		SPT 7.9m 1, 2, 1 N=3 Recovery: 200/450	7.9m									
		ASS 8.0 - 8.1m	8									
		ASS 8.5 - 8.6m	9									
		ASS 9.0 - 9.1m	9									
		SPT 9.45m 1, 2, 2 N=4 Recovery: 350/450 Rock blockage at start of run near 9m	9.45m	0								
			10									

Consistency (silt, clay, sandy clay, silty clay) VS = Very soft (<25kPa; exudes in fingers when squeezed); S = Soft (25-50kPa; easily penetrated by fist); F = Firm (50-100kPa; easily penetrated by thumb); St = Stiff (100-200kPa; indented by thumb, penetrated with difficulty); VSt = Very Stiff (200-400kPa; easily penetrated by thumbnail); H = Hard (>400kPa; indented by thumbnail with difficulty); Fb = Friable (crumbles or powders when scraped by thumbnail)
Relative density (sand and gravel) VL = Very loose (ravelling); L = Loose (easy shovelling); MD = Medium dense (hard shovelling); D = Dense (picking); VD = Very dense (hard picking)



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Sheet 2 of 4

Project	Macquarie Point GI	Location	Macquarie Point	Client	MPDC
Coordinates	527464.22mE; 5252389.76mN	Drill type	Sonic	Hole started	13/5/24
Datum	GDA2020	Drill rig	MRS XL Max	Hole finished	14/5/24
RL	3.91mAHD	Drill fluid(s)	Water (where indicated)	Drilled by	SWD (G. Bourke)
Inclination	Vertical	Logged by	W. Cromer	Checked by	G. Bremner
Bearing					

Method	Penet. resist	Water	Notes	metres	Recovery (%)	Graphic log	USCS	Materials	Moisture condition	Consistency Density index	Structure, geology, interpretation, additional observations
			Samples and field tests	RLmAHD	Depth			Soil type, colour, plasticity or particle characteristics, secondary and minor components			
Sonic					10	0					Estuarine sediments
			SPT 10.5m 1, 2, 1 N=3 Recovery: 450/450		10.5m	100	SP	SAND: black; fine-med; some silt; trace fine white shell fragments	W	MD	
			ASS 11.0 - 11.1m		11						
			ASS 11.5 - 11.6m		11.8m	100	GW	GRAVEL and sandy GRAVEL: grey; some silt; with subangular - rounded siltstone, sandstone, dolerite and basalt cobbles to 5cm	M		Colluvial sediments
			Aggressivity 12.5-12.6m		12.4m		GC	Gravelly clayey SAND: khaki; some silt; subangular - rounded mostly dolerite cobbles to 5cm	M<>PL		
			PP (10mm) = 2.7kg/cm² @ 12.7m		13		CL, GC	Sandy gravelly CLAY: some silt; mottled khaki and orange; low-mod plast; occasional well-graded, subrounded to subangular dolerite clasts to 5cm; single 1cm white fossiliferous siltstone fragment @ 14.4m	W		
			PP (10mm) = 2.5kg/cm² @ 13.0m		13.5m	50			M<>PL		
			SPT 12, 20, 12R Recovery: 300/370		14						
			SPT @ 13.5m: double bounce after 12 blows in third interval moved 70mm		14.5m	100	GW	Gravelly clayey SAND: greenish grey; some silt; with c50% well-graded, subrounded to subangular dolerite clasts to 100mm;; some thin gravelly clay lenses	M		
			Atterberg 15.6-15.8m		15m	100	SP	Clayey SAND: olive brown; fine-med grained; some silt	M		
					15.6m	100	CH	Sandy CLAY: olive brown; mod plast.	M>PL to loc.		
					16m	100	GC	Gravelly sandy CLAY: olive brown; some silt; low-mod plasticity; occasional well-graded, subrounded to subangular dolerite clasts to 10cm	W		
					17						
					17.3m	50	GW	Silty sandy GRAVEL: light grey; >75% subrounded-subangular dolerite clasts to 10cm	D		Dolerite bedrock
					18			17.8m: end sonic; start HQ3 coring			
					19						
					20						

Consistency (silt, clay, sandy clay, silty clay) VS = Very soft (<25kPa; exudes in fingers when squeezed); S = Soft (25-50kPa; easily penetrated by fist); F = Firm (50-100kPa; easily penetrated by thumb); St = Stiff (100-200kPa; indented by thumb, penetrated with difficulty); VSt= Very Stiff (200-400kPa; easily penetrated by thumbnail); H = Hard (>400kPa; indented by thumbnail with difficulty); Fb = Friable (crumbles or powders when scraped by thumbnail)
Relative density (sand and gravel) VL = Very loose (ravelling); L = Loose (easy shovelling); MD = Medium dense (hard shovelling); D = Dense (picking); VD = Very dense (hard picking)



Engineering log – Cored borehole

BH-004

Sheet 3 of 4

Incorporating the Unified Rock Classification System (URCS)

Project	Macquarie Point GI	Location	Macquarie Point	Client	MPDC
Coordinates	527464.22mE; 5252389.76mN	Drill type	HQ3 diamond drilling	Hole started	13/5/24
Datum	GDA2020	Equipment	MRS XL Max	Hole finished	14/5/24
RL	3.91mAHD	Drilled by	SWD (G. Bourke)	Logged by	W. Cromer
Inclination	Vertical	Drill fluid(s)	Water	Checked by	G. Bremner
Bearing					

Drilling information				Rock substance				Rock mass defects											
Bit type/size	Case type/size/lift	Fluid/water	Notes Samples, field tests)	Core loss 20% 40% 60% 80%	RQD 20% 40% 60% 80%	metres Depth	Graphic log	Substance description Rock type, Colour, Grain size, Structure (texture, fabric, mineral composition, hardness, alteration, cementation, etc as applicable)					Weathering A B C D E	Est. strength A B C D E	Nature of defects	Defect spacing (mm) 300 3000 1000 3000	Defect description thickness, type, inclination, planarity, roughness, coating	Geol interp	
						17		Sonic drilling to 17.8m											
HQ3						17.8m	X	DOLERITE: grey (olive grey on joint faces); SW, unstained; fine-medium grained ; high strength; variably fractured										Jurassic dolerite	
						18.4m	/												
						19.05m	/												
						19.4m	/												
						19.85m	/												
						19.85 - 20.0m	/												
						20.55m	/												
						21	/												
						22.1m	/												
						23	/												
						23.28m	/												
						23.78 - 23.85m	/												
						24	/												
						24.62 - 24.78m	/												
						25.05m	/												
						26	/												
						26.21m	/												

Drilling T = Triple tube coring B = Blades R = Roller/Tricone A = Auger W = Wash boring DT = Double tube coring HAM = Rotary hammer S = Sonic Case lift Fluid/water Casing used Level/date Partial water loss Water inflow Barrel withdrawn	ROD (Rock Quality Designation Index) The sum of the lengths of 'sound' core pieces >100mm in a drilling run is divided by the total core run length. Expressed as %. Core length measured along centreline. Core drilling breaks not included	Water Inflow Outflow Unit weight (UW, g/cc) A = >2.55 B = 2.40-2.55 C = 2.25-2.40 D = 2.10-2.25 E = <2.10 Strength Hammer impact test Approx. point load strength index Approx. UCS MPa Is(50), MPa A = rebound (RQ) >4 >103 B = pit (PQ) 2-4 55-103 C = dent (DQ) 1-2 21-55 D = crater (CQ) 0.25-1 7-21 E = mouldable, friable (MQ) <0.25 <7 Note: X on log is test result. Otherwise, visually estimated. US = Unconfined Compressive Strength	Samples and Notes R = SPT penetration refusal D = Disturbed sample N = Standard Penetration Test PP = Pocket penetrometer test SV = In-situ Shear Vane test cSV = Shear Vane test on core CS = Core Sample Ux = Undisturbed tube sample (x mm diameter) Nd = SPT and Disturbed Sample Weathering A = Micro fresh state (MFS) B = Visually fresh state (VFS) C = Stained state(STS) D = Partly decomposed state (PDS) E = Completely decomposed state (CDS)	Soil consistency Fine grained soils VS = Very Soft S = Soft F = Firm St = Stiff VSt = Very stiff H = Hard Soil density index Coarse grained soils Fb = Friable VY = Very Loose L = Loose MD = Medium Dense D = Dense VD = Very Dense	Defects Joint Vein Shear zone Crush zone Infill seam EW seam Orientation Dip (degrees) relative to horizontal plane, or to core axis if inclined. SH, SV = subhoriz, subvert Roughness, shape, infill SM = Smooth RF = Rough PR = Planar UN = Undulating PO = Polished SL = Stickensided I = Irregular CU = Curved VU = Vuggy ST = Stepped CN = Clean CT = Coating Ca = Calcite Ch = Chlorite Cl = Clay O = Other



Engineering log – Cored borehole

BH-004

Sheet 4 of 4

Incorporating the Unified Rock Classification System (URCS)

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Coordinates	527464.22mE; 5252389.76mN	Drill type	HQ3 diamond drilling	Hole started	13/5/24
Datum	GDA2020	Equipment	MRS XL Max	Hole finished	14/5/24
RL	3.91mAHD	Drilled by	SWD (G. Bourke)	Logged by	W. Cromer
Inclination	Vertical	Drill fluid(s)	Water	Checked by	G. Bremner
Bearing					


Drilling information				Rock substance				Rock mass defects											
Bit type/size	Case type/size/lift	Fluid /water	Notes Samples, field tests)	Core loss 20% 40% 80%	RQD 20% 40% 60% 80%	metres RLmAHD Depth	Graphic log	Substance description Rock type, Colour, Grain size, Structure (texture, fabric, mineral composition, hardness, alteration, cementation, etc as applicable)	Weathering					Nature of defects	Defect spacing (mm)	Defect description thickness, type, inclination, planarity, roughness, coating	Geol interp		
									A	B	C	D	E					A	B
			26.21	0	40	26		DOLERITE: AS ABOVE						AS ABOVE	300 400 500 1000 3000	— SV, RF, I — SH, RF, I, Ca — SV, RF, I, Ca — 30°, RF, I, Ca — SV, RF, I, Ca	AS ABOVE	Jurassic dolerite	
			26.5 - 26.75m PLT(dia) = >20kN	0	70	27													
						28		EOH 27.6mbg											

Drilling T = Triple tube coring B = Blades R = Roller/Tricone A = Auger W = Wash boring DT = Double tube coring HAM = Rotary hammer S = Sonic Case lift Fluid/water 	RQD (Rock Quality Designation Index) The sum of the lengths of "sound" core pieces >100mm in a drilling run is divided by the total core run length. Expressed as %. Core length measured along centreline. Core drilling breaks not included.	Water	Samples and Notes R = SPT penetration refusal D = Disturbed sample N = Standard Penetration Test PP = Pocket penetrometer test SV = In-situ Shear Vane test cSV = Shear Vane test on core CS = Core Sample Ux = Undisturbed tube sample (x mm diameter) Nd = SPT and Disturbed Sample	Soil consistency Fine grained soils VS = Very Soft S = Soft F = Firm St = Stiff VSt = Very stiff H = Hard	Defects Joint Shear zone Infill seam Vein Crush zone EW seam
		Unit weight (UW, g/cc) A = >2.55 B = 2.40-2.55 C = 2.25-2.40 D = 2.10-2.25 E = <2.10			

Core loss
 Core loss (interval known)
 Core loss (interval unknown). Loss is shown in Graphic log column at top of run.




PointID: BH-004 Depth Range: 0.0 – 2.0 m

	TITLE	
	MPDC Macquarie Point Macquarie Point GI Core Photo – BH-004	
	DRAWN	DATE
	WCC	28/5/24
CHECKED	DATE	
SCALE	Not to Scale	A4
PROJECT No.	FIGURE No.	
PS212776	1/13	



PointID: BH-004 Depth Range: 2.0 – 3.7 m

	TITLE	DRAWN WCC		DATE 28/5/24
	MPDC Macquarie Point Macquarie Point GI Core Photo – BH-004	CHECKED	DATE	
		SCALE	Not to Scale	A4
		PROJECT No. PS212776	FIGURE No. 2/13	



PointID: BH-004 Depth Range: 3.7 – 5.0 m




TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN WCC	DATE 28/5/24
CHECKED	DATE
SCALE Not to Scale	A4
PROJECT No. PS212776	FIGURE No. 3/13



PointID: BH-004 Depth Range: 5.0 – 6.3 m

	TITLE	DRAWN	DATE
	<p>MPDC Macquarie Point Macquarie Point GI Core Photo – BH-004</p>	WCC	28/5/24
		CHECKED	DATE
		SCALE	Not to Scale
	PROJECT No. PS212776	FIGURE No. 4/13	



PointID: BH-004 Depth Range: 6.3 – 8.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN WCC	DATE 28/5/24
CHECKED	DATE
SCALE Not to Scale	A4
PROJECT No. PS212776	FIGURE No. 5/13



PointID: BH-004 Depth Range: 8.0 – 10.0 m



TITLE

MPDC
 Macquarie Point
 Macquarie Point GI
 Core Photo – BH-004

DRAWN	WCC	DATE	28/5/24
CHECKED		DATE	
SCALE	Not to Scale		A4
PROJECT No.	PS212776	FIGURE No.	6/13



PointID: BH-004 Depth Range: 0.0 – 2.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

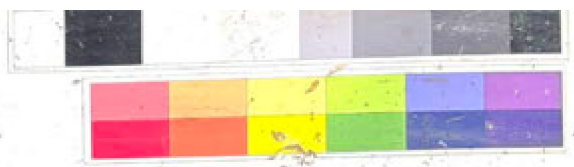
FIGURE No.

7/13

MAC POINT Macquarie Point Geotechnical Investigation

WILLIAM C CROMER P/L


BH ID: BH004
 Depth: 12.0 - 14.0 m
 Core Tray No.:
 Date: 13/5/2024



X Chalk marks denotes handling breaks



PointID: BH-004 Depth Range: 12.0 – 14.0 m

	TITLE	DRAWN	DATE
	MPDC Macquarie Point Macquarie Point GI Core Photo – BH-004	WCC	28/5/24
		CHECKED	DATE
		SCALE	A4
		Not to Scale	
		PROJECT No. PS212776	FIGURE No. 8/13

MAC POINT Macquarie Point Geotechnical Investigation

WILLIAM C GROMER P/L


BH ID: BH004
 Depth: 14.0-15.8m
 Core Tray No.:
 Date: 13/5/2024



X Chalk marks denotes handling breaks



PointID: BH-004 Depth Range: 14.0 – 15.8 m

	TITLE	DRAWN	DATE	
	MPDC Macquarie Point Macquarie Point GI Core Photo – BH-004	WCC	28/5/24	
		CHECKED	DATE	
		SCALE	Not to Scale	A4
	PROJECT No.	PS212776	FIGURE No.	9/13

MAC POINT Macquarie Point Geotechnical Investigation

ILLUMIN & GROMER P/L


BH ID: BH004
 Depth: 15.8 - 17.8m
 Core Tray No.:
 Date: 13/5/2024



X Chalk marks denotes handling breaks



PointID: BH-004 Depth Range: 15.8 – 17.8 m

	TITLE	
	MPDC Macquarie Point Macquarie Point GI Core Photo – BH-004	
	DRAWN WCC	DATE 28/5/24
	CHECKED	DATE
SCALE Not to Scale		A4
PROJECT No. PS212776	FIGURE No. 10/13	

MAC POINT

Macquarie Point Geotechnical Investigation

WILLIAM C. CROMER P/L

BH ID: BH-004
Depth: 17.7 - 21m
Core Tray No.: 01
Date: 14/05/24



X Chalk marks denotes handling breaks



PS212776 BORE BH-004 Box 01 17.8 - 21m 14/05/24

PS212776 BH004 START CORING 17.70m



PointID: BH-004 Depth Range: 17.7 – 21.0 m



TITLE

MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN

WCC

DATE

28/5/24

CHECKED

DATE

SCALE

Not to Scale

A4

PROJECT No.

PS212776

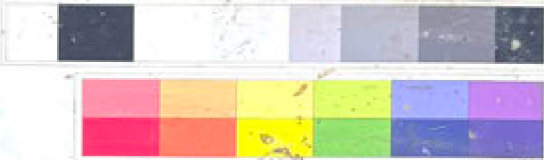
FIGURE No.

11/13

M MAC
P. POINT Macquarie Point
Geotechnical Investigation

WILLIAM C. CROMER P/L

BH ID: BH-004
Depth: 21-25m
Core Tray No.: 02
Date: 14/05/24



X Chalk marks denotes handling breaks



PointID: BH-004 Depth Range: 21.0 – 25.0 m



TITLE
MPDC
Macquarie Point
Macquarie Point GI
Core Photo – BH-004

DRAWN WCC	DATE 28/5/24
CHECKED	DATE
SCALE Not to Scale	A4
PROJECT No. PS212776	FIGURE No. 12/13

MAC POINT Macquarie Point Geotechnical Investigation

WILLIAM C. CROMER P/L

BH ID: BH-004
 Depth: 25-27.6m EOH
 Core Tray No.: 03
 Date: 14/05/24



X Chalk marks denotes handling breaks



PS212776 BORE RH-004 BOX 03 25-27.6m EOH 14/05/24

PointID: BH-004 Depth Range: 25.0 – 27.6 m EOH



TITLE
 MPDC
 Macquarie Point
 Macquarie Point GI
 Core Photo – BH-004

DRAWN	WCC	DATE	28/5/24
CHECKED		DATE	
SCALE	Not to Scale		A4
PROJECT No.	PS212776	FIGURE No.	13/13