ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2027104**	Page	: 1 of 21
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 16-Oct-2020 09:10
Order number	: ----	Date Analysis Commenced	: 16-Oct-2020
C-O-C number	: ----	Issue Date	: 27-Oct-2020 15:27
Sampler	: TIM ALEXANDER		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 9		
No. of samples analysed	: 9		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Diana Mesa	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP090-Organotin: Sample 'SED15 61-114' shows poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- EP080 (TRH Volatiles/BTEX): The LOR for samples 'SED15 0-61' and 'SED10 0-50' have been raised due to matrix interference (high moisture content).
- EP090 Organotin: The LOR for TBT on sample 'SED10 0-50' has been raised due to high moisture content.
- EP071-SD - TPH - Semivolatile Fraction: Sample "SED15 0-61" shows poor duplicate results due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- EG048G (Hexavalent Chromium by Alkaline Digestion): Some samples were diluted due to matrix interference. LOR adjusted accordingly.
- EA150H: Soil particle density results fell outside the scope of AS1289.3.6.3. Results should be scrutinised accordingly.
- EP202: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EP202: LORs for some samples raised due to high sample moisture content.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP080-SD: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP131A: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP132B-SD,EP131A+B : Particular samples raised LOR due to high amount of moistures is present.
- EP066: Particular samples EM2027104 have LOR raised due to the high moisture content.
- EP130: LOR for sample raised due to the high amount of moisture present.
- **Specialty Organics analysis is conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913). The estimated date for this data is 23/10/2020.**
- ASS: EA033 (CRS Suite):Retained Acidity not required because pH KCl greater than or equal to 4.5
- EP131B : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EG035T (Total Mercury): Sample SED15 61-114 (EB2027104-002) shows poor matrix spike recovery due to sample heterogeneity. Confirmed by visual inspection.
- EP075(SIM)-PAH/Phenols: LOR values for sample 'SED10 0-50' have been raised due to high moisture content.
- EK057G (Nitrite as N) / EK059G (Nitrite and Nitrate as N) : Sample EB2027104_006 (SED10 0-50) LOR rasied due to high moisture content.

- EG035T-LL (Total Mercury Low Level): Sample SED15 0-61(EB2027104-001) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- EG020-SDH (1M HCl Extractable Metals by ICP-MS): Sample SED15 0-61(EB2027104-001) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- ASS: EA033 (CRS Suite): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.
- EG093: Samples containing high levels of sulfate may precipitate barium under the acidic conditions of this method and may therefore bias results low.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED15 0-61	SED15 61-114	SED15 114-152	SED18 0-44	SED18 44-99
			Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44
Compound	CAS Number	LOR	Unit	EB2027104-001	EB2027104-002	EB2027104-003	EB2027104-004	EB2027104-005
				Result	Result	Result	Result	Result
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	6.4	7.6	8.6	7.1	6.9
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	1.62	0.299	0.271	1.09	1.59
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	1010	186	169	681	992
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	0.72	1.12	1.99	2.18
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	143	224	397	435
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	0.23	0.36	0.64	0.70
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	1.62	0.14	0.03	0.67	1.12
Net Acidity (acidity units)	----	10	mole H+ / t	1010	91	20	416	702
Liming Rate	----	1	kg CaCO3/t	76	7	1	31	53
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	1.62	0.30	0.27	1.09	1.59
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	1010	186	169	681	992
Liming Rate excluding ANC	----	1	kg CaCO3/t	76	14	13	51	74
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	76.8	24.6	63.5	69.8	40.5
EA150: Particle Sizing								
+75µm	----	1	%	84	90	92	72	36
+150µm	----	1	%	69	44	77	53	28
+300µm	----	1	%	10	5	10	32	25
+425µm	----	1	%	8	3	2	27	25
+600µm	----	1	%	8	2	1	24	24
+1180µm	----	1	%	7	<1	<1	18	24
+2.36mm	----	1	%	5	<1	<1	13	22
+4.75mm	----	1	%	4	<1	<1	6	14
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1

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				Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44
Compound	CAS Number	LOR	Unit		EB2027104-001	EB2027104-002	EB2027104-003	EB2027104-004	EB2027104-005
					Result	Result	Result	Result	Result
EA150: Particle Sizing - Continued									
+37.5mm	----	1	%		<1	<1	<1	<1	<1
+75.0mm	----	1	%		<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		6	3	2	12	14
Silt (2-60 µm)	----	1	%		10	6	5	14	48
Sand (0.06-2.00 mm)	----	1	%		78	91	93	59	15
Gravel (>2mm)	----	1	%		6	<1	<1	15	23
Cobbles (>6cm)	----	1	%		<1	<1	<1	<1	<1
EA152: Soil Particle Density									
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3		2.59	2.57	2.64	2.11	2.14
EG020-SD: Total Metals in Sediments by ICPMS									
Antimony	7440-36-0	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg		11.4	<1.00	6.25	6.01	2.32
Cadmium	7440-43-9	0.1	mg/kg		0.6	<0.1	0.1	0.2	<0.1
Chromium	7440-47-3	1.0	mg/kg		47.2	4.7	30.7	27.4	9.5
Copper	7440-50-8	1.0	mg/kg		30.8	2.4	19.0	18.3	5.8
Cobalt	7440-48-4	0.5	mg/kg		19.9	2.7	14.7	13.5	4.8
Lead	7439-92-1	1.0	mg/kg		29.4	1.4	7.4	8.8	4.5
Manganese	7439-96-5	10	mg/kg		178	25	207	150	62
Nickel	7440-02-0	1.0	mg/kg		28.2	3.7	18.6	17.1	6.7
Selenium	7782-49-2	0.1	mg/kg		1.3	<0.1	0.8	0.8	0.2
Silver	7440-22-4	0.1	mg/kg		0.2	<0.1	<0.1	<0.1	<0.1
Zinc	7440-66-6	1.0	mg/kg		113	11.6	48.6	48.8	24.2
EG020-SDH: 1M HCl Extractable metals by ICPMS									
Arsenic	7440-38-2	1.0	mg/kg		2.0	<1.0	1.7	1.7	<1.0
Cadmium	7440-43-9	0.10	mg/kg		0.36	<0.10	0.16	0.18	<0.10
Chromium	7440-47-3	1.0	mg/kg		3.7	<1.0	2.7	2.2	1.0
Lead	7439-92-1	1.0	mg/kg		16.4	<1.0	5.0	6.2	1.8
Nickel	7440-02-0	1.0	mg/kg		5.5	<1.0	5.5	4.7	1.7
Zinc	7440-66-6	1.0	mg/kg		62.2	3.9	29.1	31.2	11.6
Antimony	7440-36-0	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Silver	7440-22-4	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	<1.0
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		15.7	5.3	12.0	13.9	6.8

Analytical Results

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Compound	CAS Number	LOR	Unit		EB2027104-001	EB2027104-002	EB2027104-003	EB2027104-004	EB2027104-005
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS - Continued									
Beryllium	7440-41-7	0.1	mg/kg		**0.8**	<0.1	**0.6**	**0.6**	**0.2**
Boron	7440-42-8	5	mg/kg		**53**	<5	**62**	**59**	**16**
Molybdenum	7439-98-7	0.1	mg/kg		**6.9**	**0.2**	**2.8**	**3.2**	**0.9**
Tin	7440-31-5	0.1	mg/kg		**0.8**	**0.1**	**0.5**	**0.6**	**0.2**
EG035-SDH: 1M HCl extractable Mercury by FIMS									
Mercury	7439-97-6	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		**0.26**	<0.01	**0.04**	**0.06**	**0.03**
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<10.0	<0.5	<8.0	<8.0	<4.0
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		**80**	**50**	**80**	**140**	**100**
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		**100**	<20	**300**	**380**	**110**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		**5560**	**180**	**3320**	**4900**	**990**
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		**5560**	**180**	**3320**	**4900**	**990**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		**422**	**81**	**424**	**480**	**187**
EP003: Total Organic Carbon (TOC) in Soil									
Total Organic Carbon	----	0.02	%		**9.35**	**0.67**	**0.63**	**7.22**	**6.92**
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.05	mg/kg		<0.20	<0.05	<0.10	<0.10	<0.05
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.20	<0.05	<0.10	<0.10	<0.05
Simazine	122-34-9	0.05	mg/kg		<0.20	<0.05	<0.10	<0.10	<0.05

Analytical Results

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Compound	CAS Number	LOR	Unit		EB2027104-001	EB2027104-002	EB2027104-003	EB2027104-004	EB2027104-005
					Result	Result	Result	Result	Result
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		<0.20	<0.05	<0.10	<0.10	<0.05
EP069: Toxaphene									
Toxaphene	8001-35-2	2	mg/kg		<2	<2	<2	<2	<2
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	3	mg/kg		**14**	<3	**6**	**12**	**11**
>C16 - C34 Fraction	----	3	mg/kg		**38**	<3	**27**	**45**	**41**
>C34 - C40 Fraction	----	5	mg/kg		**15**	<5	**8**	**12**	**12**
>C10 - C40 Fraction (sum)	----	3	mg/kg		**67**	<3	**41**	**69**	**64**
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg		**14**	<3	**6**	**12**	**11**
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	3	mg/kg		<3	<3	<3	<3	<3
C10 - C14 Fraction	----	3	mg/kg		**10**	<3	**4**	**8**	**7**
C15 - C28 Fraction	----	3	mg/kg		**29**	<3	**17**	**30**	**26**
C29 - C36 Fraction	----	5	mg/kg		**21**	<5	**16**	**27**	**25**
^ C10 - C36 Fraction (sum)	----	3	mg/kg		**60**	<3	**37**	**65**	**58**
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons									
C6 - C10 Fraction	C6_C10	3	mg/kg		<3	<3	<3	<3	<3
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg		<3.0	<3.0	<3.0	<3.0	<3.0
EP080-SD: BTEXN									

Analytical Results

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Compound	CAS Number	LOR	Unit	EB2027104-001	EB2027104-002	EB2027104-003	EB2027104-004	EB2027104-005
				Result	Result	Result	Result	Result
EP080-SD: BTEXN - Continued								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.3	<0.2	<0.2	<0.2	<0.2
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	**17.4**	<0.5	<0.5	<0.5	<0.5
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	<16	<10	<12	<12	<10
Carbophenothion	786-19-6	10	µg/kg	<16	<10	<12	<12	<10
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<16.0	<10.0	<12.0	<12.0	<10.0
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<16	<10	<12	<12	<10
Chlorpyrifos	2921-88-2	10	µg/kg	<16	<10	<12	<12	<10
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<16	<10	<12	<12	<10
Demeton-S-methyl	919-86-8	10	µg/kg	<16	<10	<12	<12	<10
Diazinon	333-41-5	10	µg/kg	<16	<10	<12	<12	<10
Dichlorvos	62-73-7	10	µg/kg	<16	<10	<12	<12	<10
Dimethoate	60-51-5	10	µg/kg	<16	<10	<12	<12	<10
Ethion	563-12-2	10	µg/kg	<16	<10	<12	<12	<10
Fenamiphos	22224-92-6	10	µg/kg	<16	<10	<12	<12	<10
Fenthion	55-38-9	10	µg/kg	<16	<10	<12	<12	<10
Malathion	121-75-5	10	µg/kg	<16	<10	<12	<12	<10
Azinphos Methyl	86-50-0	10	µg/kg	<16	<10	<12	<12	<10
Monocrotophos	6923-22-4	10	µg/kg	<16	<10	<12	<12	<10
Parathion	56-38-2	10	µg/kg	<16	<10	<12	<12	<10
Parathion-methyl	298-00-0	10	µg/kg	<16	<10	<12	<12	<10
Pirimphos-ethyl	23505-41-1	10	µg/kg	<16	<10	<12	<12	<10
Prothiofos	34643-46-4	10	µg/kg	<16	<10	<12	<12	<10
EP131A: Organochlorine Pesticides								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED15 0-61	SED15 61-114	SED15 114-152	SED18 0-44	SED18 44-99
			Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44
Compound	CAS Number	LOR	Unit	EB2027104-001	EB2027104-002	EB2027104-003	EB2027104-004	EB2027104-005
				Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued								
Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
4.4`-DDD	72-54-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
4.4`-DDE	72-55-9	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
4.4`-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
^ Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Oxychlordane	27304-13-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
EP131B: Polychlorinated Biphenyls (as Aroclors)								
^ Total Polychlorinated biphenyls	----	5.0	µg/kg	<39.1	<15.6	<31.2	<31.2	<15.6
Aroclor 1016	12674-11-2	5.0	µg/kg	<39.1	<15.6	<31.2	<31.2	<15.6
Aroclor 1221	11104-28-2	5.0	µg/kg	<39.1	<15.6	<31.2	<31.2	<15.6
Aroclor 1232	11141-16-5	5.0	µg/kg	<39.1	<15.6	<31.2	<31.2	<15.6
Aroclor 1242	53469-21-9	5.0	µg/kg	<39.1	<15.6	<31.2	<31.2	<15.6
Aroclor 1248	12672-29-6	5.0	µg/kg	<39.1	<15.6	<31.2	<31.2	<15.6
Aroclor 1254	11097-69-1	5.0	µg/kg	<39.1	<15.6	<31.2	<31.2	<15.6
Aroclor 1260	11096-82-5	5.0	µg/kg	<39.1	<15.6	<31.2	<31.2	<15.6

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED15 0-61	SED15 61-114	SED15 114-152	SED18 0-44	SED18 44-99
				Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44
Compound	CAS Number	LOR	Unit		EB2027104-001	EB2027104-002	EB2027104-003	EB2027104-004	EB2027104-005
					Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	5	µg/kg		9	<5	7	<5	<5
2-Methylnaphthalene	91-57-6	5	µg/kg		<6	<5	6	6	<5
Acenaphthylene	208-96-8	4	µg/kg		15	<4	<5	<5	<4
Acenaphthene	83-32-9	4	µg/kg		<6	<4	<5	<5	<4
Fluorene	86-73-7	4	µg/kg		14	<4	<5	<5	<4
Phenanthrene	85-01-8	4	µg/kg		71	<4	<5	<5	<4
Anthracene	120-12-7	4	µg/kg		24	<4	<5	<5	<4
Fluoranthene	206-44-0	4	µg/kg		100	<4	<5	<5	<4
Pyrene	129-00-0	4	µg/kg		94	<4	<5	5	<4
Benz(a)anthracene	56-55-3	4	µg/kg		56	<4	<5	<5	<4
Chrysene	218-01-9	4	µg/kg		42	<4	<5	<5	<4
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg		48	<4	<5	<5	<4
Benzo(k)fluoranthene	207-08-9	4	µg/kg		26	<4	<5	10	5
Benzo(e)pyrene	192-97-2	4	µg/kg		24	<4	<5	<5	<4
Benzo(a)pyrene	50-32-8	4	µg/kg		48	<4	<5	<5	<4
Perylene	198-55-0	4	µg/kg		580	57	2400	2730	1430
Benzo(g.h.i)perylene	191-24-2	4	µg/kg		25	<4	<5	<5	<4
Dibenz(a.h)anthracene	53-70-3	4	µg/kg		7	<4	<5	<5	<4
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg		22	<4	<5	<5	<4
Coronene	191-07-1	5	µg/kg		<6	<5	<5	<5	<5
^ Sum of PAHs	----	4	µg/kg		1200	57	2410	2750	1440
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
2.4-DB	94-82-6	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
Dicamba	1918-00-9	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
Mecoprop	93-65-2	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
MCPA	94-74-6	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
2.4-DP	120-36-5	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
2.4-D	94-75-7	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
Triclopyr	55335-06-3	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
2.4.5-T	93-76-5	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
MCPB	94-81-5	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
Picloram	1918-02-1	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
Clopyralid	1702-17-6	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED15 0-61	SED15 61-114	SED15 114-152	SED18 0-44	SED18 44-99
				Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44
Compound	CAS Number	LOR	Unit		EB2027104-001	EB2027104-002	EB2027104-003	EB2027104-004	EB2027104-005
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.10	<0.04	<0.08	<0.08	<0.04
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		98.5	99.4	97.4	110	108
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		97.1	97.0	97.5	106	105
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		75.5	94.9	92.2	99.0	104
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		91.3	87.5	88.2	89.4	84.8
2-Chlorophenol-D4	93951-73-6	0.5	%		93.2	89.3	89.2	90.7	86.2
2.4.6-Tribromophenol	118-79-6	0.5	%		84.5	82.0	85.9	86.8	82.3
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		107	104	104	105	102
Anthracene-d10	1719-06-8	0.5	%		85.0	78.6	85.5	84.0	84.7
4-Terphenyl-d14	1718-51-0	0.5	%		104	99.5	101	101	97.2
EP080-SD: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		60.6	73.2	80.7	72.5	77.1
Toluene-D8	2037-26-5	0.2	%		59.4	70.7	78.6	66.6	75.7
4-Bromofluorobenzene	460-00-4	0.2	%		69.3	85.4	89.4	75.8	87.9
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		88.8	117	98.7	77.5	93.4
EP130S: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	10	%		56.7	75.9	82.7	80.2	62.7
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.50	%		51.4	60.0	46.6	59.9	45.2
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.5	%		99.4	87.5	112	96.6	56.2
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		82.9	98.4	96.5	93.4	75.4
Anthracene-d10	1719-06-8	10	%		84.8	96.8	93.8	96.6	82.9
4-Terphenyl-d14	1718-51-0	10	%		97.6	108	119	121	103
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		54.4	58.0	51.4	59.6	48.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED10 0-50	SED10 50-83	SED10 83-127	----	----
			Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	----	----
Compound	CAS Number	LOR	Unit	EB2027104-006	EB2027104-007	EB2027104-008	--------	--------
				Result	Result	Result	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	6.6	7.0	7.3	----	----
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	----	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	2.34	2.66	0.451	----	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	1460	1660	281	----	----
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	2.55	2.77	0.71	----	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	509	554	142	----	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	0.82	0.89	0.23	----	----
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	----	----
Net Acidity (sulfur units)	----	0.02	% S	1.80	2.07	0.30	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	1120	1290	186	----	----
Liming Rate	----	1	kg CaCO3/t	84	97	14	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	2.34	2.66	0.45	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	1460	1660	281	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	109	124	21	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	82.1	69.8	32.3	----	----
EA150: Particle Sizing								
+75µm	----	1	%	52	52	92	----	----
+150µm	----	1	%	50	37	52	----	----
+300µm	----	1	%	49	18	5	----	----
+425µm	----	1	%	48	17	2	----	----
+600µm	----	1	%	48	17	1	----	----
+1180µm	----	1	%	46	16	<1	----	----
+2.36mm	----	1	%	40	15	<1	----	----
+4.75mm	----	1	%	23	11	<1	----	----
+9.5mm	----	1	%	<1	<1	<1	----	----
+19.0mm	----	1	%	<1	<1	<1	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED10 0-50	SED10 50-83	SED10 83-127	----	----
				Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	----	----
Compound	CAS Number	LOR	Unit		EB2027104-006	EB2027104-007	EB2027104-008	--------	--------
					Result	Result	Result	----	----
EA150: Particle Sizing - Continued									
+37.5mm	----	1	%		<1	<1	<1	----	----
+75.0mm	----	1	%		<1	<1	<1	----	----
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		12	22	5	----	----
Silt (2-60 µm)	----	1	%		33	24	3	----	----
Sand (0.06-2.00 mm)	----	1	%		13	39	92	----	----
Gravel (>2mm)	----	1	%		42	15	<1	----	----
Cobbles (>6cm)	----	1	%		<1	<1	<1	----	----
EA152: Soil Particle Density									
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3		2.19	2.47	2.68	----	----
EG020-SD: Total Metals in Sediments by ICPMS									
Antimony	7440-36-0	0.50	mg/kg		<0.50	<0.50	<0.50	----	----
Arsenic	7440-38-2	1.00	mg/kg		13.7	8.37	2.05	----	----
Cadmium	7440-43-9	0.1	mg/kg		1.7	0.4	<0.1	----	----
Chromium	7440-47-3	1.0	mg/kg		37.9	25.5	8.7	----	----
Copper	7440-50-8	1.0	mg/kg		39.8	18.6	4.7	----	----
Cobalt	7440-48-4	0.5	mg/kg		21.3	13.7	4.0	----	----
Lead	7439-92-1	1.0	mg/kg		83.4	17.6	2.6	----	----
Manganese	7439-96-5	10	mg/kg		264	223	55	----	----
Nickel	7440-02-0	1.0	mg/kg		25.1	16.2	5.7	----	----
Selenium	7782-49-2	0.1	mg/kg		1.3	0.9	0.2	----	----
Silver	7440-22-4	0.1	mg/kg		0.3	<0.1	<0.1	----	----
Zinc	7440-66-6	1.0	mg/kg		385	81.5	19.0	----	----
EG020-SDH: 1M HCl Extractable metals by ICPMS									
Arsenic	7440-38-2	1.0	mg/kg		3.2	1.4	<1.0	----	----
Cadmium	7440-43-9	0.10	mg/kg		1.84	0.32	<0.10	----	----
Chromium	7440-47-3	1.0	mg/kg		2.6	1.7	1.3	----	----
Lead	7439-92-1	1.0	mg/kg		93.5	12.7	<1.0	----	----
Nickel	7440-02-0	1.0	mg/kg		4.4	2.8	1.1	----	----
Zinc	7440-66-6	1.0	mg/kg		422	61.0	7.5	----	----
Antimony	7440-36-0	2.0	mg/kg		<2.0	<2.0	<2.0	----	----
Silver	7440-22-4	1.0	mg/kg		<1.0	<1.0	<1.0	----	----
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		14.0	11.6	5.8	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED10 0-50	SED10 50-83	SED10 83-127	----	----
				Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	----	----
Compound	CAS Number	LOR	Unit		EB2027104-006	EB2027104-007	EB2027104-008	--------	--------
					Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS - Continued									
Beryllium	7440-41-7	0.1	mg/kg		**0.8**	**0.6**	**0.2**	----	----
Boron	7440-42-8	5	mg/kg		**67**	**45**	**10**	----	----
Molybdenum	7439-98-7	0.1	mg/kg		**10.7**	**4.1**	**0.8**	----	----
Tin	7440-31-5	0.1	mg/kg		**1.7**	**0.7**	**0.2**	----	----
EG035-SDH: 1M HCl extractable Mercury by FIMS									
Mercury	7439-97-6	0.10	mg/kg		<0.10	<0.10	<0.10	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		**0.78**	**0.15**	**0.01**	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<19.8	<7.9	<4.0	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		**180**	<40	**50**	----	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		**280**	**160**	**20**	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.2	<0.1	<0.1	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		<0.2	<0.1	<0.1	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		<0.2	<0.1	<0.1	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		**6600**	**3910**	**630**	----	----
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		**6600**	**3910**	**630**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		**515**	**345**	**136**	----	----
EP003: Total Organic Carbon (TOC) in Soil									
Total Organic Carbon	----	0.02	%		**12.4**	**14.3**	**0.97**	----	----
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.05	mg/kg		<0.25	<0.10	<0.05	----	----
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.25	<0.10	<0.05	----	----
Simazine	122-34-9	0.05	mg/kg		<0.25	<0.10	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED10 0-50	SED10 50-83	SED10 83-127	----	----
				Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	----	----
Compound	CAS Number	LOR	Unit		EB2027104-006	EB2027104-007	EB2027104-008	--------	--------
					Result	Result	Result	----	----
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		<0.25	<0.10	<0.05	----	----
EP069: Toxaphene									
Toxaphene	8001-35-2	2	mg/kg		<5	<2	<2	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.7	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.7	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.7	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.7	<0.5	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.7	<0.5	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.7	<0.5	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.7	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.7	<0.5	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.7	<0.5	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.7	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	3	mg/kg		**3**	<3	<3	----	----
>C16 - C34 Fraction	----	3	mg/kg		**23**	**5**	**9**	----	----
>C34 - C40 Fraction	----	5	mg/kg		**11**	<5	<5	----	----
>C10 - C40 Fraction (sum)	----	3	mg/kg		**37**	**5**	**9**	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg		**3**	<3	<3	----	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	3	mg/kg		<5	<3	<3	----	----
C10 - C14 Fraction	----	3	mg/kg		<3	<3	<3	----	----
C15 - C28 Fraction	----	3	mg/kg		**12**	<3	**5**	----	----
C29 - C36 Fraction	----	5	mg/kg		**17**	<5	**7**	----	----
^ **C10 - C36 Fraction (sum)**	----	3	mg/kg		**29**	<3	**12**	----	----
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons									
C6 - C10 Fraction	C6_C10	3	mg/kg		<5	<3	<3	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg		<4.9	<3.0	<3.0	----	----
EP080-SD: BTEXN									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED10 0-50	SED10 50-83	SED10 83-127	----	----
			Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	----	----
Compound	CAS Number	LOR	Unit	EB2027104-006	EB2027104-007	EB2027104-008	--------	--------
				Result	Result	Result	----	----
EP080-SD: BTEXN - Continued								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.5	<0.2	<0.2	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Naphthalene	91-20-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	----	----
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	----	----
Tributyltin	56573-85-4	0.5	µgSn/kg	<0.8	<0.5	<0.5	----	----
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	<31	<12	<10	----	----
Carbophenothion	786-19-6	10	µg/kg	<31	<12	<10	----	----
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<31.0	<12.0	<10.0	----	----
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<31	<12	<10	----	----
Chlorpyrifos	2921-88-2	10	µg/kg	<31	<12	<10	----	----
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<31	<12	<10	----	----
Demeton-S-methyl	919-86-8	10	µg/kg	<31	<12	<10	----	----
Diazinon	333-41-5	10	µg/kg	<31	<12	<10	----	----
Dichlorvos	62-73-7	10	µg/kg	<31	<12	<10	----	----
Dimethoate	60-51-5	10	µg/kg	<31	<12	<10	----	----
Ethion	563-12-2	10	µg/kg	<31	<12	<10	----	----
Fenamiphos	22224-92-6	10	µg/kg	<31	<12	<10	----	----
Fenthion	55-38-9	10	µg/kg	<31	<12	<10	----	----
Malathion	121-75-5	10	µg/kg	<31	<12	<10	----	----
Azinphos Methyl	86-50-0	10	µg/kg	<31	<12	<10	----	----
Monocrotophos	6923-22-4	10	µg/kg	<31	<12	<10	----	----
Parathion	56-38-2	10	µg/kg	<31	<12	<10	----	----
Parathion-methyl	298-00-0	10	µg/kg	<31	<12	<10	----	----
Pirimphos-ethyl	23505-41-1	10	µg/kg	<31	<12	<10	----	----
Prothiofos	34643-46-4	10	µg/kg	<31	<12	<10	----	----
EP131A: Organochlorine Pesticides								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED10 0-50	SED10 50-83	SED10 83-127	----	----
			Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	----	----
Compound	CAS Number	LOR	Unit	EB2027104-006	EB2027104-007	EB2027104-008	--------	--------
				Result	Result	Result	----	----
EP131A: Organochlorine Pesticides - Continued								
Aldrin	309-00-2	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
alpha-BHC	319-84-6	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
beta-BHC	319-85-7	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
delta-BHC	319-86-8	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
4.4`-DDD	72-54-8	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
4.4`-DDE	72-55-9	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
4.4`-DDT	50-29-3	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-2	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
Dieldrin	60-57-1	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
^ **Endosulfan (sum)**	115-29-7	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
Endrin	72-20-8	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
Endrin ketone	53494-70-5	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
Heptachlor	76-44-8	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
gamma-BHC	58-89-9	0.25	µg/kg	<0.32	<0.25	<0.25	----	----
Methoxychlor	72-43-5	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
cis-Chlordane	5103-71-9	0.25	µg/kg	<0.32	<0.25	<0.25	----	----
trans-Chlordane	5103-74-2	0.25	µg/kg	<0.32	<0.25	<0.25	----	----
^ **Total Chlordane (sum)**	----	0.25	µg/kg	<0.32	<0.25	<0.25	----	----
Oxychlordane	27304-13-8	0.50	µg/kg	<0.70	<0.50	<0.50	----	----
EP131B: Polychlorinated Biphenyls (as Aroclors)								
^ **Total Polychlorinated biphenyls**	----	5.0	µg/kg	<78.1	<31.2	<15.6	----	----
Aroclor 1016	12674-11-2	5.0	µg/kg	<78.1	<31.2	<15.6	----	----
Aroclor 1221	11104-28-2	5.0	µg/kg	<78.1	<31.2	<15.6	----	----
Aroclor 1232	11141-16-5	5.0	µg/kg	<78.1	<31.2	<15.6	----	----
Aroclor 1242	53469-21-9	5.0	µg/kg	<78.1	<31.2	<15.6	----	----
Aroclor 1248	12672-29-6	5.0	µg/kg	<78.1	<31.2	<15.6	----	----
Aroclor 1254	11097-69-1	5.0	µg/kg	<78.1	<31.2	<15.6	----	----
Aroclor 1260	11096-82-5	5.0	µg/kg	<78.1	<31.2	<15.6	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED10 0-50	SED10 50-83	SED10 83-127	----	----
				Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	----	----
Compound	CAS Number	LOR	Unit		EB2027104-006	EB2027104-007	EB2027104-008	--------	--------
					Result	Result	Result	----	----
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	5	µg/kg		<12	8	<5	----	----
2-Methylnaphthalene	91-57-6	5	µg/kg		<12	5	<5	----	----
Acenaphthylene	208-96-8	4	µg/kg		<12	7	<4	----	----
Acenaphthene	83-32-9	4	µg/kg		<12	<5	<4	----	----
Fluorene	86-73-7	4	µg/kg		<12	8	<4	----	----
Phenanthrene	85-01-8	4	µg/kg		24	29	8	----	----
Anthracene	120-12-7	4	µg/kg		<12	9	<4	----	----
Fluoranthene	206-44-0	4	µg/kg		47	57	<4	----	----
Pyrene	129-00-0	4	µg/kg		47	58	<4	----	----
Benz(a)anthracene	56-55-3	4	µg/kg		21	30	<4	----	----
Chrysene	218-01-9	4	µg/kg		19	25	<4	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg		26	35	<4	----	----
Benzo(k)fluoranthene	207-08-9	4	µg/kg		15	17	<4	----	----
Benzo(e)pyrene	192-97-2	4	µg/kg		15	17	<4	----	----
Benzo(a)pyrene	50-32-8	4	µg/kg		<12	31	<4	----	----
Perylene	198-55-0	4	µg/kg		1030	1490	44	----	----
Benzo(g.h.i)perylene	191-24-2	4	µg/kg		25	18	<4	----	----
Dibenz(a.h)anthracene	53-70-3	4	µg/kg		<12	6	<4	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg		16	15	<4	----	----
Coronene	191-07-1	5	µg/kg		<12	<5	<5	----	----
^ Sum of PAHs	----	4	µg/kg		1280	1860	52	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.19	<0.08	<0.02	----	----
2.4-DB	94-82-6	0.02	mg/kg		<0.19	<0.08	<0.02	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.20	<0.08	<0.02	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.19	<0.08	<0.02	----	----
MCPA	94-74-6	0.02	mg/kg		<0.19	<0.08	<0.02	----	----
2.4-DP	120-36-5	0.02	mg/kg		<0.19	<0.08	<0.02	----	----
2.4-D	94-75-7	0.02	mg/kg		<0.19	<0.08	<0.02	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.19	<0.08	<0.02	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.19	<0.08	<0.02	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.19	<0.08	<0.02	----	----
MCPB	94-81-5	0.02	mg/kg		<0.19	<0.08	<0.02	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.19	<0.08	<0.02	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.20	<0.08	<0.02	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED10 0-50	SED10 50-83	SED10 83-127	----	----
				Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	----	----
Compound	CAS Number	LOR	Unit		EB2027104-006	EB2027104-007	EB2027104-008	--------	--------
					Result	Result	Result	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.19	<0.08	<0.02	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		99.5	97.9	96.1	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		103	104	96.0	----	----
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		93.3	93.4	98.0	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		88.6	91.2	81.1	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		90.1	92.8	82.1	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		88.0	89.8	80.5	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		104	108	95.7	----	----
Anthracene-d10	1719-06-8	0.5	%		88.8	87.9	79.0	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		102	103	92.0	----	----
EP080-SD: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		68.5	65.0	83.5	----	----
Toluene-D8	2037-26-5	0.2	%		62.1	64.8	73.2	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		71.5	73.6	85.6	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		66.6	93.6	81.2	----	----
EP130S: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	10	%		57.5	57.3	57.9	----	----
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.50	%		65.8	47.1	49.7	----	----
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.5	%		110	90.9	84.7	----	----
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		86.5	88.2	110	----	----
Anthracene-d10	1719-06-8	10	%		91.7	100	111	----	----
4-Terphenyl-d14	1718-51-0	10	%		99.2	115	124	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		47.0	57.8	50.2	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Elutriate Water	----	----	----	----
				Client sampling date / time	14-Oct-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2027104-009	--------	--------	--------	--------
					Result	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	----	----	----	----
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	----	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		<0.2	----	----	----	----
Arsenic	7440-38-2	0.2	µg/L		**0.5**	----	----	----	----
Cadmium	7440-43-9	0.05	µg/L		<0.05	----	----	----	----
Chromium	7440-47-3	0.2	µg/L		<0.2	----	----	----	----
Copper	7440-50-8	0.5	µg/L		**1.5**	----	----	----	----
Lead	7439-92-1	0.1	µg/L		**0.8**	----	----	----	----
Nickel	7440-02-0	0.5	µg/L		**0.5**	----	----	----	----
Silver	7440-22-4	0.1	µg/L		<0.1	----	----	----	----
Zinc	7440-66-6	1	µg/L		**2**	----	----	----	----
EG094T: Total metals in Fresh water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		<0.2	----	----	----	----
Arsenic	7440-38-2	0.2	µg/L		**0.6**	----	----	----	----
Cadmium	7440-43-9	0.05	µg/L		<0.05	----	----	----	----
Chromium	7440-47-3	0.2	µg/L		**0.8**	----	----	----	----
Copper	7440-50-8	0.5	µg/L		**2.0**	----	----	----	----
Lead	7439-92-1	0.1	µg/L		**2.9**	----	----	----	----
Nickel	7440-02-0	0.5	µg/L		**0.8**	----	----	----	----
Silver	7440-22-4	0.1	µg/L		<0.1	----	----	----	----
Zinc	7440-66-6	1	µg/L		**5**	----	----	----	----
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	----	----	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**81.9**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP069: Surrogate			
Decachlorobiphenyl	2051-24-3	70	130
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	154
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	156
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080-SD: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	145
Toluene-D8	2037-26-5	42	144
4-Bromofluorobenzene	460-00-4	58	142
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP130S: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	14	102
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	119
EP131T: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	106
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	55	135
Anthracene-d10	1719-06-8	70	136
4-Terphenyl-d14	1718-51-0	57	127
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP090S: Organotin Surrogate			
Tripropyltin	----	24	116

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2027314**	Page	: 1 of 20
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 21-Oct-2020 09:40
Order number	: ----	Date Analysis Commenced	: 22-Oct-2020
C-O-C number	: ----	Issue Date	: 30-Oct-2020 14:20
Sampler	: TIM ALEXANDER		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 8		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Arenie Vijayaratnam	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Minh Wills	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Morgan Lennox	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG048G (Hexavalent Chromium by Alkaline Digestion): Samples were diluted due to matrix interference. LOR adjusted accordingly.
- EA150H: Soil particle density results fell outside the scope of AS1289.3.6.3. Results should be scrutinised accordingly.
- EP202: LORs for some samples raised due to high sample moisture content.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP080-SD: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP131A: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP131A+B and EP132B-SD : LOR is raised due to high amount of moistures is present.
- EP068/069: Particular samples have LOR raised due to the high moisture content.
- EP130: LOR for sample raised due to the high amount of moisture present.
- **Specialty Organics analysis is conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- ASS: EA033 (CRS Suite):Retained Acidity not required because pH KCl greater than or equal to 4.5
- EP202: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EP131A+B : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EP090-Organotin: Sample 'SED4 0-60' shows poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- EP075(SIM) PAH/Phenols and EP071-SD - TPH - Semivolatile Fraction: The LORs for ‘SED4 0-60’ and 'SED8 0-45' have been raised due to high moisture content.
- EP080 (TRH Volatiles/BTEX): Limit of reporting raised for samples SED4 0-60 (EB2027314-002) and SED8 0-45 (EB2027314-004) due to the high moisture content of the samples.
- EK057G (Nitrite as N) / EK059G (Nitrite and Nitrate as N): LOR was rasied for some samples due to high moisture content.
- EG020-SD (Total Metals in Sediments by ICP-MS): Sample SED1 0-45 (EB2027314-001) shows poor duplicate results due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- ASS: EA033 (CRS Suite): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.

- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED1 0-45	SED4 0-60	SED4 60-121	SED8 0-45	SED8 45-99
			Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00
Compound	CAS Number	LOR	Unit	EB2027314-001	EB2027314-002	EB2027314-003	EB2027314-004	EB2027314-005
				Result	Result	Result	Result	Result
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	5.7	6.0	6.9	6.8	7.2
Titratable Actual Acidity (23F)	----	2	mole H+ / t	10	16	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	0.02	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.917	1.83	2.06	2.16	2.33
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	572	1140	1280	1340	1450
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	----	2.44	2.44	2.50
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	----	488	488	499
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	----	0.78	0.78	0.80
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	0.93	1.85	1.54	1.63	1.80
Net Acidity (acidity units)	----	10	mole H+ / t	582	1160	961	1020	1120
Liming Rate	----	1	kg CaCO3/t	44	87	72	76	84
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.93	1.85	2.06	2.16	2.33
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	582	1160	1280	1340	1450
Liming Rate excluding ANC	----	1	kg CaCO3/t	44	87	96	101	109
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	65.5	80.3	68.8	84.0	74.8
EA150: Particle Sizing								
+75µm	----	1	%	54	38	35	49	41
+150µm	----	1	%	28	36	23	48	39
+300µm	----	1	%	19	35	19	48	39
+425µm	----	1	%	16	35	18	47	38
+600µm	----	1	%	14	35	17	47	38
+1180µm	----	1	%	11	34	15	45	37
+2.36mm	----	1	%	7	32	13	36	30
+4.75mm	----	1	%	3	23	9	14	11
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED1 0-45	SED4 0-60	SED4 60-121	SED8 0-45	SED8 45-99
				Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00
Compound	CAS Number	LOR	Unit		EB2027314-001	EB2027314-002	EB2027314-003	EB2027314-004	EB2027314-005
					Result	Result	Result	Result	Result
EA150: Particle Sizing - Continued									
+37.5mm	----	1	%		<1	<1	<1	<1	<1
+75.0mm	----	1	%		<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		16	13	14	17	25
Silt (2-60 µm)	----	1	%		28	43	47	31	32
Sand (0.06-2.00 mm)	----	1	%		47	11	25	13	11
Gravel (>2mm)	----	1	%		9	33	14	39	32
Cobbles (>6cm)	----	1	%		<1	<1	<1	<1	<1
EA152: Soil Particle Density									
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3		2.33	1.98	1.92	2.08	2.19
EG020-SD: Total Metals in Sediments by ICPMS									
Antimony	7440-36-0	0.50	mg/kg		<0.50	0.62	<0.50	0.78	1.32
Arsenic	7440-38-2	1.00	mg/kg		6.74	30.8	16.4	31.7	55.8
Cadmium	7440-43-9	0.1	mg/kg		1.1	6.3	0.4	11.0	8.5
Chromium	7440-47-3	1.0	mg/kg		15.7	35.2	38.8	32.2	25.1
Copper	7440-50-8	1.0	mg/kg		14.0	59.2	24.1	92.3	77.8
Cobalt	7440-48-4	0.5	mg/kg		8.0	22.1	12.1	13.3	14.0
Lead	7439-92-1	1.0	mg/kg		75.1	173	8.8	336	244
Manganese	7439-96-5	10	mg/kg		82	324	328	162	212
Nickel	7440-02-0	1.0	mg/kg		10.6	22.3	21.8	16.3	14.2
Selenium	7782-49-2	0.1	mg/kg		0.8	1.4	1.4	1.5	1.0
Silver	7440-22-4	0.1	mg/kg		0.1	0.8	<0.1	1.3	0.9
Zinc	7440-66-6	1.0	mg/kg		235	1140	57.4	1420	1630
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		16.5	8.5	13.7	11.2	11.5
Beryllium	7440-41-7	0.1	mg/kg		0.5	0.8	0.7	0.6	0.5
Boron	7440-42-8	5	mg/kg		16	53	62	46	44
Molybdenum	7439-98-7	0.1	mg/kg		4.0	8.2	3.9	10.6	4.0
Tin	7440-31-5	0.1	mg/kg		0.5	1.8	0.4	1.9	1.3
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		0.50	1.25	0.06	4.06	3.15
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<16.1	<40.3	<16.0	<41.3	<15.7
EK040T: Fluoride Total									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED1 0-45	SED4 0-60	SED4 60-121	SED8 0-45	SED8 45-99
				Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00
Compound	CAS Number	LOR	Unit		EB2027314-001	EB2027314-002	EB2027314-003	EB2027314-004	EB2027314-005
					Result	Result	Result	Result	Result
EK040T: Fluoride Total - Continued									
Fluoride	16984-48-8	40	mg/kg		180	160	200	150	120
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		30	120	120	80	100
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.1	<0.2	<0.1	<0.2	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		<0.1	<0.2	<0.1	<0.2	0.1
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		<0.1	<0.2	<0.1	<0.2	0.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		4460	6900	3400	7510	4800
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		4460	6900	3400	7510	4800
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		259	443	314	744	454
EP003: Total Organic Carbon (TOC) in Soil									
Total Organic Carbon	----	0.02	%		3.01	8.08	6.58	10.4	7.83
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.05	mg/kg		<0.10	<0.25	<0.10	<0.25	<0.20
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.10	<0.25	<0.10	<0.25	<0.20
Simazine	122-34-9	0.05	mg/kg		<0.10	<0.25	<0.10	<0.25	<0.20
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		<0.10	<0.25	<0.10	<0.25	<0.20
EP069: Toxaphene									
Toxaphene	8001-35-2	2	mg/kg		<4	<10	<4	<10	<4
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.7	<0.5	<0.7	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.7	<0.5	<0.7	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.7	<0.5	<0.7	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.7	<0.5	<0.7	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.7	<0.5	<0.7	<0.5

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED1 0-45	SED4 0-60	SED4 60-121	SED8 0-45	SED8 45-99
			Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00
Compound	CAS Number	LOR	Unit	EB2027314-001	EB2027314-002	EB2027314-003	EB2027314-004	EB2027314-005
				Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued								
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.7	<0.5	<0.7	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.7	<0.5	<0.7	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.7	<0.5	<0.7	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.7	<0.5	<0.7	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.7	<0.5	<0.7	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	3	mg/kg	<3	<3	<3	**3**	<3
>C16 - C34 Fraction	----	3	mg/kg	**18**	<4	<3	**6**	**13**
>C34 - C40 Fraction	----	5	mg/kg	**10**	<5	<5	<5	<5
>C10 - C40 Fraction (sum)	----	3	mg/kg	**28**	<3	<3	**9**	**13**
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg	<3	<3	<3	**3**	<3
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<3	<5	<3	<4	<3
C10 - C14 Fraction	----	3	mg/kg	<3	**3**	<3	**4**	<3
C15 - C28 Fraction	----	3	mg/kg	**8**	<4	<3	**4**	**7**
C29 - C36 Fraction	----	5	mg/kg	**14**	<5	<5	<5	**9**
^ C10 - C36 Fraction (sum)	----	3	mg/kg	**22**	**3**	<3	**8**	**16**
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	C6_C10	3	mg/kg	<3	<5	<3	<4	<3
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg	<3.0	<5.3	<3.0	<4.3	<3.0
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.3	<0.2	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.2	<0.5	<0.2	<0.4	<0.2
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.3	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	0.2	mg/kg	<0.2	<0.3	<0.2	<0.2	<0.2
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED1 0-45	SED4 0-60	SED4 60-121	SED8 0-45	SED8 45-99
				Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00
Compound	CAS Number	LOR	Unit		EB2027314-001	EB2027314-002	EB2027314-003	EB2027314-004	EB2027314-005
					Result	Result	Result	Result	Result
EP090: Organotin Compounds - Continued									
Dibutyltin	1002-53-5	1	µgSn/kg		<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	**2.5**	<0.5	**1.8**	**21.9**
EP130A: Organophosphorus Pesticides (Ultra-trace)									
Bromophos-ethyl	4824-78-6	10	µg/kg		<12	<31	<12	<31	<12
Carbophenothion	786-19-6	10	µg/kg		<12	<31	<12	<31	<12
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg		<12.0	<31.0	<12.0	<31.0	<12.0
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg		<12	<31	<12	<31	<12
Chlorpyrifos	2921-88-2	10	µg/kg		<12	<31	<12	<31	<12
Chlorpyrifos-methyl	5598-13-0	10	µg/kg		<12	<31	<12	<31	<12
Demeton-S-methyl	919-86-8	10	µg/kg		<12	<31	<12	<31	<12
Diazinon	333-41-5	10	µg/kg		<12	<31	<12	<31	<12
Dichlorvos	62-73-7	10	µg/kg		<12	<31	<12	<31	<12
Dimethoate	60-51-5	10	µg/kg		<12	<31	<12	<31	<12
Ethion	563-12-2	10	µg/kg		<12	<31	<12	<31	<12
Fenamiphos	22224-92-6	10	µg/kg		<12	<31	<12	<31	<12
Fenthion	55-38-9	10	µg/kg		<12	<31	<12	<31	<12
Malathion	121-75-5	10	µg/kg		<12	<31	<12	<31	<12
Azinphos Methyl	86-50-0	10	µg/kg		<12	<31	<12	<31	<12
Monocrotophos	6923-22-4	10	µg/kg		<12	<31	<12	<31	<12
Parathion	56-38-2	10	µg/kg		<12	<31	<12	<31	<12
Parathion-methyl	298-00-0	10	µg/kg		<12	<31	<12	<31	<12
Pirimphos-ethyl	23505-41-1	10	µg/kg		<12	<31	<12	<31	<12
Prothiofos	34643-46-4	10	µg/kg		<12	<31	<12	<31	<12
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
alpha-BHC	319-84-6	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
beta-BHC	319-85-7	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
delta-BHC	319-86-8	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
4.4`-DDD	72-54-8	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
4.4`-DDE	72-55-9	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
4.4`-DDT	50-29-3	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
Dieldrin	60-57-1	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
alpha-Endosulfan	959-98-8	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED1 0-45	SED4 0-60	SED4 60-121	SED8 0-45	SED8 45-99
				Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00
Compound	CAS Number	LOR	Unit		EB2027314-001	EB2027314-002	EB2027314-003	EB2027314-004	EB2027314-005
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
beta-Endosulfan	33213-65-9	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
Endosulfan sulfate	1031-07-8	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
^ Endosulfan (sum)	115-29-7	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
Endrin	72-20-8	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
Endrin aldehyde	7421-93-4	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
Endrin ketone	53494-70-5	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
Heptachlor	76-44-8	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
Heptachlor epoxide	1024-57-3	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
gamma-BHC	58-89-9	0.25	µg/kg		<0.25	<0.25	<0.25	<0.25	<0.25
Methoxychlor	72-43-5	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
cis-Chlordane	5103-71-9	0.25	µg/kg		<0.25	<0.32	<0.25	<0.32	<0.25
trans-Chlordane	5103-74-2	0.25	µg/kg		<0.25	<0.32	<0.25	<0.32	<0.25
^ Total Chlordane (sum)	----	0.25	µg/kg		<0.25	<0.32	<0.25	<0.32	<0.25
Oxychlordane	27304-13-8	0.50	µg/kg		<0.50	<0.70	<0.50	<0.70	<0.50
EP131B: Polychlorinated Biphenyls (as Aroclors)									
^ Total Polychlorinated biphenyls	----	5.0	µg/kg		<31.2	<78.1	<31.2	<78.1	<31.2
Aroclor 1016	12674-11-2	5.0	µg/kg		<31.2	<78.1	<31.2	<78.1	<31.2
Aroclor 1221	11104-28-2	5.0	µg/kg		<31.2	<78.1	<31.2	<78.1	<31.2
Aroclor 1232	11141-16-5	5.0	µg/kg		<31.2	<78.1	<31.2	<78.1	<31.2
Aroclor 1242	53469-21-9	5.0	µg/kg		<31.2	<78.1	<31.2	<78.1	<31.2
Aroclor 1248	12672-29-6	5.0	µg/kg		<31.2	<78.1	<31.2	<78.1	<31.2
Aroclor 1254	11097-69-1	5.0	µg/kg		<31.2	<78.1	<31.2	<78.1	<31.2
Aroclor 1260	11096-82-5	5.0	µg/kg		<31.2	<78.1	<31.2	<78.1	<31.2
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	5	µg/kg		**10**	<12	<5	<12	**6**
2-Methylnaphthalene	91-57-6	5	µg/kg		**17**	<12	<5	<12	<5
Acenaphthylene	208-96-8	4	µg/kg		**10**	<12	<5	<12	<5
Acenaphthene	83-32-9	4	µg/kg		<5	<12	<5	<12	<5
Fluorene	86-73-7	4	µg/kg		**8**	<12	<5	<12	**6**
Phenanthrene	85-01-8	4	µg/kg		**27**	**37**	**6**	**27**	**15**
Anthracene	120-12-7	4	µg/kg		**8**	<12	<5	<12	<5
Fluoranthene	206-44-0	4	µg/kg		**61**	**80**	**6**	**51**	**29**
Pyrene	129-00-0	4	µg/kg		**59**	**74**	**6**	**48**	**29**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED1 0-45	SED4 0-60	SED4 60-121	SED8 0-45	SED8 45-99
				Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00
Compound	CAS Number	LOR	Unit		EB2027314-001	EB2027314-002	EB2027314-003	EB2027314-004	EB2027314-005
					Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	4	µg/kg		29	38	<5	24	15
Chrysene	218-01-9	4	µg/kg		27	30	<5	23	12
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg		53	52	7	31	15
Benzo(k)fluoranthene	207-08-9	4	µg/kg		17	18	7	16	9
Benzo(e)pyrene	192-97-2	4	µg/kg		30	26	<5	17	9
Benzo(a)pyrene	50-32-8	4	µg/kg		27	41	<5	26	14
Perylene	198-55-0	4	µg/kg		144	852	556	498	478
Benzo(g.h.i)perylene	191-24-2	4	µg/kg		48	37	<5	24	10
Dibenz(a.h)anthracene	53-70-3	4	µg/kg		6	<12	<5	<12	<5
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg		22	29	<5	18	8
Coronene	191-07-1	5	µg/kg		34	<12	<5	<12	<5
^ Sum of PAHs	----	4	µg/kg		637	1310	588	803	655
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
2.4-DB	94-82-6	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
Dicamba	1918-00-9	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
Mecoprop	93-65-2	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
MCPA	94-74-6	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
2.4-DP	120-36-5	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
2.4-D	94-75-7	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
Triclopyr	55335-06-3	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
2.4.5-T	93-76-5	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
MCPB	94-81-5	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
Picloram	1918-02-1	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
Clopyralid	1702-17-6	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.08	<0.20	<0.08	<0.20	<0.08
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		98.0	101	97.6	101	105
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		95.9	119	113	123	121
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		91.5	103	85.4	96.2	104
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED1 0-45	SED4 0-60	SED4 60-121	SED8 0-45	SED8 45-99
				Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00
Compound	CAS Number	LOR	Unit		EB2027314-001	EB2027314-002	EB2027314-003	EB2027314-004	EB2027314-005
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		107	106	105	101	103
2-Chlorophenol-D4	93951-73-6	0.5	%		98.6	97.5	96.9	91.0	94.1
2.4.6-Tribromophenol	118-79-6	0.5	%		75.9	74.8	73.4	71.3	70.8
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		98.5	97.3	96.8	93.3	94.5
Anthracene-d10	1719-06-8	0.5	%		102	102	98.2	98.6	96.2
4-Terphenyl-d14	1718-51-0	0.5	%		125	122	121	120	119
EP080-SD: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		79.4	77.9	84.9	66.8	66.2
Toluene-D8	2037-26-5	0.2	%		74.7	74.6	79.4	62.8	60.3
4-Bromofluorobenzene	460-00-4	0.2	%		93.3	90.3	97.4	81.2	81.2
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		94.3	88.0	72.7	47.4	58.6
EP130S: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	10	%		73.8	70.7	76.5	73.9	78.7
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.50	%		98.6	72.6	68.7	71.0	76.6
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.5	%		101	98.1	85.6	93.8	99.4
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		122	86.7	102	120	109
Anthracene-d10	1719-06-8	10	%		103	110	83.3	117	80.3
4-Terphenyl-d14	1718-51-0	10	%		114	118	100	114	94.7
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		98.8	91.1	96.5	95.4	92.9

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED8 99-140	SED8 140-170	----	----	----
			Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EB2027314-006	EB2027314-007	--------	--------	--------
				Result	Result	----	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	**7.1**	**7.0**	----	----	----
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	----	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	----	----	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	**0.515**	**1.50**	----	----	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	**321**	**934**	----	----	----
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	**0.99**	**1.66**	----	----	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	**198**	**331**	----	----	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	**0.32**	**0.53**	----	----	----
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	**1.5**	**1.5**	----	----	----
Net Acidity (sulfur units)	----	0.02	% S	**0.30**	**1.14**	----	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	**189**	**713**	----	----	----
Liming Rate	----	1	kg CaCO3/t	**14**	**54**	----	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	**0.52**	**1.50**	----	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	**321**	**934**	----	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	**24**	**70**	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**36.0**	**45.2**	----	----	----
EA150: Particle Sizing								
+75µm	----	1	%	**89**	**74**	----	----	----
+150µm	----	1	%	**47**	**53**	----	----	----
+300µm	----	1	%	**5**	**13**	----	----	----
+425µm	----	1	%	**3**	**11**	----	----	----
+600µm	----	1	%	**2**	**10**	----	----	----
+1180µm	----	1	%	<1	**9**	----	----	----
+2.36mm	----	1	%	<1	**6**	----	----	----
+4.75mm	----	1	%	<1	**2**	----	----	----
+9.5mm	----	1	%	<1	<1	----	----	----
+19.0mm	----	1	%	<1	<1	----	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED8 99-140	SED8 140-170	----	----	----
			Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EB2027314-006	EB2027314-007	--------	--------	--------
				Result	Result	----	----	----
EA150: Particle Sizing - Continued								
+37.5mm	----	1	%	<1	<1	----	----	----
+75.0mm	----	1	%	<1	<1	----	----	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	**7**	**6**	----	----	----
Silt (2-60 µm)	----	1	%	**3**	**17**	----	----	----
Sand (0.06-2.00 mm)	----	1	%	**90**	**70**	----	----	----
Gravel (>2mm)	----	1	%	<1	**7**	----	----	----
Cobbles (>6cm)	----	1	%	<1	<1	----	----	----
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	**2.62**	**2.46**	----	----	----
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	----	----	----
Arsenic	7440-38-2	1.00	mg/kg	**3.25**	**6.14**	----	----	----
Cadmium	7440-43-9	0.1	mg/kg	**0.1**	**0.1**	----	----	----
Chromium	7440-47-3	1.0	mg/kg	**12.2**	**13.8**	----	----	----
Copper	7440-50-8	1.0	mg/kg	**6.8**	**8.2**	----	----	----
Cobalt	7440-48-4	0.5	mg/kg	**5.2**	**6.6**	----	----	----
Lead	7439-92-1	1.0	mg/kg	**4.0**	**5.5**	----	----	----
Manganese	7439-96-5	10	mg/kg	**86**	**112**	----	----	----
Nickel	7440-02-0	1.0	mg/kg	**8.1**	**9.0**	----	----	----
Selenium	7782-49-2	0.1	mg/kg	**0.3**	**0.4**	----	----	----
Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	----	----	----
Zinc	7440-66-6	1.0	mg/kg	**31.5**	**27.1**	----	----	----
EG020T: Total Metals by ICP-MS								
Barium	7440-39-3	0.1	mg/kg	**7.1**	**7.1**	----	----	----
Beryllium	7440-41-7	0.1	mg/kg	**0.3**	**0.3**	----	----	----
Boron	7440-42-8	5	mg/kg	**16**	**26**	----	----	----
Molybdenum	7439-98-7	0.1	mg/kg	**0.8**	**1.2**	----	----	----
Tin	7440-31-5	0.1	mg/kg	**0.2**	**0.2**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.01	mg/kg	**0.02**	**0.04**	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<7.9	<8.1	----	----	----
EK040T: Fluoride Total								

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED8 99-140	SED8 140-170	----	----	----
			Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EB2027314-006	EB2027314-007	--------	--------	--------
				Result	Result	----	----	----
EK040T: Fluoride Total - Continued								
Fluoride	16984-48-8	40	mg/kg	**60**	**80**	----	----	----
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	**40**	**60**	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	<0.1	**0.1**	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	**0.1**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	**550**	**1400**	----	----	----
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	**550**	**1400**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	**149**	**195**	----	----	----
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	**1.43**	**4.14**	----	----	----
EP068A: Organochlorine Pesticides (OC)								
Mirex	2385-85-5	0.05	mg/kg	<0.05	<0.05	----	----	----
EP068C: Triazines								
Atrazine	1912-24-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Simazine	122-34-9	0.05	mg/kg	<0.05	<0.05	----	----	----
EP068D: Pyrethroids								
Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	----	----	----
EP069: Toxaphene								
Toxaphene	8001-35-2	2	mg/kg	<2	<2	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED8 99-140	SED8 140-170	----	----	----
			Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EB2027314-006	EB2027314-007	--------	--------	--------
				Result	Result	----	----	----
EP075(SIM)A: Phenolic Compounds - Continued								
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	3	mg/kg	<3	<3	----	----	----
>C16 - C34 Fraction	----	3	mg/kg	<3	<3	----	----	----
>C34 - C40 Fraction	----	5	mg/kg	<5	<5	----	----	----
>C10 - C40 Fraction (sum)	----	3	mg/kg	<3	<3	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg	<3	<3	----	----	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<3	<3	----	----	----
C10 - C14 Fraction	----	3	mg/kg	<3	<3	----	----	----
C15 - C28 Fraction	----	3	mg/kg	<3	<3	----	----	----
C29 - C36 Fraction	----	5	mg/kg	<5	<5	----	----	----
^ C10 - C36 Fraction (sum)	----	3	mg/kg	<3	<3	----	----	----
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	C6_C10	3	mg/kg	<3	<3	----	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg	<3.0	<3.0	----	----	----
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	----	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.2	<0.2	----	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	----
Naphthalene	91-20-3	0.2	mg/kg	<0.2	<0.2	----	----	----
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	----	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED8 99-140	SED8 140-170	----	----	----
				Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2027314-006	EB2027314-007	--------	--------	--------
					Result	Result	----	----	----
EP090: Organotin Compounds - Continued									
Dibutyltin	1002-53-5	1	µgSn/kg		<1	<1	----	----	----
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	<0.5	----	----	----
EP130A: Organophosphorus Pesticides (Ultra-trace)									
Bromophos-ethyl	4824-78-6	10	µg/kg		<10	<10	----	----	----
Carbophenothion	786-19-6	10	µg/kg		<10	<10	----	----	----
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg		<10.0	<10.0	----	----	----
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg		<10	<10	----	----	----
Chlorpyrifos	2921-88-2	10	µg/kg		<10	<10	----	----	----
Chlorpyrifos-methyl	5598-13-0	10	µg/kg		<10	<10	----	----	----
Demeton-S-methyl	919-86-8	10	µg/kg		<10	<10	----	----	----
Diazinon	333-41-5	10	µg/kg		<10	<10	----	----	----
Dichlorvos	62-73-7	10	µg/kg		<10	<10	----	----	----
Dimethoate	60-51-5	10	µg/kg		<10	<10	----	----	----
Ethion	563-12-2	10	µg/kg		<10	<10	----	----	----
Fenamiphos	22224-92-6	10	µg/kg		<10	<10	----	----	----
Fenthion	55-38-9	10	µg/kg		<10	<10	----	----	----
Malathion	121-75-5	10	µg/kg		<10	<10	----	----	----
Azinphos Methyl	86-50-0	10	µg/kg		<10	<10	----	----	----
Monocrotophos	6923-22-4	10	µg/kg		<10	<10	----	----	----
Parathion	56-38-2	10	µg/kg		<10	<10	----	----	----
Parathion-methyl	298-00-0	10	µg/kg		<10	<10	----	----	----
Pirimphos-ethyl	23505-41-1	10	µg/kg		<10	<10	----	----	----
Prothiofos	34643-46-4	10	µg/kg		<10	<10	----	----	----
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.50	µg/kg		<0.50	<0.50	----	----	----
alpha-BHC	319-84-6	0.50	µg/kg		<0.50	<0.50	----	----	----
beta-BHC	319-85-7	0.50	µg/kg		<0.50	<0.50	----	----	----
delta-BHC	319-86-8	0.50	µg/kg		<0.50	<0.50	----	----	----
4.4`-DDD	72-54-8	0.50	µg/kg		<0.50	<0.50	----	----	----
4.4`-DDE	72-55-9	0.50	µg/kg		<0.50	<0.50	----	----	----
4.4`-DDT	50-29-3	0.50	µg/kg		<0.50	<0.50	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.50	µg/kg		<0.50	<0.50	----	----	----
Dieldrin	60-57-1	0.50	µg/kg		<0.50	<0.50	----	----	----
alpha-Endosulfan	959-98-8	0.50	µg/kg		<0.50	<0.50	----	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED8 99-140	SED8 140-170	----	----	----
				Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2027314-006	EB2027314-007	--------	--------	--------
					Result	Result	----	----	----
EP131A: Organochlorine Pesticides - Continued									
beta-Endosulfan	33213-65-9	0.50	µg/kg		<0.50	<0.50	----	----	----
Endosulfan sulfate	1031-07-8	0.50	µg/kg		<0.50	<0.50	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.50	µg/kg		<0.50	<0.50	----	----	----
Endrin	72-20-8	0.50	µg/kg		<0.50	<0.50	----	----	----
Endrin aldehyde	7421-93-4	0.50	µg/kg		<0.50	<0.50	----	----	----
Endrin ketone	53494-70-5	0.50	µg/kg		<0.50	<0.50	----	----	----
Heptachlor	76-44-8	0.50	µg/kg		<0.50	<0.50	----	----	----
Heptachlor epoxide	1024-57-3	0.50	µg/kg		<0.50	<0.50	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg		<0.50	<0.50	----	----	----
gamma-BHC	58-89-9	0.25	µg/kg		<0.25	<0.25	----	----	----
Methoxychlor	72-43-5	0.50	µg/kg		<0.50	<0.50	----	----	----
cis-Chlordane	5103-71-9	0.25	µg/kg		<0.25	<0.25	----	----	----
trans-Chlordane	5103-74-2	0.25	µg/kg		<0.25	<0.25	----	----	----
^ **Total Chlordane (sum)**	----	0.25	µg/kg		<0.25	<0.25	----	----	----
Oxychlordane	27304-13-8	0.50	µg/kg		<0.50	<0.50	----	----	----
EP131B: Polychlorinated Biphenyls (as Aroclors)									
^ **Total Polychlorinated biphenyls**	----	5.0	µg/kg		<15.6	<15.6	----	----	----
Aroclor 1016	12674-11-2	5.0	µg/kg		<15.6	<15.6	----	----	----
Aroclor 1221	11104-28-2	5.0	µg/kg		<15.6	<15.6	----	----	----
Aroclor 1232	11141-16-5	5.0	µg/kg		<15.6	<15.6	----	----	----
Aroclor 1242	53469-21-9	5.0	µg/kg		<15.6	<15.6	----	----	----
Aroclor 1248	12672-29-6	5.0	µg/kg		<15.6	<15.6	----	----	----
Aroclor 1254	11097-69-1	5.0	µg/kg		<15.6	<15.6	----	----	----
Aroclor 1260	11096-82-5	5.0	µg/kg		<15.6	<15.6	----	----	----
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	5	µg/kg		<5	<5	----	----	----
2-Methylnaphthalene	91-57-6	5	µg/kg		<5	**6**	----	----	----
Acenaphthylene	208-96-8	4	µg/kg		<4	<4	----	----	----
Acenaphthene	83-32-9	4	µg/kg		<4	<4	----	----	----
Fluorene	86-73-7	4	µg/kg		<4	<4	----	----	----
Phenanthrene	85-01-8	4	µg/kg		**10**	**11**	----	----	----
Anthracene	120-12-7	4	µg/kg		<4	<4	----	----	----
Fluoranthene	206-44-0	4	µg/kg		<4	<4	----	----	----
Pyrene	129-00-0	4	µg/kg		<4	<4	----	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED8 99-140	SED8 140-170	----	----	----
				Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2027314-006	EB2027314-007	--------	--------	--------
					Result	Result	----	----	----
EP132B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	4	µg/kg		<4	<4	----	----	----
Chrysene	218-01-9	4	µg/kg		<4	<4	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg		<4	<4	----	----	----
Benzo(k)fluoranthene	207-08-9	4	µg/kg		<4	<4	----	----	----
Benzo(e)pyrene	192-97-2	4	µg/kg		<4	<4	----	----	----
Benzo(a)pyrene	50-32-8	4	µg/kg		<4	<4	----	----	----
Perylene	198-55-0	4	µg/kg		**83**	**141**	----	----	----
Benzo(g.h.i)perylene	191-24-2	4	µg/kg		<4	<4	----	----	----
Dibenz(a.h)anthracene	53-70-3	4	µg/kg		<4	<4	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg		<4	<4	----	----	----
Coronene	191-07-1	5	µg/kg		<5	<5	----	----	----
^ Sum of PAHs	----	4	µg/kg		**93**	**158**	----	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.04	<0.02	----	----	----
2.4-DB	94-82-6	0.02	mg/kg		<0.04	<0.02	----	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.04	<0.02	----	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.04	<0.02	----	----	----
MCPA	94-74-6	0.02	mg/kg		<0.04	<0.02	----	----	----
2.4-DP	120-36-5	0.02	mg/kg		<0.04	<0.02	----	----	----
2.4-D	94-75-7	0.02	mg/kg		<0.04	<0.02	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.04	<0.02	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.04	<0.02	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.04	<0.02	----	----	----
MCPB	94-81-5	0.02	mg/kg		<0.04	<0.02	----	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.04	<0.02	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.04	<0.02	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.04	<0.02	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**98.9**	**100**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**115**	**117**	----	----	----
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**102**	**109**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED8 99-140	SED8 140-170	----	----	----
				Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2027314-006	EB2027314-007	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		102	100	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		93.1	90.7	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		70.3	68.9	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		95.2	91.7	----	----	----
Anthracene-d10	1719-06-8	0.5	%		94.3	93.8	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		117	117	----	----	----
EP080-SD: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		85.5	84.3	----	----	----
Toluene-D8	2037-26-5	0.2	%		81.4	79.6	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		99.4	96.0	----	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		86.9	93.0	----	----	----
EP130S: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	10	%		61.1	81.0	----	----	----
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.50	%		64.6	87.6	----	----	----
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.5	%		91.9	116	----	----	----
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		113	110	----	----	----
Anthracene-d10	1719-06-8	10	%		98.2	84.6	----	----	----
4-Terphenyl-d14	1718-51-0	10	%		118	109	----	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		88.8	90.8	----	----	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP069: Surrogate			
Decachlorobiphenyl	2051-24-3	70	130
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	154
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	156
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080-SD: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	145
Toluene-D8	2037-26-5	42	144
4-Bromofluorobenzene	460-00-4	58	142
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP130S: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	14	102
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	119
EP131T: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	106
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	55	135
Anthracene-d10	1719-06-8	70	136
4-Terphenyl-d14	1718-51-0	57	127
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2027484**	Page	: 1 of 21
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 22-Oct-2020 09:40
Order number	: ----	Date Analysis Commenced	: 23-Oct-2020
C-O-C number	: ----	Issue Date	: 03-Nov-2020 13:14
Sampler	: TIM ALEXANDER		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 14		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Diana Mesa	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP202: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EG048G (Hexavalent Chromium by Alkaline Digestion): Some samples were diluted due to matrix interference. LOR adjusted accordingly.
- EA150H: Soil particle density results fell outside the scope of AS1289.3.6.3. Results should be scrutinised accordingly.
- EP202: LORs for some samples raised due to high sample moisture content.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP080-SD: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP131A: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP132B-SD ,EP131A+B : LOR is raised due to high amount of moistures is present.
- EP068/069: Particular samples have LOR raised due to the high moisture content.
- EG048G (Hexavalent Chromium by Alkaline Digestion): Sample EB2027484_001 (SED16 0-68) shows poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- EP131B : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EP090 Organotin: The LOR for TBT has been raised on sample 'SED2 0-57' due to high moisture content.
- EP090 Organotins: Sample 'SED16 68-122' shows poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- EP075(SIM) PAH/Phenols: The LOR for ‘SED2 0-57’, 'SED12 0-49' and 'SED12 106-152' has been raised due to high moisture content.
- EP080-SD volatile TPH/BTEXN in sediments: Limits of reporting for samples "SED2 0-57" and "SED12 0-49" have been raised due to high moisture content.
- EK067G (Total Phosphorus as P): Sample EB2027472_002 shows poor matrix spike recovery due to sample heterogeneity. Confirmed by visual inspection.
- EG020-SD (Total Metals in Sediments by ICP-MS): Sample SED11 0-50 (EB2027484-011) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- EG020-T (Total Metals by ICP-MS): Sample EB2027472-001 shows poor duplicate results. Insufficient sample remains to re-extract and re-analyze or confirm heterogeneity by visual inspection.
- EK057G (Nitrite as N) / EK059G (Nitrite and Nitrate as N): The LOR for some samples were raised due to high moisture content.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED16 0-68	SED16 68-122	SED2 0-57	SED2 57-126	SED12 0-49
			Client sampling date / time	20-Oct-2020 11:05	20-Oct-2020 11:05	20-Oct-2020 10:10	20-Oct-2020 10:10	20-Oct-2020 09:15
Compound	CAS Number	LOR	Unit	EB2027484-001	EB2027484-002	EB2027484-003	EB2027484-004	EB2027484-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	51.8	46.1	80.4	48.6	85.8
EA150: Particle Sizing								
+75µm	----	1	%	88	70	39	71	22
+150µm	----	1	%	46	45	32	52	19
+300µm	----	1	%	13	11	21	27	16
+425µm	----	1	%	10	9	17	21	14
+600µm	----	1	%	9	8	14	16	13
+1180µm	----	1	%	6	6	12	10	10
+2.36mm	----	1	%	4	2	7	6	5
+4.75mm	----	1	%	3	<1	1	1	<1
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	1	9	23	7	17
Silt (2-60 µm)	----	1	%	8	18	37	21	59
Sand (0.06-2.00 mm)	----	1	%	86	70	31	65	17
Gravel (>2mm)	----	1	%	5	3	9	7	7
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.60	2.51	2.68	2.49	1.97
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	0.81	<0.50	2.01
Arsenic	7440-38-2	1.00	mg/kg	6.49	3.16	35.0	13.9	63.5
Cadmium	7440-43-9	0.1	mg/kg	0.6	<0.1	4.2	0.2	17.6
Chromium	7440-47-3	1.0	mg/kg	17.8	15.0	26.1	18.9	33.8
Copper	7440-50-8	1.0	mg/kg	22.0	8.5	48.4	9.8	174
Cobalt	7440-48-4	0.5	mg/kg	9.5	7.1	14.0	6.8	19.6
Lead	7439-92-1	1.0	mg/kg	53.1	3.9	184	5.6	697
Manganese	7439-96-5	10	mg/kg	109	81	150	260	258
Nickel	7440-02-0	1.0	mg/kg	15.3	10.2	15.9	11.6	17.7
Selenium	7782-49-2	0.1	mg/kg	0.7	0.5	1.5	0.8	1.8
Silver	7440-22-4	0.1	mg/kg	0.1	<0.1	0.6	<0.1	2.3

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED16 0-68	SED16 68-122	SED2 0-57	SED2 57-126	SED12 0-49
				Client sampling date / time	20-Oct-2020 11:05	20-Oct-2020 11:05	20-Oct-2020 10:10	20-Oct-2020 10:10	20-Oct-2020 09:15
Compound	CAS Number	LOR	Unit		EB2027484-001	EB2027484-002	EB2027484-003	EB2027484-004	EB2027484-005
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Zinc	7440-66-6	1.0	mg/kg		136	30.0	1000	32.8	3900
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		9.4	9.0	9.5	8.1	16.4
Beryllium	7440-41-7	0.1	mg/kg		0.4	0.3	0.5	0.3	0.6
Boron	7440-42-8	5	mg/kg		17	13	32	16	53
Molybdenum	7439-98-7	0.1	mg/kg		2.4	1.5	6.5	2.4	7.4
Tin	7440-31-5	0.1	mg/kg		6.6	0.4	1.7	0.3	3.2
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		0.27	0.02	1.92	0.03	8.12
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<39.9	<4.0	<100	<20.0	<99.8
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		90	50	160	120	150
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		100	120	60	20	260
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.1	<0.1	<0.2	<0.1	<0.2
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		0.2	<0.1	<0.2	<0.1	<0.2
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		0.2	<0.1	<0.2	<0.1	<0.2
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		1600	1360	6460	1180	7520
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		1600	1360	6460	1180	7520
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		327	204	440	171	915
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.20	mg/kg		<0.40	<0.20	<1.00	<0.20	<1.00
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.10	<0.05	<0.25	<0.05	<0.25
Simazine	122-34-9	0.05	mg/kg		<0.10	<0.05	<0.25	<0.05	<0.25
EP068D: Pyrethroids									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED16 0-68	SED16 68-122	SED2 0-57	SED2 57-126	SED12 0-49
				Client sampling date / time	20-Oct-2020 11:05	20-Oct-2020 11:05	20-Oct-2020 10:10	20-Oct-2020 10:10	20-Oct-2020 09:15
Compound	CAS Number	LOR	Unit		EB2027484-001	EB2027484-002	EB2027484-003	EB2027484-004	EB2027484-005
					Result	Result	Result	Result	Result
EP068D: Pyrethroids - Continued									
Bifenthrin	82657-04-3	0.05	mg/kg		<0.10	<0.05	<0.25	<0.05	<0.25
EP069: Toxaphene									
Toxaphene	8001-35-2	2	mg/kg		<4	<2	<10	<2	<10
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.6	<0.5	<0.7
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.6	<0.5	<0.7
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.6	<0.5	<0.7
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.6	<0.5	<0.7
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.6	<0.5	<0.7
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.6	<0.5	<0.7
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.6	<0.5	<0.7
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.6	<0.5	<0.7
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.6	<0.5	<0.7
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.6	<0.5	<0.7
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	3	mg/kg		**28**	**18**	**18**	**7**	**36**
>C16 - C34 Fraction	----	3	mg/kg		**136**	**90**	**204**	**55**	**576**
>C34 - C40 Fraction	----	5	mg/kg		**56**	**38**	**98**	**25**	**305**
>C10 - C40 Fraction (sum)	----	3	mg/kg		**220**	**146**	**320**	**87**	**917**
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg		**28**	**18**	**18**	**7**	**36**
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	3	mg/kg		<3	<3	<5	<3	<4
C10 - C14 Fraction	----	3	mg/kg		**28**	**10**	**15**	**6**	**29**
C15 - C28 Fraction	----	3	mg/kg		**76**	**53**	**100**	**28**	**281**
C29 - C36 Fraction	----	5	mg/kg		**84**	**61**	**142**	**39**	**404**
^ C10 - C36 Fraction (sum)	----	3	mg/kg		**188**	**124**	**257**	**73**	**714**
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons									
C6 - C10 Fraction	C6_C10	3	mg/kg		<3	<3	<5	<3	<4
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg		<3.0	<3.0	<5.0	<3.0	<4.5
EP080-SD: BTEXN									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED16 0-68	SED16 68-122	SED2 0-57	SED2 57-126	SED12 0-49
				Client sampling date / time	20-Oct-2020 11:05	20-Oct-2020 11:05	20-Oct-2020 10:10	20-Oct-2020 10:10	20-Oct-2020 09:15
Compound	CAS Number	LOR	Unit		EB2027484-001	EB2027484-002	EB2027484-003	EB2027484-004	EB2027484-005
					Result	Result	Result	Result	Result
EP080-SD: BTEXN - Continued									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg		<0.2	<0.2	<0.5	<0.2	<0.4
ortho-Xylene	95-47-6	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
EP090: Organotin Compounds									
Monobutyltin	78763-54-9	1	µgSn/kg		<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg		<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	<0.5	<0.7	<0.5	**14.5**
EP130A: Organophosphorus Pesticides (Ultra-trace)									
Bromophos-ethyl	4824-78-6	10	µg/kg		<12	<10	<31	<10	<31
Carbophenothion	786-19-6	10	µg/kg		<12	<10	<31	<10	<31
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg		<12.0	<10.0	<31.0	<10.0	<31.0
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg		<12	<10	<31	<10	<31
Chlorpyrifos	2921-88-2	10	µg/kg		<12	<10	<31	<10	<31
Chlorpyrifos-methyl	5598-13-0	10	µg/kg		<12	<10	<31	<10	<31
Demeton-S-methyl	919-86-8	10	µg/kg		<12	<10	<31	<10	<31
Diazinon	333-41-5	10	µg/kg		<12	<10	<31	<10	<31
Dichlorvos	62-73-7	10	µg/kg		<12	<10	<31	<10	<31
Dimethoate	60-51-5	10	µg/kg		<12	<10	<31	<10	<31
Ethion	563-12-2	10	µg/kg		<12	<10	<31	<10	<31
Fenamiphos	22224-92-6	10	µg/kg		<12	<10	<31	<10	<31
Fenthion	55-38-9	10	µg/kg		<12	<10	<31	<10	<31
Malathion	121-75-5	10	µg/kg		<12	<10	<31	<10	<31
Azinphos Methyl	86-50-0	10	µg/kg		<12	<10	<31	<10	<31
Monocrotophos	6923-22-4	10	µg/kg		<12	<10	<31	<10	<31
Parathion	56-38-2	10	µg/kg		<12	<10	<31	<10	<31
Parathion-methyl	298-00-0	10	µg/kg		<12	<10	<31	<10	<31
Pirimphos-ethyl	23505-41-1	10	µg/kg		<12	<10	<31	<10	<31
Prothiofos	34643-46-4	10	µg/kg		<12	<10	<31	<10	<31
EP131A: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED16 0-68	SED16 68-122	SED2 0-57	SED2 57-126	SED12 0-49
				Client sampling date / time	20-Oct-2020 11:05	20-Oct-2020 11:05	20-Oct-2020 10:10	20-Oct-2020 10:10	20-Oct-2020 09:15
Compound	CAS Number	LOR	Unit		EB2027484-001	EB2027484-002	EB2027484-003	EB2027484-004	EB2027484-005
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
Aldrin	309-00-2	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
alpha-BHC	319-84-6	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
beta-BHC	319-85-7	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
delta-BHC	319-86-8	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
4.4`-DDD	72-54-8	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
4.4`-DDE	72-55-9	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
4.4`-DDT	50-29-3	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-2	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
Dieldrin	60-57-1	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
alpha-Endosulfan	959-98-8	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
beta-Endosulfan	33213-65-9	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
Endosulfan sulfate	1031-07-8	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
^ Endosulfan (sum)	115-29-7	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
Endrin	72-20-8	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
Endrin aldehyde	7421-93-4	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
Endrin ketone	53494-70-5	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
Heptachlor	76-44-8	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
Heptachlor epoxide	1024-57-3	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
gamma-BHC	58-89-9	0.25	µg/kg		<0.25	<0.25	<0.32	<0.25	<0.32
Methoxychlor	72-43-5	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
cis-Chlordane	5103-71-9	0.25	µg/kg		<0.25	<0.25	<0.32	<0.25	<0.32
trans-Chlordane	5103-74-2	0.25	µg/kg		<0.25	<0.25	<0.32	<0.25	<0.32
^ Total Chlordane (sum)	----	0.25	µg/kg		<0.25	<0.25	<0.32	<0.25	<0.32
Oxychlordane	27304-13-8	0.50	µg/kg		<0.50	<0.50	<0.70	<0.50	<0.70
EP131B: Polychlorinated Biphenyls (as Aroclors)									
^ Total Polychlorinated biphenyls	----	5.0	µg/kg		<31.2	<15.6	<78.1	<15.6	<78.1
Aroclor 1016	12674-11-2	5.0	µg/kg		<31.2	<15.6	<78.1	<15.6	<78.1
Aroclor 1221	11104-28-2	5.0	µg/kg		<31.2	<15.6	<78.1	<15.6	<78.1
Aroclor 1232	11141-16-5	5.0	µg/kg		<31.2	<15.6	<78.1	<15.6	<78.1
Aroclor 1242	53469-21-9	5.0	µg/kg		<31.2	<15.6	<78.1	<15.6	<78.1
Aroclor 1248	12672-29-6	5.0	µg/kg		<31.2	<15.6	<78.1	<15.6	<78.1
Aroclor 1254	11097-69-1	5.0	µg/kg		<31.2	<15.6	<78.1	<15.6	<78.1
Aroclor 1260	11096-82-5	5.0	µg/kg		<31.2	<15.6	<78.1	<15.6	<78.1

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED16 0-68	SED16 68-122	SED2 0-57	SED2 57-126	SED12 0-49
				Client sampling date / time	20-Oct-2020 11:05	20-Oct-2020 11:05	20-Oct-2020 10:10	20-Oct-2020 10:10	20-Oct-2020 09:15
Compound	CAS Number	LOR	Unit		EB2027484-001	EB2027484-002	EB2027484-003	EB2027484-004	EB2027484-005
					Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	5	µg/kg		**16**	<5	<12	<5	<12
2-Methylnaphthalene	91-57-6	5	µg/kg		**9**	<5	<12	<5	<12
Acenaphthylene	208-96-8	4	µg/kg		**58**	<4	<12	<4	<12
Acenaphthene	83-32-9	4	µg/kg		**10**	<4	<12	<4	<12
Fluorene	86-73-7	4	µg/kg		**37**	<4	<12	<4	<12
Phenanthrene	85-01-8	4	µg/kg		**251**	**18**	**17**	<4	**19**
Anthracene	120-12-7	4	µg/kg		**60**	<4	<12	<4	<12
Fluoranthene	206-44-0	4	µg/kg		**394**	**27**	**46**	<4	**43**
Pyrene	129-00-0	4	µg/kg		**347**	**25**	**44**	<4	**43**
Benz(a)anthracene	56-55-3	4	µg/kg		**234**	**13**	**23**	<4	**20**
Chrysene	218-01-9	4	µg/kg		**197**	**12**	**18**	<4	**20**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg		**226**	**15**	**34**	<4	**29**
Benzo(k)fluoranthene	207-08-9	4	µg/kg		**114**	**5**	**14**	<4	<12
Benzo(e)pyrene	192-97-2	4	µg/kg		**116**	**7**	**15**	<4	**15**
Benzo(a)pyrene	50-32-8	4	µg/kg		**209**	**12**	**25**	<4	**22**
Perylene	198-55-0	4	µg/kg		**510**	**289**	**89**	**4**	**755**
Benzo(g.h.i)perylene	191-24-2	4	µg/kg		**126**	**8**	**22**	<4	**21**
Dibenz(a.h)anthracene	53-70-3	4	µg/kg		**32**	<4	<12	<4	<12
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg		**101**	**7**	**16**	<4	**16**
Coronene	191-07-1	5	µg/kg		**25**	<5	<12	<5	<12
^ Sum of PAHs	----	4	µg/kg		**3070**	**438**	**363**	**4**	**1000**
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.08	<0.04	<0.19	<0.04	<0.19
2.4-DB	94-82-6	0.02	mg/kg		<0.08	<0.04	<0.19	<0.04	<0.19
Dicamba	1918-00-9	0.02	mg/kg		<0.08	<0.04	<0.20	<0.04	<0.20
Mecoprop	93-65-2	0.02	mg/kg		<0.08	<0.04	<0.19	<0.04	<0.19
MCPA	94-74-6	0.02	mg/kg		<0.08	<0.04	<0.19	<0.04	<0.19
2.4-DP	120-36-5	0.02	mg/kg		<0.08	<0.04	<0.19	<0.04	<0.19
2.4-D	94-75-7	0.02	mg/kg		<0.08	<0.04	<0.19	<0.04	<0.19
Triclopyr	55335-06-3	0.02	mg/kg		<0.08	<0.04	<0.19	<0.04	<0.19
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.08	<0.04	<0.19	<0.04	<0.19
2.4.5-T	93-76-5	0.02	mg/kg		<0.08	<0.04	<0.19	<0.04	<0.19
MCPB	94-81-5	0.02	mg/kg		<0.08	<0.04	<0.19	<0.04	<0.19
Picloram	1918-02-1	0.02	mg/kg		<0.08	<0.04	<0.19	<0.04	<0.19
Clopyralid	1702-17-6	0.02	mg/kg		<0.08	<0.04	<0.20	<0.04	<0.20

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED16 0-68	SED16 68-122	SED2 0-57	SED2 57-126	SED12 0-49
				Client sampling date / time	20-Oct-2020 11:05	20-Oct-2020 11:05	20-Oct-2020 10:10	20-Oct-2020 10:10	20-Oct-2020 09:15
Compound	CAS Number	LOR	Unit		EB2027484-001	EB2027484-002	EB2027484-003	EB2027484-004	EB2027484-005
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.08	<0.04	<0.19	<0.04	<0.19
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		106	107	107	90.3	128
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		81.8	89.6	110	76.0	106
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		97.0	107	93.3	97.7	101
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		77.8	89.0	83.7	86.5	84.8
2-Chlorophenol-D4	93951-73-6	0.5	%		69.0	88.8	84.1	81.6	81.2
2.4.6-Tribromophenol	118-79-6	0.5	%		78.4	86.6	81.8	84.0	85.8
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		74.0	98.9	91.0	94.7	89.8
Anthracene-d10	1719-06-8	0.5	%		85.9	93.0	87.8	98.7	91.8
4-Terphenyl-d14	1718-51-0	0.5	%		99.1	105	95.4	111	98.2
EP080-SD: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		77.3	80.8	72.2	76.2	68.8
Toluene-D8	2037-26-5	0.2	%		78.7	75.1	66.7	71.4	65.6
4-Bromofluorobenzene	460-00-4	0.2	%		94.6	89.4	83.1	86.8	80.2
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		104	90.7	44.8	85.5	74.7
EP130S: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	10	%		70.2	85.8	72.9	89.6	77.7
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.50	%		46.4	54.9	38.5	52.4	53.8
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.5	%		66.9	66.9	69.4	70.6	76.2
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		117	108	116	114	101
Anthracene-d10	1719-06-8	10	%		97.1	97.3	96.4	118	79.7
4-Terphenyl-d14	1718-51-0	10	%		106	122	115	104	96.1
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		66.4	50.2	50.1	84.2	52.4

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED12 49-106	SED12 106-152	SED7 0-50	SED7 50-100	SED7 100-153
			Client sampling date / time	20-Oct-2020 09:15	20-Oct-2020 09:15	20-Oct-2020 12:30	20-Oct-2020 12:30	20-Oct-2020 12:30
Compound	CAS Number	LOR	Unit	EB2027484-006	EB2027484-007	EB2027484-008	EB2027484-009	EB2027484-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	59.4	29.4	63.5	65.2	64.6
EA150: Particle Sizing								
+75µm	----	1	%	43	94	22	12	10
+150µm	----	1	%	26	72	17	8	8
+300µm	----	1	%	12	9	12	6	7
+425µm	----	1	%	10	2	11	6	7
+600µm	----	1	%	10	<1	10	6	7
+1180µm	----	1	%	7	<1	8	5	6
+2.36mm	----	1	%	3	<1	5	3	4
+4.75mm	----	1	%	<1	<1	<1	<1	<1
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	15	1	26	21	15
Silt (2-60 µm)	----	1	%	40	5	49	66	73
Sand (0.06-2.00 mm)	----	1	%	41	94	19	9	7
Gravel (>2mm)	----	1	%	4	<1	6	4	5
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.32	2.64	2.12	2.37	1.95
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	9.26	1.72	17.5	15.4	18.1
Cadmium	7440-43-9	0.1	mg/kg	0.7	<0.1	1.9	0.4	0.5
Chromium	7440-47-3	1.0	mg/kg	19.9	7.4	28.0	40.4	47.5
Copper	7440-50-8	1.0	mg/kg	16.2	3.5	29.6	25.0	24.7
Cobalt	7440-48-4	0.5	mg/kg	10.4	3.4	11.5	13.8	13.8
Lead	7439-92-1	1.0	mg/kg	25.1	2.3	72.7	10.0	13.0
Manganese	7439-96-5	10	mg/kg	137	43	213	330	355
Nickel	7440-02-0	1.0	mg/kg	13.2	5.2	17.0	24.0	27.1
Selenium	7782-49-2	0.1	mg/kg	0.9	0.2	1.3	1.8	2.0
Silver	7440-22-4	0.1	mg/kg	0.1	<0.1	0.2	<0.1	<0.1

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED12 49-106	SED12 106-152	SED7 0-50	SED7 50-100	SED7 100-153
				Client sampling date / time	20-Oct-2020 09:15	20-Oct-2020 09:15	20-Oct-2020 12:30	20-Oct-2020 12:30	20-Oct-2020 12:30
Compound	CAS Number	LOR	Unit		EB2027484-006	EB2027484-007	EB2027484-008	EB2027484-009	EB2027484-010
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Zinc	7440-66-6	1.0	mg/kg		**186**	**17.4**	**362**	**69.4**	**73.1**
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**8.2**	**5.0**	**10.0**	**13.6**	**14.6**
Beryllium	7440-41-7	0.1	mg/kg		**0.3**	**0.1**	**0.5**	**0.5**	**0.6**
Boron	7440-42-8	5	mg/kg		**29**	**6**	**37**	**57**	**76**
Molybdenum	7439-98-7	0.1	mg/kg		**3.5**	**0.6**	**3.3**	**3.0**	**4.3**
Tin	7440-31-5	0.1	mg/kg		**0.5**	**0.2**	**0.8**	**0.6**	**0.7**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		**0.24**	**0.01**	**0.63**	**0.07**	**0.07**
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<39.9	<4.0	<39.9	<40.0	<39.9
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		**70**	<40	**100**	**170**	**180**
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		**140**	**40**	**110**	**230**	**280**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		**970**	**570**	**2340**	**3760**	**3730**
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		**970**	**570**	**2340**	**3760**	**3730**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		**251**	**150**	**283**	**574**	**600**
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.20	mg/kg		<0.40	<0.20	<0.40	<0.40	<0.40
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.10	<0.05	<0.10	<0.10	<0.10
Simazine	122-34-9	0.05	mg/kg		<0.10	<0.05	<0.10	<0.10	<0.10
EP068D: Pyrethroids									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED12 49-106	SED12 106-152	SED7 0-50	SED7 50-100	SED7 100-153
				Client sampling date / time	20-Oct-2020 09:15	20-Oct-2020 09:15	20-Oct-2020 12:30	20-Oct-2020 12:30	20-Oct-2020 12:30
Compound	CAS Number	LOR	Unit		EB2027484-006	EB2027484-007	EB2027484-008	EB2027484-009	EB2027484-010
					Result	Result	Result	Result	Result
EP068D: Pyrethroids - Continued									
Bifenthrin	82657-04-3	0.05	mg/kg		<0.10	<0.05	<0.10	<0.10	<0.10
EP069: Toxaphene									
Toxaphene	8001-35-2	2	mg/kg		<4	<2	<4	<4	<4
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	3	mg/kg		**17**	<3	**18**	**22**	**21**
>C16 - C34 Fraction	----	3	mg/kg		**165**	**17**	**173**	**180**	**195**
>C34 - C40 Fraction	----	5	mg/kg		**72**	**8**	**73**	**74**	**81**
>C10 - C40 Fraction (sum)	----	3	mg/kg		**254**	**25**	**264**	**276**	**297**
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg		**17**	<3	**18**	**22**	**21**
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	3	mg/kg		<3	<3	<3	<3	<3
C10 - C14 Fraction	----	3	mg/kg		**12**	<3	**12**	**14**	**14**
C15 - C28 Fraction	----	3	mg/kg		**85**	**9**	**92**	**103**	**107**
C29 - C36 Fraction	----	5	mg/kg		**115**	**13**	**118**	**119**	**132**
^ C10 - C36 Fraction (sum)	----	3	mg/kg		**212**	**22**	**222**	**236**	**253**
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons									
C6 - C10 Fraction	C6_C10	3	mg/kg		<3	<3	<3	<3	<3
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg		<3.0	<3.0	<3.0	<3.0	<3.0
EP080-SD: BTEXN									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED12 49-106	SED12 106-152	SED7 0-50	SED7 50-100	SED7 100-153
				Client sampling date / time	20-Oct-2020 09:15	20-Oct-2020 09:15	20-Oct-2020 12:30	20-Oct-2020 12:30	20-Oct-2020 12:30
Compound	CAS Number	LOR	Unit		EB2027484-006	EB2027484-007	EB2027484-008	EB2027484-009	EB2027484-010
					Result	Result	Result	Result	Result
EP080-SD: BTEXN - Continued									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
ortho-Xylene	95-47-6	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
EP090: Organotin Compounds									
Monobutyltin	78763-54-9	1	µgSn/kg		<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg		<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg		**0.8**	<0.5	<0.5	<0.5	<0.5
EP130A: Organophosphorus Pesticides (Ultra-trace)									
Bromophos-ethyl	4824-78-6	10	µg/kg		<12	<10	<12	<12	<12
Carbophenothion	786-19-6	10	µg/kg		<12	<10	<12	<12	<12
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg		<12.0	<10.0	<12.0	<12.0	<12.0
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg		<12	<10	<12	<12	<12
Chlorpyrifos	2921-88-2	10	µg/kg		<12	<10	<12	<12	<12
Chlorpyrifos-methyl	5598-13-0	10	µg/kg		<12	<10	<12	<12	<12
Demeton-S-methyl	919-86-8	10	µg/kg		<12	<10	<12	<12	<12
Diazinon	333-41-5	10	µg/kg		<12	<10	<12	<12	<12
Dichlorvos	62-73-7	10	µg/kg		<12	<10	<12	<12	<12
Dimethoate	60-51-5	10	µg/kg		<12	<10	<12	<12	<12
Ethion	563-12-2	10	µg/kg		<12	<10	<12	<12	<12
Fenamiphos	22224-92-6	10	µg/kg		<12	<10	<12	<12	<12
Fenthion	55-38-9	10	µg/kg		<12	<10	<12	<12	<12
Malathion	121-75-5	10	µg/kg		<12	<10	<12	<12	<12
Azinphos Methyl	86-50-0	10	µg/kg		<12	<10	<12	<12	<12
Monocrotophos	6923-22-4	10	µg/kg		<12	<10	<12	<12	<12
Parathion	56-38-2	10	µg/kg		<12	<10	<12	<12	<12
Parathion-methyl	298-00-0	10	µg/kg		<12	<10	<12	<12	<12
Pirimphos-ethyl	23505-41-1	10	µg/kg		<12	<10	<12	<12	<12
Prothiofos	34643-46-4	10	µg/kg		<12	<10	<12	<12	<12
EP131A: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED12 49-106	SED12 106-152	SED7 0-50	SED7 50-100	SED7 100-153
				Client sampling date / time	20-Oct-2020 09:15	20-Oct-2020 09:15	20-Oct-2020 12:30	20-Oct-2020 12:30	20-Oct-2020 12:30
Compound	CAS Number	LOR	Unit		EB2027484-006	EB2027484-007	EB2027484-008	EB2027484-009	EB2027484-010
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
Aldrin	309-00-2	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
alpha-BHC	319-84-6	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
beta-BHC	319-85-7	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
delta-BHC	319-86-8	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
4.4`-DDD	72-54-8	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
4.4`-DDE	72-55-9	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
4.4`-DDT	50-29-3	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Dieldrin	60-57-1	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
alpha-Endosulfan	959-98-8	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
beta-Endosulfan	33213-65-9	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Endosulfan sulfate	1031-07-8	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
^ **Endosulfan (sum)**	115-29-7	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Endrin	72-20-8	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Endrin aldehyde	7421-93-4	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Endrin ketone	53494-70-5	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor	76-44-8	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor epoxide	1024-57-3	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
gamma-BHC	58-89-9	0.25	µg/kg		<0.25	<0.25	<0.25	<0.25	<0.25
Methoxychlor	72-43-5	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
cis-Chlordane	5103-71-9	0.25	µg/kg		<0.25	<0.25	<0.25	<0.25	<0.25
trans-Chlordane	5103-74-2	0.25	µg/kg		<0.25	<0.25	<0.25	<0.25	<0.25
^ **Total Chlordane (sum)**	----	0.25	µg/kg		<0.25	<0.25	<0.25	<0.25	<0.25
Oxychlordane	27304-13-8	0.50	µg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
EP131B: Polychlorinated Biphenyls (as Aroclors)									
^ **Total Polychlorinated biphenyls**	----	5.0	µg/kg		<31.2	<15.6	<31.2	<31.2	<31.2
Aroclor 1016	12674-11-2	5.0	µg/kg		<31.2	<15.6	<31.2	<31.2	<31.2
Aroclor 1221	11104-28-2	5.0	µg/kg		<31.2	<15.6	<31.2	<31.2	<31.2
Aroclor 1232	11141-16-5	5.0	µg/kg		<31.2	<15.6	<31.2	<31.2	<31.2
Aroclor 1242	53469-21-9	5.0	µg/kg		<31.2	<15.6	<31.2	<31.2	<31.2
Aroclor 1248	12672-29-6	5.0	µg/kg		<31.2	<15.6	<31.2	<31.2	<31.2
Aroclor 1254	11097-69-1	5.0	µg/kg		<31.2	<15.6	<31.2	<31.2	<31.2
Aroclor 1260	11096-82-5	5.0	µg/kg		<31.2	<15.6	<31.2	<31.2	<31.2

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED12 49-106	SED12 106-152	SED7 0-50	SED7 50-100	SED7 100-153
				Client sampling date / time	20-Oct-2020 09:15	20-Oct-2020 09:15	20-Oct-2020 12:30	20-Oct-2020 12:30	20-Oct-2020 12:30
Compound	CAS Number	LOR	Unit		EB2027484-006	EB2027484-007	EB2027484-008	EB2027484-009	EB2027484-010
					Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	5	µg/kg		<5	<5	<5	<5	<5
2-Methylnaphthalene	91-57-6	5	µg/kg		<5	<5	<5	<5	<5
Acenaphthylene	208-96-8	4	µg/kg		<5	<4	<5	<5	<5
Acenaphthene	83-32-9	4	µg/kg		<5	<4	<5	<5	<5
Fluorene	86-73-7	4	µg/kg		<5	<4	<5	<5	<5
Phenanthrene	85-01-8	4	µg/kg		<5	<4	**8**	**6**	<5
Anthracene	120-12-7	4	µg/kg		<5	<4	<5	<5	<5
Fluoranthene	206-44-0	4	µg/kg		<5	<4	**11**	<5	<5
Pyrene	129-00-0	4	µg/kg		<5	<4	**12**	<5	<5
Benz(a)anthracene	56-55-3	4	µg/kg		<5	<4	**6**	<5	<5
Chrysene	218-01-9	4	µg/kg		<5	<4	**6**	<5	<5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg		<5	<4	**5**	<5	<5
Benzo(k)fluoranthene	207-08-9	4	µg/kg		<5	<4	<5	<5	<5
Benzo(e)pyrene	192-97-2	4	µg/kg		<5	<4	<5	<5	<5
Benzo(a)pyrene	50-32-8	4	µg/kg		<5	<4	<5	<5	<5
Perylene	198-55-0	4	µg/kg		**178**	**7**	**250**	**1490**	**1420**
Benzo(g.h.i)perylene	191-24-2	4	µg/kg		<5	<4	**6**	<5	<5
Dibenz(a.h)anthracene	53-70-3	4	µg/kg		<5	<4	<5	<5	<5
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg		<5	<4	<5	<5	<5
Coronene	191-07-1	5	µg/kg		<5	<5	<5	<5	<5
^ Sum of PAHs	----	4	µg/kg		**178**	**7**	**304**	**1500**	**1420**
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
2.4-DB	94-82-6	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
Dicamba	1918-00-9	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
Mecoprop	93-65-2	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
MCPA	94-74-6	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
2.4-DP	120-36-5	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
2.4-D	94-75-7	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
Triclopyr	55335-06-3	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
2.4.5-T	93-76-5	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
MCPB	94-81-5	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
Picloram	1918-02-1	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
Clopyralid	1702-17-6	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED12 49-106	SED12 106-152	SED7 0-50	SED7 50-100	SED7 100-153
				Client sampling date / time	20-Oct-2020 09:15	20-Oct-2020 09:15	20-Oct-2020 12:30	20-Oct-2020 12:30	20-Oct-2020 12:30
Compound	CAS Number	LOR	Unit		EB2027484-006	EB2027484-007	EB2027484-008	EB2027484-009	EB2027484-010
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.08	<0.04	<0.08	<0.08	<0.08
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		107	106	106	105	109
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		89.5	88.7	89.6	87.4	90.4
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		105	98.1	106	97.9	98.1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		76.4	83.9	77.8	75.3	75.4
2-Chlorophenol-D4	93951-73-6	0.5	%		71.0	84.6	74.1	74.0	65.7
2.4.6-Tribromophenol	118-79-6	0.5	%		79.5	64.2	76.8	73.7	69.6
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		86.1	87.3	85.8	65.0	85.2
Anthracene-d10	1719-06-8	0.5	%		90.4	89.4	93.1	91.0	91.0
4-Terphenyl-d14	1718-51-0	0.5	%		98.3	98.2	102	100	98.9
EP080-SD: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		84.2	83.7	76.8	79.3	78.4
Toluene-D8	2037-26-5	0.2	%		79.3	79.2	71.7	75.0	75.2
4-Bromofluorobenzene	460-00-4	0.2	%		95.2	94.6	86.5	88.8	86.8
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		59.7	69.0	35.9	60.1	60.8
EP130S: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	10	%		74.9	64.9	78.4	92.0	77.7
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.50	%		42.8	80.9	47.9	52.3	51.3
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.5	%		65.6	126	46.9	53.1	52.5
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		101	101	106	115	97.8
Anthracene-d10	1719-06-8	10	%		110	82.7	85.7	86.4	77.2
4-Terphenyl-d14	1718-51-0	10	%		109	110	95.6	112	97.0
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		85.6	86.7	57.7	63.2	60.0

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED11 0-50	SED11 50-96	SED11 96-150	----	----
			Client sampling date / time	20-Oct-2020 13:40	20-Oct-2020 13:40	20-Oct-2020 13:40	----	----
Compound	CAS Number	LOR	Unit	EB2027484-011	EB2027484-012	EB2027484-013	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	83.8	33.9	24.3	----	----
EA150: Particle Sizing								
+75µm	----	1	%	36	47	92	----	----
+150µm	----	1	%	33	36	71	----	----
+300µm	----	1	%	30	22	7	----	----
+425µm	----	1	%	28	21	2	----	----
+600µm	----	1	%	27	20	2	----	----
+1180µm	----	1	%	23	16	<1	----	----
+2.36mm	----	1	%	16	12	<1	----	----
+4.75mm	----	1	%	5	4	<1	----	----
+9.5mm	----	1	%	<1	<1	<1	----	----
+19.0mm	----	1	%	<1	<1	<1	----	----
+37.5mm	----	1	%	<1	<1	<1	----	----
+75.0mm	----	1	%	<1	<1	<1	----	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	12	14	5	----	----
Silt (2-60 µm)	----	1	%	46	38	2	----	----
Sand (0.06-2.00 mm)	----	1	%	24	35	93	----	----
Gravel (>2mm)	----	1	%	18	13	<1	----	----
Cobbles (>6cm)	----	1	%	<1	<1	<1	----	----
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.33	2.40	2.73	----	----
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	0.78	<0.50	<0.50	----	----
Arsenic	7440-38-2	1.00	mg/kg	31.2	4.36	1.11	----	----
Cadmium	7440-43-9	0.1	mg/kg	9.9	0.5	<0.1	----	----
Chromium	7440-47-3	1.0	mg/kg	35.5	9.6	4.8	----	----
Copper	7440-50-8	1.0	mg/kg	101	8.6	2.5	----	----
Cobalt	7440-48-4	0.5	mg/kg	12.8	4.6	2.6	----	----
Lead	7439-92-1	1.0	mg/kg	429	16.3	1.3	----	----
Manganese	7439-96-5	10	mg/kg	171	68	27	----	----
Nickel	7440-02-0	1.0	mg/kg	17.9	6.3	3.9	----	----
Selenium	7782-49-2	0.1	mg/kg	2.0	0.3	0.1	----	----
Silver	7440-22-4	0.1	mg/kg	1.5	<0.1	<0.1	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED11 0-50	SED11 50-96	SED11 96-150	----	----
				Client sampling date / time	20-Oct-2020 13:40	20-Oct-2020 13:40	20-Oct-2020 13:40	----	----
Compound	CAS Number	LOR	Unit		EB2027484-011	EB2027484-012	EB2027484-013	--------	--------
					Result	Result	Result	----	----
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Zinc	7440-66-6	1.0	mg/kg		**1240**	**118**	**12.8**	----	----
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**14.6**	**6.3**	**5.4**	----	----
Beryllium	7440-41-7	0.1	mg/kg		**0.6**	**0.2**	<0.1	----	----
Boron	7440-42-8	5	mg/kg		**44**	**8**	<5	----	----
Molybdenum	7439-98-7	0.1	mg/kg		**6.9**	**0.5**	**0.6**	----	----
Tin	7440-31-5	0.1	mg/kg		**2.6**	**0.2**	**0.1**	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		**5.75**	**0.21**	<0.01	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<100	<20.0	<0.5	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		**130**	**100**	**40**	----	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		**140**	**80**	<20	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.2	<0.1	<0.1	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		**1.0**	<0.1	<0.1	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		**1.0**	<0.1	<0.1	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		**5300**	**1470**	**230**	----	----
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		**5300**	**1470**	**230**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		**660**	**176**	**98**	----	----
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.20	mg/kg		<1.00	<0.20	<0.20	----	----
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.25	<0.05	<0.05	----	----
Simazine	122-34-9	0.05	mg/kg		<0.25	<0.05	<0.05	----	----
EP068D: Pyrethroids									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED11 0-50	SED11 50-96	SED11 96-150	----	----
			Client sampling date / time	20-Oct-2020 13:40	20-Oct-2020 13:40	20-Oct-2020 13:40	----	----
Compound	CAS Number	LOR	Unit	EB2027484-011	EB2027484-012	EB2027484-013	--------	--------
				Result	Result	Result	----	----
EP068D: Pyrethroids - Continued								
Bifenthrin	82657-04-3	0.05	mg/kg	<0.25	<0.05	<0.05	----	----
EP069: Toxaphene								
Toxaphene	8001-35-2	2	mg/kg	<10	<2	<2	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.8	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.8	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.8	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<2	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.8	<0.5	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.8	<0.5	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.8	<0.5	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.8	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.8	<0.5	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.8	<0.5	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.8	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	----	----
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	----	----
Tributyltin	56573-85-4	0.5	µgSn/kg	**4.6**	**4.5**	<0.5	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.19	<0.04	<0.04	----	----
2.4-DB	94-82-6	0.02	mg/kg	<0.19	<0.04	<0.04	----	----
Dicamba	1918-00-9	0.02	mg/kg	<0.20	<0.04	<0.04	----	----
Mecoprop	93-65-2	0.02	mg/kg	<0.19	<0.04	<0.04	----	----
MCPA	94-74-6	0.02	mg/kg	<0.19	<0.04	<0.04	----	----
2.4-DP	120-36-5	0.02	mg/kg	<0.19	<0.04	<0.04	----	----
2.4-D	94-75-7	0.02	mg/kg	<0.19	<0.04	<0.04	----	----
Triclopyr	55335-06-3	0.02	mg/kg	<0.19	<0.04	<0.04	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.19	<0.04	<0.04	----	----
2.4.5-T	93-76-5	0.02	mg/kg	<0.19	<0.04	<0.04	----	----
MCPB	94-81-5	0.02	mg/kg	<0.19	<0.04	<0.04	----	----
Picloram	1918-02-1	0.02	mg/kg	<0.19	<0.04	<0.04	----	----
Clopyralid	1702-17-6	0.02	mg/kg	<0.20	<0.04	<0.04	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED11 0-50	SED11 50-96	SED11 96-150	----	----
				Client sampling date / time	20-Oct-2020 13:40	20-Oct-2020 13:40	20-Oct-2020 13:40	----	----
Compound	CAS Number	LOR	Unit		EB2027484-011	EB2027484-012	EB2027484-013	--------	--------
					Result	Result	Result	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.19	<0.04	<0.04	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**115**	**106**	**103**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**94.1**	**108**	**84.4**	----	----
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**87.2**	**93.0**	**91.3**	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**80.7**	**76.6**	**89.7**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**76.7**	**61.4**	**78.4**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**74.3**	**73.6**	**84.6**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**78.4**	**87.0**	**80.2**	----	----
Anthracene-d10	1719-06-8	0.5	%		**90.4**	**92.8**	**88.0**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**96.2**	**98.8**	**95.3**	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**56.0**	**56.8**	**91.4**	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**65.6**	**54.3**	**64.7**	----	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP069: Surrogate			
Decachlorobiphenyl	2051-24-3	70	130
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	154
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	156
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080-SD: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	145
Toluene-D8	2037-26-5	42	144
4-Bromofluorobenzene	460-00-4	58	142
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP130S: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	14	102
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	119
EP131T: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	106
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	55	135
Anthracene-d10	1719-06-8	70	136
4-Terphenyl-d14	1718-51-0	57	127
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2027755**	Page	: 1 of 5
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 23-Oct-2020 10:10
Order number	: ----	Date Analysis Commenced	: 29-Oct-2020
C-O-C number	: ----	Issue Date	: 30-Oct-2020 12:44
Sampler	: TIM ALEXANDER		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 13		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- ASS: EA033 (CRS Suite):Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA033 (CRS Suite): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED16 0-68	SED16 68-122	SED2 0-57	SED2 57-126	SED12 0-49
			Client sampling date / time	20-Oct-2020 11:05	20-Oct-2020 11:05	20-Oct-2020 10:10	20-Oct-2020 10:10	20-Oct-2020 09:15
Compound	CAS Number	LOR	Unit	EB2027755-001	EB2027755-002	EB2027755-003	EB2027755-004	EB2027755-005
				Result	Result	Result	Result	Result
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	8.1	6.8	7.0	8.0	6.6
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.700	1.20	1.27	1.50	2.08
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	436	748	794	937	1300
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	1.45	1.44	1.47	2.68	1.84
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	290	287	293	535	368
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	0.46	0.46	0.47	0.86	0.59
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	0.39	0.89	0.96	0.93	1.69
Net Acidity (acidity units)	----	10	mole H+ / t	243	556	598	580	1050
Liming Rate	----	1	kg CaCO3/t	18	42	45	44	79
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.70	1.20	1.27	1.50	2.08
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	436	748	794	937	1300
Liming Rate excluding ANC	----	1	kg CaCO3/t	33	56	60	70	97
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	2.14	5.85	5.71	1.44	9.48

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED12 49-106	SED12 106-152	SED7 0-50	SED7 50-100	SED7 100-153
			Client sampling date / time	20-Oct-2020 09:15	20-Oct-2020 09:15	20-Oct-2020 12:30	20-Oct-2020 12:30	20-Oct-2020 12:30
Compound	CAS Number	LOR	Unit	EB2027755-006	EB2027755-007	EB2027755-008	EB2027755-009	EB2027755-010
				Result	Result	Result	Result	Result
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	6.9	7.4	6.6	7.3	6.5
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	2.75	0.279	2.43	2.54	2.44
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	1710	174	1510	1580	1520
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	2.11	0.36	1.76	2.62	1.96
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	421	72	352	522	392
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	0.68	0.12	0.56	0.84	0.63
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	2.30	0.20	2.05	1.98	2.02
Net Acidity (acidity units)	----	10	mole H+ / t	1430	126	1280	1240	1260
Liming Rate	----	1	kg CaCO3/t	107	9	96	93	95
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	2.75	0.28	2.43	2.54	2.44
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	1710	174	1510	1580	1520
Liming Rate excluding ANC	----	1	kg CaCO3/t	128	13	114	119	114
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	7.94	0.72	8.19	5.61	6.13

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED11 0-50	SED11 50-96	SED11 96-150	----	----
			Client sampling date / time	20-Oct-2020 13:40	20-Oct-2020 13:40	20-Oct-2020 13:40	----	----
Compound	CAS Number	LOR	Unit	EB2027755-011	EB2027755-012	EB2027755-013	--------	--------
				Result	Result	Result	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	**6.6**	**6.8**	**7.0**	----	----
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	----	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	**2.05**	**1.29**	**0.551**	----	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	**1280**	**806**	**344**	----	----
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	**1.70**	**1.17**	**0.69**	----	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	**339**	**233**	**139**	----	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	**0.54**	**0.37**	**0.22**	----	----
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	**1.5**	**1.5**	**1.5**	----	----
Net Acidity (sulfur units)	----	0.02	% S	**1.69**	**1.04**	**0.40**	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	**1050**	**650**	**251**	----	----
Liming Rate	----	1	kg CaCO3/t	**79**	**49**	**19**	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	**2.05**	**1.29**	**0.55**	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	**1280**	**806**	**344**	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	**96**	**60**	**26**	----	----
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	**12.4**	**5.25**	**1.62**	----	----

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2028044**	Page	: 1 of 17
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 28-Oct-2020 09:30
Order number	: ----	Date Analysis Commenced	: 29-Oct-2020
C-O-C number	: ----	Issue Date	: 06-Nov-2020 14:30
Sampler	: TIM ALEXANDER		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 9		
No. of samples analysed	: 8		

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Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

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This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Diana Mesa	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

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Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG020-SD (Total Metals in Sediments by ICP-MS): Sample SED14 0-41 (EB2028044-001) shows poor duplicate results due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- EP080-SD (TRH Volatiles/BTEX in Sediments): Sample 'SED22 60-128 shows poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- EG048G (Hexavalent Chromium by Alkaline Digestion): Samples were diluted due to matrix interference. LOR adjusted accordingly.
- EA150H: Soil particle density results fell outside the scope of AS1289.3.6.3. Results should be scrutinised accordingly.
- EP202: Poor matrix spike recoveries for Picloram and Clopyralid due to matrix effects.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP080-SD: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP131A: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG020-T (Total Metals by ICP-MS): Sample SED14 41-90 (EB2028044-002) shows poor matrix spike recovery due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- EP131B : LOR is raised due to high amount of moistures is present.
- EP132B-SD : LOR is raised due to high amount of moistures is present.
- EP130: LOR for sample raised due to the high amount of moisture present.
- **Specialty Organics analysis is conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- EK067G (Total Phosphorus as P): Sample EB2028044_002 (SED14 41-90) shows poor matrix spike recovery due to sample heterogeneity. Confirmed by visual inspection.
- EP068/069: LOR for particular sample(s) raised due to high moisture content.
- EP131B : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EP132B-SD : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EP090 Organotins: Sample 'SED14 41-90' shows poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED14 0-41	SED14 41-90	SED14 90-153	SED22 0-60	SED22 60-128
			Client sampling date / time	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 13:25	26-Oct-2020 13:25
Compound	CAS Number	LOR	Unit	EB2028044-001	EB2028044-002	EB2028044-003	EB2028044-004	EB2028044-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	77.8	72.4	29.8	59.4	66.5
EA150: Particle Sizing								
+75µm	----	1	%	30	78	94	44	23
+150µm	----	1	%	25	70	76	24	17
+300µm	----	1	%	21	10	9	11	15
+425µm	----	1	%	19	6	2	10	14
+600µm	----	1	%	18	6	<1	9	14
+1180µm	----	1	%	15	4	<1	7	12
+2.36mm	----	1	%	10	2	<1	3	9
+4.75mm	----	1	%	3	<1	<1	<1	3
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	23	3	<1	18	14
Silt (2-60 µm)	----	1	%	45	16	5	36	60
Sand (0.06-2.00 mm)	----	1	%	21	78	95	42	16
Gravel (>2mm)	----	1	%	11	3	<1	4	10
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.26	2.47	2.65	2.32	2.46
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	0.96	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	35.9	9.32	1.66	8.69	18.2
Cadmium	7440-43-9	0.1	mg/kg	6.8	<0.1	<0.1	0.3	0.4
Chromium	7440-47-3	1.0	mg/kg	24.4	27.3	5.2	20.7	35.5
Copper	7440-50-8	1.0	mg/kg	70.0	24.4	2.9	91.7	20.8
Cobalt	7440-48-4	0.5	mg/kg	12.9	15.5	2.9	11.4	9.7
Lead	7439-92-1	1.0	mg/kg	260	23.2	2.3	46.4	10.7
Manganese	7439-96-5	10	mg/kg	143	134	29	156	266
Nickel	7440-02-0	1.0	mg/kg	13.4	19.3	4.3	14.9	22.0
Selenium	7782-49-2	0.1	mg/kg	1.1	1.4	0.1	0.7	1.5
Silver	7440-22-4	0.1	mg/kg	1.1	0.1	<0.1	<0.1	<0.1

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED14 0-41	SED14 41-90	SED14 90-153	SED22 0-60	SED22 60-128
				Client sampling date / time	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 13:25	26-Oct-2020 13:25
Compound	CAS Number	LOR	Unit		EB2028044-001	EB2028044-002	EB2028044-003	EB2028044-004	EB2028044-005
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Zinc	7440-66-6	1.0	mg/kg		880	51.9	18.6	114	60.4
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		10.9	12.1	5.6	31.8	12.5
Beryllium	7440-41-7	0.1	mg/kg		0.2	0.2	<0.1	0.3	0.4
Boron	7440-42-8	5	mg/kg		37	44	<5	22	49
Molybdenum	7439-98-7	0.1	mg/kg		8.7	6.1	0.4	2.2	4.6
Tin	7440-31-5	0.1	mg/kg		1.8	0.6	0.2	2.0	0.5
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		3.57	0.20	<0.01	0.12	0.05
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<50.0	<39.7	<20.0	<40.6	<40.0
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		140	50	70	160	210
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		170	280	40	90	170
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		0.3	<0.1	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		0.3	<0.1	<0.1	<0.1	<0.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		6060	5380	440	2620	2620
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		6060	5380	440	2620	2620
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		667	397	141	300	366
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.05	mg/kg		<0.12	<0.12	<0.05	----	----
Mirex	2385-85-5	0.20	mg/kg		----	----	----	<0.40	<0.40
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.12	<0.12	<0.05	<0.10	<0.10
Simazine	122-34-9	0.05	mg/kg		<0.12	<0.12	<0.05	<0.10	<0.10

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED14 0-41	SED14 41-90	SED14 90-153	SED22 0-60	SED22 60-128
				Client sampling date / time	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 13:25	26-Oct-2020 13:25
Compound	CAS Number	LOR	Unit		EB2028044-001	EB2028044-002	EB2028044-003	EB2028044-004	EB2028044-005
					Result	Result	Result	Result	Result
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		<0.12	<0.12	<0.05	<0.10	<0.10
EP069: Toxaphene									
Toxaphene	8001-35-2	2	mg/kg		<5	<5	<2	<4	<4
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	3	mg/kg		----	----	----	**10**	**4**
>C16 - C34 Fraction	----	3	mg/kg		----	----	----	**121**	**7**
>C34 - C40 Fraction	----	5	mg/kg		----	----	----	**18**	<5
>C10 - C40 Fraction (sum)	----	3	mg/kg		----	----	----	**149**	**11**
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg		----	----	----	**8**	**4**
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	3	mg/kg		----	----	----	<3	<3
C10 - C14 Fraction	----	3	mg/kg		----	----	----	**6**	**4**
C15 - C28 Fraction	----	3	mg/kg		----	----	----	**91**	**5**
C29 - C36 Fraction	----	5	mg/kg		----	----	----	**42**	<5
^ C10 - C36 Fraction (sum)	----	3	mg/kg		----	----	----	**139**	**9**
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons									
C6 - C10 Fraction	C6_C10	3	mg/kg		----	----	----	<3	<3
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg		----	----	----	<3.0	<3.0
EP080-SD: BTEXN									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED14 0-41	SED14 41-90	SED14 90-153	SED22 0-60	SED22 60-128
				Client sampling date / time	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 13:25	26-Oct-2020 13:25
Compound	CAS Number	LOR	Unit		EB2028044-001	EB2028044-002	EB2028044-003	EB2028044-004	EB2028044-005
					Result	Result	Result	Result	Result
EP080-SD: BTEXN - Continued									
Benzene	71-43-2	0.2	mg/kg		----	----	----	<0.2	<0.2
Toluene	108-88-3	0.2	mg/kg		----	----	----	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg		----	----	----	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg		----	----	----	<0.2	<0.2
ortho-Xylene	95-47-6	0.2	mg/kg		----	----	----	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		----	----	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		----	----	----	<0.2	<0.2
Naphthalene	91-20-3	0.2	mg/kg		----	----	----	**1.6**	<0.2
EP090: Organotin Compounds									
Monobutyltin	78763-54-9	1	µgSn/kg		<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg		<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg		**15.0**	**0.7**	<0.5	<0.5	<0.5
EP130A: Organophosphorus Pesticides (Ultra-trace)									
Bromophos-ethyl	4824-78-6	10	µg/kg		----	----	----	<12	<12
Carbophenothion	786-19-6	10	µg/kg		----	----	----	<12	<12
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg		----	----	----	<12.0	<12.0
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg		----	----	----	<12	<12
Chlorpyrifos	2921-88-2	10	µg/kg		----	----	----	<12	<12
Chlorpyrifos-methyl	5598-13-0	10	µg/kg		----	----	----	<12	<12
Demeton-S-methyl	919-86-8	10	µg/kg		----	----	----	<12	<12
Diazinon	333-41-5	10	µg/kg		----	----	----	<12	<12
Dichlorvos	62-73-7	10	µg/kg		----	----	----	<12	<12
Dimethoate	60-51-5	10	µg/kg		----	----	----	<12	<12
Ethion	563-12-2	10	µg/kg		----	----	----	<12	<12
Fenamiphos	22224-92-6	10	µg/kg		----	----	----	<12	<12
Fenthion	55-38-9	10	µg/kg		----	----	----	<12	<12
Malathion	121-75-5	10	µg/kg		----	----	----	<12	<12
Azinphos Methyl	86-50-0	10	µg/kg		----	----	----	<12	<12
Monocrotophos	6923-22-4	10	µg/kg		----	----	----	<12	<12
Parathion	56-38-2	10	µg/kg		----	----	----	<12	<12
Parathion-methyl	298-00-0	10	µg/kg		----	----	----	<12	<12
Pirimphos-ethyl	23505-41-1	10	µg/kg		----	----	----	<12	<12
Prothiofos	34643-46-4	10	µg/kg		----	----	----	<12	<12
EP131A: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED14 0-41	SED14 41-90	SED14 90-153	SED22 0-60	SED22 60-128
				Client sampling date / time	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 13:25	26-Oct-2020 13:25
Compound	CAS Number	LOR	Unit		EB2028044-001	EB2028044-002	EB2028044-003	EB2028044-004	EB2028044-005
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
Aldrin	309-00-2	0.50	µg/kg		----	----	----	<0.50	<0.50
alpha-BHC	319-84-6	0.50	µg/kg		----	----	----	<0.50	<0.50
beta-BHC	319-85-7	0.50	µg/kg		----	----	----	<0.50	<0.50
delta-BHC	319-86-8	0.50	µg/kg		----	----	----	<0.50	<0.50
4.4`-DDD	72-54-8	0.50	µg/kg		----	----	----	<0.50	<0.50
4.4`-DDE	72-55-9	0.50	µg/kg		----	----	----	<0.50	<0.50
4.4`-DDT	50-29-3	0.50	µg/kg		----	----	----	<0.50	<0.50
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.50	µg/kg		----	----	----	<0.50	<0.50
Dieldrin	60-57-1	0.50	µg/kg		----	----	----	<0.50	<0.50
alpha-Endosulfan	959-98-8	0.50	µg/kg		----	----	----	<0.50	<0.50
beta-Endosulfan	33213-65-9	0.50	µg/kg		----	----	----	<0.50	<0.50
Endosulfan sulfate	1031-07-8	0.50	µg/kg		----	----	----	<0.50	<0.50
^ Endosulfan (sum)	115-29-7	0.50	µg/kg		----	----	----	<0.50	<0.50
Endrin	72-20-8	0.50	µg/kg		----	----	----	<0.50	<0.50
Endrin aldehyde	7421-93-4	0.50	µg/kg		----	----	----	<0.50	<0.50
Endrin ketone	53494-70-5	0.50	µg/kg		----	----	----	<0.50	<0.50
Heptachlor	76-44-8	0.50	µg/kg		----	----	----	<0.50	<0.50
Heptachlor epoxide	1024-57-3	0.50	µg/kg		----	----	----	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg		----	----	----	<0.50	<0.50
gamma-BHC	58-89-9	0.25	µg/kg		----	----	----	<0.25	<0.25
Methoxychlor	72-43-5	0.50	µg/kg		----	----	----	<0.50	<0.50
cis-Chlordane	5103-71-9	0.25	µg/kg		----	----	----	<0.25	<0.25
trans-Chlordane	5103-74-2	0.25	µg/kg		----	----	----	<0.25	<0.25
^ Total Chlordane (sum)	----	0.25	µg/kg		----	----	----	<0.25	<0.25
Oxychlordane	27304-13-8	0.50	µg/kg		----	----	----	<0.50	<0.50
EP131B: Polychlorinated Biphenyls (as Aroclors)									
^ Total Polychlorinated biphenyls	----	5.0	µg/kg		----	----	----	<31.2	<31.2
Aroclor 1016	12674-11-2	5.0	µg/kg		----	----	----	<31.2	<31.2
Aroclor 1221	11104-28-2	5.0	µg/kg		----	----	----	<31.2	<31.2
Aroclor 1232	11141-16-5	5.0	µg/kg		----	----	----	<31.2	<31.2
Aroclor 1242	53469-21-9	5.0	µg/kg		----	----	----	<31.2	<31.2
Aroclor 1248	12672-29-6	5.0	µg/kg		----	----	----	<31.2	<31.2
Aroclor 1254	11097-69-1	5.0	µg/kg		----	----	----	<31.2	<31.2
Aroclor 1260	11096-82-5	5.0	µg/kg		----	----	----	<31.2	<31.2

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED14 0-41	SED14 41-90	SED14 90-153	SED22 0-60	SED22 60-128
				Client sampling date / time	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 13:25	26-Oct-2020 13:25
Compound	CAS Number	LOR	Unit		EB2028044-001	EB2028044-002	EB2028044-003	EB2028044-004	EB2028044-005
					Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	5	µg/kg		----	----	----	**2020**	**11**
2-Methylnaphthalene	91-57-6	5	µg/kg		----	----	----	**695**	**6**
Acenaphthylene	208-96-8	4	µg/kg		----	----	----	**788**	<5
Acenaphthene	83-32-9	4	µg/kg		----	----	----	**1130**	<5
Fluorene	86-73-7	4	µg/kg		----	----	----	**1750**	<5
Phenanthrene	85-01-8	4	µg/kg		----	----	----	**5200**	**15**
Anthracene	120-12-7	4	µg/kg		----	----	----	**2500**	**5**
Fluoranthene	206-44-0	4	µg/kg		----	----	----	**6090**	**12**
Pyrene	129-00-0	4	µg/kg		----	----	----	**5700**	**12**
Benz(a)anthracene	56-55-3	4	µg/kg		----	----	----	**3160**	**5**
Chrysene	218-01-9	4	µg/kg		----	----	----	**2800**	<5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg		----	----	----	**2580**	**6**
Benzo(k)fluoranthene	207-08-9	4	µg/kg		----	----	----	**1120**	**7**
Benzo(e)pyrene	192-97-2	4	µg/kg		----	----	----	**1240**	<5
Benzo(a)pyrene	50-32-8	4	µg/kg		----	----	----	**3090**	<5
Perylene	198-55-0	4	µg/kg		----	----	----	**1830**	**91**
Benzo(g.h.i)perylene	191-24-2	4	µg/kg		----	----	----	**1250**	<5
Dibenz(a.h)anthracene	53-70-3	4	µg/kg		----	----	----	**367**	<5
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg		----	----	----	**1060**	<5
Coronene	191-07-1	5	µg/kg		----	----	----	**424**	<5
^ **Sum of PAHs**	----	4	µg/kg		----	----	----	**44800**	**170**
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED14 0-41	SED14 41-90	SED14 90-153	SED22 0-60	SED22 60-128
				Client sampling date / time	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 13:25	26-Oct-2020 13:25
Compound	CAS Number	LOR	Unit		EB2028044-001	EB2028044-002	EB2028044-003	EB2028044-004	EB2028044-005
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	<0.02	<0.02
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		90.8	101	92.1	92.1	103
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		92.8	97.5	81.8	98.3	104
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		78.7	84.5	90.2	89.4	104
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		85.0	81.7	87.2	79.8	82.1
2-Chlorophenol-D4	93951-73-6	0.5	%		77.4	76.4	86.4	77.6	77.3
2.4.6-Tribromophenol	118-79-6	0.5	%		78.0	74.2	64.0	78.2	95.4
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		86.5	84.3	86.0	83.2	88.8
Anthracene-d10	1719-06-8	0.5	%		98.8	94.0	96.0	95.6	93.2
4-Terphenyl-d14	1718-51-0	0.5	%		102	97.0	97.5	93.6	103
EP080-SD: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	58.7	98.5
Toluene-D8	2037-26-5	0.2	%		----	----	----	55.7	69.3
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	67.3	86.4
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		93.1	72.6	136	97.6	110
EP130S: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	10	%		----	----	----	50.8	69.0
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.50	%		----	----	----	54.8	68.4
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.5	%		----	----	----	88.1	129
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		----	----	----	102	96.3
Anthracene-d10	1719-06-8	10	%		----	----	----	115	80.2
4-Terphenyl-d14	1718-51-0	10	%		----	----	----	100	78.0
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		63.2	78.3	79.8	51.4	77.7

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED17 0-70	SED17 70-144	SED24 0-60	----	----
			Client sampling date / time	26-Oct-2020 14:15	26-Oct-2020 14:15	26-Oct-2020 11:45	----	----
Compound	CAS Number	LOR	Unit	EB2028044-006	EB2028044-007	EB2028044-008	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**32.0**	**41.0**	**59.0**	----	----
EA150: Particle Sizing								
+75µm	----	1	%	**77**	**75**	----	----	----
+150µm	----	1	%	**62**	**66**	----	----	----
+300µm	----	1	%	**15**	**13**	----	----	----
+425µm	----	1	%	**9**	**7**	----	----	----
+600µm	----	1	%	**8**	**6**	----	----	----
+1180µm	----	1	%	**5**	**5**	----	----	----
+2.36mm	----	1	%	**2**	**3**	----	----	----
+4.75mm	----	1	%	<1	<1	----	----	----
+9.5mm	----	1	%	<1	<1	----	----	----
+19.0mm	----	1	%	<1	<1	----	----	----
+37.5mm	----	1	%	<1	<1	----	----	----
+75.0mm	----	1	%	<1	<1	----	----	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	**6**	**8**	----	----	----
Silt (2-60 µm)	----	1	%	**15**	**16**	----	----	----
Sand (0.06-2.00 mm)	----	1	%	**76**	**73**	----	----	----
Gravel (>2mm)	----	1	%	**3**	**3**	----	----	----
Cobbles (>6cm)	----	1	%	<1	<1	----	----	----
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	**2.35**	**2.60**	----	----	----
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	----	----
Arsenic	7440-38-2	1.00	mg/kg	**2.41**	**2.39**	**8.12**	----	----
Cadmium	7440-43-9	0.1	mg/kg	**0.2**	<0.1	**0.3**	----	----
Chromium	7440-47-3	1.0	mg/kg	**7.5**	**8.6**	**20.9**	----	----
Copper	7440-50-8	1.0	mg/kg	**5.4**	**5.4**	**36.0**	----	----
Cobalt	7440-48-4	0.5	mg/kg	**4.4**	**4.7**	**11.7**	----	----
Lead	7439-92-1	1.0	mg/kg	**6.8**	**4.3**	**41.0**	----	----
Manganese	7439-96-5	10	mg/kg	**43**	**52**	**147**	----	----
Nickel	7440-02-0	1.0	mg/kg	**5.9**	**6.4**	**14.8**	----	----
Selenium	7782-49-2	0.1	mg/kg	**0.2**	**0.2**	**0.9**	----	----
Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	**0.1**	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED17 0-70	SED17 70-144	SED24 0-60	----	----
				Client sampling date / time	26-Oct-2020 14:15	26-Oct-2020 14:15	26-Oct-2020 11:45	----	----
Compound	CAS Number	LOR	Unit		EB2028044-006	EB2028044-007	EB2028044-008	--------	--------
					Result	Result	Result	----	----
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Zinc	7440-66-6	1.0	mg/kg		**47.7**	**30.2**	**127**	----	----
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		**6.3**	**7.3**	**32.5**	----	----
Beryllium	7440-41-7	0.1	mg/kg		<0.1	**0.1**	**0.3**	----	----
Boron	7440-42-8	5	mg/kg		**7**	**13**	**26**	----	----
Molybdenum	7439-98-7	0.1	mg/kg		**1.1**	**0.9**	**2.0**	----	----
Tin	7440-31-5	0.1	mg/kg		**0.2**	**0.2**	**2.9**	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		**0.04**	**0.01**	**0.13**	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<20.3	<19.8	<40.6	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		**120**	**60**	**180**	----	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		**50**	**70**	**70**	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		**1240**	**1550**	**3090**	----	----
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		**1240**	**1550**	**3090**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		**146**	**210**	**308**	----	----
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Mirex	2385-85-5	0.20	mg/kg		----	----	<0.40	----	----
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.05	<0.05	<0.10	----	----
Simazine	122-34-9	0.05	mg/kg		<0.05	<0.05	<0.10	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED17 0-70	SED17 70-144	SED24 0-60	----	----
			Client sampling date / time	26-Oct-2020 14:15	26-Oct-2020 14:15	26-Oct-2020 11:45	----	----
Compound	CAS Number	LOR	Unit	EB2028044-006	EB2028044-007	EB2028044-008	--------	--------
				Result	Result	Result	----	----
EP068D: Pyrethroids								
Bifenthrin	82657-04-3	0.05	mg/kg	<0.05	<0.05	<0.10	----	----
EP069: Toxaphene								
Toxaphene	8001-35-2	2	mg/kg	<2	<2	<4	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	**0.7**	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	3	mg/kg	----	----	**32**	----	----
>C16 - C34 Fraction	----	3	mg/kg	----	----	**459**	----	----
>C34 - C40 Fraction	----	5	mg/kg	----	----	**61**	----	----
>C10 - C40 Fraction (sum)	----	3	mg/kg	----	----	**552**	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg	----	----	**30**	----	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	----	----	<3	----	----
C10 - C14 Fraction	----	3	mg/kg	----	----	**16**	----	----
C15 - C28 Fraction	----	3	mg/kg	----	----	**366**	----	----
C29 - C36 Fraction	----	5	mg/kg	----	----	**136**	----	----
^ C10 - C36 Fraction (sum)	----	3	mg/kg	----	----	**518**	----	----
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	C6_C10	3	mg/kg	----	----	<3	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg	----	----	<3.0	----	----
EP080-SD: BTEXN								

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED17 0-70	SED17 70-144	SED24 0-60	----	----
				Client sampling date / time	26-Oct-2020 14:15	26-Oct-2020 14:15	26-Oct-2020 11:45	----	----
Compound	CAS Number	LOR	Unit		EB2028044-006	EB2028044-007	EB2028044-008	--------	--------
					Result	Result	Result	----	----
EP080-SD: BTEXN - Continued									
Benzene	71-43-2	0.2	mg/kg		----	----	<0.2	----	----
Toluene	108-88-3	0.2	mg/kg		----	----	<0.2	----	----
Ethylbenzene	100-41-4	0.2	mg/kg		----	----	<0.2	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg		----	----	<0.2	----	----
ortho-Xylene	95-47-6	0.2	mg/kg		----	----	<0.2	----	----
^ **Total Xylenes**	----	0.5	mg/kg		----	----	<0.5	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		----	----	<0.2	----	----
Naphthalene	91-20-3	0.2	mg/kg		----	----	**1.5**	----	----
EP090: Organotin Compounds									
Monobutyltin	78763-54-9	1	µgSn/kg		<1	<1	<1	----	----
Dibutyltin	1002-53-5	1	µgSn/kg		<1	<1	<1	----	----
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	<0.5	<0.5	----	----
EP130A: Organophosphorus Pesticides (Ultra-trace)									
Bromophos-ethyl	4824-78-6	10	µg/kg		----	----	<12	----	----
Carbophenothion	786-19-6	10	µg/kg		----	----	<12	----	----
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg		----	----	<12.0	----	----
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg		----	----	<12	----	----
Chlorpyrifos	2921-88-2	10	µg/kg		----	----	<12	----	----
Chlorpyrifos-methyl	5598-13-0	10	µg/kg		----	----	<12	----	----
Demeton-S-methyl	919-86-8	10	µg/kg		----	----	<12	----	----
Diazinon	333-41-5	10	µg/kg		----	----	<12	----	----
Dichlorvos	62-73-7	10	µg/kg		----	----	<12	----	----
Dimethoate	60-51-5	10	µg/kg		----	----	<12	----	----
Ethion	563-12-2	10	µg/kg		----	----	<12	----	----
Fenamiphos	22224-92-6	10	µg/kg		----	----	<12	----	----
Fenthion	55-38-9	10	µg/kg		----	----	<12	----	----
Malathion	121-75-5	10	µg/kg		----	----	<12	----	----
Azinphos Methyl	86-50-0	10	µg/kg		----	----	<12	----	----
Monocrotophos	6923-22-4	10	µg/kg		----	----	<12	----	----
Parathion	56-38-2	10	µg/kg		----	----	<12	----	----
Parathion-methyl	298-00-0	10	µg/kg		----	----	<12	----	----
Pirimphos-ethyl	23505-41-1	10	µg/kg		----	----	<12	----	----
Prothiofos	34643-46-4	10	µg/kg		----	----	<12	----	----
EP131A: Organochlorine Pesticides									

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED17 0-70	SED17 70-144	SED24 0-60	----	----
				Client sampling date / time	26-Oct-2020 14:15	26-Oct-2020 14:15	26-Oct-2020 11:45	----	----
Compound	CAS Number	LOR	Unit		EB2028044-006	EB2028044-007	EB2028044-008	--------	--------
					Result	Result	Result	----	----
EP131A: Organochlorine Pesticides - Continued									
Aldrin	309-00-2	0.50	µg/kg		----	----	<0.50	----	----
alpha-BHC	319-84-6	0.50	µg/kg		----	----	<0.50	----	----
beta-BHC	319-85-7	0.50	µg/kg		----	----	<0.50	----	----
delta-BHC	319-86-8	0.50	µg/kg		----	----	<0.50	----	----
4.4`-DDD	72-54-8	0.50	µg/kg		----	----	<0.50	----	----
4.4`-DDE	72-55-9	0.50	µg/kg		----	----	<0.50	----	----
4.4`-DDT	50-29-3	0.50	µg/kg		----	----	<0.50	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.50	µg/kg		----	----	<0.50	----	----
Dieldrin	60-57-1	0.50	µg/kg		----	----	<0.50	----	----
alpha-Endosulfan	959-98-8	0.50	µg/kg		----	----	<0.50	----	----
beta-Endosulfan	33213-65-9	0.50	µg/kg		----	----	<0.50	----	----
Endosulfan sulfate	1031-07-8	0.50	µg/kg		----	----	<0.50	----	----
^ **Endosulfan (sum)**	115-29-7	0.50	µg/kg		----	----	<0.50	----	----
Endrin	72-20-8	0.50	µg/kg		----	----	<0.50	----	----
Endrin aldehyde	7421-93-4	0.50	µg/kg		----	----	<0.50	----	----
Endrin ketone	53494-70-5	0.50	µg/kg		----	----	<0.50	----	----
Heptachlor	76-44-8	0.50	µg/kg		----	----	<0.50	----	----
Heptachlor epoxide	1024-57-3	0.50	µg/kg		----	----	<0.50	----	----
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg		----	----	<0.50	----	----
gamma-BHC	58-89-9	0.25	µg/kg		----	----	<0.25	----	----
Methoxychlor	72-43-5	0.50	µg/kg		----	----	<0.50	----	----
cis-Chlordane	5103-71-9	0.25	µg/kg		----	----	<0.25	----	----
trans-Chlordane	5103-74-2	0.25	µg/kg		----	----	<0.25	----	----
^ **Total Chlordane (sum)**	----	0.25	µg/kg		----	----	<0.25	----	----
Oxychlordane	27304-13-8	0.50	µg/kg		----	----	<0.50	----	----
EP131B: Polychlorinated Biphenyls (as Aroclors)									
^ **Total Polychlorinated biphenyls**	----	5.0	µg/kg		----	----	<31.2	----	----
Aroclor 1016	12674-11-2	5.0	µg/kg		----	----	<31.2	----	----
Aroclor 1221	11104-28-2	5.0	µg/kg		----	----	<31.2	----	----
Aroclor 1232	11141-16-5	5.0	µg/kg		----	----	<31.2	----	----
Aroclor 1242	53469-21-9	5.0	µg/kg		----	----	<31.2	----	----
Aroclor 1248	12672-29-6	5.0	µg/kg		----	----	<31.2	----	----
Aroclor 1254	11097-69-1	5.0	µg/kg		----	----	<31.2	----	----
Aroclor 1260	11096-82-5	5.0	µg/kg		----	----	<31.2	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED17 0-70	SED17 70-144	SED24 0-60	----	----
				Client sampling date / time	26-Oct-2020 14:15	26-Oct-2020 14:15	26-Oct-2020 11:45	----	----
Compound	CAS Number	LOR	Unit		EB2028044-006	EB2028044-007	EB2028044-008	--------	--------
					Result	Result	Result	----	----
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	5	µg/kg		----	----	**1500**	----	----
2-Methylnaphthalene	91-57-6	5	µg/kg		----	----	**540**	----	----
Acenaphthylene	208-96-8	4	µg/kg		----	----	**498**	----	----
Acenaphthene	83-32-9	4	µg/kg		----	----	**897**	----	----
Fluorene	86-73-7	4	µg/kg		----	----	**1310**	----	----
Phenanthrene	85-01-8	4	µg/kg		----	----	**4430**	----	----
Anthracene	120-12-7	4	µg/kg		----	----	**1780**	----	----
Fluoranthene	206-44-0	4	µg/kg		----	----	**4460**	----	----
Pyrene	129-00-0	4	µg/kg		----	----	**4120**	----	----
Benz(a)anthracene	56-55-3	4	µg/kg		----	----	**2400**	----	----
Chrysene	218-01-9	4	µg/kg		----	----	**1780**	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg		----	----	**1640**	----	----
Benzo(k)fluoranthene	207-08-9	4	µg/kg		----	----	**632**	----	----
Benzo(e)pyrene	192-97-2	4	µg/kg		----	----	**782**	----	----
Benzo(a)pyrene	50-32-8	4	µg/kg		----	----	**1920**	----	----
Perylene	198-55-0	4	µg/kg		----	----	**1470**	----	----
Benzo(g.h.i)perylene	191-24-2	4	µg/kg		----	----	**784**	----	----
Dibenz(a.h)anthracene	53-70-3	4	µg/kg		----	----	**226**	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg		----	----	**660**	----	----
Coronene	191-07-1	5	µg/kg		----	----	**275**	----	----
^ **Sum of PAHs**	----	4	µg/kg		----	----	**32100**	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.02	<0.02	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED17 0-70	SED17 70-144	SED24 0-60	----	----
				Client sampling date / time	26-Oct-2020 14:15	26-Oct-2020 14:15	26-Oct-2020 11:45	----	----
Compound	CAS Number	LOR	Unit		EB2028044-006	EB2028044-007	EB2028044-008	--------	--------
					Result	Result	Result	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		95.9	101	91.2	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		100	98.9	100	----	----
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		98.7	105	109	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		79.0	78.4	75.5	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		78.2	75.9	74.9	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		67.9	70.5	81.7	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		80.2	86.1	80.7	----	----
Anthracene-d10	1719-06-8	0.5	%		88.4	93.5	92.7	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		84.6	90.6	89.7	----	----
EP080-SD: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	64.1	----	----
Toluene-D8	2037-26-5	0.2	%		----	----	64.1	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	72.9	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		91.6	124	80.7	----	----
EP130S: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	10	%		----	----	45.3	----	----
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.50	%		----	----	40.4	----	----
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.5	%		----	----	75.6	----	----
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		----	----	103	----	----
Anthracene-d10	1719-06-8	10	%		----	----	112	----	----
4-Terphenyl-d14	1718-51-0	10	%		----	----	120	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		58.3	50.4	66.0	----	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP069: Surrogate			
Decachlorobiphenyl	2051-24-3	70	130
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	154
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	156
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080-SD: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	145
Toluene-D8	2037-26-5	42	144
4-Bromofluorobenzene	460-00-4	58	142
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP130S: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	14	102
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	119
EP131T: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	106
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	55	135
Anthracene-d10	1719-06-8	70	136
4-Terphenyl-d14	1718-51-0	57	127
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2028138**	Page	: 1 of 9
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 27-Oct-2020 09:05
Order number	: ----	Date Analysis Commenced	: 28-Oct-2020
C-O-C number	: ----	Issue Date	: 12-Nov-2020 11:07
Sampler	: ----		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 9		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Minh Wills	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG035T-LL (Total Mercury Low Level): Positive mercury results have been confirmed by re-extraction and re-analysis.
- It is recognised that EG094-T (Total Metals in Fresh Water by ORC-ICP-MS) is less than EG094-F (Dissolved Metals in Fresh Water by ORC-ICP-MS) for sample SED10 0-50 (EB2028138-006). This was confirmed by re-digestion and re-analysis.
- EN68: This analysis in accordance with National Ocean Disposal Guidelines, Commonwealth of Australia, 2002 - (modified). Results reported are those determined on a 1:4 sediment/seawater elutriate without blank correction.
- EG093: Samples containing high levels of sulfate may precipitate barium under the acidic conditions of this method and may therefore bias results low.

Analytical Results

Sub-Matrix: ELUTRIATE (Matrix: WATER)				Client sample ID	SED15 0-61	SED15 61-114	SED15 114-152	SED10 0-50	SED10 50-83
				Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 15:35	14-Oct-2020 15:35
Compound	CAS Number	LOR	Unit		EB2028138-001	EB2028138-002	EB2028138-003	EB2028138-006	EB2028138-007
					Result	Result	Result	Result	Result
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	----	----	<0.00004	----
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		**0.00206**	----	----	**0.00197**	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		**1.3**	----	----	**0.8**	----
Arsenic	7440-38-2	0.2	µg/L		**55.4**	----	----	**106**	----
Cadmium	7440-43-9	0.05	µg/L		**0.22**	----	----	**0.30**	----
Chromium	7440-47-3	0.2	µg/L		**1.5**	----	----	**1.5**	----
Copper	7440-50-8	0.5	µg/L		**7.6**	----	----	**7.8**	----
Lead	7439-92-1	0.1	µg/L		**7.0**	----	----	**2.0**	----
Nickel	7440-02-0	0.5	µg/L		**2.0**	----	----	**2.4**	----
Silver	7440-22-4	0.1	µg/L		<0.1	----	----	<0.1	----
Zinc	7440-66-6	1	µg/L		**572**	----	----	**1330**	----
EG094T: Total metals in Fresh water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		**1.8**	----	----	**1.1**	----
Arsenic	7440-38-2	0.2	µg/L		**89.4**	----	----	**145**	----
Cadmium	7440-43-9	0.05	µg/L		**3.12**	----	----	**2.82**	----
Chromium	7440-47-3	0.2	µg/L		**41.7**	----	----	**22.7**	----
Copper	7440-50-8	0.5	µg/L		**78.5**	----	----	**52.7**	----
Lead	7439-92-1	0.1	µg/L		**313**	----	----	**139**	----
Nickel	7440-02-0	0.5	µg/L		**23.3**	----	----	**12.9**	----
Silver	7440-22-4	0.1	µg/L		**0.5**	----	----	**0.4**	----
Zinc	7440-66-6	1	µg/L		**748**	----	----	**917**	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**2.12**	**3.36**	**5.18**	**9.84**	**6.84**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.05**	**0.04**	**0.04**	**0.04**	**0.05**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.05**	**0.04**	**0.04**	**0.04**	**0.05**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**2.3**	**4.4**	**6.1**	**9.8**	**10.0**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									

Analytical Results

Sub-Matrix: ELUTRIATE (Matrix: WATER)				Client sample ID	SED15 0-61	SED15 61-114	SED15 114-152	SED10 0-50	SED10 50-83
				Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 15:35	14-Oct-2020 15:35
Compound	CAS Number	LOR	Unit		EB2028138-001	EB2028138-002	EB2028138-003	EB2028138-006	EB2028138-007
					Result	Result	Result	Result	Result
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser - Continued									
^ **Total Nitrogen as N**	----	0.1	mg/L		**2.4**	**4.4**	**6.1**	**9.8**	**10.0**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.43**	**0.45**	**0.28**	**1.25**	**0.87**
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		**0.18**	**0.19**	**0.08**	**0.99**	**0.49**
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	**----**	**----**	**----**	**----**
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**24.4**	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: ELUTRIATE (Matrix: WATER)			Client sample ID	SED10 83-127	Elutriate water	----	----	----
			Client sampling date / time	14-Oct-2020 15:35	14-Oct-2020 11:44	----	----	----
Compound	CAS Number	LOR	Unit	EB2028138-008	EB2028138-009	--------	--------	--------
				Result	Result	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.00004	mg/L	----	<0.00004	----	----	----
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.00004	mg/L	----	<0.00004	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Antimony	7440-36-0	0.2	µg/L	----	<0.2	----	----	----
Arsenic	7440-38-2	0.2	µg/L	----	**0.5**	----	----	----
Cadmium	7440-43-9	0.05	µg/L	----	<0.05	----	----	----
Chromium	7440-47-3	0.2	µg/L	----	<0.2	----	----	----
Copper	7440-50-8	0.5	µg/L	----	**1.1**	----	----	----
Lead	7439-92-1	0.1	µg/L	----	**0.7**	----	----	----
Nickel	7440-02-0	0.5	µg/L	----	**0.6**	----	----	----
Silver	7440-22-4	0.1	µg/L	----	<0.1	----	----	----
Zinc	7440-66-6	1	µg/L	----	**6**	----	----	----
EG094T: Total metals in Fresh water by ORC-ICPMS								
Antimony	7440-36-0	0.2	µg/L	----	<0.2	----	----	----
Arsenic	7440-38-2	0.2	µg/L	----	**0.5**	----	----	----
Cadmium	7440-43-9	0.05	µg/L	----	<0.05	----	----	----
Chromium	7440-47-3	0.2	µg/L	----	**0.7**	----	----	----
Copper	7440-50-8	0.5	µg/L	----	**1.6**	----	----	----
Lead	7439-92-1	0.1	µg/L	----	**2.2**	----	----	----
Nickel	7440-02-0	0.5	µg/L	----	**1.1**	----	----	----
Silver	7440-22-4	0.1	µg/L	----	<0.1	----	----	----
Zinc	7440-66-6	1	µg/L	----	**8**	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**4.80**	**0.06**	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**0.05**	**0.04**	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.05**	**0.04**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**5.4**	**0.4**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								

Analytical Results

Sub-Matrix: **ELUTRIATE** (Matrix: **WATER**)				Client sample ID	**SED10 83-127**	**Elutriate water**	----	----	----
				Client sampling date / time	14-Oct-2020 15:35	14-Oct-2020 11:44	----	----	----
Compound	CAS Number	LOR	Unit		**EB2028138-008**	**EB2028138-009**	--------	--------	--------
					Result	Result	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser - Continued									
^ **Total Nitrogen as N**	----	0.1	mg/L		**5.4**	**0.4**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.32**	**0.04**	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		**0.23**	<0.01	----	----	----
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		**----**	<2	----	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**----**	**94.1**	----	----	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)				Client sample ID	SED15 0-61	SED15 61-114	SED15 114-152	SED10 0-50	SED10 50-83
				Client sampling date / time	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 11:44	14-Oct-2020 15:35	14-Oct-2020 15:35
Compound	*CAS Number*	*LOR*	*Unit*		**EB2028138-001**	**EB2028138-002**	**EB2028138-003**	**EB2028138-006**	**EB2028138-007**
					Result	Result	Result	Result	Result
EN68: Seawater Elutriate Testing Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)									
Seawater Sampling Date	----	-	-		**28/10/2020**	**28/10/2020**	**28/10/2020**	**28/10/2020**	**28/10/2020**

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)			Client sample ID	**SED10 83-127**	**Elutriate water**	**----**	**----**	**----**
			Client sampling date / time	14-Oct-2020 15:35	14-Oct-2020 11:44	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**EB2028138-008**	**EB2028138-009**	**--------**	**--------**	**--------**
				Result	Result	----	----	----
EN68: Seawater Elutriate Testing Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)								
Seawater Sampling Date	----	-	-	**28/10/2020**	**28/10/2020**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **ELUTRIATE**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP090S: Organotin Surrogate			
Tripropyltin	----	24	116

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2028352**	Page	: 1 of 4
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 29-Oct-2020 09:45
Order number	: ----	Date Analysis Commenced	: 04-Nov-2020
C-O-C number	: ----	Issue Date	: 05-Nov-2020 17:50
Sampler	: TIM ALEXANDER		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 8		
No. of samples analysed	: 8		

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Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

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- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- ASS: EA033 (CRS Suite):Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA033 (CRS Suite): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED14 0-41	SED14 41-90	SED14 90-153	SED22 0-60	SED22 60-128
			Client sampling date / time	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 10:26	26-Oct-2020 13:25	26-Oct-2020 13:25
Compound	CAS Number	LOR	Unit	EB2028352-001	EB2028352-002	EB2028352-003	EB2028352-004	EB2028352-005
				Result	Result	Result	Result	Result
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	6.8	6.9	7.2	7.6	8.0
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	1.72	1.95	0.206	1.41	2.33
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	1070	1210	129	882	1450
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	2.24	2.28	0.71	2.12	7.06
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	447	456	142	423	1410
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	0.72	0.73	0.23	0.68	2.26
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	1.24	1.46	0.05	0.96	0.82
Net Acidity (acidity units)	----	10	mole H+ / t	776	910	34	600	512
Liming Rate	----	1	kg CaCO3/t	58	68	2	45	38
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	1.72	1.95	0.21	1.41	2.33
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	1070	1210	129	882	1450
Liming Rate excluding ANC	----	1	kg CaCO3/t	81	91	10	66	109
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	8.72	7.72	0.68	4.49	4.51

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED17 0-70	SED17 70-144	SED24 0-60	----	----
			Client sampling date / time	26-Oct-2020 14:15	26-Oct-2020 14:15	26-Oct-2020 11:45	----	----
Compound	CAS Number	LOR	Unit	EB2028352-006	EB2028352-007	EB2028352-008	--------	--------
				Result	Result	Result	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	**6.8**	**7.0**	**8.0**	**----**	**----**
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	**----**	**----**
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	**----**	**----**
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	**0.716**	**1.44**	**1.52**	**----**	**----**
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	**447**	**897**	**950**	**----**	**----**
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	**1.30**	**2.04**	**3.98**	**----**	**----**
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	**260**	**407**	**796**	**----**	**----**
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	**0.42**	**0.65**	**1.28**	**----**	**----**
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	**1.5**	**1.5**	**1.5**	**----**	**----**
Net Acidity (sulfur units)	----	0.02	% S	**0.44**	**1.00**	**0.67**	**----**	**----**
Net Acidity (acidity units)	----	10	mole H+ / t	**274**	**625**	**420**	**----**	**----**
Liming Rate	----	1	kg CaCO3/t	**20**	**47**	**32**	**----**	**----**
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	**0.72**	**1.44**	**1.52**	**----**	**----**
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	**447**	**897**	**950**	**----**	**----**
Liming Rate excluding ANC	----	1	kg CaCO3/t	**34**	**67**	**71**	**----**	**----**
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	**4.87**	**5.77**	**4.84**	**----**	**----**

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2028620**	Page	: 1 of 6
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 30-Oct-2020 10:37
Order number	: ----	Date Analysis Commenced	: 02-Nov-2020
C-O-C number	: ----	Issue Date	: 18-Nov-2020 09:10
Sampler	: ----		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 8		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Minh Wills	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG032: Some samples on EB2028620 were diluted prior to analysis due to Screening Arsenic results were high, LOR's have been raised accordingly.
- It has been noted that EK071G (Reactive Phosphorus as P) is greater than EK067G (Total Phosphorus as P) for sample EB2028620_004 (SED8 0-45), however this difference is within the limits of experimental variation.
- **Speciated Arsenic analysis is conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- EG020-SDH (1M HCl Extractable Metals by ICP-MS): Sample SED1 0-45 (EB2028620-001) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- EG035T (Total Mercury): Some samples were diluted due to matrix interference. LOR adjusted accordingly.
- EG035F-LL (Dissolved Mercury Low Level): Positive mercury results have been confirmed by re-extraction and re-analysis.
- EG035T-LL (Total Mercury Low Level): Positive mercury results have been confirmed by re-extraction and re-analysis.
- EG035-SDH (1M HCl Extractable Mercury): Sample SED4 0-60(EB2028620-002) shows poor matrix spike recovery due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- It is recognised that EG094-T (Total Metals in Fresh Water by ORC-ICP-MS) is less than EG094-F (Dissolved Metals in Fresh Water by ORC-ICP-MS) for samples SED1 0-45 (EB2028620-001) and Elutriate Water (EB2028620-008). This was confirmed by re-digestion and re-analysis.
- It is recognised that EG094-T (Total Metals in Fresh Water by ORC-ICP-MS) is less than EG094-F (Dissolved Metals in Fresh Water by ORC-ICP-MS) for sample SED1 0-45 (EB2028620-001). This was confirmed by re-digestion and re-analysis.
- EN68: This analysis in accordance with National Ocean Disposal Guidelines, Commonwealth of Australia, 2002 - (modified). Results reported are those determined on a 1:4 sediment/seawater elutriate without blank correction.
- EG093: Samples containing high levels of sulfate may precipitate barium under the acidic conditions of this method and may therefore bias results low.

Analytical Results

Sub-Matrix: **ELUTRIATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Client sample ID	SED1 0-45	SED4 0-60	SED8 0-45	SED8 45-99	Elutriate Water
				Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00
					EB2028620-001	EB2028620-002	EB2028620-004	EB2028620-005	EB2028620-008
					Result	Result	Result	Result	Result
EG032: Arsenic Speciation by LC-ICPMS									
Arsenobetaine (ASB)	----	2	µg/L		**----**	<2	<2	<2	<2
Arsenious Acid (As (III))	----	4.0	µg/L		**----**	<4.0	<4.0	<4.0	<4.0
Dimethylarsenic Acid (DMA)	----	4	µg/L		**----**	<4	<4	<4	<4
Monomethylarsonic Acid (MMA)	----	4	µg/L		**----**	<4	<4	<4	<4
Arsenic Acid (As (V))	----	4.0	µg/L		**----**	**28.3**	**25.0**	**62.4**	<4.0
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		**0.00010**	<0.00004	<0.00004	<0.00004	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		**0.0224**	**0.00232**	<0.00020	<0.00020	<0.00004
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		**6.8**	**0.6**	**0.3**	**1.6**	<0.2
Arsenic	7440-38-2	0.2	µg/L		**141**	**31.4**	**26.2**	**64.6**	**0.4**
Cadmium	7440-43-9	0.05	µg/L		**0.42**	**0.24**	**0.25**	**0.21**	<0.05
Chromium	7440-47-3	0.2	µg/L		**6.3**	**1.3**	**1.5**	**1.1**	**0.5**
Copper	7440-50-8	0.5	µg/L		**30.5**	**39.0**	**18.2**	**6.5**	**1.6**
Lead	7439-92-1	0.1	µg/L		**10.6**	**3.5**	**2.4**	**2.1**	**2.4**
Nickel	7440-02-0	0.5	µg/L		**5.3**	**2.4**	**1.8**	**1.7**	**0.6**
Silver	7440-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	7440-66-6	1	µg/L		**1640**	**1010**	**964**	**761**	**82**
EG094T: Total metals in Fresh water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		**1.1**	**0.8**	**0.8**	**1.7**	<0.2
Arsenic	7440-38-2	0.2	µg/L		**652**	**84.9**	**47.8**	**101**	**0.5**
Cadmium	7440-43-9	0.05	µg/L		**45.6**	**7.83**	**5.48**	**8.12**	<0.05
Chromium	7440-47-3	0.2	µg/L		**512**	**61.5**	**31.3**	**26.8**	**0.8**
Copper	7440-50-8	0.5	µg/L		**1180**	**103**	**93.8**	**112**	**1.7**
Lead	7439-92-1	0.1	µg/L		**3630**	**287**	**347**	**353**	**3.5**
Nickel	7440-02-0	0.5	µg/L		**399**	**37.0**	**17.2**	**15.3**	**0.8**
Silver	7440-22-4	0.1	µg/L		**8.8**	**1.3**	**1.1**	**1.0**	<0.1
Zinc	7440-66-6	1	µg/L		**12800**	**2020**	**1150**	**1850**	**33**
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.85**	**3.30**	**2.53**	**1.94**	**0.10**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	**0.03**	**0.01**	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser									

Analytical Results

Sub-Matrix: ELUTRIATE (Matrix: WATER)				Client sample ID	SED1 0-45	SED4 0-60	SED8 0-45	SED8 45-99	Elutriate Water
				Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00
Compound	CAS Number	LOR	Unit		EB2028620-001	EB2028620-002	EB2028620-004	EB2028620-005	EB2028620-008
					Result	Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser - Continued									
Nitrate as N	14797-55-8	0.01	mg/L		**0.06**	**0.04**	**0.06**	**0.07**	**0.09**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.06**	**0.07**	**0.07**	**0.07**	**0.09**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**2.1**	**4.3**	**2.7**	**3.5**	**0.5**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**2.2**	**4.4**	**2.8**	**3.6**	**0.6**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.24**	**0.48**	**0.32**	**0.44**	**0.02**
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		**0.20**	**0.47**	**0.36**	**0.40**	<0.01
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		**----**	**----**	**----**	<2	<2
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**----**	**----**	**----**	**53.8**	**29.0**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED1 0-45	SED4 0-60	SED8 0-45	SED8 45-99	Elutriate Water
			Client sampling date / time	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00
Compound	CAS Number	LOR	Unit	EB2028620-001	EB2028620-002	EB2028620-004	EB2028620-005	EB2028620-008
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	50.3	84.2	84.9	69.3	----
EG020-SDH: 1M HCl Extractable metals by ICPMS								
Arsenic	7440-38-2	1.0	mg/kg	8.8	21.0	15.5	9.2	----
Cadmium	7440-43-9	0.10	mg/kg	1.92	6.60	6.70	4.60	----
Chromium	7440-47-3	1.0	mg/kg	1.6	3.7	4.1	2.9	----
Copper	7440-50-8	1.0	mg/kg	22.3	40.6	48.9	2.7	----
Lead	7439-92-1	1.0	mg/kg	108	272	361	211	----
Nickel	7440-02-0	1.0	mg/kg	3.6	5.1	3.2	2.6	----
Zinc	7440-66-6	1.0	mg/kg	474	1370	1080	1320	----
Antimony	7440-36-0	2.0	mg/kg	<2.0	<2.0	<2.0	<2.0	----
Silver	7440-22-4	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	----
EG035-SDH: 1M HCl extractable Mercury by FIMS								
Mercury	7439-97-6	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	----
EN68: Seawater Elutriate Testing Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)								
Seawater Sampling Date	----	-	-	1	1	1	1	1

Surrogate Control Limits

Sub-Matrix: **ELUTRIATE**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP090S: Organotin Surrogate			
Tripropyltin	----	24	116

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2028627**	Page	: 1 of 9
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 30-Oct-2020 12:13
Order number	: ----	Date Analysis Commenced	: 02-Nov-2020
C-O-C number	: ----	Issue Date	: 18-Nov-2020 09:11
Sampler	: ----		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 14		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Minh Wills	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

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Where moisture determination has been performed, results are reported on a dry weight basis.

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When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG032: Some samples on EB2028627 were diluted prior to analysis due to Screening Arsenic results were high, LOR's have been raised accordingly.
- It has been noted that EK071G (Reactive Phosphorus as P) is greater than EK067G (Total Phosphorus as P) for sample EB2028627_011 (SED11 0-50), however this difference is within the limits of experimental variation.
- **Speciated Arsenic analysis is conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- EG020-SDH (1M HCl Extractable Metals by ICP-MS): Sample EB2028620-001 shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- EP090S Organotins: Sample 'SED12 0-49' shows poor surrogate recovery probably due to matrix interference. Insufficient sample volume remaining for re-extraction/re-analysis.
- EG035T-LL (Total Mercury Low Level): Positive mercury results have been confirmed by re-extraction and re-analysis.
- EG035F-LL (Dissolved Mercury Low Level): Positive mercury results have been confirmed by re-extraction and re-analysis.
- EG035T sample SED11 0-50(EB2028627-011) result less than EG035F result. However, the difference is within experimental variation of methods, confirmed by re-extraction and re-analysis
- EG035-SDH (1M HCl Extractable Mercury): Sample EB2028620-002 shows poor matrix spike recovery due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- EN68: This analysis in accordance with National Ocean Disposal Guidelines, Commonwealth of Australia, 2002 - (modified). Results reported are those determined on a 1:4 sediment/seawater elutriate without blank correction.
- EG093: Samples containing high levels of sulfate may precipitate barium under the acidic conditions of this method and may therefore bias results low.

Analytical Results

Sub-Matrix: **ELUTRIATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Client sample ID	SED2 0-57	SED12 0-49	SED12 106-152	SED7 0-50	SED11 0-50
				Client sampling date / time	20-Oct-2020 10:10	20-Oct-2020 09:15	20-Oct-2020 12:30	20-Oct-2020 12:30	20-Oct-2020 13:40
					EB2028627-003	EB2028627-005	EB2028627-007	EB2028627-008	EB2028627-011
					Result	Result	Result	Result	Result
EG032: Arsenic Speciation by LC-ICPMS									
Arsenobetaine (ASB)	----	2	µg/L		<2	<2	----	----	<2
Arsenious Acid (As (III))	----	4.0	µg/L		<4.0	<4.0	----	----	<4.0
Dimethylarsenic Acid (DMA)	----	4	µg/L		<4	<4	----	----	<4
Monomethylarsonic Acid (MMA)	----	4	µg/L		<4	<4	----	----	<4
Arsenic Acid (As (V))	----	4.0	µg/L		**63.9**	**152**	----	----	**57.0**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	**0.00068**	<0.00004	**0.00006**	**0.00008**
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		**0.00006**	**0.00405**	**0.00004**	**0.00020**	**0.00004**
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		**0.5**	**0.6**	----	**0.7**	**1.7**
Arsenic	7440-38-2	0.2	µg/L		**63.6**	**133**	----	**56.8**	**57.1**
Cadmium	7440-43-9	0.05	µg/L		**0.15**	**1.17**	----	**0.15**	**0.32**
Chromium	7440-47-3	0.2	µg/L		**1.8**	**2.3**	----	**1.8**	**1.6**
Copper	7440-50-8	0.5	µg/L		**2.6**	**18.4**	----	**4.0**	**3.8**
Lead	7439-92-1	0.1	µg/L		**8.1**	**52.7**	----	**6.4**	**6.6**
Nickel	7440-02-0	0.5	µg/L		**1.4**	**1.6**	----	**3.3**	**0.8**
Silver	7440-22-4	0.1	µg/L		<0.1	<0.1	----	<0.1	<0.1
Zinc	7440-66-6	1	µg/L		**40**	**323**	----	**38**	**351**
EG094T: Total metals in Fresh water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		**0.8**	**2.1**	----	**0.9**	**2.0**
Arsenic	7440-38-2	0.2	µg/L		**64.1**	**161**	----	**57.2**	**68.9**
Cadmium	7440-43-9	0.05	µg/L		**0.36**	**6.68**	----	**0.60**	**2.03**
Chromium	7440-47-3	0.2	µg/L		**10.4**	**23.4**	----	**17.9**	**13.6**
Copper	7440-50-8	0.5	µg/L		**8.1**	**103**	----	**11.8**	**43.3**
Lead	7439-92-1	0.1	µg/L		**22.3**	**323**	----	**28.9**	**144**
Nickel	7440-02-0	0.5	µg/L		**7.0**	**12.6**	----	**7.8**	**7.4**
Silver	7440-22-4	0.1	µg/L		<0.1	**0.9**	----	**0.1**	**0.4**
Zinc	7440-66-6	1	µg/L		**118**	**1670**	----	**151**	**583**
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**1.47**	**5.45**	**5.48**	**3.23**	**2.72**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser									

Analytical Results

Sub-Matrix: ELUTRIATE (Matrix: WATER)				Client sample ID	SED2 0-57	SED12 0-49	SED12 106-152	SED7 0-50	SED11 0-50
				Client sampling date / time	20-Oct-2020 10:10	20-Oct-2020 09:15	20-Oct-2020 12:30	20-Oct-2020 12:30	20-Oct-2020 13:40
Compound	CAS Number	LOR	Unit		EB2028627-003	EB2028627-005	EB2028627-007	EB2028627-008	EB2028627-011
					Result	Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser - Continued									
Nitrate as N	14797-55-8	0.01	mg/L		0.05	0.04	0.05	0.05	0.03
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		0.05	0.04	0.05	0.05	0.03
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		4.1	6.7	6.5	4.7	3.7
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		4.2	6.7	6.6	4.8	3.7
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		0.35	0.82	0.50	0.44	0.36
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		0.18	0.76	0.45	0.36	0.38
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		----	<2	----	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		----	14.4	----	----	----

Analytical Results

Sub-Matrix: ELUTRIATE (Matrix: WATER)				Client sample ID	SED11 50-96	Elutriate Water	----	----	----
				Client sampling date / time	20-Oct-2020 13:40	20-Oct-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2028627-012	EB2028627-014	--------	--------	--------
					Result	Result	----	----	----
EG032: Arsenic Speciation by LC-ICPMS									
Arsenobetaine (ASB)	----	2	µg/L		----	<2	----	----	----
Arsenious Acid (As (III))	----	4.0	µg/L		----	<4.0	----	----	----
Dimethylarsenic Acid (DMA)	----	4	µg/L		----	<4	----	----	----
Monomethylarsonic Acid (MMA)	----	4	µg/L		----	<4	----	----	----
Arsenic Acid (As (V))	----	4.0	µg/L		----	<4.0	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		**0.00009**	<0.00004	----	----	----
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		**0.00174**	<0.00004	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		----	<0.2	----	----	----
Arsenic	7440-38-2	0.2	µg/L		----	**0.4**	----	----	----
Cadmium	7440-43-9	0.05	µg/L		----	<0.05	----	----	----
Chromium	7440-47-3	0.2	µg/L		----	**0.3**	----	----	----
Copper	7440-50-8	0.5	µg/L		----	**1.1**	----	----	----
Lead	7439-92-1	0.1	µg/L		----	**2.4**	----	----	----
Nickel	7440-02-0	0.5	µg/L		----	**0.6**	----	----	----
Silver	7440-22-4	0.1	µg/L		----	<0.1	----	----	----
Zinc	7440-66-6	1	µg/L		----	**8**	----	----	----
EG094T: Total metals in Fresh water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		----	<0.2	----	----	----
Arsenic	7440-38-2	0.2	µg/L		----	**0.5**	----	----	----
Cadmium	7440-43-9	0.05	µg/L		----	<0.05	----	----	----
Chromium	7440-47-3	0.2	µg/L		----	**0.9**	----	----	----
Copper	7440-50-8	0.5	µg/L		----	**1.6**	----	----	----
Lead	7439-92-1	0.1	µg/L		----	**5.5**	----	----	----
Nickel	7440-02-0	0.5	µg/L		----	**0.9**	----	----	----
Silver	7440-22-4	0.1	µg/L		----	<0.1	----	----	----
Zinc	7440-66-6	1	µg/L		----	**10**	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**6.42**	**0.07**	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser									

Analytical Results

Sub-Matrix: ELUTRIATE (Matrix: WATER)				Client sample ID	SED11 50-96	Elutriate Water	----	----	----
				Client sampling date / time	20-Oct-2020 13:40	20-Oct-2020 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EB2028627-012	EB2028627-014	--------	--------	--------
					Result	Result	----	----	----
EK058G: Nitrate as N by Discrete Analyser - Continued									
Nitrate as N	14797-55-8	0.01	mg/L		**0.06**	**0.05**	**----**	**----**	**----**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.06**	**0.05**	**----**	**----**	**----**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**7.4**	**0.4**	**----**	**----**	**----**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**7.5**	**0.4**	**----**	**----**	**----**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.83**	**0.02**	**----**	**----**	**----**
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		**0.83**	<0.01	**----**	**----**	**----**
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		**----**	<2	**----**	**----**	**----**
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**----**	**73.2**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED2 0-57	SED12 0-49	SED12 106-152	SED7 0-50	SED11 0-50
			Client sampling date / time	20-Oct-2020 10:10	20-Oct-2020 09:15	20-Oct-2020 12:30	20-Oct-2020 12:30	20-Oct-2020 13:40
Compound	CAS Number	LOR	Unit	EB2028627-003	EB2028627-005	EB2028627-007	EB2028627-008	EB2028627-011
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	76.7	86.2	24.2	71.5	82.4
EG020-SDH: 1M HCl Extractable metals by ICPMS								
Arsenic	7440-38-2	1.0	mg/kg	7.8	10.6	----	1.5	8.6
Cadmium	7440-43-9	0.10	mg/kg	2.48	10.9	----	1.66	5.47
Chromium	7440-47-3	1.0	mg/kg	2.0	5.9	----	3.5	4.7
Copper	7440-50-8	1.0	mg/kg	10.7	16.4	----	2.2	44.1
Lead	7439-92-1	1.0	mg/kg	128	550	----	74.9	310
Nickel	7440-02-0	1.0	mg/kg	3.2	4.6	----	3.4	4.0
Zinc	7440-66-6	1.0	mg/kg	520	2700	----	245	712
Antimony	7440-36-0	2.0	mg/kg	<2.0	<2.0	----	<2.0	<2.0
Silver	7440-22-4	1.0	mg/kg	<1.0	<1.0	----	<1.0	<1.0
EG035-SDH: 1M HCl extractable Mercury by FIMS								
Mercury	7439-97-6	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
EN68: Seawater Elutriate Testing Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)								
Seawater Sampling Date	----	-	-	03/11/2020	03/11/2020	03/11/2020	03/11/2020	03/11/2020

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)			Client sample ID	**SED11 50-96**	**Elutriate Water**	**----**	**----**	**----**
			Client sampling date / time	20-Oct-2020 13:40	20-Oct-2020 00:00	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**EB2028627-012**	**EB2028627-014**	**--------**	**--------**	**--------**
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**70.4**	**----**	**----**	**----**	**----**
EG035-SDH: 1M HCl extractable Mercury by FIMS								
Mercury	7439-97-6	0.10	mg/kg	<0.10	**----**	**----**	**----**	**----**
EN68: Seawater Elutriate Testing Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)								
Seawater Sampling Date	----	-	-	**03/11/2020**	**03/11/2020**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **ELUTRIATE**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP090S: Organotin Surrogate			
Tripropyltin	----	24	116

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2028933**	Page	: 1 of 18
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 05-Nov-2020 09:15
Order number	: ----	Date Analysis Commenced	: 06-Nov-2020
C-O-C number	: ----	Issue Date	: 13-Nov-2020 11:58
Sampler	: TIM ALEXANDER		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 12		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Matt Frost	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD
Morgan Lennox	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP202: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EA150H: Soil particle density results fell outside the scope of AS1289.3.6.3. Results should be scrutinised accordingly.
- EP202: LORs for some samples raised due to high sample moisture content.
- EG048G: Poor spike recovery for Hexavalent Chromium by Alkaline Digestion due to matrix interferences.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP080-SD: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP131A: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP068/069: Particular samples have LOR raised due to the high moisture content.
- EP132B-SD,EP131A+B : LOR is raised due to high amount of moistures is present.
- EG035: Positive Hg results EB2028933 #2, #3 and #6 have been confirmed by reanalysis.
- EP130: : LOR for sample raised due to the high amount of moisture present.
- **Specialty Organics & Metals analysis is conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- EP131B : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EP090 Organotins: Sample 'SED3 0-55 B' shows poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- EP080-SD TPH/BTEXN (sediments): Limits of reporting have been raised due to high moisture content.
- EK057G (Nitrite as N) / EK059G (Nitrite and Nitrate as N): LOR raised for some samples due to high moisture content.
- EP075(SIM)-PAH/Phenols: Particular samples have LOR values raised due to high moisture content.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED3 0-55 A	SED3 0-55 B	SED3 0-55 C	SED3 55-105	SED3 105-153
			Client sampling date / time	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20
Compound	CAS Number	LOR	Unit	EB2028933-001	EB2028933-002	EB2028933-003	EB2028933-004	EB2028933-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	83.7	80.7	86.2	----	----
EA150: Particle Sizing								
+75µm	----	1	%	24	----	----	55	16
+150µm	----	1	%	18	----	----	40	8
+300µm	----	1	%	12	----	----	24	6
+425µm	----	1	%	10	----	----	19	5
+600µm	----	1	%	9	----	----	16	5
+1180µm	----	1	%	7	----	----	12	4
+2.36mm	----	1	%	4	----	----	9	3
+4.75mm	----	1	%	<1	----	----	4	<1
+9.5mm	----	1	%	<1	----	----	<1	<1
+19.0mm	----	1	%	<1	----	----	<1	<1
+37.5mm	----	1	%	<1	----	----	<1	<1
+75.0mm	----	1	%	<1	----	----	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	18	----	----	7	19
Silt (2-60 µm)	----	1	%	55	----	----	36	63
Sand (0.06-2.00 mm)	----	1	%	22	----	----	47	15
Gravel (>2mm)	----	1	%	5	----	----	10	3
Cobbles (>6cm)	----	1	%	<1	----	----	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.19	----	----	1.99	2.16
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	0.67	0.58	1.26	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	18.2	20.6	34.7	6.05	14.2
Cadmium	7440-43-9	0.1	mg/kg	2.9	4.1	7.4	0.4	0.4
Chromium	7440-47-3	1.0	mg/kg	42.1	36.1	42.7	24.5	40.4
Copper	7440-50-8	1.0	mg/kg	43.5	52.9	81.6	15.1	22.5
Cobalt	7440-48-4	0.5	mg/kg	20.8	16.4	18.3	8.6	11.2
Lead	7439-92-1	1.0	mg/kg	51.4	146	275	10.8	7.8
Manganese	7439-96-5	10	mg/kg	287	216	251	119	264
Nickel	7440-02-0	1.0	mg/kg	30.2	24.8	28.5	15.7	25.3
Selenium	7782-49-2	0.1	mg/kg	1.5	1.3	1.5	0.8	1.1
Silver	7440-22-4	0.1	mg/kg	1.1	1.1	1.8	0.2	0.1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED3 0-55 A	SED3 0-55 B	SED3 0-55 C	SED3 55-105	SED3 105-153
				Client sampling date / time	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20
Compound	CAS Number	LOR	Unit		EB2028933-001	EB2028933-002	EB2028933-003	EB2028933-004	EB2028933-005
					Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Zinc	7440-66-6	1.0	mg/kg		530	889	1530	70.8	58.4
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		20.5	17.5	19.9	10.0	22.1
Beryllium	7440-41-7	0.1	mg/kg		0.8	0.7	0.8	0.3	0.6
Boron	7440-42-8	5	mg/kg		64	58	59	47	55
Molybdenum	7439-98-7	0.1	mg/kg		10.7	8.1	10.0	4.1	3.6
Tin	7440-31-5	0.1	mg/kg		1.6	1.6	2.3	0.6	0.7
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		0.40	2.08	3.88	0.11	0.05
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<2.0	<2.0	<2.0	2.9	<0.8
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		140	150	110	90	150
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		180	150	360	120	120
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.2	<0.2	<0.2	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		<0.2	<0.2	0.3	0.5	<0.1
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		<0.2	<0.2	0.3	0.5	<0.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		7110	5620	8450	4640	2630
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		7110	5620	8450	4640	2630
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		516	298	580	230	249
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.05	mg/kg		<0.25	<0.25	<0.25	<0.10	<0.10
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.25	<0.25	<0.25	<0.10	<0.10
Simazine	122-34-9	0.05	mg/kg		<0.25	<0.25	<0.25	<0.10	<0.10
EP068D: Pyrethroids									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED3 0-55 A	SED3 0-55 B	SED3 0-55 C	SED3 55-105	SED3 105-153
			Client sampling date / time	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20
Compound	CAS Number	LOR	Unit	EB2028933-001	EB2028933-002	EB2028933-003	EB2028933-004	EB2028933-005
				Result	Result	Result	Result	Result
EP068D: Pyrethroids - Continued								
Bifenthrin	82657-04-3	0.05	mg/kg	<0.25	<0.25	<0.25	<0.10	<0.10
EP069: Toxaphene								
Toxaphene	8001-35-2	2	mg/kg	<10	<10	<10	<4	<4
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.8	<0.7	<0.7	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.8	<0.7	<0.7	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.8	<0.7	<0.7	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<2	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.8	<0.7	<0.7	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.8	<0.7	<0.7	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.8	<0.7	<0.7	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.8	<0.7	<0.7	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.8	<0.7	<0.7	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.8	<0.7	<0.7	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.8	<0.7	<0.7	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	3	mg/kg	3	5	8	----	----
>C16 - C34 Fraction	----	3	mg/kg	20	24	49	----	----
>C34 - C40 Fraction	----	5	mg/kg	12	7	17	----	----
>C10 - C40 Fraction (sum)	----	3	mg/kg	35	36	74	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg	3	5	8	----	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<5	<5	<5	----	----
C10 - C14 Fraction	----	3	mg/kg	3	5	8	----	----
C15 - C28 Fraction	----	3	mg/kg	12	17	30	----	----
C29 - C36 Fraction	----	5	mg/kg	13	11	28	----	----
^ C10 - C36 Fraction (sum)	----	3	mg/kg	28	33	66	----	----
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	C6_C10	3	mg/kg	<6	<6	<6	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3	mg/kg	<6	<6	<6	----	----
EP080-SD: BTEXN								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED3 0-55 A	SED3 0-55 B	SED3 0-55 C	SED3 55-105	SED3 105-153
			Client sampling date / time	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20
Compound	CAS Number	LOR	Unit	EB2028933-001	EB2028933-002	EB2028933-003	EB2028933-004	EB2028933-005
				Result	Result	Result	Result	Result
EP080-SD: BTEXN - Continued								
Benzene	71-43-2	0.2	mg/kg	<0.5	<0.5	<0.5	----	----
Toluene	108-88-3	0.2	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<1.0	<1.0	<1.0	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.5	<0.5	<0.5	----	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	0.2	mg/kg	<0.5	<0.5	<0.5	----	----
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	**0.8**	**2.8**	**1.7**	<0.5	<0.5
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	<31	<31	<31	----	----
Carbophenothion	786-19-6	10	µg/kg	<31	<31	<31	----	----
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<31.0	<31.0	<31.0	----	----
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<31	<31	<31	----	----
Chlorpyrifos	2921-88-2	10	µg/kg	<31	<31	<31	----	----
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<31	<31	<31	----	----
Demeton-S-methyl	919-86-8	10	µg/kg	<31	<31	<31	----	----
Diazinon	333-41-5	10	µg/kg	<31	<31	<31	----	----
Dichlorvos	62-73-7	10	µg/kg	<31	<31	<31	----	----
Dimethoate	60-51-5	10	µg/kg	<31	<31	<31	----	----
Ethion	563-12-2	10	µg/kg	<31	<31	<31	----	----
Fenamiphos	22224-92-6	10	µg/kg	<31	<31	<31	----	----
Fenthion	55-38-9	10	µg/kg	<31	<31	<31	----	----
Malathion	121-75-5	10	µg/kg	<31	<31	<31	----	----
Azinphos Methyl	86-50-0	10	µg/kg	<31	<31	<31	----	----
Monocrotophos	6923-22-4	10	µg/kg	<31	<31	<31	----	----
Parathion	56-38-2	10	µg/kg	<31	<31	<31	----	----
Parathion-methyl	298-00-0	10	µg/kg	<31	<31	<31	----	----
Pirimphos-ethyl	23505-41-1	10	µg/kg	<31	<31	<31	----	----
Prothiofos	34643-46-4	10	µg/kg	<31	<31	<31	----	----
EP131A: Organochlorine Pesticides								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED3 0-55 A	SED3 0-55 B	SED3 0-55 C	SED3 55-105	SED3 105-153
				Client sampling date / time	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20
Compound	CAS Number	LOR	Unit		EB2028933-001	EB2028933-002	EB2028933-003	EB2028933-004	EB2028933-005
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
Aldrin	309-00-2	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
alpha-BHC	319-84-6	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
beta-BHC	319-85-7	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
delta-BHC	319-86-8	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
4.4`-DDD	72-54-8	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
4.4`-DDE	72-55-9	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
4.4`-DDT	50-29-3	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
Dieldrin	60-57-1	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
alpha-Endosulfan	959-98-8	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
beta-Endosulfan	33213-65-9	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
Endosulfan sulfate	1031-07-8	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
^ Endosulfan (sum)	115-29-7	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
Endrin	72-20-8	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
Endrin aldehyde	7421-93-4	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
Endrin ketone	53494-70-5	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
Heptachlor	76-44-8	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
Heptachlor epoxide	1024-57-3	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
gamma-BHC	58-89-9	0.25	µg/kg		<0.32	<0.32	<0.32	----	----
Methoxychlor	72-43-5	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
cis-Chlordane	5103-71-9	0.25	µg/kg		<0.32	<0.32	<0.32	----	----
trans-Chlordane	5103-74-2	0.25	µg/kg		<0.32	<0.32	<0.32	----	----
^ Total Chlordane (sum)	----	0.25	µg/kg		<0.32	<0.32	<0.32	----	----
Oxychlordane	27304-13-8	0.50	µg/kg		<0.70	<0.70	<0.70	----	----
EP131B: Polychlorinated Biphenyls (as Aroclors)									
^ Total Polychlorinated biphenyls	----	5.0	µg/kg		<78.1	<78.1	<78.1	----	----
Aroclor 1016	12674-11-2	5.0	µg/kg		<78.1	<78.1	<78.1	----	----
Aroclor 1221	11104-28-2	5.0	µg/kg		<78.1	<78.1	<78.1	----	----
Aroclor 1232	11141-16-5	5.0	µg/kg		<78.1	<78.1	<78.1	----	----
Aroclor 1242	53469-21-9	5.0	µg/kg		<78.1	<78.1	<78.1	----	----
Aroclor 1248	12672-29-6	5.0	µg/kg		<78.1	<78.1	<78.1	----	----
Aroclor 1254	11097-69-1	5.0	µg/kg		<78.1	<78.1	<78.1	----	----
Aroclor 1260	11096-82-5	5.0	µg/kg		<78.1	<78.1	<78.1	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED3 0-55 A	SED3 0-55 B	SED3 0-55 C	SED3 55-105	SED3 105-153
				Client sampling date / time	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20
Compound	CAS Number	LOR	Unit		EB2028933-001	EB2028933-002	EB2028933-003	EB2028933-004	EB2028933-005
					Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	5	µg/kg		<12	<12	<12	----	----
2-Methylnaphthalene	91-57-6	5	µg/kg		<12	<12	<12	----	----
Acenaphthylene	208-96-8	4	µg/kg		<12	<12	<12	----	----
Acenaphthene	83-32-9	4	µg/kg		<12	<12	<12	----	----
Fluorene	86-73-7	4	µg/kg		<12	<12	<12	----	----
Phenanthrene	85-01-8	4	µg/kg		<12	<12	<12	----	----
Anthracene	120-12-7	4	µg/kg		<12	<12	<12	----	----
Fluoranthene	206-44-0	4	µg/kg		**20**	<12	**19**	----	----
Pyrene	129-00-0	4	µg/kg		**23**	<12	**21**	----	----
Benz(a)anthracene	56-55-3	4	µg/kg		<12	<12	<12	----	----
Chrysene	218-01-9	4	µg/kg		<12	<12	<12	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg		<12	<12	**13**	----	----
Benzo(k)fluoranthene	207-08-9	4	µg/kg		<12	<12	<12	----	----
Benzo(e)pyrene	192-97-2	4	µg/kg		<12	<12	<12	----	----
Benzo(a)pyrene	50-32-8	4	µg/kg		<12	<12	<12	----	----
Perylene	198-55-0	4	µg/kg		**784**	**366**	**296**	----	----
Benzo(g.h.i)perylene	191-24-2	4	µg/kg		<12	<12	<12	----	----
Dibenz(a.h)anthracene	53-70-3	4	µg/kg		<12	<12	<12	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg		<12	<12	<12	----	----
Coronene	191-07-1	5	µg/kg		<12	<12	<12	----	----
^ Sum of PAHs	----	4	µg/kg		**827**	**366**	**349**	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.19	<0.19	<0.19	<0.08	<0.08
2.4-DB	94-82-6	0.02	mg/kg		<0.19	<0.19	<0.19	<0.08	<0.08
Dicamba	1918-00-9	0.02	mg/kg		<0.20	<0.20	<0.20	<0.08	<0.08
Mecoprop	93-65-2	0.02	mg/kg		<0.19	<0.19	<0.19	<0.08	<0.08
MCPA	94-74-6	0.02	mg/kg		<0.19	<0.19	<0.19	<0.08	<0.08
2.4-DP	120-36-5	0.02	mg/kg		<0.19	<0.19	<0.19	<0.08	<0.08
2.4-D	94-75-7	0.02	mg/kg		<0.19	<0.19	<0.19	<0.08	<0.08
Triclopyr	55335-06-3	0.02	mg/kg		<0.19	<0.19	<0.19	<0.08	<0.08
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.19	<0.19	<0.19	<0.08	<0.08
2.4.5-T	93-76-5	0.02	mg/kg		<0.19	<0.19	<0.19	<0.08	<0.08
MCPB	94-81-5	0.02	mg/kg		<0.19	<0.19	<0.19	<0.08	<0.08
Picloram	1918-02-1	0.02	mg/kg		<0.19	<0.19	<0.19	<0.08	<0.08
Clopyralid	1702-17-6	0.02	mg/kg		<0.20	<0.20	<0.20	<0.08	<0.08

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED3 0-55 A	SED3 0-55 B	SED3 0-55 C	SED3 55-105	SED3 105-153
				Client sampling date / time	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 09:20
Compound	CAS Number	LOR	Unit		EB2028933-001	EB2028933-002	EB2028933-003	EB2028933-004	EB2028933-005
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued									
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.19	<0.19	<0.19	<0.08	<0.08
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		103	106	106	107	118
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		104	110	112	112	126
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		104	108	113	105	100
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		76.2	105	104	86.2	88.2
2-Chlorophenol-D4	93951-73-6	0.5	%		87.6	94.6	106	99.5	90.6
2.4.6-Tribromophenol	118-79-6	0.5	%		99.7	103	99.7	102	98.2
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		94.8	89.7	92.9	97.1	85.5
Anthracene-d10	1719-06-8	0.5	%		76.8	92.7	79.2	103	87.6
4-Terphenyl-d14	1718-51-0	0.5	%		92.0	98.8	90.5	116	98.9
EP080-SD: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		70.9	78.7	77.6	----	----
Toluene-D8	2037-26-5	0.2	%		67.6	75.3	72.2	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		74.3	79.8	77.1	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		57.9	44.8	60.9	77.5	85.5
EP130S: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	10	%		65.4	50.6	55.1	----	----
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.50	%		73.6	58.1	39.0	----	----
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.5	%		57.5	55.0	42.5	----	----
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		111	95.5	83.8	----	----
Anthracene-d10	1719-06-8	10	%		107	90.6	85.6	----	----
4-Terphenyl-d14	1718-51-0	10	%		105	89.4	80.8	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		72.6	70.9	65.5	57.5	73.1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED9 0-50	SED9 50-104	SED9 104-153	SED23 0-26	SED23 26-66
			Client sampling date / time	02-Nov-2020 12:05	02-Nov-2020 12:05	02-Nov-2020 12:05	02-Nov-2020 12:45	02-Nov-2020 12:45
Compound	CAS Number	LOR	Unit	EB2028933-006	EB2028933-007	EB2028933-008	EB2028933-009	EB2028933-010
				Result	Result	Result	Result	Result
EA150: Particle Sizing								
+75µm	----	1	%	54	56	80	64	53
+150µm	----	1	%	54	31	40	33	28
+300µm	----	1	%	53	12	9	20	20
+425µm	----	1	%	52	11	7	17	18
+600µm	----	1	%	52	10	6	16	16
+1180µm	----	1	%	49	9	3	12	14
+2.36mm	----	1	%	36	6	1	7	10
+4.75mm	----	1	%	10	2	<1	3	5
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	16	11	6	7	10
Silt (2-60 µm)	----	1	%	27	29	12	25	34
Sand (0.06-2.00 mm)	----	1	%	17	53	80	59	45
Gravel (>2mm)	----	1	%	40	7	2	9	11
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.28	2.28	2.51	2.32	2.32
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	0.66	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	22.2	6.20	6.23	5.79	13.4
Cadmium	7440-43-9	0.1	mg/kg	5.1	0.5	<0.1	0.2	0.2
Chromium	7440-47-3	1.0	mg/kg	34.0	34.1	14.4	21.4	36.2
Copper	7440-50-8	1.0	mg/kg	63.1	26.8	7.1	16.6	24.7
Cobalt	7440-48-4	0.5	mg/kg	11.2	15.5	5.9	11.4	12.3
Lead	7439-92-1	1.0	mg/kg	254	18.2	2.8	36.9	18.5
Manganese	7439-96-5	10	mg/kg	186	225	119	154	250
Nickel	7440-02-0	1.0	mg/kg	19.6	25.0	10.6	15.2	23.9
Selenium	7782-49-2	0.1	mg/kg	1.1	1.0	0.4	0.6	0.9
Silver	7440-22-4	0.1	mg/kg	1.6	0.2	<0.1	<0.1	0.1
Zinc	7440-66-6	1.0	mg/kg	678	114	28.1	88.8	89.6
EG020T: Total Metals by ICP-MS								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED9 0-50	SED9 50-104	SED9 104-153	SED23 0-26	SED23 26-66
				Client sampling date / time	02-Nov-2020 12:05	02-Nov-2020 12:05	02-Nov-2020 12:05	02-Nov-2020 12:45	02-Nov-2020 12:45
Compound	CAS Number	LOR	Unit		EB2028933-006	EB2028933-007	EB2028933-008	EB2028933-009	EB2028933-010
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS - Continued									
Barium	7440-39-3	0.1	mg/kg		16.1	17.7	8.7	17.8	19.9
Beryllium	7440-41-7	0.1	mg/kg		0.6	0.6	0.3	0.4	0.6
Boron	7440-42-8	5	mg/kg		45	49	27	18	38
Molybdenum	7439-98-7	0.1	mg/kg		5.8	8.3	1.6	1.5	5.2
Tin	7440-31-5	0.1	mg/kg		1.7	1.0	0.3	4.5	4.2
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		2.67	0.17	0.02	0.10	0.07
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<2.0	<0.8	<0.5	<0.8	<0.8
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		110	50	80	60	90
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		210	230	80	90	110
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.2	<0.1	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		0.8	0.2	<0.1	<0.1	0.1
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		0.8	0.2	<0.1	<0.1	0.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		8400	5350	1520	2100	4200
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		8400	5350	1520	2100	4200
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		721	302	142	216	330
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.05	mg/kg		<0.25	<0.20	<0.05	<0.10	<0.10
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.25	<0.20	<0.05	<0.10	<0.10
Simazine	122-34-9	0.05	mg/kg		<0.25	<0.20	<0.05	<0.10	<0.10
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		<0.25	<0.20	<0.05	<0.10	<0.10
EP069: Toxaphene									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED9 0-50	SED9 50-104	SED9 104-153	SED23 0-26	SED23 26-66
			Client sampling date / time	02-Nov-2020 12:05	02-Nov-2020 12:05	02-Nov-2020 12:05	02-Nov-2020 12:45	02-Nov-2020 12:45
Compound	CAS Number	LOR	Unit	EB2028933-006	EB2028933-007	EB2028933-008	EB2028933-009	EB2028933-010
				Result	Result	Result	Result	Result
EP069: Toxaphene - Continued								
Toxaphene	8001-35-2	2	mg/kg	<10	<8	<2	<4	<4
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<2	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.8	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	**1.0**	<0.5	<0.5	<0.5	<0.5
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.19	<0.08	<0.04	<0.08	<0.08
2.4-DB	94-82-6	0.02	mg/kg	<0.19	<0.08	<0.04	<0.08	<0.08
Dicamba	1918-00-9	0.02	mg/kg	<0.20	<0.08	<0.04	<0.08	<0.08
Mecoprop	93-65-2	0.02	mg/kg	<0.19	<0.08	<0.04	<0.08	<0.08
MCPA	94-74-6	0.02	mg/kg	<0.19	<0.08	<0.04	<0.08	<0.08
2.4-DP	120-36-5	0.02	mg/kg	<0.19	<0.08	<0.04	<0.08	<0.08
2.4-D	94-75-7	0.02	mg/kg	<0.19	<0.08	<0.04	<0.08	<0.08
Triclopyr	55335-06-3	0.02	mg/kg	<0.19	<0.08	<0.04	<0.08	<0.08
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.19	<0.08	<0.04	<0.08	<0.08
2.4.5-T	93-76-5	0.02	mg/kg	<0.19	<0.08	<0.04	<0.08	<0.08
MCPB	94-81-5	0.02	mg/kg	<0.19	<0.08	<0.04	<0.08	<0.08
Picloram	1918-02-1	0.02	mg/kg	<0.19	<0.08	<0.04	<0.08	<0.08
Clopyralid	1702-17-6	0.02	mg/kg	<0.20	<0.08	<0.04	<0.08	<0.08
Fluroxypyr	69377-81-7	0.02	mg/kg	<0.19	<0.08	<0.04	<0.08	<0.08
EP068S: Organochlorine Pesticide Surrogate								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED9 0-50	SED9 50-104	SED9 104-153	SED23 0-26	SED23 26-66
				Client sampling date / time	02-Nov-2020 12:05	02-Nov-2020 12:05	02-Nov-2020 12:05	02-Nov-2020 12:45	02-Nov-2020 12:45
Compound	CAS Number	LOR	Unit		EB2028933-006	EB2028933-007	EB2028933-008	EB2028933-009	EB2028933-010
					Result	Result	Result	Result	Result
EP068S: Organochlorine Pesticide Surrogate - Continued									
Dibromo-DDE	21655-73-2	0.05	%		109	111	105	109	106
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		115	119	118	118	120
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		97.3	101	103	105	97.8
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		84.0	91.9	97.9	91.4	103
2-Chlorophenol-D4	93951-73-6	0.5	%		80.7	89.7	93.2	97.6	100
2.4.6-Tribromophenol	118-79-6	0.5	%		100	91.5	92.6	89.8	100
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		80.3	85.7	86.6	77.0	76.3
Anthracene-d10	1719-06-8	0.5	%		82.8	79.9	94.2	78.8	85.8
4-Terphenyl-d14	1718-51-0	0.5	%		94.8	86.7	94.5	92.1	89.4
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		62.7	73.7	82.2	71.8	76.4
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		57.8	55.6	53.5	58.7	51.4

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED23 66-118	----	----	----	----
				Client sampling date / time	02-Nov-2020 12:45	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2028933-011	--------	--------	--------	--------
					Result	----	----	----	----
EA150: Particle Sizing									
+75µm	----	1	%		**35**	----	----	----	----
+150µm	----	1	%		**23**	----	----	----	----
+300µm	----	1	%		**17**	----	----	----	----
+425µm	----	1	%		**15**	----	----	----	----
+600µm	----	1	%		**14**	----	----	----	----
+1180µm	----	1	%		**12**	----	----	----	----
+2.36mm	----	1	%		**10**	----	----	----	----
+4.75mm	----	1	%		**4**	----	----	----	----
+9.5mm	----	1	%		<1	----	----	----	----
+19.0mm	----	1	%		<1	----	----	----	----
+37.5mm	----	1	%		<1	----	----	----	----
+75.0mm	----	1	%		<1	----	----	----	----
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		**17**	----	----	----	----
Silt (2-60 µm)	----	1	%		**47**	----	----	----	----
Sand (0.06-2.00 mm)	----	1	%		**25**	----	----	----	----
Gravel (>2mm)	----	1	%		**11**	----	----	----	----
Cobbles (>6cm)	----	1	%		<1	----	----	----	----
EA152: Soil Particle Density									
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3		**2.16**	----	----	----	----
EG020-SD: Total Metals in Sediments by ICPMS									
Antimony	7440-36-0	0.50	mg/kg		<0.50	----	----	----	----
Arsenic	7440-38-2	1.00	mg/kg		**16.7**	----	----	----	----
Cadmium	7440-43-9	0.1	mg/kg		**0.4**	----	----	----	----
Chromium	7440-47-3	1.0	mg/kg		**48.0**	----	----	----	----
Copper	7440-50-8	1.0	mg/kg		**23.6**	----	----	----	----
Cobalt	7440-48-4	0.5	mg/kg		**11.1**	----	----	----	----
Lead	7439-92-1	1.0	mg/kg		**8.1**	----	----	----	----
Manganese	7439-96-5	10	mg/kg		**291**	----	----	----	----
Nickel	7440-02-0	1.0	mg/kg		**28.7**	----	----	----	----
Selenium	7782-49-2	0.1	mg/kg		**1.2**	----	----	----	----
Silver	7440-22-4	0.1	mg/kg		**0.2**	----	----	----	----
Zinc	7440-66-6	1.0	mg/kg		**63.0**	----	----	----	----
EG020T: Total Metals by ICP-MS									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED23 66-118	----	----	----	----
				Client sampling date / time	02-Nov-2020 12:45	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2028933-011	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS - Continued									
Barium	7440-39-3	0.1	mg/kg		**15.9**	----	----	----	----
Beryllium	7440-41-7	0.1	mg/kg		**0.7**	----	----	----	----
Boron	7440-42-8	5	mg/kg		**66**	----	----	----	----
Molybdenum	7439-98-7	0.1	mg/kg		**3.9**	----	----	----	----
Tin	7440-31-5	0.1	mg/kg		**0.7**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		**0.05**	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.8	----	----	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		**170**	----	----	----	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		**120**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		<0.1	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		<0.1	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		<0.1	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		**2900**	----	----	----	----
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		**2900**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		**371**	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.05	mg/kg		<0.10	----	----	----	----
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		<0.10	----	----	----	----
Simazine	122-34-9	0.05	mg/kg		<0.10	----	----	----	----
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		<0.10	----	----	----	----
EP069: Toxaphene									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED23 66-118	----	----	----	----
				Client sampling date / time	02-Nov-2020 12:45	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2028933-011	--------	--------	--------	--------
					Result	----	----	----	----
EP069: Toxaphene - Continued									
Toxaphene	8001-35-2	2	mg/kg		<4	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP090: Organotin Compounds									
Monobutyltin	78763-54-9	1	µgSn/kg		<1	----	----	----	----
Dibutyltin	1002-53-5	1	µgSn/kg		<1	----	----	----	----
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	----	----	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.08	----	----	----	----
2.4-DB	94-82-6	0.02	mg/kg		<0.08	----	----	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.08	----	----	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.08	----	----	----	----
MCPA	94-74-6	0.02	mg/kg		<0.08	----	----	----	----
2.4-DP	120-36-5	0.02	mg/kg		<0.08	----	----	----	----
2.4-D	94-75-7	0.02	mg/kg		<0.08	----	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.08	----	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.08	----	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.08	----	----	----	----
MCPB	94-81-5	0.02	mg/kg		<0.08	----	----	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.08	----	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.08	----	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.08	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED23 66-118	----	----	----	----
				Client sampling date / time	02-Nov-2020 12:45	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2028933-011	--------	--------	--------	--------
					Result	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate - Continued									
Dibromo-DDE	21655-73-2	0.05	%		107	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		116	----	----	----	----
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		103	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		89.5	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		83.6	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		89.3	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		74.7	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		83.0	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		89.7	----	----	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		73.8	----	----	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		61.1	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP069: Surrogate			
Decachlorobiphenyl	2051-24-3	70	130
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	154
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	156
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080-SD: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	145
Toluene-D8	2037-26-5	42	144
4-Bromofluorobenzene	460-00-4	58	142
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP130S: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	14	102
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	119
EP131T: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	106
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	55	135
Anthracene-d10	1719-06-8	70	136
4-Terphenyl-d14	1718-51-0	57	127
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2029254**	Page	: 1 of 7
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 06-Nov-2020 16:10
Order number	: ----	Date Analysis Commenced	: 07-Nov-2020
C-O-C number	: ----	Issue Date	: 27-Nov-2020 14:24
Sampler	: ----		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 9		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Morgan Lennox	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

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Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG020-SDH (1M HCl Extractable Metals by ICP-MS): The high failing laboratory control standard for Antimony is deemed acceptable as all results are less than the limit of reporting.
- EG020-SDH (1 M HCl Extractable Metals by ICP-MS): Sample SED14 0-41 (EB2029254-001) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG094: It has been confirmed by re-digestion and re-analysis that total Lead, Copper and Zinc concentration is less than dissolved for sample EB2029254-#004. For all other samples and analytes where dissolved is greater than total, the difference is within experimental variation of the methods.
- **Metals and Speciated Arsenic analysis is conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- EN68: This analysis in accordance with National Ocean Disposal Guidelines, Commonwealth of Australia, 2002 - (modified). Results reported are those determined on a 1:4 sediment/seawater elutriate without blank correction.
- EG093: Samples containing high levels of sulfate may precipitate barium under the acidic conditions of this method and may therefore bias results low.

Analytical Results

Sub-Matrix: **ELUTRIATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	SED14 0-41	SED22 0-60	SED22 60-128	SED24 0-60	Elutriate Water
				Sampling date / time	26-Oct-2020 10:26	26-Oct-2020 13:25	26-Oct-2020 13:25	26-Oct-2020 11:45	26-Oct-2020 00:00
					EB2029254-001	EB2029254-004	EB2029254-005	EB2029254-008	EB2029254-009
					Result	Result	Result	Result	Result
EG032: Arsenic Speciation by LC-ICPMS									
Arsenobetaine (ASB)	----	2	µg/L		<2	----	----	----	<2
Arsenious Acid (As (III))	----	4.0	µg/L		**37.8**	----	----	----	<4.0
Dimethylarsenic Acid (DMA)	----	4	µg/L		<4	----	----	----	<4
Monomethylarsonic Acid (MMA)	----	4	µg/L		<4	----	----	----	<4
Arsenic Acid (As (V))	----	4.0	µg/L		**56.1**	----	----	----	<4.0
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	----	----	----	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	----	----	----	<0.00004
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		**3.0**	**2.8**	<0.2	----	<0.2
Arsenic	7440-38-2	0.2	µg/L		**102**	**23.5**	**5.9**	----	**0.6**
Cadmium	7440-43-9	0.05	µg/L		**0.06**	**0.08**	<0.05	----	<0.05
Chromium	7440-47-3	0.2	µg/L		**0.7**	**0.7**	**0.8**	----	**0.2**
Copper	7440-50-8	0.5	µg/L		**5.5**	**54.4**	**5.3**	----	**1.2**
Lead	7439-92-1	0.1	µg/L		**0.9**	**3.2**	**0.9**	----	**1.0**
Nickel	7440-02-0	0.5	µg/L		**1.1**	**1.4**	**1.4**	----	**0.5**
Silver	7440-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	<0.1
Zinc	7440-66-6	1	µg/L		**15**	**56**	**10**	----	**4**
EG094T: Total metals in Fresh water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		**3.1**	**3.0**	**0.8**	----	**0.3**
Arsenic	7440-38-2	0.2	µg/L		**109**	**25.6**	**6.2**	----	**0.7**
Cadmium	7440-43-9	0.05	µg/L		<0.05	**0.07**	<0.05	----	<0.05
Chromium	7440-47-3	0.2	µg/L		**0.6**	**0.5**	**0.8**	----	**0.4**
Copper	7440-50-8	0.5	µg/L		**6.0**	**11.4**	**5.2**	----	**1.2**
Lead	7439-92-1	0.1	µg/L		**0.6**	**1.1**	**0.6**	----	**0.8**
Nickel	7440-02-0	0.5	µg/L		**1.1**	**1.3**	**1.2**	----	**0.5**
Silver	7440-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	<0.1
Zinc	7440-66-6	1	µg/L		**16**	**32**	**8**	----	**4**
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**6.83**	**4.84**	**6.99**	**4.68**	<0.01
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	<0.01	**0.01**	<0.01
EK058G: Nitrate as N by Discrete Analyser									

Analytical Results

Sub-Matrix: **ELUTRIATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	SED14 0-41	SED22 0-60	SED22 60-128	SED24 0-60	Elutriate Water
				Sampling date / time	26-Oct-2020 10:26	26-Oct-2020 13:25	26-Oct-2020 13:25	26-Oct-2020 11:45	26-Oct-2020 00:00
					EB2029254-001	EB2029254-004	EB2029254-005	EB2029254-008	EB2029254-009
					Result	Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser - Continued									
Nitrate as N	14797-55-8	0.01	mg/L		**0.01**	<0.01	**0.02**	**0.01**	**0.02**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.01**	<0.01	**0.02**	**0.02**	**0.02**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**7.6**	**5.6**	**8.2**	**5.4**	**0.2**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**7.6**	**5.6**	**8.2**	**5.4**	**0.2**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.81**	**0.40**	**1.57**	**0.31**	**0.01**
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		**0.66**	**0.34**	**1.48**	**----**	**0.01**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		**----**	**7.1**	**----**	**12.8**	<1.0
Acenaphthylene	208-96-8	1.0	µg/L		**----**	<1.0	**----**	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L		**----**	**1.6**	**----**	**1.9**	<1.0
Fluorene	86-73-7	1.0	µg/L		**----**	<1.0	**----**	**1.2**	<1.0
Phenanthrene	85-01-8	1.0	µg/L		**----**	**1.2**	**----**	**1.4**	<1.0
Anthracene	120-12-7	1.0	µg/L		**----**	<1.0	**----**	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L		**----**	<1.0	**----**	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L		**----**	<1.0	**----**	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L		**----**	<1.0	**----**	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L		**----**	<1.0	**----**	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		**----**	<1.0	**----**	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		**----**	<1.0	**----**	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L		**----**	<0.5	**----**	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		**----**	<1.0	**----**	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		**----**	<1.0	**----**	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		**----**	<1.0	**----**	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		**----**	**9.9**	**----**	**17.3**	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		**----**	<0.5	**----**	<0.5	<0.5
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		**2**	**----**	**----**	**----**	<2
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**----**	**22.5**	**----**	**27.4**	**28.7**

Analytical Results

Sub-Matrix: ELUTRIATE (Matrix: WATER)				Sample ID	SED14 0-41	SED22 0-60	SED22 60-128	SED24 0-60	Elutriate Water
				Sampling date / time	26-Oct-2020 10:26	26-Oct-2020 13:25	26-Oct-2020 13:25	26-Oct-2020 11:45	26-Oct-2020 00:00
Compound	CAS Number	LOR	Unit		EB2029254-001	EB2029254-004	EB2029254-005	EB2029254-008	EB2029254-009
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		----	54.3	----	69.5	74.7
2.4.6-Tribromophenol	118-79-6	1.0	%		----	49.8	----	68.4	67.4
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		----	68.4	----	67.7	71.2
Anthracene-d10	1719-06-8	1.0	%		----	73.2	----	76.4	81.3
4-Terphenyl-d14	1718-51-0	1.0	%		----	72.8	----	72.3	81.7
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		38.5	----	----	----	78.7

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	SED14 0-41	SED22 0-60	SED22 60-128	SED24 0-60	Elutriate Water
			Sampling date / time	26-Oct-2020 10:26	26-Oct-2020 13:25	26-Oct-2020 13:25	26-Oct-2020 11:45	26-Oct-2020 00:00
Compound	CAS Number	LOR	Unit	EB2029254-001	EB2029254-004	EB2029254-005	EB2029254-008	EB2029254-009
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	78.5	55.2	65.0	----	----
EG020-SDH: 1M HCl Extractable metals by ICPMS								
Arsenic	7440-38-2	1.0	mg/kg	25.7	2.1	2.0	----	----
Cadmium	7440-43-9	0.10	mg/kg	4.60	0.27	0.26	----	----
Chromium	7440-47-3	1.0	mg/kg	3.4	2.6	3.8	----	----
Copper	7440-50-8	1.0	mg/kg	46.2	11.9	<1.0	----	----
Lead	7439-92-1	1.0	mg/kg	295	42.2	3.7	----	----
Nickel	7440-02-0	1.0	mg/kg	3.8	3.2	3.3	----	----
Zinc	7440-66-6	1.0	mg/kg	908	102	30.9	----	----
Antimony	7440-36-0	2.0	mg/kg	<2.0	<2.0	<2.0	----	----
Silver	7440-22-4	1.0	mg/kg	<1.0	<1.0	<1.0	----	----
EG035-SDH: 1M HCl extractable Mercury by FIMS								
Mercury	7439-97-6	0.10	mg/kg	<0.10	----	----	----	----
EN68: Seawater Elutriate Testing Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)								
Seawater Sampling Date	----	-	-	9/11/2020	9/11/2020	9/11/2020	9/11/2020	9/11/2020

Surrogate Control Limits

Sub-Matrix: **ELUTRIATE**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	72
2-Chlorophenol-D4	93951-73-6	27	130
2.4.6-Tribromophenol	118-79-6	19	181
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	14	146
Anthracene-d10	1719-06-8	35	137
4-Terphenyl-d14	1718-51-0	36	154
EP090S: Organotin Surrogate			
Tripropyltin	----	24	116

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2029486**	Page	: 1 of 17
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 11-Nov-2020 10:50
Order number	: ----	Date Analysis Commenced	: 12-Nov-2020
C-O-C number	: ----	Issue Date	: 19-Nov-2020 09:54
Sampler	: TIM ALEXANDER		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 9		
No. of samples analysed	: 8		

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Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Diana Mesa	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Minh Wills	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Morgan Lennox	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

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Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

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LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP080-SD (TRH Volatiles/BTEX in Sediments): Sample 'SED6 0-50 B' shows poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- EP075(SIM) PAH/Phenols: The LOR for sample 'SED5 50-100' has been raised due to matrix interference (High moisture content).
- EG048G (Hexavalent Chromium by Alkaline Digestion): Some samples were diluted due to matrix interference. LOR adjusted accordingly.
- EP202: LORs for some samples raised due to high sample moisture content.
- EP202: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP080-SD: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP131A: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP068/069: Particular samples have LOR raised due to the high moisture content.
- EP131B and EP132B-SD : LOR is raised due to high amount of moistures is present.
- EG035: Positive Hg results for EB2029486 #3,7 have been confirmed by reanalysis.
- EP130: LOR for sample raised due to the high amount of moisture present.
- **Specialty Organics & Metals analysis is conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- ASS: EA033 (CRS Suite):Retained Acidity not required because pH KCl greater than or equal to 4.5
- EG048G (Hexavalent Chromium by Alkaline Digestion): Sample EB2029486_001 (SED6 0-50 A) shows poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- EP131B : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EP090 Organotins: Sample 'SED6 0-50 B' shows poor matrix spike recovery for MBT and DBT due to matrix interference. Confirmed by re-extraction and re-analysis.
- EK057G (Nitrite as N) / EK059G (Nitrite and Nitrate as N): The LOR for sample EB2029486_007 (SED5 50-100) has been raised due to high moisture content.
- ASS: EA033 (CRS Suite): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.

- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED6 0-50 A	SED6 0-50 B	SED6 0-50 C	SED6 50-100	SED6 100-151
			Client sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00
Compound	CAS Number	LOR	Unit	EB2029486-001	EB2029486-002	EB2029486-003	EB2029486-004	EB2029486-005
				Result	Result	Result	Result	Result
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	7.1	7.0	7.0	8.0	8.0
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	1.25	1.27	1.35	1.34	1.92
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	782	793	840	839	1200
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	1.86	1.74	1.78	2.63	3.05
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	371	348	356	526	610
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	0.60	0.56	0.57	0.84	0.98
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	0.86	0.90	0.97	0.78	1.26
Net Acidity (acidity units)	----	10	mole H+ / t	535	561	603	489	788
Liming Rate	----	1	kg CaCO3/t	40	42	45	37	59
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	1.25	1.27	1.35	1.34	1.92
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	782	793	840	839	1200
Liming Rate excluding ANC	----	1	kg CaCO3/t	59	60	63	63	90
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	73.3	75.0	70.3	----	----
EA150: Particle Sizing								
+75µm	----	1	%	55	----	----	69	66
+150µm	----	1	%	42	----	----	37	23
+300µm	----	1	%	35	----	----	13	11
+425µm	----	1	%	34	----	----	11	10
+600µm	----	1	%	34	----	----	9	9
+1180µm	----	1	%	32	----	----	6	7
+2.36mm	----	1	%	25	----	----	3	3
+4.75mm	----	1	%	8	----	----	1	<1
+9.5mm	----	1	%	<1	----	----	<1	<1
+19.0mm	----	1	%	<1	----	----	<1	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED6 0-50 A	SED6 0-50 B	SED6 0-50 C	SED6 50-100	SED6 100-151
			Client sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00
Compound	CAS Number	LOR	Unit	EB2029486-001	EB2029486-002	EB2029486-003	EB2029486-004	EB2029486-005
				Result	Result	Result	Result	Result
EA150: Particle Sizing - Continued								
+37.5mm	----	1	%	<1	----	----	<1	<1
+75.0mm	----	1	%	<1	----	----	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	17	----	----	11	11
Silt (2-60 µm)	----	1	%	26	----	----	19	22
Sand (0.06-2.00 mm)	----	1	%	30	----	----	66	63
Gravel (>2mm)	----	1	%	27	----	----	4	4
Cobbles (>6cm)	----	1	%	<1	----	----	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.07	----	----	2.41	2.55
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	15.2	13.8	14.7	18.5	19.2
Cadmium	7440-43-9	0.1	mg/kg	1.4	0.8	4.2	0.3	0.3
Chromium	7440-47-3	1.0	mg/kg	27.0	28.4	17.7	26.4	26.9
Copper	7440-50-8	1.0	mg/kg	24.2	19.9	42.3	13.1	15.0
Cobalt	7440-48-4	0.5	mg/kg	12.3	14.3	6.5	9.5	10.7
Lead	7439-92-1	1.0	mg/kg	45.4	22.7	160	8.3	6.0
Manganese	7439-96-5	10	mg/kg	277	243	88	210	216
Nickel	7440-02-0	1.0	mg/kg	17.4	18.3	9.6	15.6	17.6
Selenium	7782-49-2	0.1	mg/kg	0.8	0.8	0.6	0.8	0.9
Silver	7440-22-4	0.1	mg/kg	0.4	0.2	0.9	0.2	0.1
Zinc	7440-66-6	1.0	mg/kg	306	178	568	52.5	47.6
EG020T: Total Metals by ICP-MS								
Barium	7440-39-3	0.1	mg/kg	15.1	17.6	7.7	10.6	10.4
Beryllium	7440-41-7	0.1	mg/kg	0.5	0.5	0.3	0.4	0.4
Boron	7440-42-8	5	mg/kg	50	49	25	53	47
Molybdenum	7439-98-7	0.1	mg/kg	3.7	3.2	4.4	3.5	3.4
Tin	7440-31-5	0.1	mg/kg	1.4	1.3	1.0	0.4	0.4
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.01	mg/kg	0.59	0.25	2.15	0.08	0.05
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<16.1	<19.9	<15.9	<16.0	<8.0
EK040T: Fluoride Total								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED6 0-50 A	SED6 0-50 B	SED6 0-50 C	SED6 50-100	SED6 100-151
			Client sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00
Compound	CAS Number	LOR	Unit	EB2029486-001	EB2029486-002	EB2029486-003	EB2029486-004	EB2029486-005
				Result	Result	Result	Result	Result
EK040T: Fluoride Total - Continued								
Fluoride	16984-48-8	40	mg/kg	180	90	80	70	100
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	80	110	80	90	140
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	4190	3960	3460	2320	1750
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	4190	3960	3460	2320	1750
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	472	365	397	366	262
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	5.23	5.82	5.71	4.65	4.94
EP068A: Organochlorine Pesticides (OC)								
Mirex	2385-85-5	0.05	mg/kg	<0.20	<0.20	<0.20	<0.10	<0.05
EP068C: Triazines								
Atrazine	1912-24-9	0.05	mg/kg	<0.20	<0.20	<0.20	<0.10	<0.05
Simazine	122-34-9	0.05	mg/kg	<0.20	<0.20	<0.20	<0.10	<0.05
EP068D: Pyrethroids								
Bifenthrin	82657-04-3	0.05	mg/kg	<0.20	<0.20	<0.20	<0.10	<0.05
EP069: Toxaphene								
Toxaphene	8001-35-2	2	mg/kg	<8	<8	<8	<4	<2
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED6 0-50 A	SED6 0-50 B	SED6 0-50 C	SED6 50-100	SED6 100-151
			Client sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00
Compound	CAS Number	LOR	Unit	EB2029486-001	EB2029486-002	EB2029486-003	EB2029486-004	EB2029486-005
				Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued								
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	3	mg/kg	<3	<3	<3	----	----
>C16 - C34 Fraction	----	3	mg/kg	**6**	**5**	<3	----	----
>C34 - C40 Fraction	----	5	mg/kg	<5	<5	<5	----	----
>C10 - C40 Fraction (sum)	----	3	mg/kg	**6**	**5**	<3	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg	<3	<3	<3	----	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<3	<3	<3	----	----
C10 - C14 Fraction	----	3	mg/kg	<3	<3	<3	----	----
C15 - C28 Fraction	----	3	mg/kg	**3**	**3**	<3	----	----
C29 - C36 Fraction	----	5	mg/kg	<5	<5	<5	----	----
^ C10 - C36 Fraction (sum)	----	3	mg/kg	**3**	**3**	<3	----	----
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	C6_C10	3	mg/kg	<3	<3	<3	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg	<3.0	<3.0	<3.0	----	----
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Naphthalene	91-20-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1

Analytical Results

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			Client sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00
Compound	CAS Number	LOR	Unit	EB2029486-001	EB2029486-002	EB2029486-003	EB2029486-004	EB2029486-005
				Result	Result	Result	Result	Result
EP090: Organotin Compounds - Continued								
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	**5.4**	**2.2**	**6.9**	<0.5	<0.5
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	<12	<16	<12	----	----
Carbophenothion	786-19-6	10	µg/kg	<12	<16	<12	----	----
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<12.0	<16.0	<12.0	----	----
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<12	<16	<12	----	----
Chlorpyrifos	2921-88-2	10	µg/kg	<12	<16	<12	----	----
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<12	<16	<12	----	----
Demeton-S-methyl	919-86-8	10	µg/kg	<12	<16	<12	----	----
Diazinon	333-41-5	10	µg/kg	<12	<16	<12	----	----
Dichlorvos	62-73-7	10	µg/kg	<12	<16	<12	----	----
Dimethoate	60-51-5	10	µg/kg	<12	<16	<12	----	----
Ethion	563-12-2	10	µg/kg	<12	<16	<12	----	----
Fenamiphos	22224-92-6	10	µg/kg	<12	<16	<12	----	----
Fenthion	55-38-9	10	µg/kg	<12	<16	<12	----	----
Malathion	121-75-5	10	µg/kg	<12	<16	<12	----	----
Azinphos Methyl	86-50-0	10	µg/kg	<12	<16	<12	----	----
Monocrotophos	6923-22-4	10	µg/kg	<12	<16	<12	----	----
Parathion	56-38-2	10	µg/kg	<12	<16	<12	----	----
Parathion-methyl	298-00-0	10	µg/kg	<12	<16	<12	----	----
Pirimphos-ethyl	23505-41-1	10	µg/kg	<12	<16	<12	----	----
Prothiofos	34643-46-4	10	µg/kg	<12	<16	<12	----	----
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	<0.50	----	----
alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	<0.50	----	----
beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	<0.50	----	----
delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	<0.50	----	----
4.4`-DDD	72-54-8	0.50	µg/kg	<0.50	<0.50	<0.50	----	----
4.4`-DDE	72-55-9	0.50	µg/kg	<0.50	<0.50	<0.50	----	----
4.4`-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	<0.50	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.50	µg/kg	<0.50	<0.50	<0.50	----	----
Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	<0.50	----	----
alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	<0.50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED6 0-50 A	SED6 0-50 B	SED6 0-50 C	SED6 50-100	SED6 100-151
				Client sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00
Compound	CAS Number	LOR	Unit		EB2029486-001	EB2029486-002	EB2029486-003	EB2029486-004	EB2029486-005
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
beta-Endosulfan	33213-65-9	0.50	µg/kg		<0.50	<0.50	<0.50	----	----
Endosulfan sulfate	1031-07-8	0.50	µg/kg		<0.50	<0.50	<0.50	----	----
^ Endosulfan (sum)	115-29-7	0.50	µg/kg		<0.50	<0.50	<0.50	----	----
Endrin	72-20-8	0.50	µg/kg		<0.50	<0.50	<0.50	----	----
Endrin aldehyde	7421-93-4	0.50	µg/kg		<0.50	<0.50	<0.50	----	----
Endrin ketone	53494-70-5	0.50	µg/kg		<0.50	<0.50	<0.50	----	----
Heptachlor	76-44-8	0.50	µg/kg		<0.50	<0.50	<0.50	----	----
Heptachlor epoxide	1024-57-3	0.50	µg/kg		<0.50	<0.50	<0.50	----	----
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg		<0.50	<0.50	<0.50	----	----
gamma-BHC	58-89-9	0.25	µg/kg		<0.25	<0.25	<0.25	----	----
Methoxychlor	72-43-5	0.50	µg/kg		<0.50	<0.50	<0.50	----	----
cis-Chlordane	5103-71-9	0.25	µg/kg		<0.25	<0.25	<0.25	----	----
trans-Chlordane	5103-74-2	0.25	µg/kg		<0.25	<0.25	<0.25	----	----
^ Total Chlordane (sum)	----	0.25	µg/kg		<0.25	<0.25	<0.25	----	----
Oxychlordane	27304-13-8	0.50	µg/kg		<0.50	<0.50	<0.50	----	----
EP131B: Polychlorinated Biphenyls (as Aroclors)									
^ Total Polychlorinated biphenyls	----	5.0	µg/kg		<31.2	<39.1	<31.2	----	----
Aroclor 1016	12674-11-2	5.0	µg/kg		<31.2	<39.1	<31.2	----	----
Aroclor 1221	11104-28-2	5.0	µg/kg		<31.2	<39.1	<31.2	----	----
Aroclor 1232	11141-16-5	5.0	µg/kg		<31.2	<39.1	<31.2	----	----
Aroclor 1242	53469-21-9	5.0	µg/kg		<31.2	<39.1	<31.2	----	----
Aroclor 1248	12672-29-6	5.0	µg/kg		<31.2	<39.1	<31.2	----	----
Aroclor 1254	11097-69-1	5.0	µg/kg		<31.2	<39.1	<31.2	----	----
Aroclor 1260	11096-82-5	5.0	µg/kg		<31.2	<39.1	<31.2	----	----
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	5	µg/kg		**9**	**10**	**13**	----	----
2-Methylnaphthalene	91-57-6	5	µg/kg		**6**	**10**	**6**	----	----
Acenaphthylene	208-96-8	4	µg/kg		**7**	**8**	**8**	----	----
Acenaphthene	83-32-9	4	µg/kg		<5	<6	<5	----	----
Fluorene	86-73-7	4	µg/kg		<5	<6	<5	----	----
Phenanthrene	85-01-8	4	µg/kg		**18**	**42**	**20**	----	----
Anthracene	120-12-7	4	µg/kg		**6**	**9**	**9**	----	----
Fluoranthene	206-44-0	4	µg/kg		**37**	**52**	**42**	----	----
Pyrene	129-00-0	4	µg/kg		**38**	**54**	**43**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED6 0-50 A	SED6 0-50 B	SED6 0-50 C	SED6 50-100	SED6 100-151
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Compound	CAS Number	LOR	Unit		EB2029486-001	EB2029486-002	EB2029486-003	EB2029486-004	EB2029486-005
					Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	4	µg/kg		15	24	18	----	----
Chrysene	218-01-9	4	µg/kg		12	26	12	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg		15	20	22	----	----
Benzo(k)fluoranthene	207-08-9	4	µg/kg		7	6	6	----	----
Benzo(e)pyrene	192-97-2	4	µg/kg		9	12	11	----	----
Benzo(a)pyrene	50-32-8	4	µg/kg		16	22	21	----	----
Perylene	198-55-0	4	µg/kg		390	425	539	----	----
Benzo(g.h.i)perylene	191-24-2	4	µg/kg		12	14	16	----	----
Dibenz(a.h)anthracene	53-70-3	4	µg/kg		<5	<6	<5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg		10	11	13	----	----
Coronene	191-07-1	5	µg/kg		<5	<6	5	----	----
^ Sum of PAHs	----	4	µg/kg		607	745	804	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
2.4-DB	94-82-6	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
Dicamba	1918-00-9	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
Mecoprop	93-65-2	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
MCPA	94-74-6	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
2.4-DP	120-36-5	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
2.4-D	94-75-7	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
Triclopyr	55335-06-3	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
2.4.5-T	93-76-5	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
MCPB	94-81-5	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
Picloram	1918-02-1	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
Clopyralid	1702-17-6	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.08	<0.10	<0.08	<0.08	<0.04
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		115	118	111	109	115
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		124	126	117	113	125
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		88.4	86.8	102	97.1	93.1
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED6 0-50 A	SED6 0-50 B	SED6 0-50 C	SED6 50-100	SED6 100-151
				Client sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00
Compound	CAS Number	LOR	Unit		EB2029486-001	EB2029486-002	EB2029486-003	EB2029486-004	EB2029486-005
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		86.9	83.4	86.0	86.2	84.6
2-Chlorophenol-D4	93951-73-6	0.5	%		84.1	80.4	83.9	84.8	82.9
2.4.6-Tribromophenol	118-79-6	0.5	%		83.2	80.7	87.7	81.6	79.8
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		105	102	105	93.5	102
Anthracene-d10	1719-06-8	0.5	%		92.1	88.6	93.4	91.4	88.7
4-Terphenyl-d14	1718-51-0	0.5	%		106	104	107	108	103
EP080-SD: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		70.2	73.7	74.1	----	----
Toluene-D8	2037-26-5	0.2	%		61.9	64.5	65.8	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		73.1	76.3	76.8	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		74.4	65.9	63.1	67.1	47.4
EP130S: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	10	%		56.4	67.3	41.6	----	----
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.50	%		42.5	49.5	38.8	----	----
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.5	%		62.8	89.4	42.2	----	----
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		71.2	76.5	102	----	----
Anthracene-d10	1719-06-8	10	%		92.7	106	110	----	----
4-Terphenyl-d14	1718-51-0	10	%		85.8	82.4	120	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		53.2	63.0	67.6	78.9	75.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED5 0-50	SED5 50-100	SED5 100-150	----	----
			Client sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	----	----
Compound	CAS Number	LOR	Unit	EB2029486-006	EB2029486-007	EB2029486-008	--------	--------
				Result	Result	Result	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	7.1	8.0	7.9	----	----
Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	<2	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	<0.02	----	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	1.29	1.76	2.28	----	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	806	1100	1420	----	----
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	1.98	2.78	3.30	----	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	396	555	659	----	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	0.64	0.89	1.06	----	----
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	----	----
Net Acidity (sulfur units)	----	0.02	% S	0.87	1.17	1.58	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	542	730	983	----	----
Liming Rate	----	1	kg CaCO3/t	41	55	74	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	1.29	1.76	2.28	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	806	1100	1420	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	60	82	107	----	----
EA150: Particle Sizing								
+75µm	----	1	%	58	73	54	----	----
+150µm	----	1	%	38	30	16	----	----
+300µm	----	1	%	26	11	11	----	----
+425µm	----	1	%	25	9	9	----	----
+600µm	----	1	%	25	8	7	----	----
+1180µm	----	1	%	23	5	5	----	----
+2.36mm	----	1	%	20	2	1	----	----
+4.75mm	----	1	%	8	<1	<1	----	----
+9.5mm	----	1	%	<1	<1	<1	----	----
+19.0mm	----	1	%	<1	<1	<1	----	----
+37.5mm	----	1	%	<1	<1	<1	----	----
+75.0mm	----	1	%	<1	<1	<1	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED5 0-50	SED5 50-100	SED5 100-150	----	----
				Client sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	----	----
Compound	CAS Number	LOR	Unit		EB2029486-006	EB2029486-007	EB2029486-008	--------	--------
					Result	Result	Result	----	----
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		11	6	12	----	----
Silt (2-60 µm)	----	1	%		28	20	31	----	----
Sand (0.06-2.00 mm)	----	1	%		40	71	55	----	----
Gravel (>2mm)	----	1	%		21	3	2	----	----
Cobbles (>6cm)	----	1	%		<1	<1	<1	----	----
EA152: Soil Particle Density									
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3		2.31	2.41	2.42	----	----
EG020-SD: Total Metals in Sediments by ICPMS									
Antimony	7440-36-0	0.50	mg/kg		<0.50	1.12	<0.50	----	----
Arsenic	7440-38-2	1.00	mg/kg		32.5	48.8	17.8	----	----
Cadmium	7440-43-9	0.1	mg/kg		0.3	8.1	0.3	----	----
Chromium	7440-47-3	1.0	mg/kg		25.0	33.5	32.1	----	----
Copper	7440-50-8	1.0	mg/kg		12.6	83.3	18.1	----	----
Cobalt	7440-48-4	0.5	mg/kg		11.8	17.4	10.9	----	----
Lead	7439-92-1	1.0	mg/kg		5.6	204	6.7	----	----
Manganese	7439-96-5	10	mg/kg		248	191	246	----	----
Nickel	7440-02-0	1.0	mg/kg		17.0	23.4	20.2	----	----
Selenium	7782-49-2	0.1	mg/kg		0.8	1.4	1.0	----	----
Silver	7440-22-4	0.1	mg/kg		<0.1	1.2	0.1	----	----
Zinc	7440-66-6	1.0	mg/kg		44.8	1600	51.5	----	----
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		10.0	14.8	12.8	----	----
Beryllium	7440-41-7	0.1	mg/kg		0.4	0.7	0.5	----	----
Boron	7440-42-8	5	mg/kg		42	83	61	----	----
Molybdenum	7439-98-7	0.1	mg/kg		2.8	8.1	2.5	----	----
Tin	7440-31-5	0.1	mg/kg		0.5	1.8	2.3	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		0.05	3.26	0.05	----	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<16.0	<40.2	<16.0	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		100	90	120	----	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		80	150	120	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SED5 0-50	SED5 50-100	SED5 100-150	----	----
			Client sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	----	----
Compound	CAS Number	LOR	Unit	EB2029486-006	EB2029486-007	EB2029486-008	--------	--------
				Result	Result	Result	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.2	<0.1	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	**0.2**	<0.2	<0.1	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	**0.2**	<0.2	<0.1	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	**2040**	**7110**	**2360**	----	----
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	**2040**	**7110**	**2360**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	**400**	**614**	**304**	----	----
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	**5.93**	**4.81**	**6.48**	----	----
EP068A: Organochlorine Pesticides (OC)								
Mirex	2385-85-5	0.05	mg/kg	<0.10	<0.25	<0.10	----	----
EP068C: Triazines								
Atrazine	1912-24-9	0.05	mg/kg	<0.10	<0.25	<0.10	----	----
Simazine	122-34-9	0.05	mg/kg	<0.10	<0.25	<0.10	----	----
EP068D: Pyrethroids								
Bifenthrin	82657-04-3	0.05	mg/kg	<0.10	<0.25	<0.10	----	----
EP069: Toxaphene								
Toxaphene	8001-35-2	2	mg/kg	<4	<10	<4	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.7	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.7	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.7	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.7	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.7	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.7	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.7	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.7	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.7	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED5 0-50	SED5 50-100	SED5 100-150	----	----
				Client sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	----	----
Compound	CAS Number	LOR	Unit		EB2029486-006	EB2029486-007	EB2029486-008	--------	--------
					Result	Result	Result	----	----
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.7	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	----	----
EP090: Organotin Compounds									
Monobutyltin	78763-54-9	1	µgSn/kg		<1	<1	<1	----	----
Dibutyltin	1002-53-5	1	µgSn/kg		<1	<1	<1	----	----
Tributyltin	56573-85-4	0.5	µgSn/kg		<0.5	**2.0**	<0.5	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.08	<0.19	<0.08	----	----
2.4-DB	94-82-6	0.02	mg/kg		<0.08	<0.19	<0.08	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.08	<0.20	<0.08	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.08	<0.19	<0.08	----	----
MCPA	94-74-6	0.02	mg/kg		<0.08	<0.19	<0.08	----	----
2.4-DP	120-36-5	0.02	mg/kg		<0.08	<0.19	<0.08	----	----
2.4-D	94-75-7	0.02	mg/kg		<0.08	<0.19	<0.08	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.08	<0.19	<0.08	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.08	<0.19	<0.08	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.08	<0.19	<0.08	----	----
MCPB	94-81-5	0.02	mg/kg		<0.08	<0.19	<0.08	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.08	<0.19	<0.08	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.08	<0.20	<0.08	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.08	<0.19	<0.08	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**111**	**117**	**109**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**119**	**123**	**115**	----	----
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**87.8**	**93.5**	**92.9**	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**86.3**	**85.0**	**84.3**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**84.5**	**83.2**	**82.8**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**81.8**	**78.5**	**78.7**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**106**	**104**	**104**	----	----
Anthracene-d10	1719-06-8	0.5	%		**90.4**	**90.2**	**88.4**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SED5 0-50	SED5 50-100	SED5 100-150	----	----
				Client sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	----	----
Compound	CAS Number	LOR	Unit		EB2029486-006	EB2029486-007	EB2029486-008	--------	--------
					Result	Result	Result	----	----
EP075(SIM)T: PAH Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	0.5	%		**105**	**107**	**104**	**----**	**----**
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		**74.4**	**59.8**	**74.2**	**----**	**----**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**65.8**	**56.4**	**66.9**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP069: Surrogate			
Decachlorobiphenyl	2051-24-3	70	130
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	154
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	156
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080-SD: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	145
Toluene-D8	2037-26-5	42	144
4-Bromofluorobenzene	460-00-4	58	142
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP130S: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	14	102
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	119
EP131T: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	106
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	55	135
Anthracene-d10	1719-06-8	70	136
4-Terphenyl-d14	1718-51-0	57	127
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2029490**	Page	: 1 of 12
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 11-Nov-2020 10:50
Order number	: ----	Date Analysis Commenced	: 12-Nov-2020
C-O-C number	: ----	Issue Date	: 19-Nov-2020 09:54
Sampler	: TIM ALEXANDER		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 6		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Diana Mesa	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Minh Wills	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG048G (Hexavalent Chromium by Alkaline Digestion): Some samples were diluted due to matrix interference. LOR adjusted accordingly.
- EP202: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EP202: LORs for some samples raised due to high sample moisture content.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP080-SD: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP131A: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP068/EP069: Particular samples have LOR raised due to the high moisture content.
- EP131B and EP132B-SD : LOR is raised due to high amount of moistures is present.
- EP130: LOR for sample raised due to the high amount of moisture present.
- **Specialty Organics & Metals analysis is conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- ASS: EA033 (CRS Suite):Retained Acidity not required because pH KCl greater than or equal to 4.5
- EP131B and EP132B-SD : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EP132B-SD : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EP090 Organotins: Poor matrix spike recovery for MBT and DBT due to matrix interference. Confirmed by re-extraction and re-analysis.
- EP080-SD (TRH Volatiles/BTEX in Sediments): Sample EB2029486_02 shows poor matrix spike recovery due to matrix interference (high moisture). Confirmed by re-extraction and re-analysis.
- EG020-SD (Total Metals Sediments by ICP-MS): Sample SED19 0-50 (EB2029490-004) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- EG020-SD (Total Metals Sediments by ICP-MS): Sample SED13 0-50 (EB2029490-005) shows poor matrix spike recovery due to sample heterogeneity. Confirmed by visual inspection.
- EG048G (Hexavalent Chromium by Alkaline Digestion): Sample EB2029486_001 shows poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- EG035T-LL (Total Mercury Low Level): Sample SED21 0-50 (EB2029490- 002) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.

- ASS: EA033 (CRS Suite): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
			Client sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit	EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
				Result	Result	Result	Result	Result
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	8.6	9.0	8.2	8.1
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	<0.02	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	0.642	0.202	0.595	1.61
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	400	126	371	1000
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	3.40	5.01	1.56	4.64
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	680	1000	312	928
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	1.09	1.61	0.50	1.49
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	----	<0.02	<0.02	0.26	0.62
Net Acidity (acidity units)	----	10	mole H+ / t	----	<10	<10	163	385
Liming Rate	----	1	kg CaCO3/t	----	<1	<1	12	29
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	0.64	0.20	0.59	1.61
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	400	126	371	1000
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	30	9	28	75
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	57.7	----	----	----	----
Moisture Content	----	1.0	%	----	50.0	38.9	45.8	70.0
EA150: Particle Sizing								
+75µm	----	1	%	----	83	92	82	50
+150µm	----	1	%	----	79	89	78	39
+300µm	----	1	%	----	57	78	23	30
+425µm	----	1	%	----	32	48	13	28
+600µm	----	1	%	----	18	24	12	26
+1180µm	----	1	%	----	13	17	10	23
+2.36mm	----	1	%	----	10	15	4	19
+4.75mm	----	1	%	----	6	12	<1	13
+9.5mm	----	1	%	----	<1	<1	<1	<1

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Client sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit		EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
					Result	Result	Result	Result	Result
EA150: Particle Sizing - Continued									
+19.0mm	----	1	%		----	<1	<1	<1	<1
+37.5mm	----	1	%		----	<1	<1	<1	<1
+75.0mm	----	1	%		----	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size									
Clay (<2 µm)	----	1	%		----	9	4	5	15
Silt (2-60 µm)	----	1	%		----	7	4	10	33
Sand (0.06-2.00 mm)	----	1	%		----	73	77	79	32
Gravel (>2mm)	----	1	%		----	11	15	6	20
Cobbles (>6cm)	----	1	%		----	<1	<1	<1	<1
EA152: Soil Particle Density									
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3		----	2.57	2.62	2.46	2.39
EG020-SD: Total Metals in Sediments by ICPMS									
Antimony	7440-36-0	0.50	mg/kg		----	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg		----	17.1	9.86	9.22	17.5
Cadmium	7440-43-9	0.1	mg/kg		----	1.0	0.6	1.2	3.4
Chromium	7440-47-3	1.0	mg/kg		----	19.4	6.0	8.0	15.4
Copper	7440-50-8	1.0	mg/kg		----	17.6	7.9	15.0	39.3
Cobalt	7440-48-4	0.5	mg/kg		----	6.6	3.9	4.6	8.1
Lead	7439-92-1	1.0	mg/kg		----	76.8	53.2	71.7	134
Manganese	7439-96-5	10	mg/kg		----	123	65	73	488
Nickel	7440-02-0	1.0	mg/kg		----	12.3	4.8	5.2	10.0
Selenium	7782-49-2	0.1	mg/kg		----	0.6	0.2	0.3	0.6
Silver	7440-22-4	0.1	mg/kg		----	0.2	0.3	0.3	0.6
Zinc	7440-66-6	1.0	mg/kg		----	193	150	234	671
EG020T: Total Metals by ICP-MS									
Barium	7440-39-3	0.1	mg/kg		----	12.1	8.7	6.8	12.2
Beryllium	7440-41-7	0.1	mg/kg		----	0.4	0.1	0.2	0.3
Boron	7440-42-8	5	mg/kg		----	40	14	19	56
Molybdenum	7439-98-7	0.1	mg/kg		----	2.0	0.9	0.8	1.7
Tin	7440-31-5	0.1	mg/kg		----	0.5	1.9	0.7	1.2
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg		----	0.56	0.27	0.72	2.21
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		----	<8.0	----	<8.0	<16.0

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Client sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit		EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
					Result	Result	Result	Result	Result
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		----	60	----	100	100
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		----	20	----	<20	40
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		----	0.2	----	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		----	0.2	----	<0.1	<0.1
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		----	0.4	----	<0.1	<0.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		----	930	----	1140	3280
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		----	930	----	1140	3280
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		----	286	----	215	464
EP003: Total Organic Carbon (TOC) in Soil									
Total Organic Carbon	----	0.02	%		----	1.63	1.50	3.01	7.03
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.05	mg/kg		----	<0.05	----	<0.05	<0.20
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		----	<0.05	----	<0.05	<0.20
Simazine	122-34-9	0.05	mg/kg		----	<0.05	----	<0.05	<0.20
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		----	<0.05	----	<0.05	<0.20
EP069: Toxaphene									
Toxaphene	8001-35-2	2	mg/kg		----	----	----	<2	<8
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Client sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
			Client sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit	EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
				Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued								
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	<2	<2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	3	mg/kg	----	----	----	<3	<3
>C16 - C34 Fraction	----	3	mg/kg	----	----	----	<3	4
>C34 - C40 Fraction	----	5	mg/kg	----	----	----	<5	<5
>C10 - C40 Fraction (sum)	----	3	mg/kg	----	----	----	<3	4
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg	----	----	----	<3	<3
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	----	----	----	<3	<3
C10 - C14 Fraction	----	3	mg/kg	----	----	----	<3	<3
C15 - C28 Fraction	----	3	mg/kg	----	----	----	<3	<3
C29 - C36 Fraction	----	5	mg/kg	----	----	----	<5	5
^ C10 - C36 Fraction (sum)	----	3	mg/kg	----	----	----	<3	5
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	C6_C10	3	mg/kg	----	----	----	<3	<3
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg	----	----	----	<3.0	<3.0
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	----	<0.2	<0.2
Toluene	108-88-3	0.2	mg/kg	----	----	----	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg	----	----	----	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	----	----	----	<0.2	<0.2
ortho-Xylene	95-47-6	0.2	mg/kg	----	----	----	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	----	----	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	<0.2	<0.2
Naphthalene	91-20-3	0.2	mg/kg	----	----	----	<0.2	<0.2
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	----	<1	<1	<1	<1

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Client sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit		EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
					Result	Result	Result	Result	Result
EP090: Organotin Compounds - Continued									
Dibutyltin	1002-53-5	1	µgSn/kg		----	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg		----	<0.5	<0.5	**0.7**	**1.8**
EP130A: Organophosphorus Pesticides (Ultra-trace)									
Bromophos-ethyl	4824-78-6	10	µg/kg		----	----	<10	<10	<12
Carbophenothion	786-19-6	10	µg/kg		----	----	<10	<10	<12
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg		----	----	<10.0	<10.0	<12.0
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg		----	----	<10	<10	<12
Chlorpyrifos	2921-88-2	10	µg/kg		----	----	<10	<10	<12
Chlorpyrifos-methyl	5598-13-0	10	µg/kg		----	----	<10	<10	<12
Demeton-S-methyl	919-86-8	10	µg/kg		----	----	<10	<10	<12
Diazinon	333-41-5	10	µg/kg		----	----	<10	<10	<12
Dichlorvos	62-73-7	10	µg/kg		----	----	<10	<10	<12
Dimethoate	60-51-5	10	µg/kg		----	----	<10	<10	<12
Ethion	563-12-2	10	µg/kg		----	----	<10	<10	<12
Fenamiphos	22224-92-6	10	µg/kg		----	----	<10	<10	<12
Fenthion	55-38-9	10	µg/kg		----	----	<10	<10	<12
Malathion	121-75-5	10	µg/kg		----	----	<10	<10	<12
Azinphos Methyl	86-50-0	10	µg/kg		----	----	<10	<10	<12
Monocrotophos	6923-22-4	10	µg/kg		----	----	<10	<10	<12
Parathion	56-38-2	10	µg/kg		----	----	<10	<10	<12
Parathion-methyl	298-00-0	10	µg/kg		----	----	<10	<10	<12
Pirimphos-ethyl	23505-41-1	10	µg/kg		----	----	<10	<10	<12
Prothiofos	34643-46-4	10	µg/kg		----	----	<10	<10	<12
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
alpha-BHC	319-84-6	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
beta-BHC	319-85-7	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
delta-BHC	319-86-8	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
4.4`-DDD	72-54-8	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
4.4`-DDE	72-55-9	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
4.4`-DDT	50-29-3	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Dieldrin	60-57-1	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
alpha-Endosulfan	959-98-8	0.50	µg/kg		----	----	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Client sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit		EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
beta-Endosulfan	33213-65-9	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Endosulfan sulfate	1031-07-8	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
^ Endosulfan (sum)	115-29-7	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Endrin	72-20-8	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Endrin aldehyde	7421-93-4	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Endrin ketone	53494-70-5	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Heptachlor	76-44-8	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Heptachlor epoxide	1024-57-3	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
gamma-BHC	58-89-9	0.25	µg/kg		----	----	<0.25	<0.25	<0.25
Methoxychlor	72-43-5	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
cis-Chlordane	5103-71-9	0.25	µg/kg		----	----	<0.25	<0.25	<0.25
trans-Chlordane	5103-74-2	0.25	µg/kg		----	----	<0.25	<0.25	<0.25
^ Total Chlordane (sum)	----	0.25	µg/kg		----	----	<0.25	<0.25	<0.25
Oxychlordane	27304-13-8	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
EP131B: Polychlorinated Biphenyls (as Aroclors)									
^ Total Polychlorinated biphenyls	----	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1016	12674-11-2	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1221	11104-28-2	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1232	11141-16-5	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1242	53469-21-9	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1248	12672-29-6	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1254	11097-69-1	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1260	11096-82-5	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	5	µg/kg		**131**	----	<5	**6**	**660**
2-Methylnaphthalene	91-57-6	5	µg/kg		**90**	----	<5	<5	**335**
Acenaphthylene	208-96-8	4	µg/kg		**885**	----	<4	**4**	**499**
Acenaphthene	83-32-9	4	µg/kg		**470**	----	<4	<4	**125**
Fluorene	86-73-7	4	µg/kg		**1200**	----	<4	<4	**619**
Phenanthrene	85-01-8	4	µg/kg		**7180**	----	<4	**10**	**5020**
Anthracene	120-12-7	4	µg/kg		**3590**	----	<4	<4	**638**
Fluoranthene	206-44-0	4	µg/kg		**8510**	----	**7**	**18**	**3420**
Pyrene	129-00-0	4	µg/kg		**6940**	----	**7**	**20**	**3100**

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Client sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
					EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
					Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	4	µg/kg		**4740**	----	<4	**8**	**1360**
Chrysene	218-01-9	4	µg/kg		**3430**	----	<4	**9**	**1430**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg		**3190**	----	<4	**8**	**1220**
Benzo(k)fluoranthene	207-08-9	4	µg/kg		**2020**	----	<4	<4	**621**
Benzo(e)pyrene	192-97-2	4	µg/kg		**1510**	----	<4	**5**	**635**
Benzo(a)pyrene	50-32-8	4	µg/kg		**3590**	----	<4	**9**	**1230**
Perylene	198-55-0	4	µg/kg		**1180**	----	**11**	**224**	**1580**
Benzo(g.h.i)perylene	191-24-2	4	µg/kg		**1560**	----	<4	**7**	**644**
Dibenz(a.h)anthracene	53-70-3	4	µg/kg		**433**	----	<4	<4	**141**
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg		**1440**	----	<4	**5**	**534**
Coronene	191-07-1	5	µg/kg		**513**	----	<5	<5	**191**
^ **Sum of PAHs**	----	4	µg/kg		**52600**	----	**25**	**333**	**24000**
^ **Benzo(a)pyrene TEQ (zero)**	----	4	µg/kg		**5210**	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	4	µg/kg		**5210**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	4	µg/kg		**5210**	----	----	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
2.4-DB	94-82-6	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
Dicamba	1918-00-9	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
Mecoprop	93-65-2	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
MCPA	94-74-6	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
2.4-DP	120-36-5	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
2.4-D	94-75-7	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
Triclopyr	55335-06-3	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
2.4.5-T	93-76-5	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
MCPB	94-81-5	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
Picloram	1918-02-1	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
Clopyralid	1702-17-6	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
Fluroxypyr	69377-81-7	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	**110**	----	**114**	**112**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	**113**	----	**122**	**113**

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Client sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
					EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
					Result	Result	Result	Result	Result
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	**78.4**	**104**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	**83.8**	----	**83.2**	**83.2**
2-Chlorophenol-D4	93951-73-6	0.5	%		----	**81.6**	----	**80.1**	**80.8**
2.4.6-Tribromophenol	118-79-6	0.5	%		----	**81.1**	----	**74.8**	**73.1**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	**91.5**	----	**102**	**91.0**
Anthracene-d10	1719-06-8	0.5	%		----	**89.3**	----	**88.3**	**88.2**
4-Terphenyl-d14	1718-51-0	0.5	%		----	**104**	----	**106**	**107**
EP080-SD: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	**72.7**	**70.9**
Toluene-D8	2037-26-5	0.2	%		----	----	----	**64.7**	**62.4**
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	**78.5**	**70.9**
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		----	**56.6**	**38.3**	**90.1**	**60.2**
EP130S: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	10	%		----	----	**54.6**	**50.0**	**50.5**
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.50	%		----	----	**41.1**	**38.0**	**52.4**
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.5	%		----	----	**52.2**	**46.9**	**86.6**
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		**92.3**	----	**78.6**	**106**	**87.1**
Anthracene-d10	1719-06-8	10	%		**85.5**	----	**88.8**	**108**	**91.6**
4-Terphenyl-d14	1718-51-0	10	%		**86.7**	----	**81.2**	**102**	**80.4**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		----	**79.2**	----	**72.4**	**56.8**

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP069: Surrogate			
Decachlorobiphenyl	2051-24-3	70	130
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	154
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	156
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080-SD: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	145
Toluene-D8	2037-26-5	42	144
4-Bromofluorobenzene	460-00-4	58	142
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP130S: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	14	102
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	119
EP131T: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	106
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	55	135
Anthracene-d10	1719-06-8	70	136
4-Terphenyl-d14	1718-51-0	57	127
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2029490**	Page	: 1 of 13
Amendment	: **1**		
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 11-Nov-2020 10:50
Order number	: ----	Date Analysis Commenced	: 12-Nov-2020
C-O-C number	: ----	Issue Date	: 09-Dec-2020 08:42
Sampler	: TIM ALEXANDER		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 6		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Diana Mesa	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Minh Wills	2IC Organic Chemist	Brisbane Organics, Stafford, QLD
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Satishkumar Trivedi	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG048G (Hexavalent Chromium by Alkaline Digestion): Some samples were diluted due to matrix interference. LOR adjusted accordingly.
- EP202: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EP202: LORs for some samples raised due to high sample moisture content.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP080-SD: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP131A: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP068/EP069: Particular samples have LOR raised due to the high moisture content.
- EP131B and EP132B-SD : LOR is raised due to high amount of moistures is present.
- EP130: LOR for sample raised due to the high amount of moisture present.
- **Specialty Organics & Metals analysis is conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- ASS: EA033 (CRS Suite):Retained Acidity not required because pH KCl greater than or equal to 4.5
- Amendment 1 (9/12/2020):This report has been amended following the correction of TEQ reporting.
- EP131B and EP132B-SD : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EP132B-SD : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EP090 Organotins: Poor matrix spike recovery for MBT and DBT due to matrix interference. Confirmed by re-extraction and re-analysis.
- EP080-SD (TRH Volatiles/BTEX in Sediments): Sample EB2029486_02 shows poor matrix spike recovery due to matrix interference (high moisture). Confirmed by re-extraction and re-analysis.
- EG020-SD (Total Metals Sediments by ICP-MS): Sample SED19 0-50 (EB2029490-004) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- EG020-SD (Total Metals Sediments by ICP-MS): Sample SED13 0-50 (EB2029490-005) shows poor matrix spike recovery due to sample heterogeneity. Confirmed by visual inspection.
- EG048G (Hexavalent Chromium by Alkaline Digestion): Sample EB2029486_001 shows poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.
- EG035T-LL (Total Mercury Low Level): Sample SED21 0-50 (EB2029490- 002) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.

- ASS: EA033 (CRS Suite): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
					EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
					Result	Result	Result	Result	Result
EA033-A: Actual Acidity									
pH KCl (23A)	----	0.1	pH Unit		----	**8.6**	**9.0**	**8.2**	**8.1**
Titratable Actual Acidity (23F)	----	2	mole H+ / t		----	<2	<2	<2	<2
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S		----	<0.02	<0.02	<0.02	<0.02
EA033-B: Potential Acidity									
Chromium Reducible Sulfur (22B)	----	0.005	% S		----	**0.642**	**0.202**	**0.595**	**1.61**
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t		----	**400**	**126**	**371**	**1000**
EA033-C: Acid Neutralising Capacity									
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3		----	**3.40**	**5.01**	**1.56**	**4.64**
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t		----	**680**	**1000**	**312**	**928**
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S		----	**1.09**	**1.61**	**0.50**	**1.49**
EA033-E: Acid Base Accounting									
ANC Fineness Factor	----	0.5	-		----	**1.5**	**1.5**	**1.5**	**1.5**
Net Acidity (sulfur units)	----	0.02	% S		----	<0.02	<0.02	**0.26**	**0.62**
Net Acidity (acidity units)	----	10	mole H+ / t		----	<10	<10	**163**	**385**
Liming Rate	----	1	kg CaCO3/t		----	<1	<1	**12**	**29**
Net Acidity excluding ANC (sulfur units)	----	0.02	% S		----	**0.64**	**0.20**	**0.59**	**1.61**
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t		----	**400**	**126**	**371**	**1000**
Liming Rate excluding ANC	----	1	kg CaCO3/t		----	**30**	**9**	**28**	**75**
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**57.7**	----	----	----	----
Moisture Content	----	1.0	%		----	**50.0**	**38.9**	**45.8**	**70.0**
EA150: Particle Sizing									
+75µm	----	1	%		----	**83**	**92**	**82**	**50**
+150µm	----	1	%		----	**79**	**89**	**78**	**39**
+300µm	----	1	%		----	**57**	**78**	**23**	**30**
+425µm	----	1	%		----	**32**	**48**	**13**	**28**
+600µm	----	1	%		----	**18**	**24**	**12**	**26**
+1180µm	----	1	%		----	**13**	**17**	**10**	**23**
+2.36mm	----	1	%		----	**10**	**15**	**4**	**19**
+4.75mm	----	1	%		----	**6**	**12**	<1	**13**
+9.5mm	----	1	%		----	<1	<1	<1	<1

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
			Sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit	EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
				Result	Result	Result	Result	Result
EA150: Particle Sizing - Continued								
+19.0mm	----	1	%	----	<1	<1	<1	<1
+37.5mm	----	1	%	----	<1	<1	<1	<1
+75.0mm	----	1	%	----	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	9	4	5	15
Silt (2-60 µm)	----	1	%	----	7	4	10	33
Sand (0.06-2.00 mm)	----	1	%	----	73	77	79	32
Gravel (>2mm)	----	1	%	----	11	15	6	20
Cobbles (>6cm)	----	1	%	----	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	2.57	2.62	2.46	2.39
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	----	<0.50	<0.50	<0.50	<0.50
Arsenic	7440-38-2	1.00	mg/kg	----	17.1	9.86	9.22	17.5
Cadmium	7440-43-9	0.1	mg/kg	----	1.0	0.6	1.2	3.4
Chromium	7440-47-3	1.0	mg/kg	----	19.4	6.0	8.0	15.4
Copper	7440-50-8	1.0	mg/kg	----	17.6	7.9	15.0	39.3
Cobalt	7440-48-4	0.5	mg/kg	----	6.6	3.9	4.6	8.1
Lead	7439-92-1	1.0	mg/kg	----	76.8	53.2	71.7	134
Manganese	7439-96-5	10	mg/kg	----	123	65	73	488
Nickel	7440-02-0	1.0	mg/kg	----	12.3	4.8	5.2	10.0
Selenium	7782-49-2	0.1	mg/kg	----	0.6	0.2	0.3	0.6
Silver	7440-22-4	0.1	mg/kg	----	0.2	0.3	0.3	0.6
Zinc	7440-66-6	1.0	mg/kg	----	193	150	234	671
EG020T: Total Metals by ICP-MS								
Barium	7440-39-3	0.1	mg/kg	----	12.1	8.7	6.8	12.2
Beryllium	7440-41-7	0.1	mg/kg	----	0.4	0.1	0.2	0.3
Boron	7440-42-8	5	mg/kg	----	40	14	19	56
Molybdenum	7439-98-7	0.1	mg/kg	----	2.0	0.9	0.8	1.7
Tin	7440-31-5	0.1	mg/kg	----	0.5	1.9	0.7	1.2
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.01	mg/kg	----	0.56	0.27	0.72	2.21
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	<8.0	----	<8.0	<16.0

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit		EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
					Result	Result	Result	Result	Result
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		----	60	----	100	100
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		----	20	----	<20	40
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		----	0.2	----	<0.1	<0.1
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		----	0.2	----	<0.1	<0.1
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		----	0.4	----	<0.1	<0.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg		----	930	----	1140	3280
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg		----	930	----	1140	3280
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg		----	286	----	215	464
EP003: Total Organic Carbon (TOC) in Soil									
Total Organic Carbon	----	0.02	%		----	1.63	1.50	3.01	7.03
EP068A: Organochlorine Pesticides (OC)									
Mirex	2385-85-5	0.05	mg/kg		----	<0.05	----	<0.05	<0.20
EP068C: Triazines									
Atrazine	1912-24-9	0.05	mg/kg		----	<0.05	----	<0.05	<0.20
Simazine	122-34-9	0.05	mg/kg		----	<0.05	----	<0.05	<0.20
EP068D: Pyrethroids									
Bifenthrin	82657-04-3	0.05	mg/kg		----	<0.05	----	<0.05	<0.20
EP069: Toxaphene									
Toxaphene	8001-35-2	2	mg/kg		----	----	----	<2	<8
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
			Sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit	EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
				Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued								
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	<2	<2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	3	mg/kg	----	----	----	<3	<3
>C16 - C34 Fraction	----	3	mg/kg	----	----	----	<3	4
>C34 - C40 Fraction	----	5	mg/kg	----	----	----	<5	<5
>C10 - C40 Fraction (sum)	----	3	mg/kg	----	----	----	<3	4
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg	----	----	----	<3	<3
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	----	----	----	<3	<3
C10 - C14 Fraction	----	3	mg/kg	----	----	----	<3	<3
C15 - C28 Fraction	----	3	mg/kg	----	----	----	<3	<3
C29 - C36 Fraction	----	5	mg/kg	----	----	----	<5	5
^ C10 - C36 Fraction (sum)	----	3	mg/kg	----	----	----	<3	5
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	C6_C10	3	mg/kg	----	----	----	<3	<3
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg	----	----	----	<3.0	<3.0
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	----	<0.2	<0.2
Toluene	108-88-3	0.2	mg/kg	----	----	----	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg	----	----	----	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	----	----	----	<0.2	<0.2
ortho-Xylene	95-47-6	0.2	mg/kg	----	----	----	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	----	----	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	<0.2	<0.2
Naphthalene	91-20-3	0.2	mg/kg	----	----	----	<0.2	<0.2
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	----	<1	<1	<1	<1

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
			Sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit	EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
				Result	Result	Result	Result	Result
EP090: Organotin Compounds - Continued								
Dibutyltin	1002-53-5	1	µgSn/kg	----	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	----	<0.5	<0.5	**0.7**	**1.8**
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	----	----	<10	<10	<12
Carbophenothion	786-19-6	10	µg/kg	----	----	<10	<10	<12
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	----	----	<10.0	<10.0	<12.0
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	----	----	<10	<10	<12
Chlorpyrifos	2921-88-2	10	µg/kg	----	----	<10	<10	<12
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	----	----	<10	<10	<12
Demeton-S-methyl	919-86-8	10	µg/kg	----	----	<10	<10	<12
Diazinon	333-41-5	10	µg/kg	----	----	<10	<10	<12
Dichlorvos	62-73-7	10	µg/kg	----	----	<10	<10	<12
Dimethoate	60-51-5	10	µg/kg	----	----	<10	<10	<12
Ethion	563-12-2	10	µg/kg	----	----	<10	<10	<12
Fenamiphos	22224-92-6	10	µg/kg	----	----	<10	<10	<12
Fenthion	55-38-9	10	µg/kg	----	----	<10	<10	<12
Malathion	121-75-5	10	µg/kg	----	----	<10	<10	<12
Azinphos Methyl	86-50-0	10	µg/kg	----	----	<10	<10	<12
Monocrotophos	6923-22-4	10	µg/kg	----	----	<10	<10	<12
Parathion	56-38-2	10	µg/kg	----	----	<10	<10	<12
Parathion-methyl	298-00-0	10	µg/kg	----	----	<10	<10	<12
Pirimphos-ethyl	23505-41-1	10	µg/kg	----	----	<10	<10	<12
Prothiofos	34643-46-4	10	µg/kg	----	----	<10	<10	<12
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.50	µg/kg	----	----	<0.50	<0.50	<0.50
alpha-BHC	319-84-6	0.50	µg/kg	----	----	<0.50	<0.50	<0.50
beta-BHC	319-85-7	0.50	µg/kg	----	----	<0.50	<0.50	<0.50
delta-BHC	319-86-8	0.50	µg/kg	----	----	<0.50	<0.50	<0.50
4.4`-DDD	72-54-8	0.50	µg/kg	----	----	<0.50	<0.50	<0.50
4.4`-DDE	72-55-9	0.50	µg/kg	----	----	<0.50	<0.50	<0.50
4.4`-DDT	50-29-3	0.50	µg/kg	----	----	<0.50	<0.50	<0.50
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.50	µg/kg	----	----	<0.50	<0.50	<0.50
Dieldrin	60-57-1	0.50	µg/kg	----	----	<0.50	<0.50	<0.50
alpha-Endosulfan	959-98-8	0.50	µg/kg	----	----	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit		EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
beta-Endosulfan	33213-65-9	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Endosulfan sulfate	1031-07-8	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
^ Endosulfan (sum)	115-29-7	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Endrin	72-20-8	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Endrin aldehyde	7421-93-4	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Endrin ketone	53494-70-5	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Heptachlor	76-44-8	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Heptachlor epoxide	1024-57-3	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
gamma-BHC	58-89-9	0.25	µg/kg		----	----	<0.25	<0.25	<0.25
Methoxychlor	72-43-5	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
cis-Chlordane	5103-71-9	0.25	µg/kg		----	----	<0.25	<0.25	<0.25
trans-Chlordane	5103-74-2	0.25	µg/kg		----	----	<0.25	<0.25	<0.25
^ Total Chlordane (sum)	----	0.25	µg/kg		----	----	<0.25	<0.25	<0.25
Oxychlordane	27304-13-8	0.50	µg/kg		----	----	<0.50	<0.50	<0.50
EP131B: Polychlorinated Biphenyls (as Aroclors)									
^ Total Polychlorinated biphenyls	----	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1016	12674-11-2	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1221	11104-28-2	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1232	11141-16-5	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1242	53469-21-9	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1248	12672-29-6	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1254	11097-69-1	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
Aroclor 1260	11096-82-5	5.0	µg/kg		----	----	<15.6	<15.6	<31.2
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	5	µg/kg		**131**	----	<5	**6**	**660**
2-Methylnaphthalene	91-57-6	5	µg/kg		**90**	----	<5	<5	**335**
Acenaphthylene	208-96-8	4	µg/kg		**885**	----	<4	**4**	**499**
Acenaphthene	83-32-9	4	µg/kg		**470**	----	<4	<4	**125**
Fluorene	86-73-7	4	µg/kg		**1200**	----	<4	<4	**619**
Phenanthrene	85-01-8	4	µg/kg		**7180**	----	<4	**10**	**5020**
Anthracene	120-12-7	4	µg/kg		**3590**	----	<4	<4	**638**
Fluoranthene	206-44-0	4	µg/kg		**8510**	----	**7**	**18**	**3420**
Pyrene	129-00-0	4	µg/kg		**6940**	----	**7**	**20**	**3100**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit		EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
					Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	4	µg/kg		**4740**	----	<4	**8**	**1360**
Chrysene	218-01-9	4	µg/kg		**3430**	----	<4	**9**	**1430**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg		**3190**	----	<4	**8**	**1220**
Benzo(k)fluoranthene	207-08-9	4	µg/kg		**2020**	----	<4	<4	**621**
Benzo(e)pyrene	192-97-2	4	µg/kg		**1510**	----	<4	**5**	**635**
Benzo(a)pyrene	50-32-8	4	µg/kg		**3590**	----	<4	**9**	**1230**
Perylene	198-55-0	4	µg/kg		**1180**	----	**11**	**224**	**1580**
Benzo(g.h.i)perylene	191-24-2	4	µg/kg		**1560**	----	<4	**7**	**644**
Dibenz(a.h)anthracene	53-70-3	4	µg/kg		**433**	----	<4	<4	**141**
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg		**1440**	----	<4	**5**	**534**
Coronene	191-07-1	5	µg/kg		**513**	----	<5	<5	**191**
^ Sum of PAHs	----	4	µg/kg		**52600**	----	**25**	**333**	**24000**
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
2.4-DB	94-82-6	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
Dicamba	1918-00-9	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
Mecoprop	93-65-2	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
MCPA	94-74-6	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
2.4-DP	120-36-5	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
2.4-D	94-75-7	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
Triclopyr	55335-06-3	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
2.4.5-T	93-76-5	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
MCPB	94-81-5	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
Picloram	1918-02-1	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
Clopyralid	1702-17-6	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
Fluroxypyr	69377-81-7	0.02	mg/kg		----	<0.04	----	<0.04	<0.08
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	**110**	----	**114**	**112**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	**113**	----	**122**	**113**
EP069: Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	**78.4**	**104**
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
					EB2029490-001	EB2029490-002	EB2029490-003	EB2029490-004	EB2029490-005
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		----	**83.8**	----	**83.2**	**83.2**
2-Chlorophenol-D4	93951-73-6	0.5	%		----	**81.6**	----	**80.1**	**80.8**
2.4.6-Tribromophenol	118-79-6	0.5	%		----	**81.1**	----	**74.8**	**73.1**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	**91.5**	----	**102**	**91.0**
Anthracene-d10	1719-06-8	0.5	%		----	**89.3**	----	**88.3**	**88.2**
4-Terphenyl-d14	1718-51-0	0.5	%		----	**104**	----	**106**	**107**
EP080-SD: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	**72.7**	**70.9**
Toluene-D8	2037-26-5	0.2	%		----	----	----	**64.7**	**62.4**
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	**78.5**	**70.9**
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%		----	**56.6**	**38.3**	**90.1**	**60.2**
EP130S: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	10	%		----	----	**54.6**	**50.0**	**50.5**
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.50	%		----	----	**41.1**	**38.0**	**52.4**
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.5	%		----	----	**52.2**	**46.9**	**86.6**
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		**92.3**	----	**78.6**	**106**	**87.1**
Anthracene-d10	1719-06-8	10	%		**85.5**	----	**88.8**	**108**	**91.6**
4-Terphenyl-d14	1718-51-0	10	%		**86.7**	----	**81.2**	**102**	**80.4**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		----	**79.2**	----	**72.4**	**56.8**

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP069: Surrogate			
Decachlorobiphenyl	2051-24-3	70	130
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	154
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	156
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080-SD: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	145
Toluene-D8	2037-26-5	42	144
4-Bromofluorobenzene	460-00-4	58	142
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP130S: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	14	102
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	119
EP131T: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	106
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	55	135
Anthracene-d10	1719-06-8	70	136
4-Terphenyl-d14	1718-51-0	57	127
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2029989**	Page	: 1 of 5
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 05-Nov-2020 09:15
Order number	: ----	Date Analysis Commenced	: 16-Nov-2020
C-O-C number	: ----	Issue Date	: 04-Dec-2020 17:00
Sampler	: ----		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EA150H: Soil particle density results fell outside the scope of AS1289.3.6.3. Results should be scrutinised accordingly.
- **Arsenic speciation analysis is conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913). This analysis has an estimated reporting date of 10/12/2020.**
- ASS: EA033 (CRS Suite):Retained Acidity not required because pH KCl greater than or equal to 4.5
- EG035-SDH (1M HCl Extractable Mercury) Sample SED9 0-50 (EB2029989-003) shows poor matrix spike recovery due to sample heterogeneity. Confirmed by visual inspection.
- EG020-SDH (1M HCl Extractable metals by ICP-MS): Sample SED3 0-55C (EB2029989-002) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- It is recognised that EG094-T (Total Metals in Fresh Water by ORC-ICP-MS) is less than EG094-F (Dissolved Metals in Fresh Water by ORC-ICP-MS) for some samples. However, the difference is within experimental variation of the methods.
- ASS: EA033 (CRS Suite): Laboratory determinations of ANC needs to be corroborated by effectiveness of the measured ANC in relation to incubation ANC. Unless corroborated, the results of ANC testing should be discounted when determining Net Acidity for comparison with action criteria, or for the determination of the acidity hazard and required liming amounts.
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.
- EN68: This analysis in accordance with National Ocean Disposal Guidelines, Commonwealth of Australia, 2002 - (modified). Results reported are those determined on a 1:4 sediment/seawater elutriate without blank correction.
- EG093: Samples containing high levels of sulfate may precipitate barium under the acidic conditions of this method and may therefore bias results low.

Analytical Results

Sub-Matrix: **ELUTRIATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	SED3 0-55C	SED9 0-50	Elutriate Water	----	----
				Sampling date / time	02-Nov-2020 09:20	02-Nov-2020 12:05	02-Nov-2020 12:05	----	----
					EB2029989-002	EB2029989-003	EB2029989-004	--------	--------
					Result	Result	Result	----	----
EG032: Arsenic Speciation by LC-ICPMS									
Arsenobetaine (ASB)	----	2	µg/L		<2	<10	<2	----	----
Arsenious Acid (As (III))	----	4.0	µg/L		**6.4**	**16.3**	<4.0	----	----
Dimethylarsenic Acid (DMA)	----	4	µg/L		<4	<10	<4	----	----
Monomethylarsonic Acid (MMA)	----	4	µg/L		<4	<10	<4	----	----
Arsenic Acid (As (V))	----	4.0	µg/L		**7.9**	**34.1**	<4.0	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	----	----
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		<0.2	**0.8**	<0.2	----	----
Arsenic	7440-38-2	0.2	µg/L		**17.5**	**52.5**	**0.3**	----	----
Cadmium	7440-43-9	0.05	µg/L		<0.05	**0.05**	<0.05	----	----
Chromium	7440-47-3	0.2	µg/L		**0.5**	**0.5**	<0.2	----	----
Cobalt	7440-48-4	0.1	µg/L		<0.1	**0.1**	<0.1	----	----
Lead	7439-92-1	0.1	µg/L		**0.4**	**0.5**	**1.3**	----	----
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Silver	7440-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	----
Zinc	7440-66-6	1	µg/L		**13**	**73**	**19**	----	----
EG094T: Total metals in Fresh water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		**0.4**	**2.4**	<0.2	----	----
Arsenic	7440-38-2	0.2	µg/L		**15.8**	**44.6**	**0.4**	----	----
Cadmium	7440-43-9	0.05	µg/L		**2.14**	**5.12**	<0.05	----	----
Chromium	7440-47-3	0.2	µg/L		**18.6**	**23.1**	**0.3**	----	----
Copper	7440-50-8	0.5	µg/L		**35.4**	**86.6**	**5.4**	----	----
Lead	7439-92-1	0.1	µg/L		**88.6**	**240**	**3.6**	----	----
Nickel	7440-02-0	0.5	µg/L		**10.6**	**11.4**	<0.5	----	----
Silver	7440-22-4	0.1	µg/L		**0.3**	**1.0**	<0.1	----	----
Zinc	7440-66-6	1	µg/L		**539**	**1170**	**15**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SED3 0-55 B	SED3 0-55C	SED9 0-50	Elutriate Water	----
			Sampling date / time	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 12:05	02-Nov-2020 12:05	----
Compound	CAS Number	LOR	Unit	EB2029989-001	EB2029989-002	EB2029989-003	EB2029989-004	--------
				Result	Result	Result	Result	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	7.1	----	----	----
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	<2	----	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	<0.02	----	----	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	2.38	----	----	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	1490	----	----	----
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	2.59	----	----	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	518	----	----	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	0.83	----	----	----
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	1.5	----	----	----
Net Acidity (sulfur units)	----	0.02	% S	----	1.83	----	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	----	1140	----	----	----
Liming Rate	----	1	kg CaCO3/t	----	86	----	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	2.38	----	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	1490	----	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	112	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	84.7	82.3	----	----
EA150: Particle Sizing								
+75µm	----	1	%	40	----	----	----	----
+150µm	----	1	%	37	----	----	----	----
+300µm	----	1	%	35	----	----	----	----
+425µm	----	1	%	34	----	----	----	----
+600µm	----	1	%	33	----	----	----	----
+1180µm	----	1	%	32	----	----	----	----
+2.36mm	----	1	%	29	----	----	----	----
+4.75mm	----	1	%	13	----	----	----	----
+9.5mm	----	1	%	<1	----	----	----	----
+19.0mm	----	1	%	<1	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	SED3 0-55 B	SED3 0-55C	SED9 0-50	Elutriate Water	----
			Sampling date / time	02-Nov-2020 09:20	02-Nov-2020 09:20	02-Nov-2020 12:05	02-Nov-2020 12:05	----
Compound	CAS Number	LOR	Unit	EB2029989-001	EB2029989-002	EB2029989-003	EB2029989-004	--------
				Result	Result	Result	Result	----
EA150: Particle Sizing - Continued								
+37.5mm	----	1	%	<1	----	----	----	----
+75.0mm	----	1	%	<1	----	----	----	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	**25**	----	----	----	----
Silt (2-60 µm)	----	1	%	**33**	----	----	----	----
Sand (0.06-2.00 mm)	----	1	%	**12**	----	----	----	----
Gravel (>2mm)	----	1	%	**30**	----	----	----	----
Cobbles (>6cm)	----	1	%	<1	----	----	----	----
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	**2.25**	----	----	----	----
EG020-SDH: 1M HCl Extractable metals by ICPMS								
Arsenic	7440-38-2	1.0	mg/kg	----	**9.5**	**15.6**	----	----
Cadmium	7440-43-9	0.10	mg/kg	----	**4.63**	**6.43**	----	----
Chromium	7440-47-3	1.0	mg/kg	----	**3.2**	**4.2**	----	----
Copper	7440-50-8	1.0	mg/kg	----	**18.5**	**26.4**	----	----
Lead	7439-92-1	1.0	mg/kg	----	**192**	**299**	----	----
Nickel	7440-02-0	1.0	mg/kg	----	**3.7**	**3.1**	----	----
Zinc	7440-66-6	1.0	mg/kg	----	**882**	**1190**	----	----
Antimony	7440-36-0	2.0	mg/kg	----	<2.0	<2.0	----	----
Silver	7440-22-4	1.0	mg/kg	----	<1.0	<1.0	----	----
EG035-SDH: 1M HCl extractable Mercury by FIMS								
Mercury	7439-97-6	0.10	mg/kg	----	<0.10	<0.10	----	----
EN68: Seawater Elutriate Testing Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)								
Seawater Sampling Date	----	-	-	----	**16/11/2020**	**16/11/2020**	**16/11/2020**	----

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2030466**	Page	: 1 of 5
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 11-Nov-2020 10:50
Order number	: ----	Date Analysis Commenced	: 19-Nov-2020
C-O-C number	: ----	Issue Date	: 04-Dec-2020 16:03
Sampler	: ----		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 9		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

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Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Speciated Arsenic conducted by ALS Sydney, NATA accreditation no. 825, site no 10911. The expected date for data 10/12/2020
- EG035-SDH (1M HCl Extractable Mercury) Sample SED6 0-50 C (EB2030466_003) shows poor matrix spike recovery due to sample heterogeneity. Confirmed by visual inspection.
- EG035T-LL (Total Mercury Low Level): Positive mercury results have been confirmed by re-extraction and re-analysis.
- EN68: This analysis in accordance with National Ocean Disposal Guidelines, Commonwealth of Australia, 2002 - (modified). Results reported are those determined on a 1:4 sediment/seawater elutriate without blank correction.
- EG093: Samples containing high levels of sulfate may precipitate barium under the acidic conditions of this method and may therefore bias results low.

Analytical Results

Sub-Matrix: **ELUTRIATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	SED6 0-50 A	SED6 0-50 C	SED5 0-50	SED5 50-100	ELUTRIATE
				Sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	19-Nov-2020 00:00
					EB2030466-001	EB2030466-003	EB2030466-006	EB2030466-007	EB2030466-009
					Result	Result	Result	Result	Result
EG032: Arsenic Speciation by LC-ICPMS									
Arsenobetaine (ASB)	----	2	µg/L		**----**	**----**	<2	<2	<2
Arsenious Acid (As (III))	----	4.0	µg/L		**----**	**----**	**4.2**	**7.5**	<4.0
Dimethylarsenic Acid (DMA)	----	4	µg/L		**----**	**----**	<4	<4	<4
Monomethylarsonic Acid (MMA)	----	4	µg/L		**----**	**----**	<4	<4	<4
Arsenic Acid (As (V))	----	4.0	µg/L		**----**	**----**	**8.2**	**23.6**	<4.0
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	**0.00074**	<0.00004	**0.00016**	<0.00004
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		**0.6**	**0.6**	**0.2**	**0.7**	<0.2
Arsenic	7440-38-2	0.2	µg/L		**40.7**	**29.2**	**16.0**	**32.6**	**0.7**
Cadmium	7440-43-9	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
Chromium	7440-47-3	0.2	µg/L		**0.4**	**0.4**	**0.5**	**0.3**	**0.3**
Copper	7440-50-8	0.5	µg/L		**0.6**	**1.5**	**0.8**	**1.4**	<0.5
Lead	7439-92-1	0.1	µg/L		**0.2**	**0.2**	**0.2**	**0.2**	**0.3**
Nickel	7440-02-0	0.5	µg/L		<0.5	<0.5	**0.7**	<0.5	<0.5
Silver	7440-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	7440-66-6	1	µg/L		**5**	**4**	<1	<1	**6**
EG094T: Total metals in Fresh water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		**0.8**	**0.8**	**0.2**	**0.7**	<0.2
Arsenic	7440-38-2	0.2	µg/L		**54.2**	**38.6**	**17.7**	**43.1**	**0.7**
Cadmium	7440-43-9	0.05	µg/L		**1.90**	**1.68**	**0.07**	**1.38**	**0.05**
Chromium	7440-47-3	0.2	µg/L		**15.0**	**15.6**	**10.5**	**11.7**	**0.8**
Copper	7440-50-8	0.5	µg/L		**28.4**	**25.4**	**4.0**	**17.7**	**0.7**
Lead	7439-92-1	0.1	µg/L		**77.1**	**72.0**	**2.2**	**58.1**	**0.4**
Nickel	7440-02-0	0.5	µg/L		**10.2**	**10.9**	**7.5**	**7.8**	**0.7**
Silver	7440-22-4	0.1	µg/L		**0.2**	**0.2**	<0.1	**0.2**	<0.1
Zinc	7440-66-6	1	µg/L		**437**	**389**	**19**	**307**	**6**

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)			Sample ID	**ELUTRIATE**	**----**	**----**	**----**	**----**
			Sampling date / time	19-Nov-2020 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**EB2030466-009**	**--------**	**--------**	**--------**	**--------**
				Result	----	----	----	----
EN68: Seawater Elutriate Testing Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)								
Seawater Sampling Date	----	-	-	**19/11/2020**	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	SED6 0-50 A	SED6 0-50 C	SED5 0-50	SED5 50-100	----
				Sampling date / time	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	06-Nov-2020 00:00	----
					EB2030466-001	EB2030466-003	EB2030466-006	EB2030466-007	--------
					Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**76.6**	**75.6**	**49.6**	**69.1**	**----**
EG020-SDH: 1M HCl Extractable metals by ICPMS									
Arsenic	7440-38-2	1.0	mg/kg		**13.2**	**17.7**	**1.6**	**6.1**	**----**
Cadmium	7440-43-9	0.10	mg/kg		**4.70**	**5.76**	**0.17**	**1.67**	**----**
Chromium	7440-47-3	1.0	mg/kg		**3.2**	**2.9**	**2.1**	**2.1**	**----**
Lead	7439-92-1	1.0	mg/kg		**212**	**258**	**2.5**	**60.2**	**----**
Nickel	7440-02-0	1.0	mg/kg		**3.2**	**3.0**	**2.4**	**3.1**	**----**
Zinc	7440-66-6	1.0	mg/kg		**1020**	**1440**	**22.9**	**366**	**----**
Antimony	7440-36-0	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	**----**
Silver	7440-22-4	1.0	mg/kg		<1.0	<1.0	<1.0	<1.0	**----**
EG035-SDH: 1M HCl extractable Mercury by FIMS									
Mercury	7439-97-6	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	**----**
EN68: Seawater Elutriate Testing Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)									
Seawater Sampling Date	----	-	-		**19/11/2020**	**19/11/2020**	**19/11/2020**	**19/11/2020**	**----**

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2030743**	Page	: 1 of 9
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 22-Nov-2020 10:33
Order number	: ----	Date Analysis Commenced	: 23-Nov-2020
C-O-C number	: ----	Issue Date	: 02-Dec-2020 14:52
Sampler	: TIM ALEXANDER		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 6		
No. of samples analysed	: 6		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Morgan Lennox	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG094-F (Dissolved Metals in Fresh Water by ORC-ICPMS): Limit of reporting raised for sample SED21 0-50 (EB2030743-002) due to matrix interference.
- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP132-LL: Where reported, Total PAH is the sum of the reported concentrations of all PAHs at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG020-SDH (1 M Extractable Metals by ICP-MS): Sample SED21 0-50(EB2030743-002) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- **Super Ultra Trace PAH analysis is conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- EG035-SDH (1M HCl Extractable Mercury) : Sample SED20 0-50(EB2030743-003)shows poor matrix spike recovery due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- It is recognised that EG094-T (Total Metals in Fresh Water by ORC-ICP-MS) is less than EG094-F (Dissolved Metals in Fresh Water by ORC-ICP-MS) for sample Elutriate (EB2030743-006). However, the difference is within experimental variation of the methods.
- It is recognised that EG094-T (Total Metals in Fresh Water by ORC-ICP-MS) is less than EG094-F (Dissolved Metals in Fresh Water by ORC-ICP-MS) for sample SED21 0-50 (EB2030743-002). This was confirmed by re-digestion and re-analysis.
- EG094-T (Total Metals in Fresh Water by ORC-ICP-MS): Limit of reporting raised for sample SED21 0-50 (EB2030743-002) due to matrix interference.
- EN68: This analysis in accordance with National Ocean Disposal Guidelines, Commonwealth of Australia, 2002 - (modified). Results reported are those determined on a 1:4 sediment/seawater elutriate without blank correction.

Analytical Results

Sub-Matrix: **ELUTRIATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
					EB2030743-001	EB2030743-002	EB2030743-003	EB2030743-004	EB2030743-005
					Result	Result	Result	Result	Result
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		----	<0.00004	<0.00004	<0.00004	<0.00004
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		----	<0.00004	**0.00038**	**0.00079**	**0.00018**
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		----	**2.1**	----	**0.4**	**1.3**
Arsenic	7440-38-2	0.2	µg/L		----	**13.6**	----	**24.3**	**30.8**
Cadmium	7440-43-9	0.05	µg/L		----	<0.05	----	<0.05	<0.05
Chromium	7440-47-3	0.2	µg/L		----	**0.3**	----	**0.3**	**0.4**
Copper	7440-50-8	0.5	µg/L		----	**4.2**	----	**2.8**	**3.7**
Lead	7439-92-1	0.1	µg/L		----	**0.6**	----	**0.4**	**0.6**
Nickel	7440-02-0	0.5	µg/L		----	**0.9**	----	**0.6**	**0.8**
Silver	7440-22-4	0.1	µg/L		----	<0.2	----	<0.1	<0.1
Zinc	7440-66-6	1	µg/L		----	**160**	----	**17**	**38**
EG094T: Total metals in Fresh water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		----	**2.3**	----	**0.8**	**1.4**
Arsenic	7440-38-2	0.2	µg/L		----	**14.6**	----	**29.8**	**35.6**
Cadmium	7440-43-9	0.05	µg/L		----	**0.14**	----	**1.13**	**0.63**
Chromium	7440-47-3	0.2	µg/L		----	**2.4**	----	**10.3**	**7.4**
Copper	7440-50-8	0.5	µg/L		----	**1.8**	----	**19.4**	**10.0**
Lead	7439-92-1	0.1	µg/L		----	**6.2**	----	**86.4**	**35.8**
Nickel	7440-02-0	0.5	µg/L		----	**1.6**	----	**6.1**	**5.0**
Silver	7440-22-4	0.1	µg/L		----	<0.2	----	**0.2**	**0.2**
Zinc	7440-66-6	1	µg/L		----	**18**	----	**243**	**168**
EP132B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.02	µg/L		<0.02	----	----	----	<0.02
Acenaphthylene	208-96-8	0.02	µg/L		<0.02	----	----	----	<0.02
Acenaphthene	83-32-9	0.02	µg/L		<0.02	----	----	----	<0.02
Fluorene	86-73-7	0.02	µg/L		<0.02	----	----	----	<0.02
Phenanthrene	85-01-8	0.02	µg/L		<0.02	----	----	----	<0.02
Anthracene	120-12-7	0.02	µg/L		<0.02	----	----	----	<0.02
Fluoranthene	206-44-0	0.02	µg/L		<0.02	----	----	----	**0.02**
Pyrene	129-00-0	0.02	µg/L		<0.02	----	----	----	**0.02**
Benz(a)anthracene	56-55-3	0.02	µg/L		<0.02	----	----	----	<0.02
Chrysene	218-01-9	0.02	µg/L		<0.02	----	----	----	<0.02

Analytical Results

Sub-Matrix: **ELUTRIATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
				Sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
					EB2030743-001	EB2030743-002	EB2030743-003	EB2030743-004	EB2030743-005
					Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.02	µg/L		<0.02	----	----	----	**0.02**
Benzo(k)fluoranthene	207-08-9	0.02	µg/L		<0.02	----	----	----	<0.02
Benzo(a)pyrene	50-32-8	0.005	µg/L		<0.005	----	----	----	**0.012**
Indeno(1.2.3.cd)pyrene	193-39-5	0.02	µg/L		<0.02	----	----	----	<0.02
Dibenz(a.h)anthracene	53-70-3	0.02	µg/L		<0.02	----	----	----	<0.02
Benzo(g.h.i)perylene	191-24-2	0.02	µg/L		<0.02	----	----	----	<0.02
^ **Total PAH**	----	0.005	µg/L		<0.005	----	----	----	**0.072**
^ **Benzo(a)pyrene TEQ (zero)**	----	0.005	µg/L		<0.005	----	----	----	**0.014**
EP132T: Base/Neutral Extractable Surrogates (Low-Level)									
2-Fluorobiphenyl	321-60-8	0.02	%		**90.1**	----	----	----	**93.6**
Anthracene-d10	1719-06-8	0.02	%		**96.7**	----	----	----	**96.5**
4-Terphenyl-d14	1718-51-0	0.02	%		**101**	----	----	----	**96.8**

Analytical Results

Sub-Matrix: ELUTRIATE (Matrix: WATER)				Sample ID	Elutriate	----	----	----	----
				Sampling date / time	09-Nov-2020 10:45	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2030743-006	--------	--------	--------	--------
					Result	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	----	----	----	----
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.00004	mg/L		<0.00004	----	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		<0.2	----	----	----	----
Arsenic	7440-38-2	0.2	µg/L		**0.5**	----	----	----	----
Cadmium	7440-43-9	0.05	µg/L		<0.05	----	----	----	----
Chromium	7440-47-3	0.2	µg/L		**0.3**	----	----	----	----
Copper	7440-50-8	0.5	µg/L		**1.8**	----	----	----	----
Lead	7439-92-1	0.1	µg/L		**0.2**	----	----	----	----
Nickel	7440-02-0	0.5	µg/L		<0.5	----	----	----	----
Silver	7440-22-4	0.1	µg/L		<0.1	----	----	----	----
Zinc	7440-66-6	1	µg/L		**6**	----	----	----	----
EG094T: Total metals in Fresh water by ORC-ICPMS									
Antimony	7440-36-0	0.2	µg/L		<0.2	----	----	----	----
Arsenic	7440-38-2	0.2	µg/L		**0.5**	----	----	----	----
Cadmium	7440-43-9	0.05	µg/L		<0.05	----	----	----	----
Chromium	7440-47-3	0.2	µg/L		**0.3**	----	----	----	----
Copper	7440-50-8	0.5	µg/L		**1.4**	----	----	----	----
Lead	7439-92-1	0.1	µg/L		**0.3**	----	----	----	----
Nickel	7440-02-0	0.5	µg/L		<0.5	----	----	----	----
Silver	7440-22-4	0.1	µg/L		<0.1	----	----	----	----
Zinc	7440-66-6	1	µg/L		**6**	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----

Analytical Results

Sub-Matrix: ELUTRIATE (Matrix: WATER)				Sample ID	Elutriate	----	----	----	----
				Sampling date / time	09-Nov-2020 10:45	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2030743-006	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**30.7**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**73.5**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**58.0**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**84.6**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**84.4**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**91.4**	----	----	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	SED26 0-50	SED21 0-50	SED20 0-50	SED19 0-50	SED13 0-50
			Sampling date / time	09-Nov-2020 09:25	09-Nov-2020 10:10	09-Nov-2020 10:20	09-Nov-2020 10:35	09-Nov-2020 10:45
Compound	CAS Number	LOR	Unit	EB2030743-001	EB2030743-002	EB2030743-003	EB2030743-004	EB2030743-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	30.9	30.5	50.0	59.9
EG020-SDH: 1M HCl Extractable metals by ICPMS								
Arsenic	7440-38-2	1.0	mg/kg	----	4.4	----	3.1	11.6
Cadmium	7440-43-9	0.10	mg/kg	----	0.57	----	1.28	3.18
Chromium	7440-47-3	1.0	mg/kg	----	1.7	----	2.8	2.5
Copper	7440-50-8	1.0	mg/kg	----	6.1	----	9.8	19.3
Lead	7439-92-1	1.0	mg/kg	----	54.5	----	74.8	150
Nickel	7440-02-0	1.0	mg/kg	----	1.4	----	1.9	4.0
Zinc	7440-66-6	1.0	mg/kg	----	118	----	269	965
Antimony	7440-36-0	2.0	mg/kg	----	<2.0	----	<2.0	<2.0
Silver	7440-22-4	1.0	mg/kg	----	<1.0	----	<1.0	<1.0
EG035-SDH: 1M HCl extractable Mercury by FIMS								
Mercury	7439-97-6	0.10	mg/kg	----	<0.10	<0.10	<0.10	<0.10
EN68: Seawater Elutriate Testing Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)								
Seawater Sampling Date	----	-	-	25/11/2020	23/11/2020	23/11/2020	23/11/2020	23/11/2020

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)			Sample ID	**Elutriate**	**----**	**----**	**----**	**----**
			Sampling date / time	09-Nov-2020 10:45	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**EB2030743-006**	**--------**	**--------**	**--------**	**--------**
				Result	----	----	----	----
EN68: Seawater Elutriate Testing Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)								
Seawater Sampling Date	----	-	-	**23/11/2020**	**----**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **ELUTRIATE**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	72
2-Chlorophenol-D4	93951-73-6	27	130
2.4.6-Tribromophenol	118-79-6	19	181
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	14	146
Anthracene-d10	1719-06-8	35	137
4-Terphenyl-d14	1718-51-0	36	154
EP132T: Base/Neutral Extractable Surrogates (Low-Level)			
2-Fluorobiphenyl	321-60-8	54	136
Anthracene-d10	1719-06-8	66	134
4-Terphenyl-d14	1718-51-0	63	135

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2031486**	Page	: 1 of 7
Client	: **MARINE SOLUTIONS**	Laboratory	: Environmental Division Brisbane
Contact	: TIM ALEXANDER	Contact	: Customer Services EB
Address	: 110 Swanston Street New Town HOBART, TASMANIA 7008	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: Bridgewater	Date Samples Received	: 26-Nov-2020 14:34
Order number	: ----	Date Analysis Commenced	: 01-Dec-2020
C-O-C number	: ----	Issue Date	: 08-Dec-2020 09:48
Sampler	: ----		
Site	: ----		
Quote number	: ME/713/20 V5		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Morgan Lennox	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	SED 3 0-55 C	SED8 0-45	SED8 45-99	SED12 0-49	SED15 0-61
				Sampling date / time	02-Nov-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	20-Oct-2020 00:00	14-Oct-2020 00:00
					EB2031486-001	EB2031486-002	EB2031486-003	EB2031486-004	EB2031486-005
					Result	Result	Result	Result	Result
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)									
Initial pH	----	0.1	pH Unit		**6.6**	**6.4**	**6.5**	**6.8**	**6.9**
After HCl pH	----	0.1	pH Unit		**1.6**	**1.5**	**1.6**	**1.6**	**1.6**
Extraction Fluid Number	----	1	-		**1**	**1**	**1**	**1**	**1**
Final pH	----	0.1	pH Unit		**5.1**	**5.1**	**5.1**	**5.1**	**5.1**

Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)				Sample ID	**SED22 0-60**	----	----	----	----
				Sampling date / time	26-Oct-2020 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**EB2031486-006**	--------	--------	--------	--------
					Result	----	----	----	----
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)									
Initial pH	----	0.1	pH Unit		**6.9**	----	----	----	----
After HCl pH	----	0.1	pH Unit		**1.6**	----	----	----	----
Extraction Fluid Number	----	1	-		**1**	----	----	----	----
Final pH	----	0.1	pH Unit		**4.0**	----	----	----	----

Analytical Results

Sub-Matrix: **TCLP LEACHATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	SED 3 0-55 C	SED8 0-45	SED8 45-99	SED12 0-49	SED15 0-61
				Sampling date / time	02-Nov-2020 00:00	19-Oct-2020 00:00	19-Oct-2020 00:00	20-Oct-2020 00:00	14-Oct-2020 00:00
					EB2031486-001	EB2031486-002	EB2031486-003	EB2031486-004	EB2031486-005
					Result	Result	Result	Result	Result
EG005(ED093)C: Leachable Metals by ICPAES									
Arsenic	7440-38-2	0.1	mg/L		**0.2**	**0.1**	<0.1	**0.2**	**----**
Cadmium	7440-43-9	0.05	mg/L		<0.05	<0.05	**----**	<0.05	**----**
Copper	7440-50-8	0.1	mg/L		<0.1	<0.1	**----**	<0.1	**----**
Lead	7439-92-1	0.1	mg/L		<0.1	**0.1**	**----**	<0.1	**----**
Nickel	7440-02-0	0.1	mg/L		<0.1	**----**	**----**	**----**	<0.1
Silver	7440-22-4	0.1	mg/L		<0.1	<0.1	**----**	<0.1	**----**
Zinc	7440-66-6	0.1	mg/L		**1.9**	**2.5**	**1.0**	**1.8**	**----**
EG035C: Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	**----**
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		**----**	**----**	<2	**----**	<2
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**----**	**----**	**84.4**	**----**	**54.0**

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Sample ID	SED22 0-60	----	----	----	----
				Sampling date / time	26-Oct-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2031486-006	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		**7.0**	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		**2.2**	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		**1.3**	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		**1.1**	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		**11.6**	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**40.6**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**94.6**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**99.4**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**74.1**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**84.4**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**75.3**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **TCLP LEACHATE**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	72
2-Chlorophenol-D4	93951-73-6	27	130
2.4.6-Tribromophenol	118-79-6	19	181
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	14	146
Anthracene-d10	1719-06-8	35	137
4-Terphenyl-d14	1718-51-0	36	154
EP090S: Organotin Surrogate			
Tripropyltin	----	24	116

Certificate of Analysis

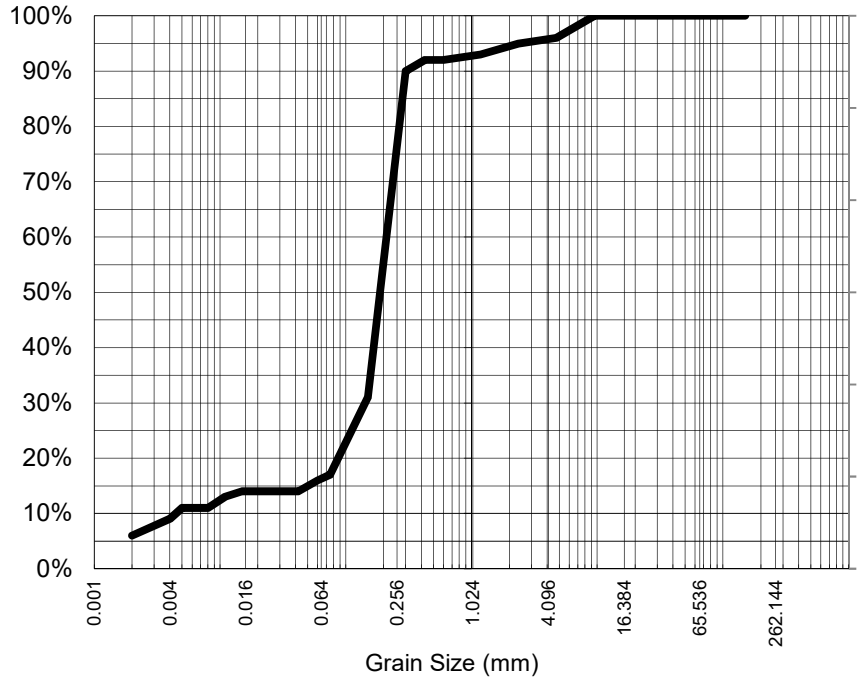
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	27-Oct-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	16-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027104-001 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED15 0-61

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	96%
2.36	95%
1.18	93%
0.600	92%
0.425	92%
0.300	90%
0.150	31%
0.075	17%
Particle Size (microns)	
60	16%
42	14%
30	14%
21	14%
15	14%
11	13%
8	11%
5	11%
2	6%

Median Particle Size (mm)*	0.198

Analysis Notes

Samples analysed as received.

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 20-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.59

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

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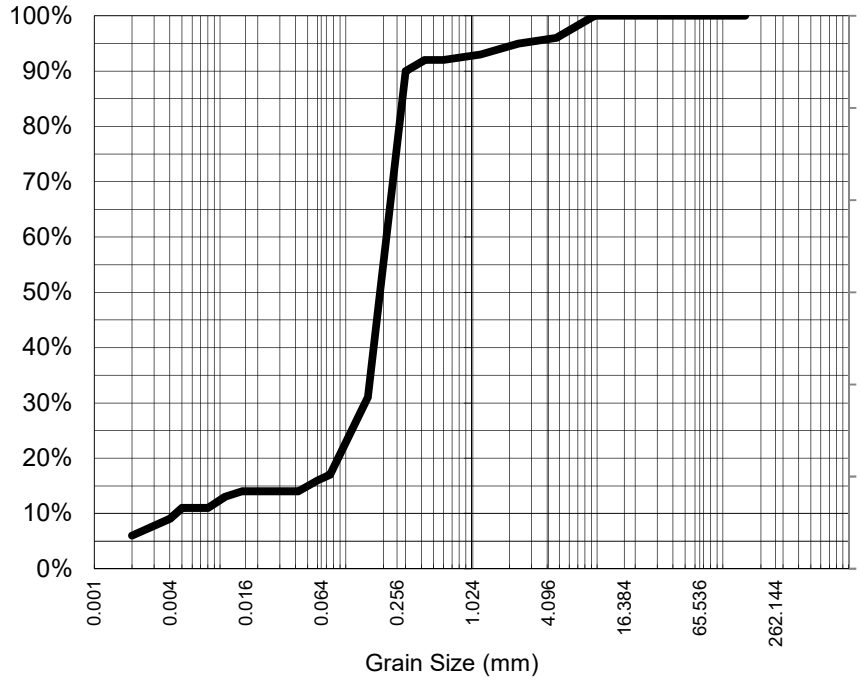
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	16-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027104-001DUP / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED15 0-61

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	96%
2.36	95%
1.18	93%
0.600	92%
0.425	92%
0.300	90%
0.150	31%
0.075	17%
Particle Size (microns)	
60	16%
42	14%
30	14%
21	14%
15	14%
11	13%
8	11%
5	11%
2	6%

Median Particle Size (mm)*	0.198

Analysis Notes

Samples analysed as received.

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 20-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.59

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ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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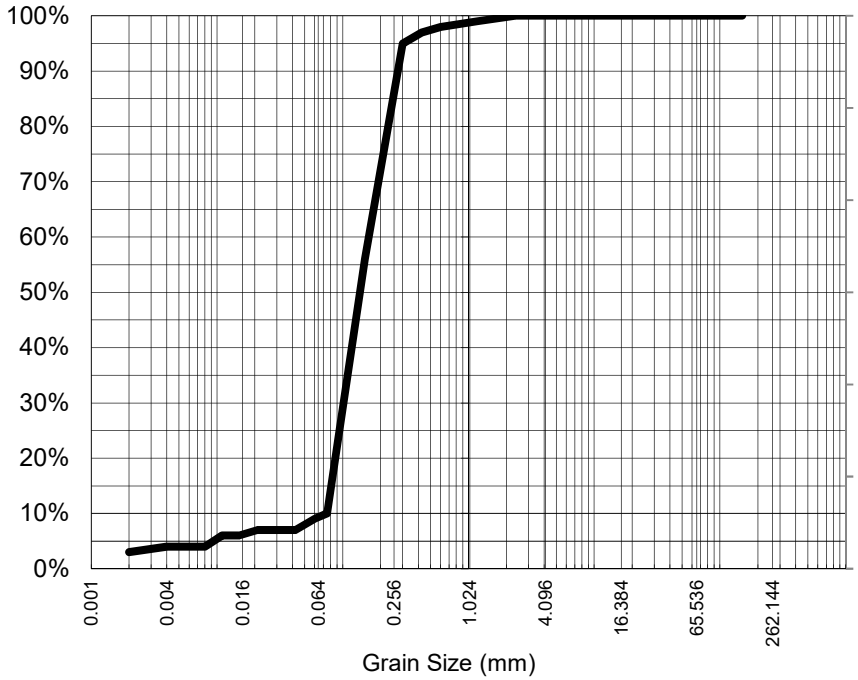
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	16-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027104-002 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED15 61-114

Particle Size Distribution



Particle Size (mm)	% Passing
2.36	100%
1.18	99%
0.600	98%
0.425	97%
0.300	95%
0.150	56%
0.075	10%
Particle Size (microns)	
60	9%
42	7%
30	7%
21	7%
15	6%
11	6%
8	4%
5	4%
2	3%

Median Particle Size (mm)*	0.140

Analysis Notes

Samples analysed as received.

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments: AS1289.3.6.3 states that hydrometer analysis is not applicable for samples containing <10% fines (<75um). Results should be assessed accordingly

Analysed: 20-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.57

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Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

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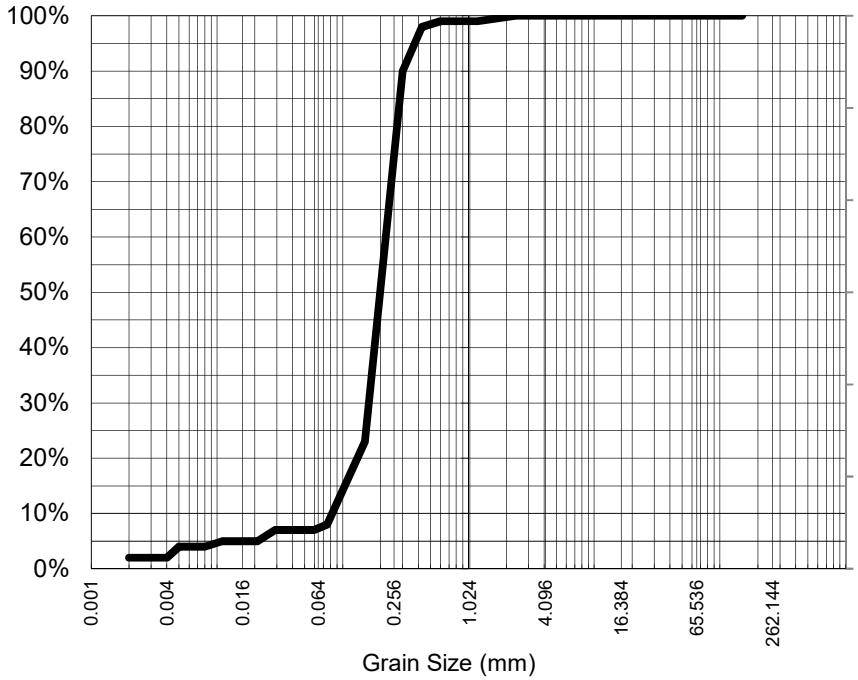
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	16-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027104-003 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED15 114-152

Particle Size Distribution



Particle Size (mm)	% Passing
2.36	100%
1.18	99%
0.600	99%
0.425	98%
0.300	90%
0.150	23%
0.075	8%
Particle Size (microns)	
59	7%
41	7%
29	7%
21	5%
15	5%
11	5%
8	4%
5	4%
2	2%

Median Particle Size (mm)*	0.210

Analysis Notes

Samples analysed as received.

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:	AS1289.3.6.3 states that hydrometer analysis is not applicable for samples containing <10% fines (<75um). Results should be assessed accordingly	**Analysed:**	20-Oct-20
Loss on Pretreatment	NA	**Limit of Reporting:**	1%
Sample Description:		**Dispersion Method**	Shaker
Test Method:	AS1289.3.6.2/AS1289.3.6.3		
Soil Particle Density (<2.36mm)	2.64		

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2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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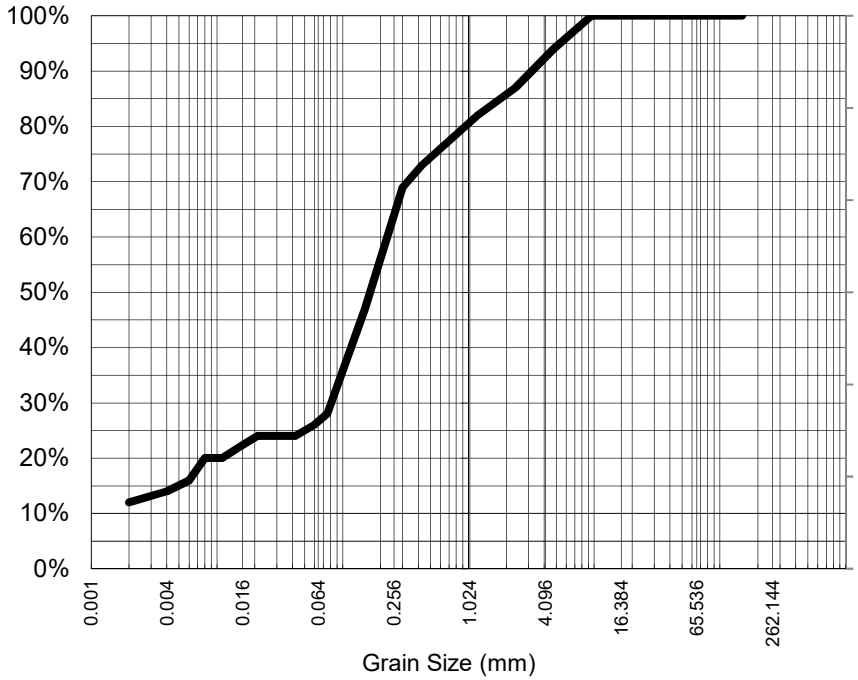
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	16-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027104-004 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED18 0-44

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	94%
2.36	87%
1.18	82%
0.600	76%
0.425	73%
0.300	69%
0.150	47%
0.075	28%
Particle Size (microns)	
59	26%
42	24%
30	24%
21	24%
15	22%
11	20%
8	20%
6	16%
2	12%

Median Particle Size (mm)*	0.170

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 20-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.11 (2.45)*

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pH 07 3243 7222
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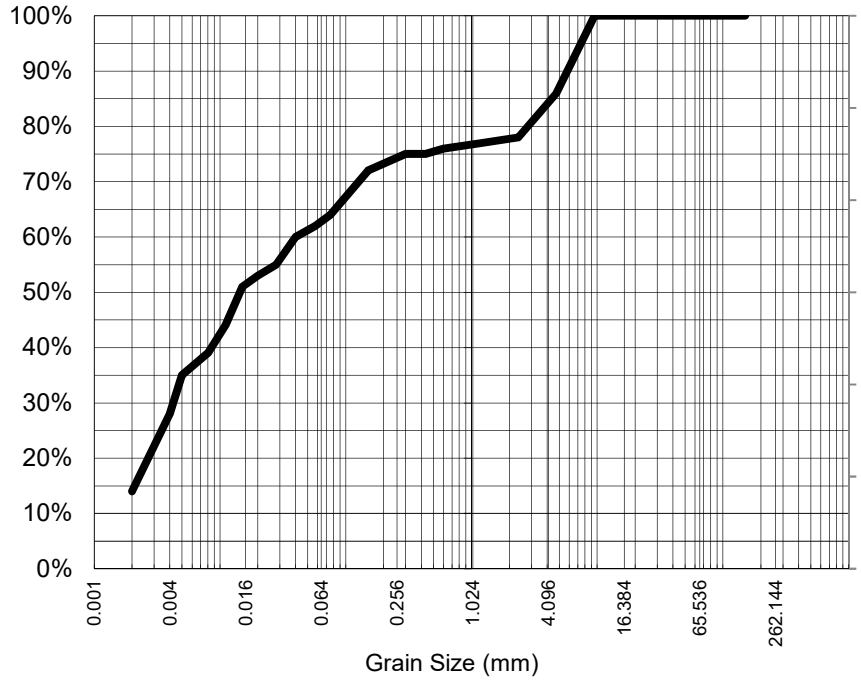
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	16-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027104-005 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED18 44-99

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	86%
2.36	78%
1.18	77%
0.600	76%
0.425	75%
0.300	75%
0.150	72%
0.075	64%
Particle Size (microns)	
57	62%
40	60%
28	55%
20	53%
15	51%
11	44%
8	39%
5	35%
2	14%

Median Particle Size (mm)*	0.014

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 20-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.14 (2.45)*

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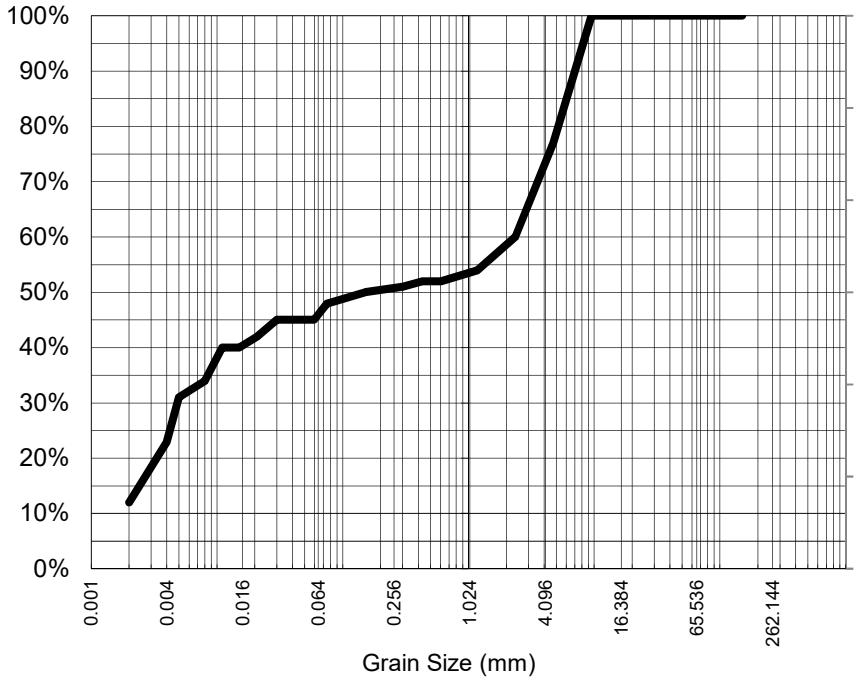
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	27-Oct-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	16-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027104-006 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED10 0-50

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	77%
2.36	60%
1.18	54%
0.600	52%
0.425	52%
0.300	51%
0.150	50%
0.075	48%
Particle Size (microns)	
59	45%
42	45%
30	45%
21	42%
15	40%
11	40%
8	34%
5	31%
2	12%

Median Particle Size (mm)*	0.150

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 20-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.19 (2.45)*

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Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

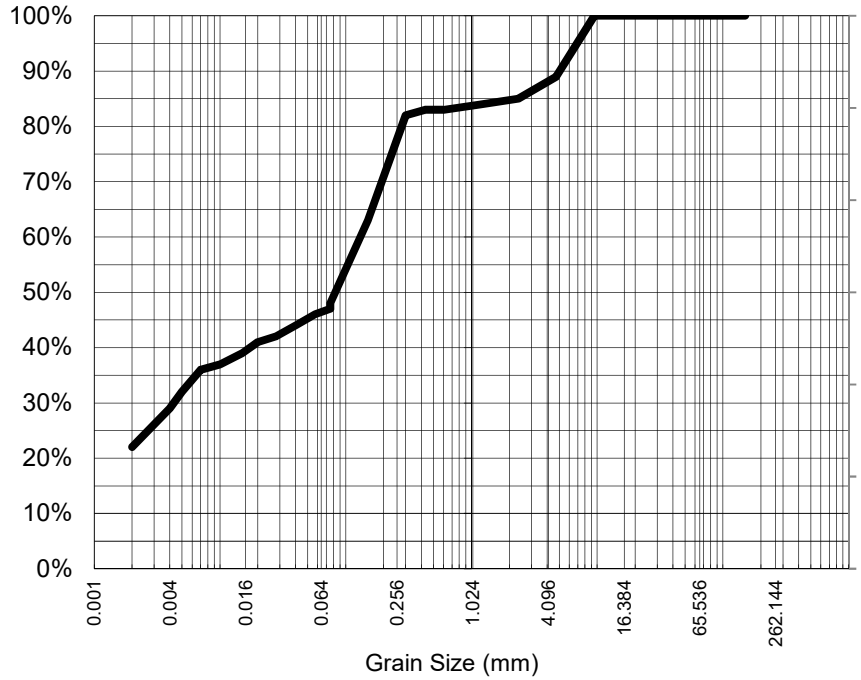
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	27-Oct-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	16-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027104-007 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED10 50-83

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	89%
2.36	85%
1.18	84%
0.600	83%
0.425	83%
0.300	82%
0.150	63%
0.075	48%
Particle Size (microns)	
57	46%
40	44%
28	42%
20	41%
15	39%
10	37%
7	36%
5	32%
2	22%

Median Particle Size (mm)*	0.085

Analysis Notes

Samples analysed as received.

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 20-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.47

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

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ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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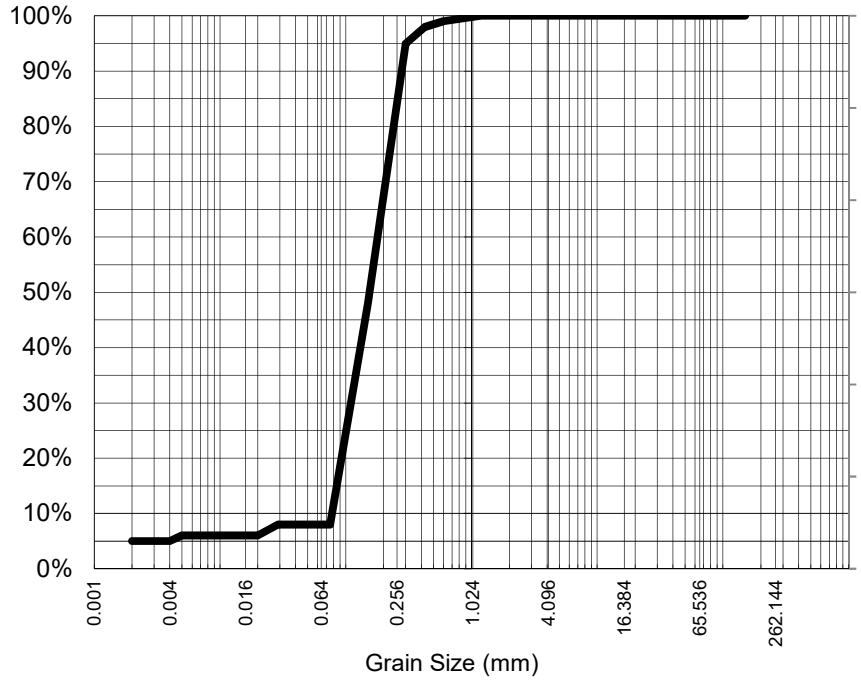
Brisbane QLD

CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	27-Oct-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	16-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027104-008 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED10 83-127

Particle Size Distribution



Particle Size (mm)	% Passing
1.18	100%
0.600	99%
0.425	98%
0.300	95%
0.150	48%
0.075	8%
Particle Size (microns)	
58	8%
41	8%
29	8%
20	6%
15	6%
11	6%
7	6%
5	6%
2	5%

Median Particle Size (mm)*	0.156

Analysis Notes

Samples analysed as received.

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:	AS1289.3.6.3 states that hydrometer analysis is not applicable for samples containing <10% fines (<75um). Results should be assessed accordingly	**Analysed:**	20-Oct-20
Loss on Pretreatment	NA	**Limit of Reporting:**	1%
Sample Description:		**Dispersion Method**	Shaker
Test Method:	AS1289.3.6.2/AS1289.3.6.3		
Soil Particle Density (<2.36mm)	2.68		

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Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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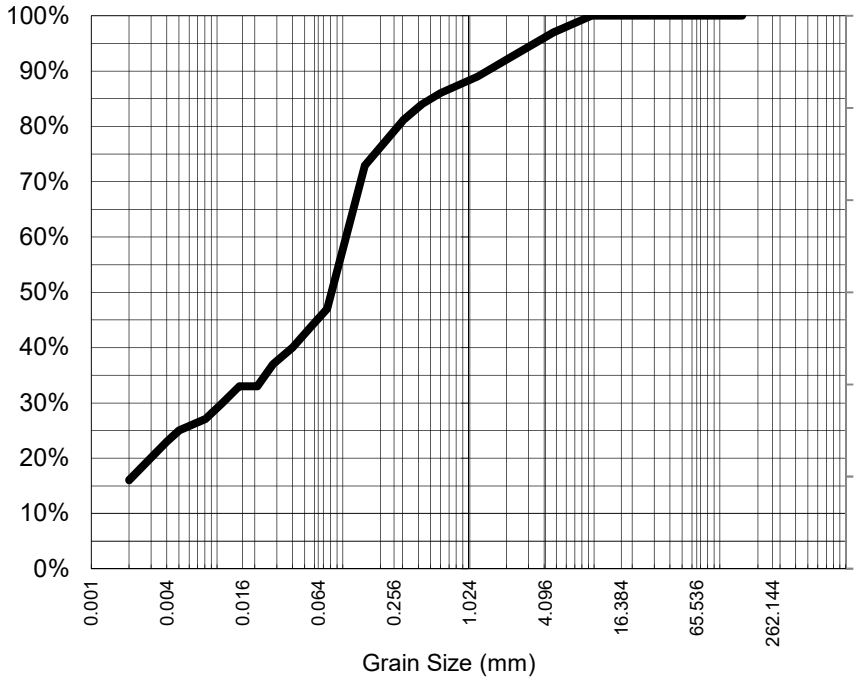
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	30-Oct-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	21-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027314-001 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED1 0-45

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	97%
2.36	93%
1.18	89%
0.600	86%
0.425	84%
0.300	81%
0.150	73%
0.075	47%
Particle Size (microns)	
57	44%
40	40%
28	37%
21	33%
15	33%
11	30%
8	27%
5	25%
2	16%

Median Particle Size (mm)*	0.084

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 22-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.33 (2.45)*

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Soil Senior Chemist
Authorised Signatory

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ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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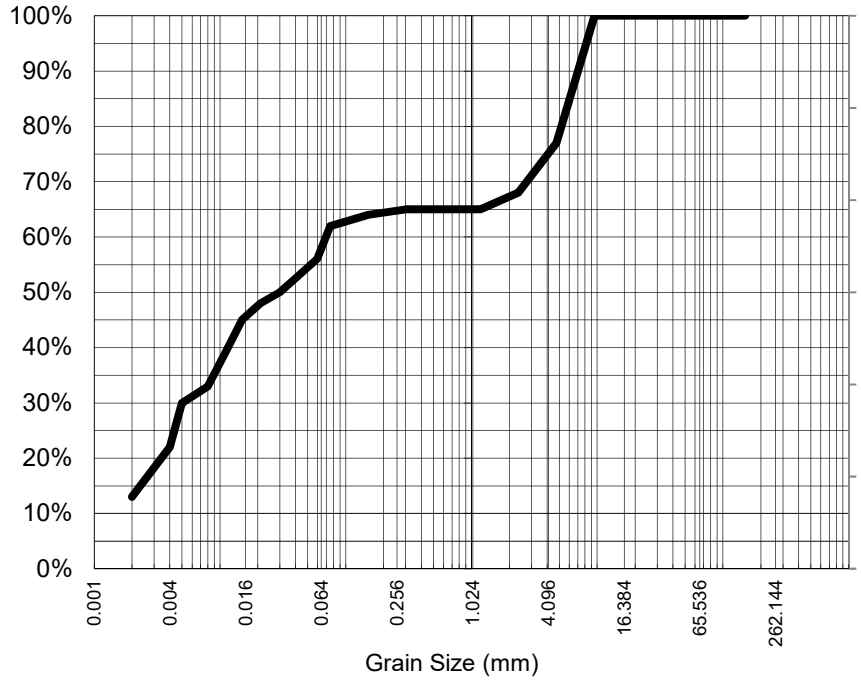
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	30-Oct-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	21-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027314-002 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED4 0-60

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	77%
2.36	68%
1.18	65%
0.600	65%
0.425	65%
0.300	65%
0.150	64%
0.075	62%
Particle Size (microns)	
59	56%
42	53%
30	50%
21	48%
15	45%
11	39%
8	33%
5	30%
2	13%

Median Particle Size (mm)*	0.030

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 22-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 1.98 (2.45)*

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Soil Senior Chemist
Authorised Signatory

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ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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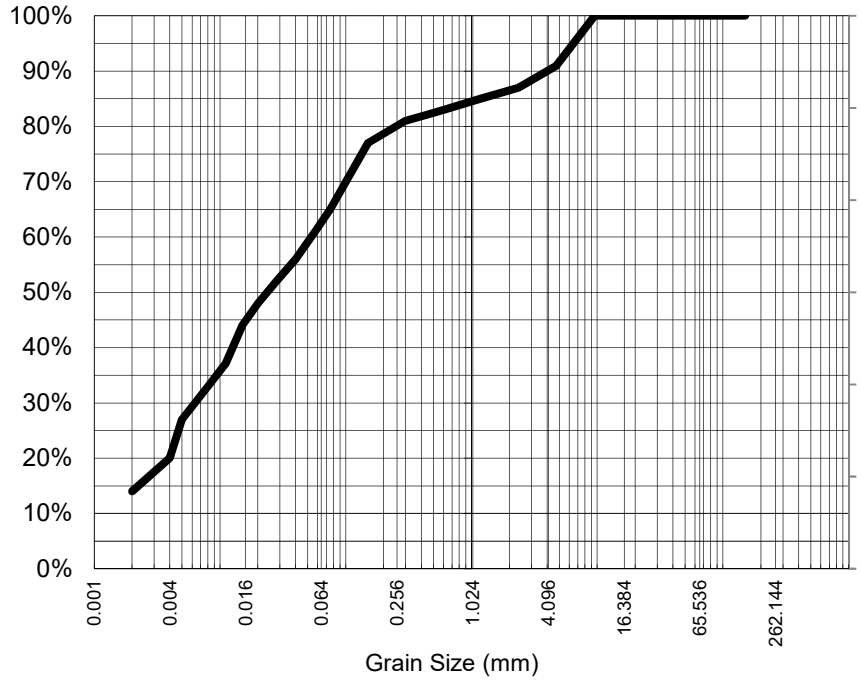
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	21-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027314-003 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED4 60-121

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	91%
2.36	87%
1.18	85%
0.600	83%
0.425	82%
0.300	81%
0.150	77%
0.075	65%
Particle Size (microns)	
57	61%
40	56%
28	52%
20	48%
15	44%
11	37%
8	33%
5	27%
2	14%

Median Particle Size (mm)*	0.024

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 22-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 1.92 (2.45)*

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Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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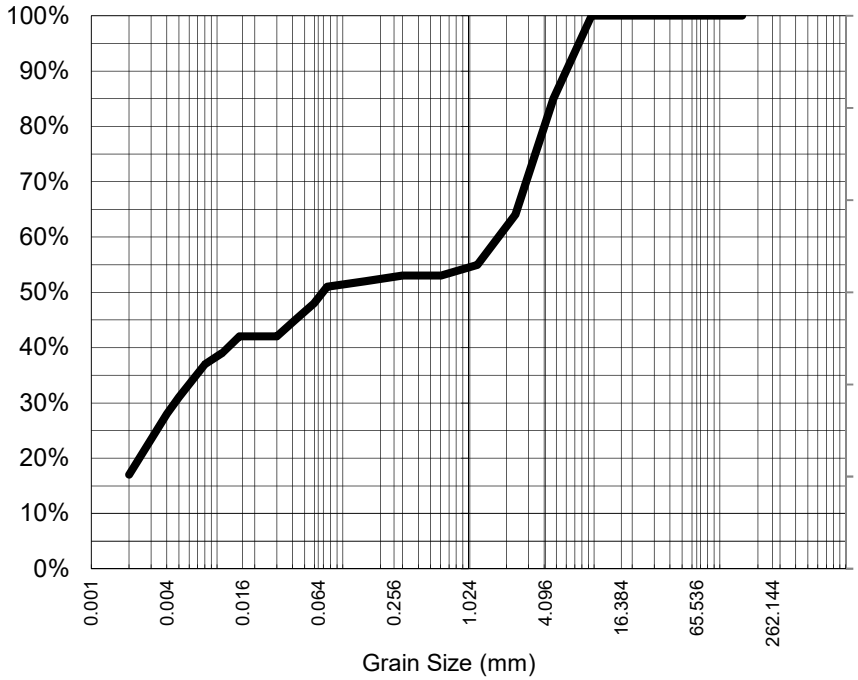
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	30-Oct-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	21-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027314-004 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED8 0-45

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	85%
2.36	64%
1.18	55%
0.600	53%
0.425	53%
0.300	53%
0.150	52%
0.075	51%
Particle Size (microns)	
59	48%
42	45%
30	42%
21	42%
15	42%
11	39%
8	37%
5	31%
2	17%

Median Particle Size (mm)*	0.070

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 22-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.08 (2.45)*

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Soil Senior Chemist
Authorised Signatory

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2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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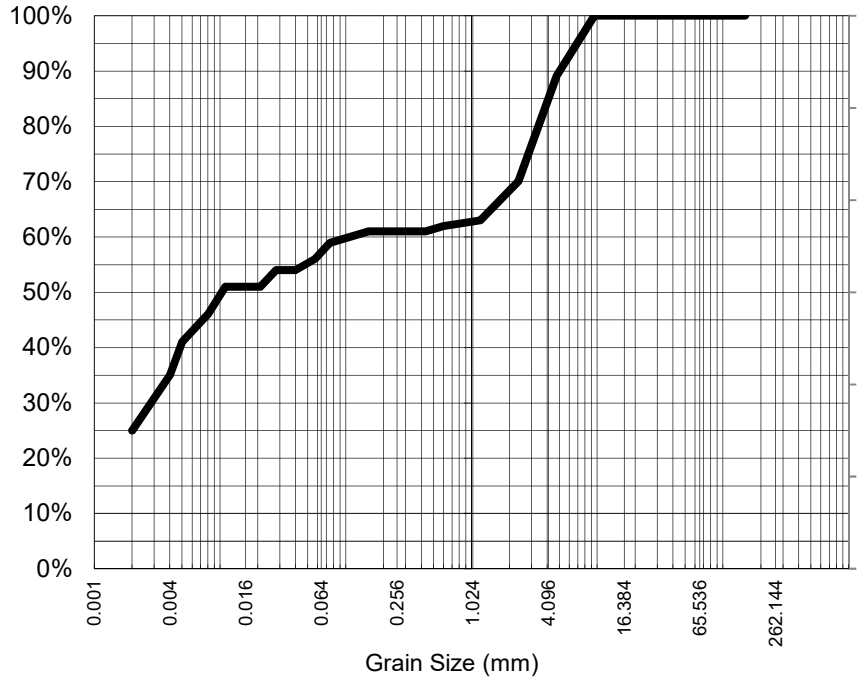
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	30-Oct-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	21-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027314-005 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED8 45-99

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	89%
2.36	70%
1.18	63%
0.600	62%
0.425	61%
0.300	61%
0.150	61%
0.075	59%
Particle Size (microns)	
57	56%
40	54%
28	54%
21	51%
15	51%
11	51%
8	46%
5	41%
2	25%

Median Particle Size (mm)*	0.010

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 22-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.19 (2.45)*

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2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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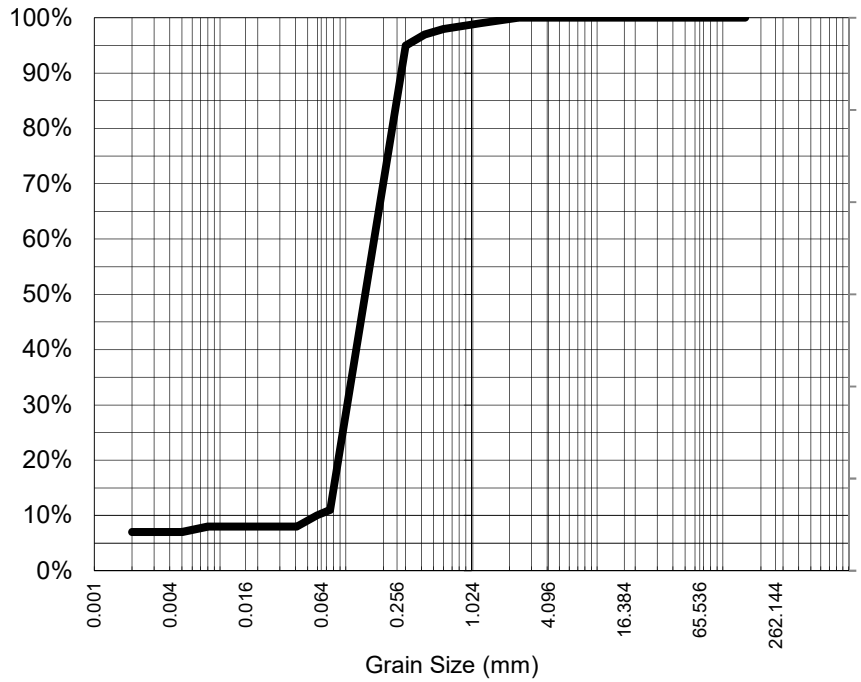
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	30-Oct-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	21-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027314-006 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED8 99-140

Particle Size Distribution



Particle Size (mm)	% Passing
2.36	100%
1.18	99%
0.600	98%
0.425	97%
0.300	95%
0.150	53%
0.075	11%
Particle Size (microns)	
59	10%
41	8%
29	8%
21	8%
15	8%
11	8%
8	8%
5	7%
2	7%

Median Particle Size (mm)*	0.145

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Analysis Notes

Samples analysed as received.

Sample Comments:

Analysed: 22-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.62

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Soil Senior Chemist
Authorised Signatory

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ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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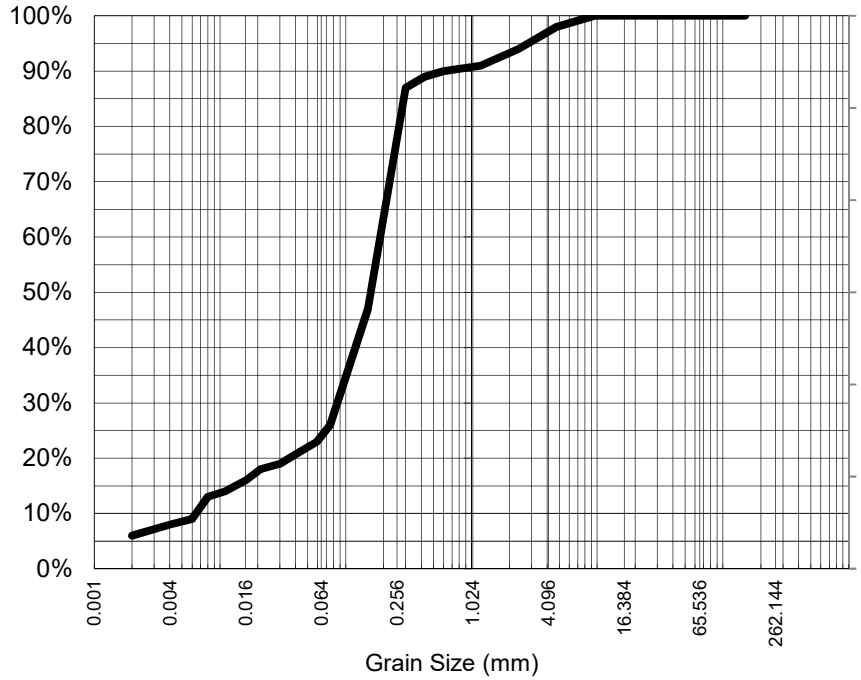
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	30-Oct-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	21-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027314-007 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED8 140-170

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	98%
2.36	94%
1.18	91%
0.600	90%
0.425	89%
0.300	87%
0.150	47%
0.075	26%
Particle Size (microns)	
59	23%
42	21%
30	19%
21	18%
16	16%
11	14%
8	13%
6	9%
2	6%

Median Particle Size (mm)*	0.161

Analysis Notes

Samples analysed as received.

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 22-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.46

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Soil Senior Chemist
Authorised Signatory

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ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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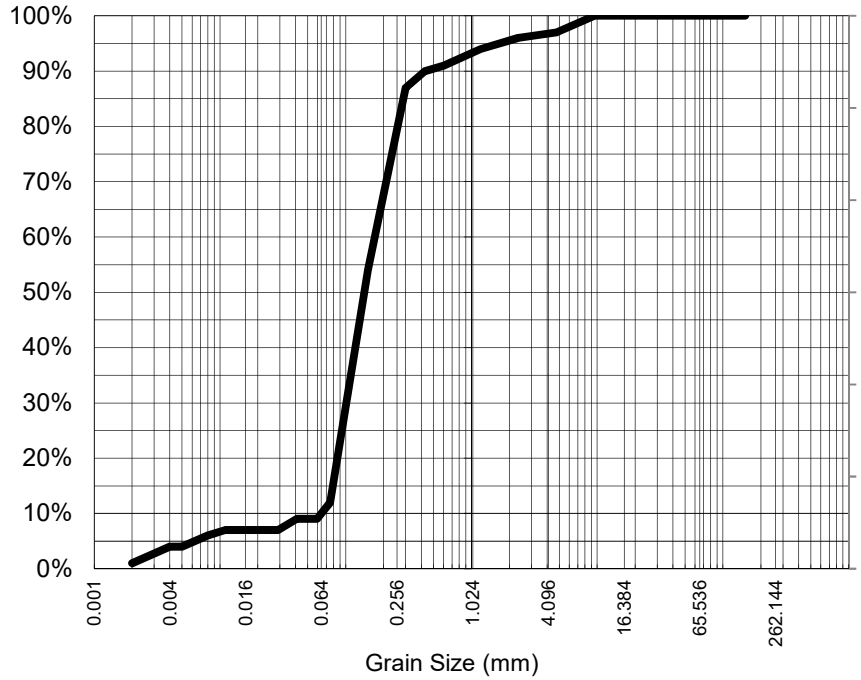
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	3-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-001 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED16 0-68

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	97%
2.36	96%
1.18	94%
0.600	91%
0.425	90%
0.300	87%
0.150	54%
0.075	12%
Particle Size (microns)	
59	9%
41	9%
29	7%
21	7%
15	7%
11	7%
8	6%
5	4%
2	1%

Median Particle Size (mm)*	0.143

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Analysis Notes

Samples analysed as received.

Sample Comments:

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.6

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Soil Senior Chemist
Authorised Signatory

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ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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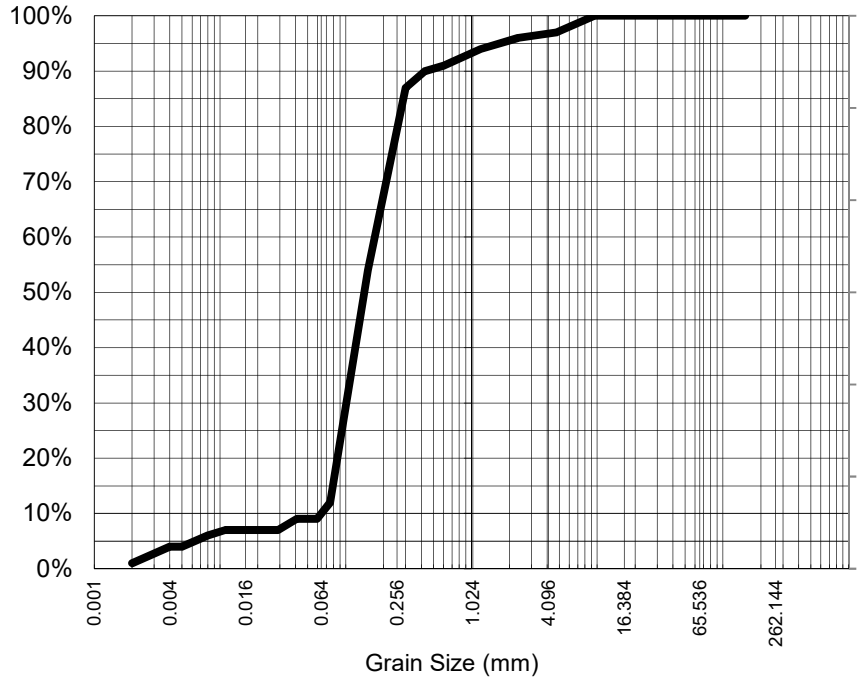
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	3-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-001DUP / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED16 0-68

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	97%
2.36	96%
1.18	94%
0.600	91%
0.425	90%
0.300	87%
0.150	54%
0.075	12%
Particle Size (microns)	
59	9%
41	9%
29	7%
21	7%
15	7%
11	7%
8	6%
5	4%
2	1%

Analysis Notes

Samples analysed as received.

Median Particle Size (mm)*	0.143

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.6

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Soil Senior Chemist
Authorised Signatory

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ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
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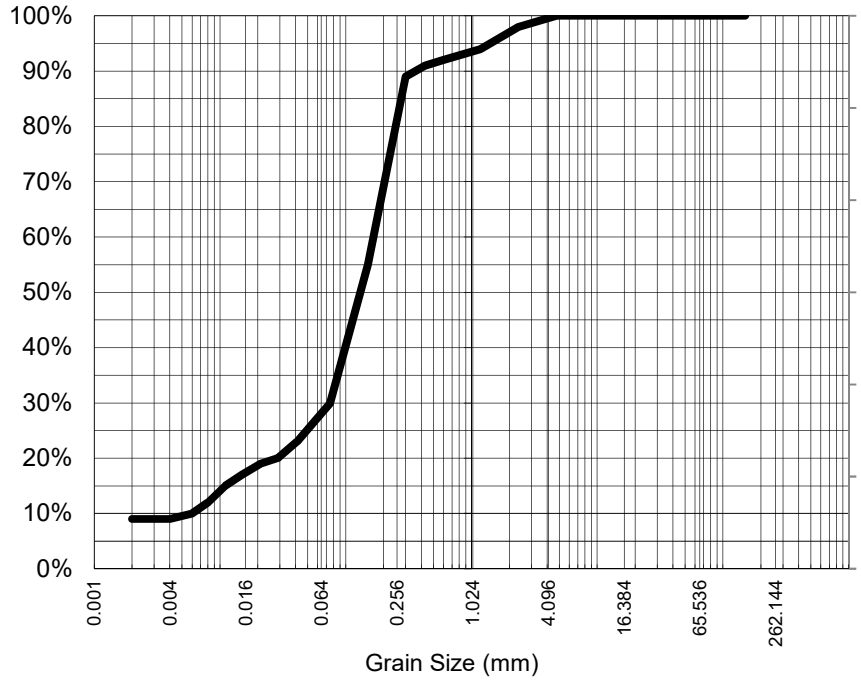
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	3-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-002 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED16 68-122

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	98%
1.18	94%
0.600	92%
0.425	91%
0.300	89%
0.150	55%
0.075	30%
Particle Size (microns)	
58	27%
41	23%
29	20%
21	19%
15	17%
11	15%
8	12%
6	10%
2	9%

Analysis Notes

Samples analysed as received.

Median Particle Size (mm)*	0.135

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.51

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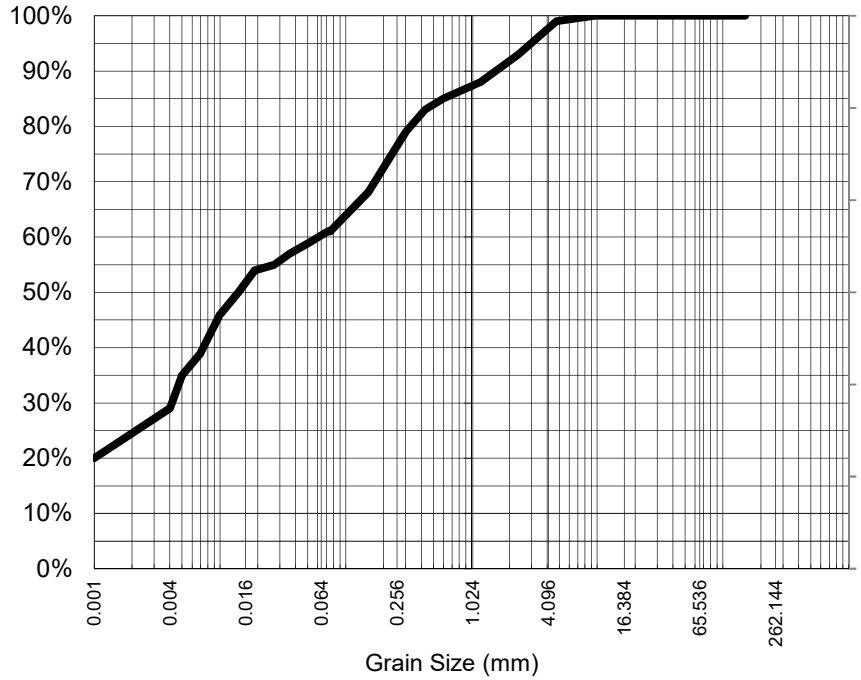
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	3-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-003 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED2 0-57

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	99%
2.36	93%
1.18	88%
0.600	85%
0.425	83%
0.300	79%
0.150	68%
0.075	61%
Particle Size (microns)	
51	59%
36	57%
27	55%
19	54%
14	50%
10	46%
7	39%
5	35%
1	20%

Analysis Notes

Samples analysed as received.

Median Particle Size (mm)*	0.014

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.68

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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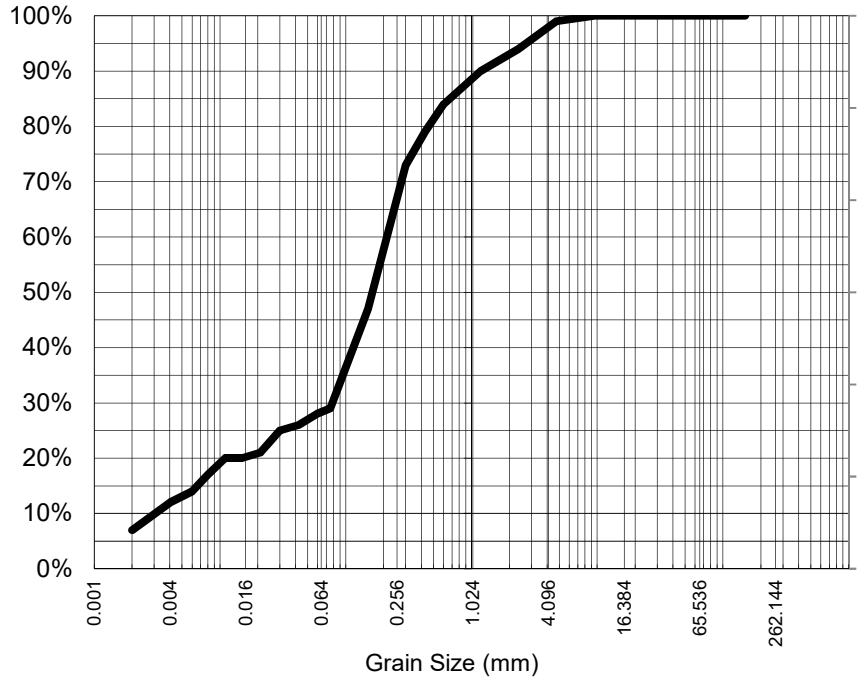
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	3-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-004 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED2 57-126

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	99%
2.36	94%
1.18	90%
0.600	84%
0.425	79%
0.300	73%
0.150	47%
0.075	29%
Particle Size (microns)	
59	28%
42	26%
30	25%
21	21%
15	20%
11	20%
8	17%
6	14%
2	7%

Analysis Notes

Samples analysed as received.

Median Particle Size (mm)*	0.167

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.49

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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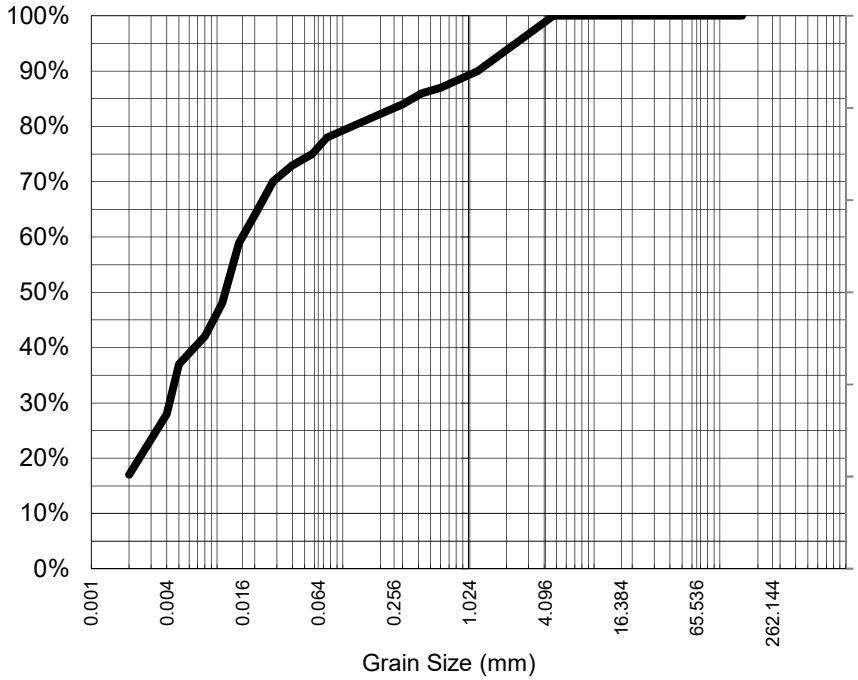
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	3-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-005 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED12 0-49

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	95%
1.18	90%
0.600	87%
0.425	86%
0.300	84%
0.150	81%
0.075	78%
Particle Size (microns)	
57	75%
40	73%
28	70%
20	64%
15	59%
11	48%
8	42%
5	37%
2	17%

Median Particle Size (mm)*	0.012

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 1.97 (2.45)*

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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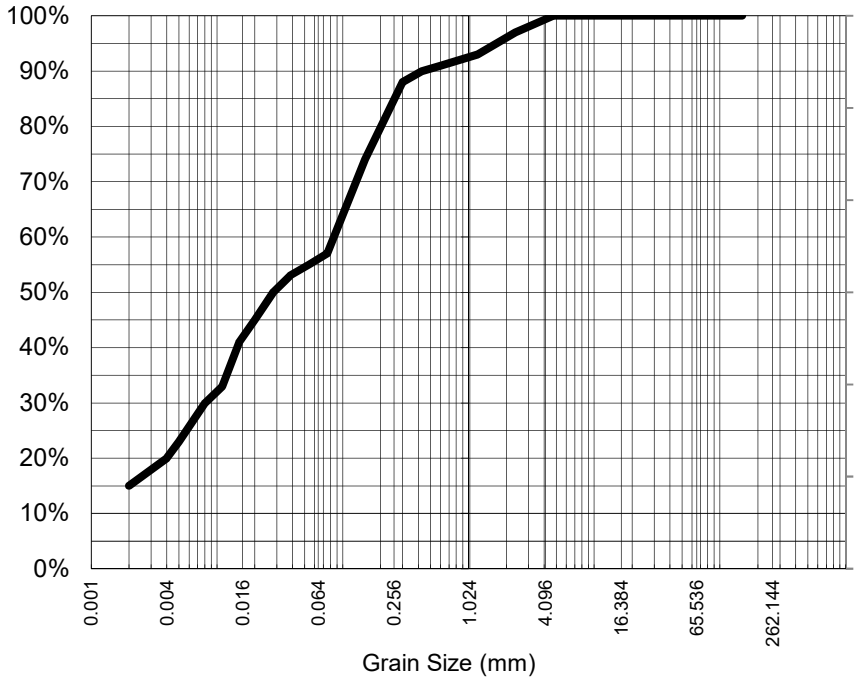
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-006 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED12 49-106

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	97%
1.18	93%
0.600	91%
0.425	90%
0.300	88%
0.150	74%
0.075	57%
Particle Size (microns)	
54	55%
38	53%
28	50%
20	45%
15	41%
11	33%
8	30%
5	23%
2	15%

Median Particle Size (mm)*	0.028

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.32 (2.45)*

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

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ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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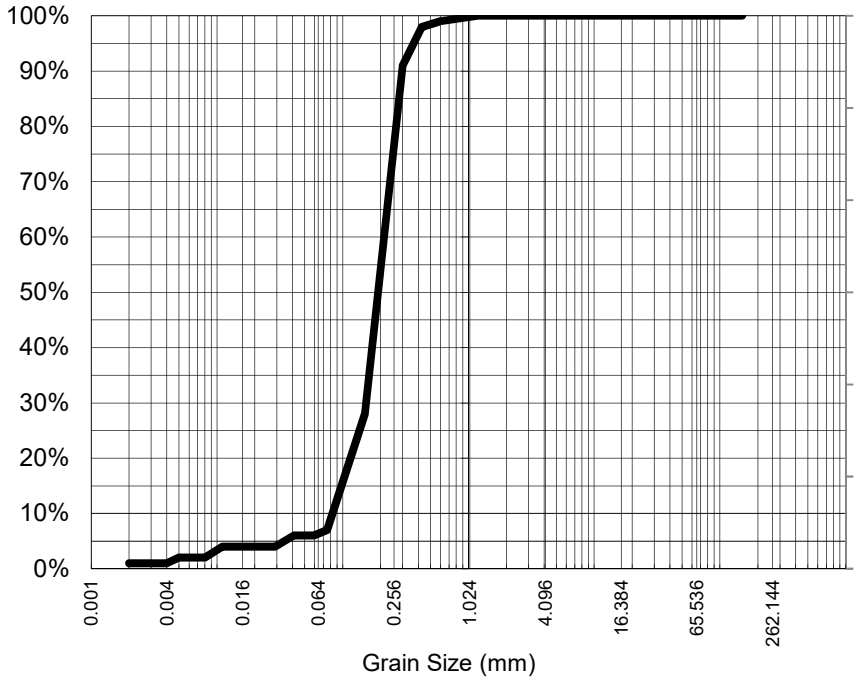
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-007 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED12 106-152

Particle Size Distribution



Particle Size (mm)	% Passing
1.18	100%
0.600	99%
0.425	98%
0.300	91%
0.150	28%
0.075	7%
Particle Size (microns)	
59	6%
41	6%
29	4%
21	4%
15	4%
11	4%
8	2%
5	2%
2	1%

Median Particle Size (mm)*	0.202

Analysis Notes

Samples analysed as received.

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments: AS1289.3.6.3 states that hydrometer analysis is not applicable for samples containing <10% fines (<75um). Results should be assessed accordingly

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.64

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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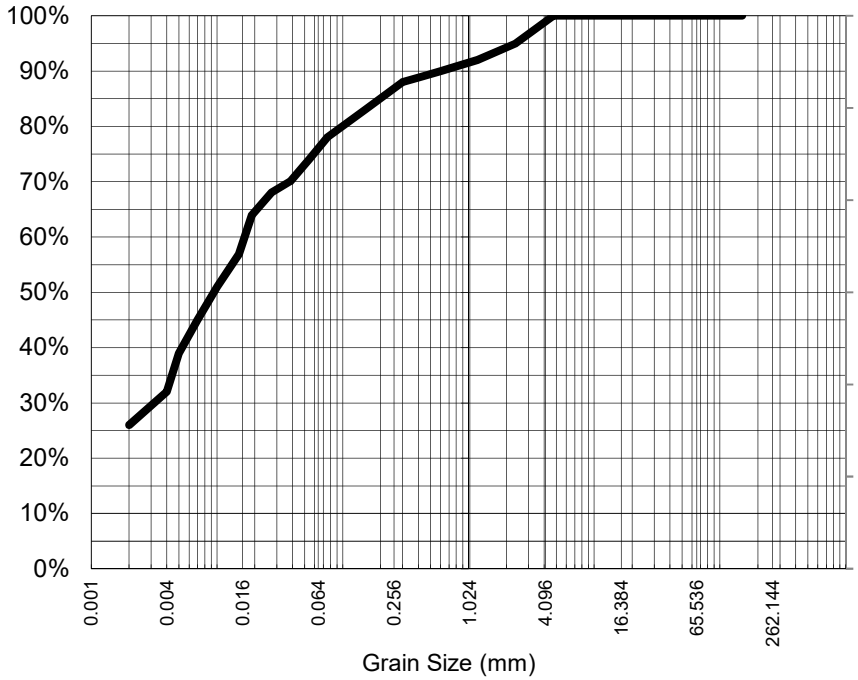
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-008 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED7 0-50

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	95%
1.18	92%
0.600	90%
0.425	89%
0.300	88%
0.150	83%
0.075	78%
Particle Size (microns)	
54	74%
38	70%
27	68%
19	64%
15	57%
10	51%
7	45%
5	39%
2	26%

Median Particle Size (mm)*	0.010

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.12 (2.45)*

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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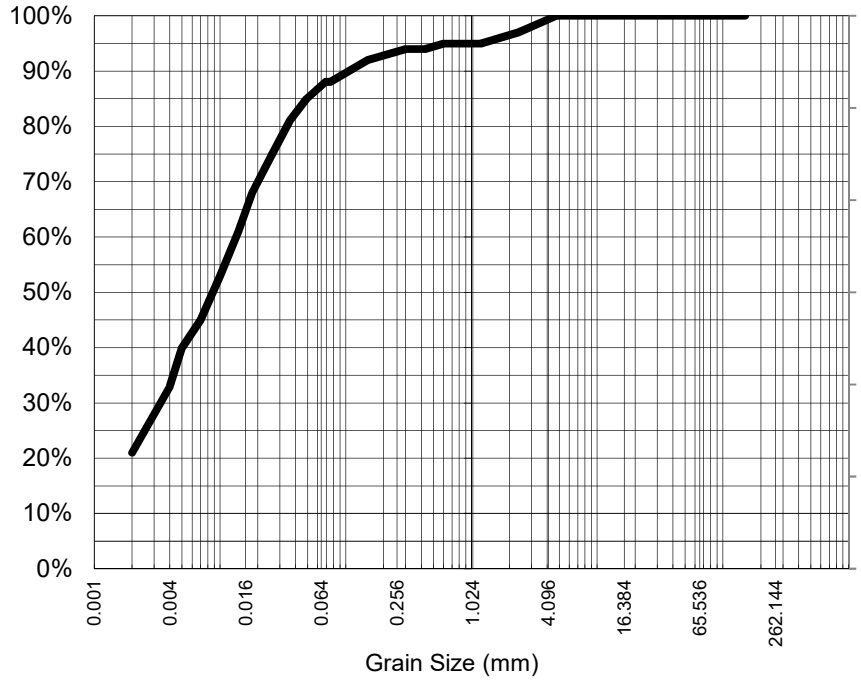
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-009 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED7 50-100

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	97%
1.18	95%
0.600	95%
0.425	94%
0.300	94%
0.150	92%
0.075	88%
Particle Size (microns)	
49	85%
36	81%
26	75%
18	68%
14	61%
10	53%
7	45%
5	40%
2	21%

Median Particle Size (mm)*	0.009

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.37 (2.45)*

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

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ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

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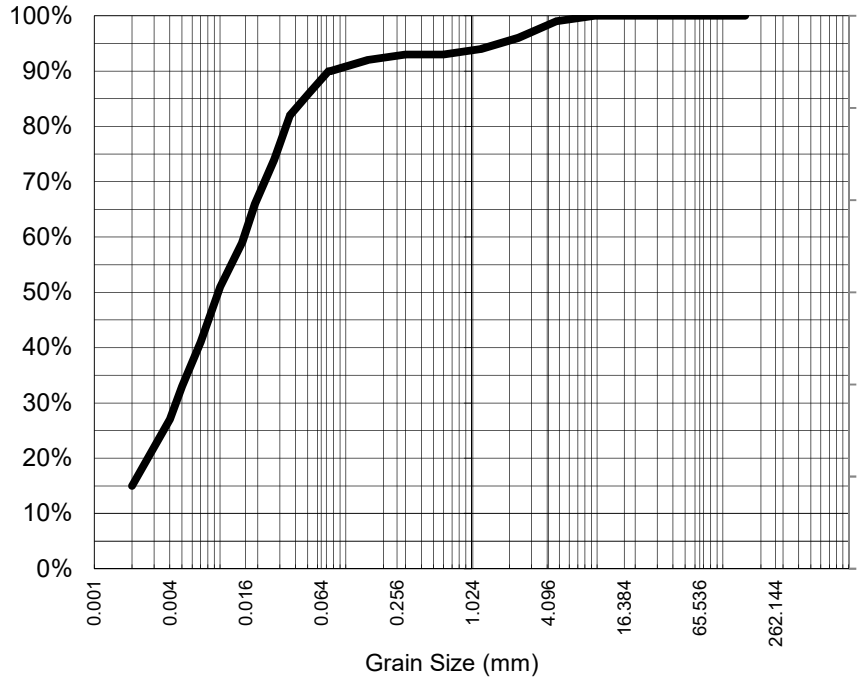
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	3-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-010 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED7 100-153

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	99%
2.36	96%
1.18	94%
0.600	93%
0.425	93%
0.300	93%
0.150	92%
0.075	90%
Particle Size (microns)	
51	86%
36	82%
27	74%
19	66%
15	59%
10	51%
7	41%
5	33%
2	15%

Median Particle Size (mm)*	0.010

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 1.95 (2.45)*

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2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

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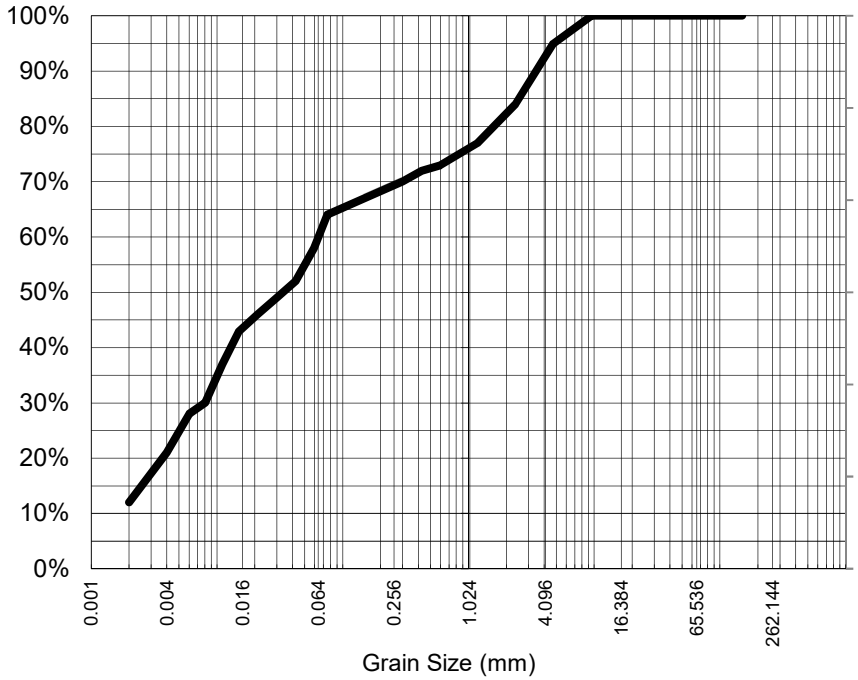
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	3-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-011 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED11 0-50

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	95%
2.36	84%
1.18	77%
0.600	73%
0.425	72%
0.300	70%
0.150	67%
0.075	64%
Particle Size (microns)	
59	58%
42	52%
30	49%
21	46%
15	43%
11	37%
8	30%
6	28%
2	12%

Median Particle Size (mm)*	0.034

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.33 (2.45)*

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Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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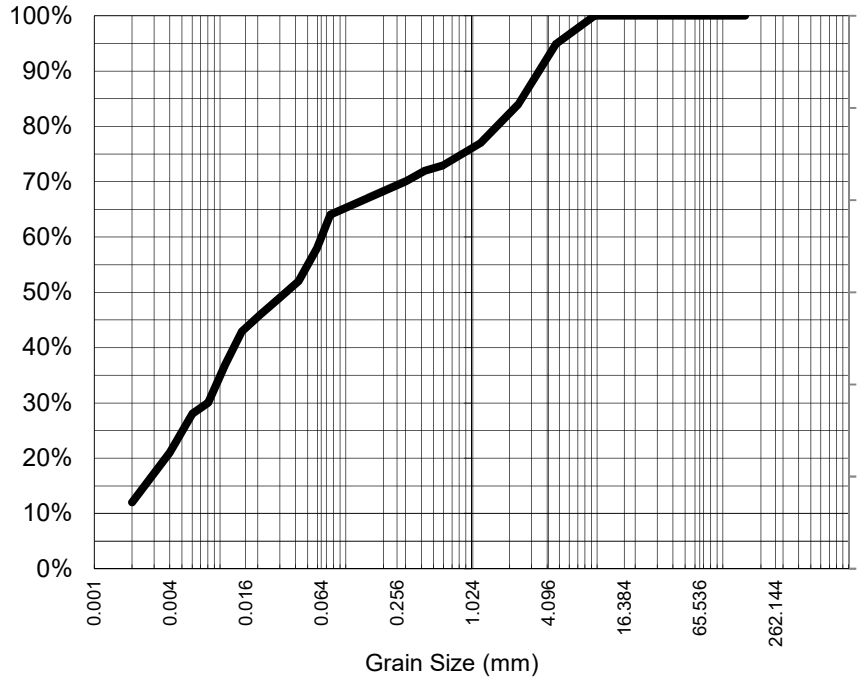
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	3-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-011DUP / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED11 0-50

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	95%
2.36	84%
1.18	77%
0.600	73%
0.425	72%
0.300	70%
0.150	67%
0.075	64%
Particle Size (microns)	
59	58%
42	52%
30	49%
21	46%
15	43%
11	37%
8	30%
6	28%
2	12%

Median Particle Size (mm)*	0.034

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:		**Analysed:**	23-Oct-20
Loss on Pretreatment	NA	**Limit of Reporting:**	1%
Sample Description:		**Dispersion Method**	Shaker
Test Method:	AS1289.3.6.2/AS1289.3.6.3		
Soil Particle Density (<2.36mm)	2.33 (2.45)*		

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Soil Senior Chemist
Authorised Signatory

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ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

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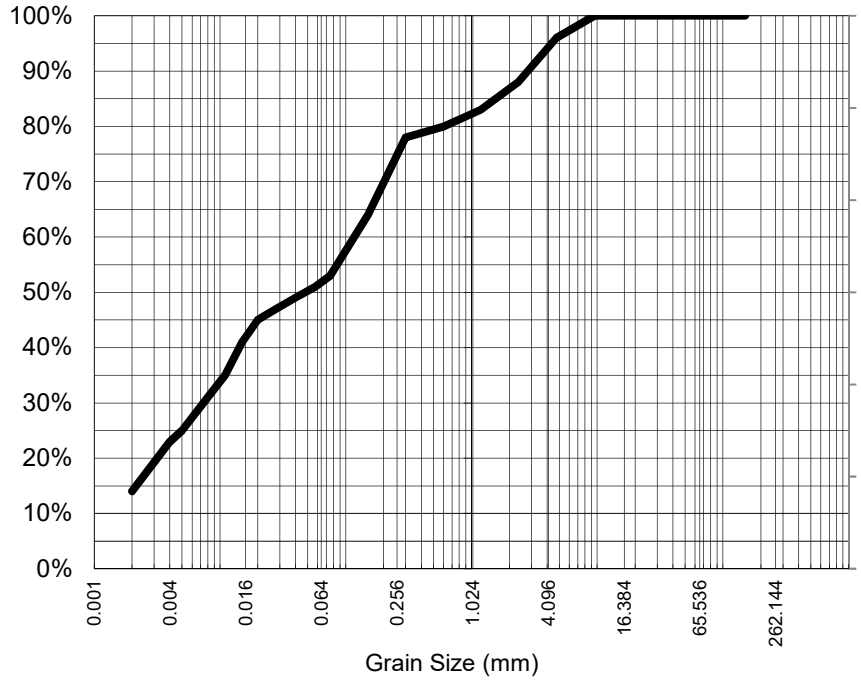
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-012 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED11 50-96

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	96%
2.36	88%
1.18	83%
0.600	80%
0.425	79%
0.300	78%
0.150	64%
0.075	53%
Particle Size (microns)	
57	51%
40	49%
28	47%
20	45%
15	41%
11	35%
8	31%
5	25%
2	14%

Median Particle Size (mm)*	0.049

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.4 (2.45)*

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Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

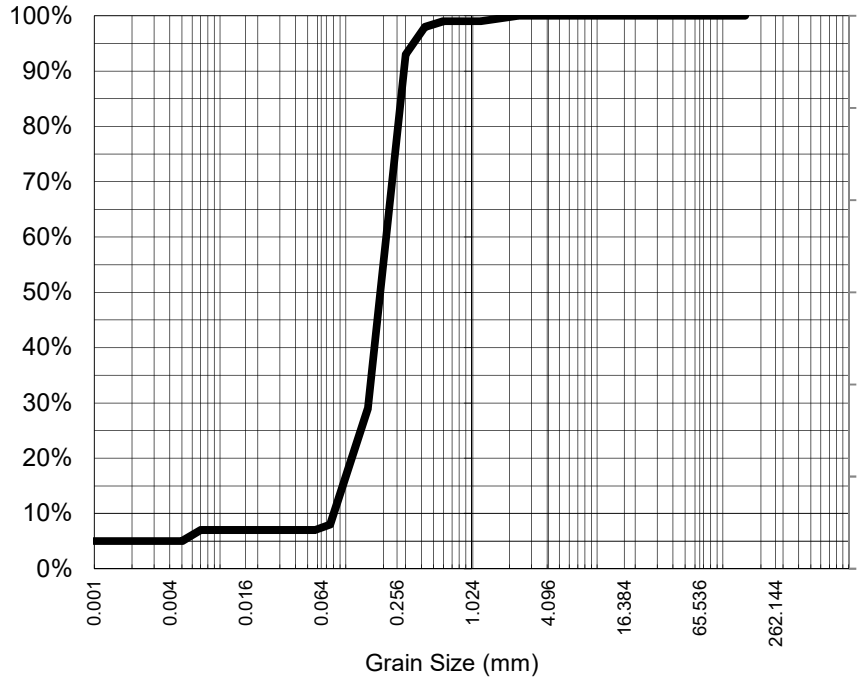
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	3-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	22-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2027484-013 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED11 96-150

Particle Size Distribution



Particle Size (mm)	% Passing
2.36	100%
1.18	99%
0.600	99%
0.425	98%
0.300	93%
0.150	29%
0.075	8%
Particle Size (microns)	
57	7%
40	7%
28	7%
20	7%
15	7%
10	7%
7	7%
5	5%
1	5%

Analysis Notes

Samples analysed as received.

Median Particle Size (mm)*	0.199

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments: AS1289.3.6.3 states that hydrometer analysis is not applicable for samples containing <10% fines (<75um). Results should be assessed accordingly

Analysed: 23-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.73

NATA Accreditation: 825 Site: Brisbane
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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

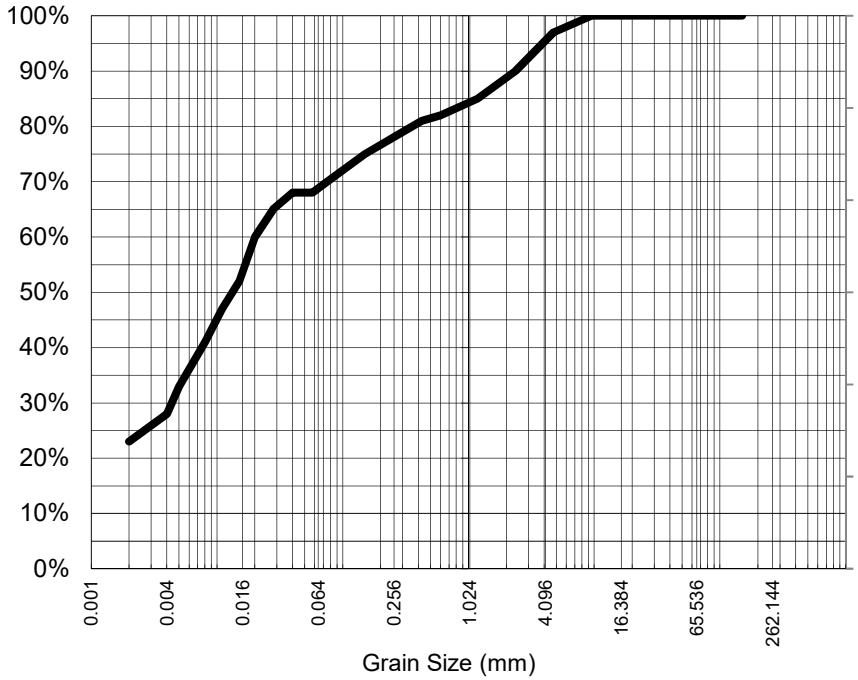
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIMALEXANDER	**DATE REPORTED:**	4-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	28-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028044-001 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED14 0-41

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	97%
2.36	90%
1.18	85%
0.600	82%
0.425	81%
0.300	79%
0.150	75%
0.075	70%
Particle Size (microns)	
57	68%
40	68%
28	65%
20	60%
15	52%
11	47%
8	41%
5	33%
2	23%

Median Particle Size (mm)*	0.013

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 30-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.26 (2.45)*

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Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

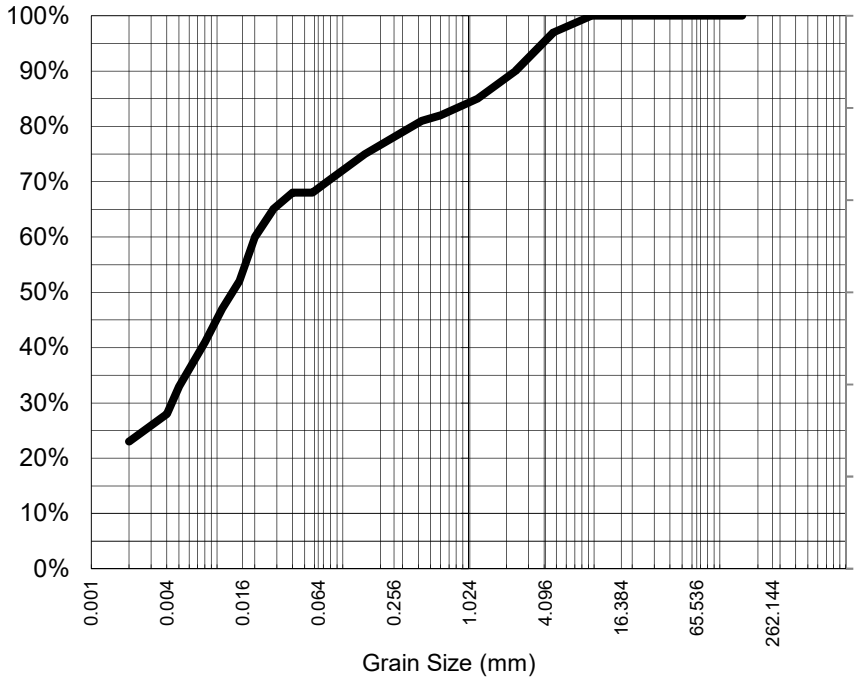
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIMALEXANDER	**DATE REPORTED:**	4-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	28-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028044-001DUP / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED14 0-41

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	97%
2.36	90%
1.18	85%
0.600	82%
0.425	81%
0.300	79%
0.150	75%
0.075	70%
Particle Size (microns)	
57	68%
40	68%
28	65%
20	60%
15	52%
11	47%
8	41%
5	33%
2	23%

Median Particle Size (mm)*	0.013

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 30-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.26 (2.45)*

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Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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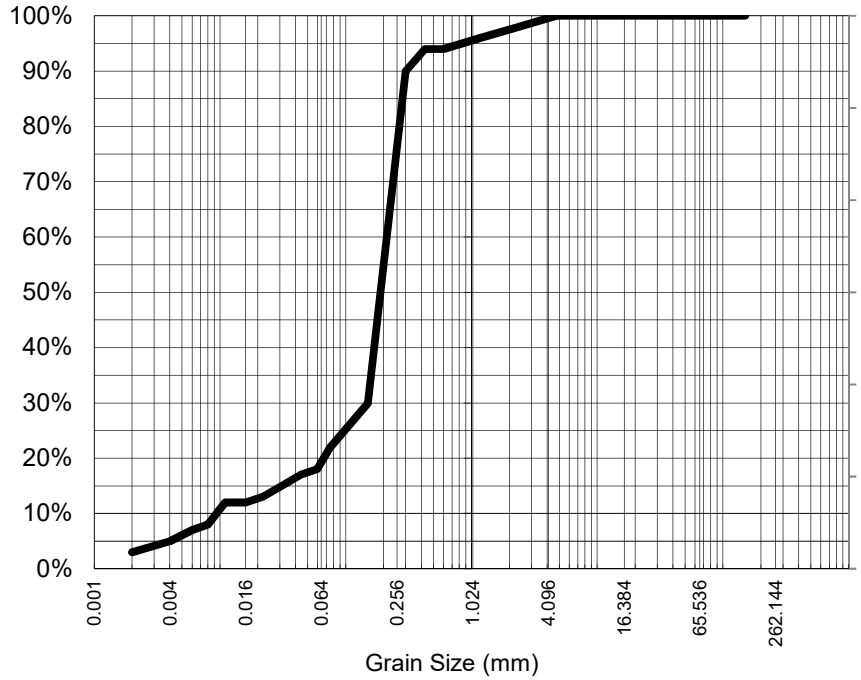
CLIENT:	TIMALEXANDER	**DATE REPORTED:**	4-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	28-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028044-002 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED14 41-90

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	98%
1.18	96%
0.600	94%
0.425	94%
0.300	90%
0.150	30%
0.075	22%
Particle Size (microns)	
59	18%
44	17%
31	15%
22	13%
16	12%
11	12%
8	8%
6	7%
2	3%

Median Particle Size (mm)*	0.200

Analysis Notes

Samples analysed as received.

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 30-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.47

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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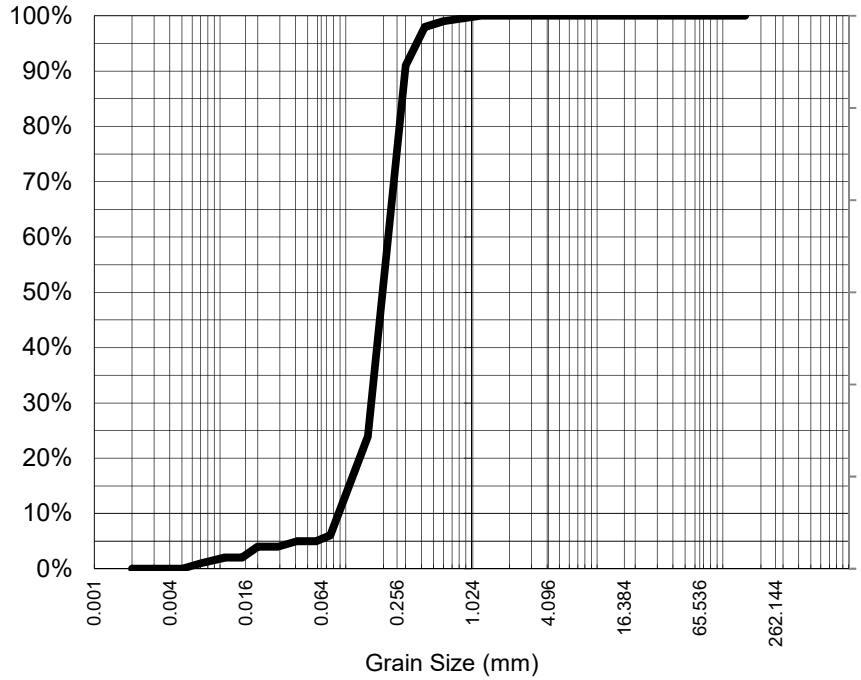
CLIENT:	TIMALEXANDER	**DATE REPORTED:**	4-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	28-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028044-003 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED14 90-153

Particle Size Distribution



Particle Size (mm)	% Passing
1.18	100%
0.600	99%
0.425	98%
0.300	91%
0.150	24%
0.075	6%
Particle Size (microns)	
58	5%
41	5%
29	4%
20	4%
15	2%
11	2%
7	1%
5	0%

Median Particle Size (mm)*	0.208

Analysis Notes

Samples analysed as received.

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments: AS1289.3.6.3 states that hydrometer analysis is not applicable for samples containing <10% fines (<75um). Results should be assessed accordingly

Analysed: 30-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.65

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Authorised Signatory

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2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

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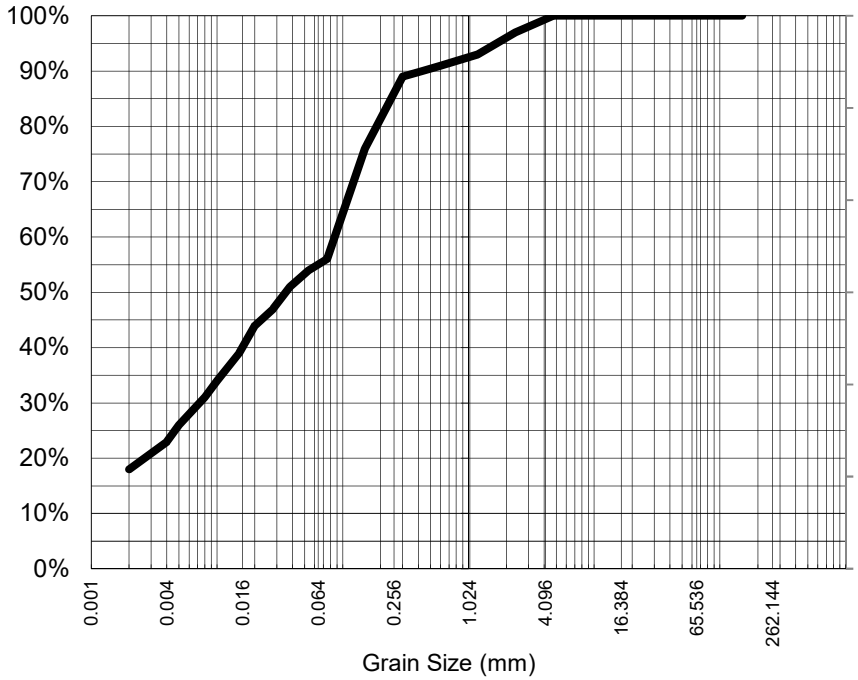
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	28-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028044-004 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED22 0-60

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	97%
1.18	93%
0.600	91%
0.425	90%
0.300	89%
0.150	76%
0.075	56%
Particle Size (microns)	
54	54%
38	51%
28	47%
20	44%
15	39%
10	34%
8	31%
5	26%
2	18%

Median Particle Size (mm)*	0.036

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 30-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.32 (2.45)*

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Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

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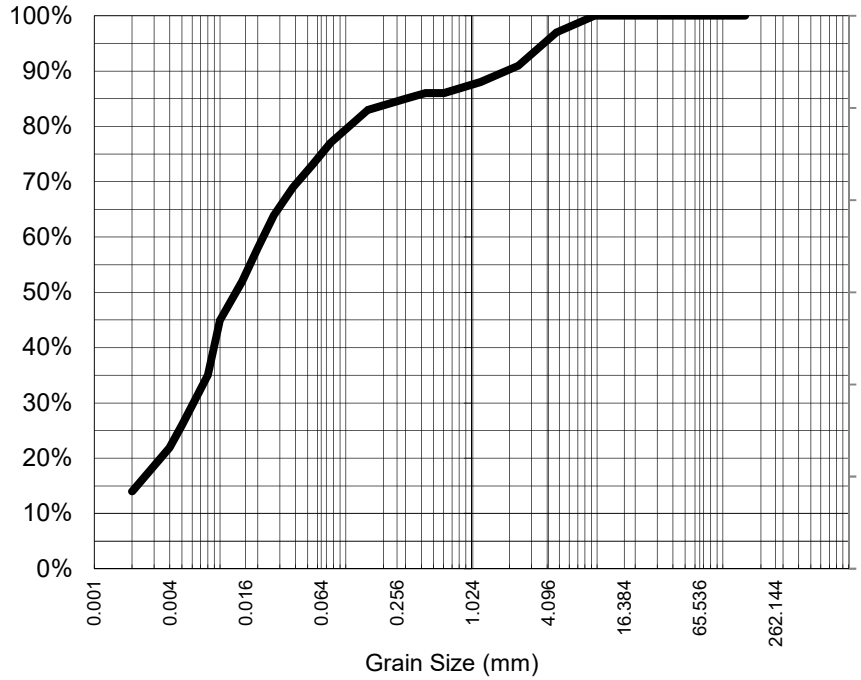
CLIENT:	TIMALEXANDER	**DATE REPORTED:**	4-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	28-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028044-005 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED22 60-128

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	97%
2.36	91%
1.18	88%
0.600	86%
0.425	86%
0.300	85%
0.150	83%
0.075	77%
Particle Size (microns)	
54	73%
38	69%
27	64%
20	58%
15	52%
10	45%
8	35%
5	26%
2	14%

Median Particle Size (mm)*	0.014

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Analysis Notes

Samples analysed as received.

Sample Comments:

Analysed: 30-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.46

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

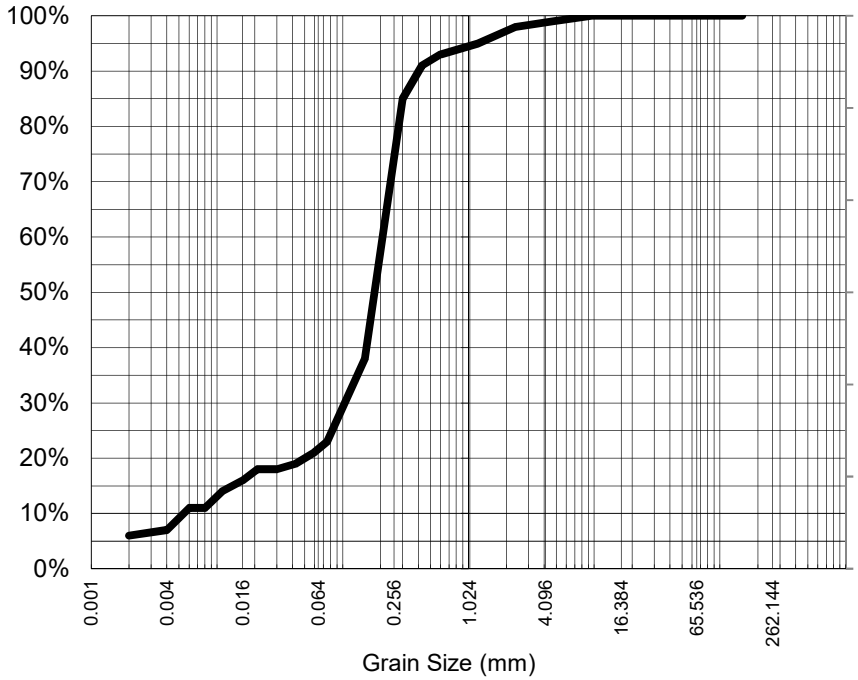
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIMALEXANDER	**DATE REPORTED:**	4-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	28-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028044-006 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED17 0-70

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	99%
2.36	98%
1.18	95%
0.600	93%
0.425	91%
0.300	85%
0.150	38%
0.075	23%
Particle Size (microns)	
59	21%
42	19%
30	18%
21	18%
16	16%
11	14%
8	11%
6	11%
2	6%

Median Particle Size (mm)*	0.188

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 30-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.35 (2.45)*

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Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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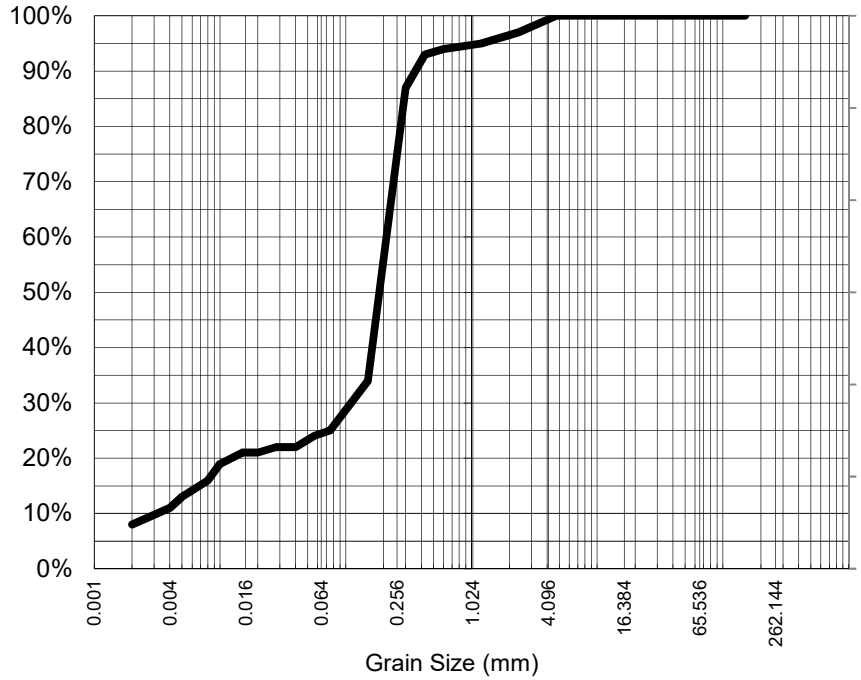
CLIENT:	TIMALEXANDER	**DATE REPORTED:**	4-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	28-Oct-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028044-007 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED17 70-144

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	97%
1.18	95%
0.600	94%
0.425	93%
0.300	87%
0.150	34%
0.075	25%
Particle Size (microns)	
56	24%
40	22%
28	22%
20	21%
15	21%
10	19%
8	16%
5	13%
2	8%

Median Particle Size (mm)*	0.195

Analysis Notes

Samples analysed as received.

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 30-Oct-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.6

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Stafford, QLD 4053
pH 07 3243 7222
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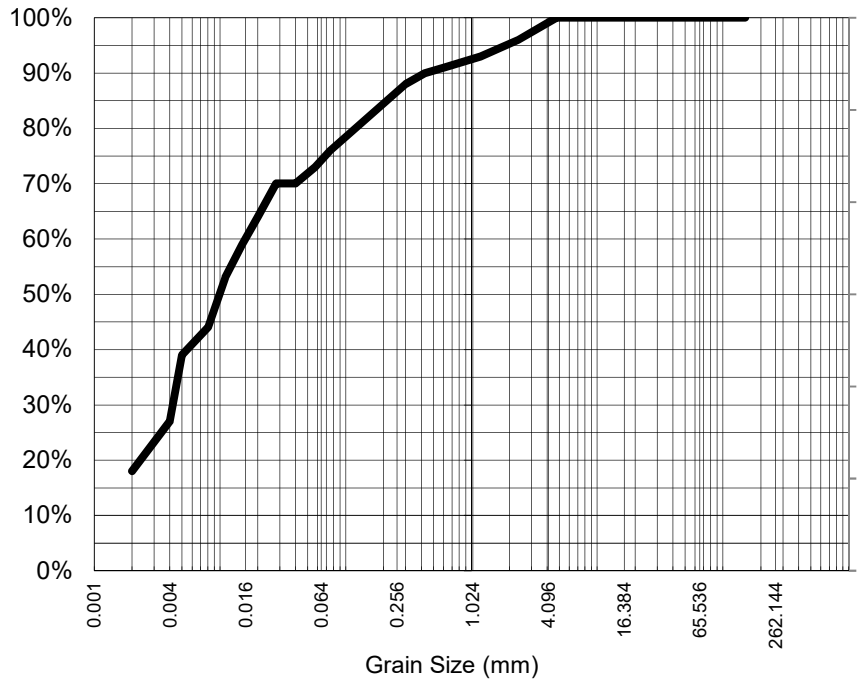
Brisbane QLD

CLIENT:	TIMALEXANDER	**DATE REPORTED:**	12-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	5-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028933-001 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED3 0-55 A

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	96%
1.18	93%
0.600	91%
0.425	90%
0.300	88%
0.150	82%
0.075	76%
Particle Size (microns)	
57	73%
40	70%
28	70%
20	64%
15	59%
11	53%
8	44%
5	39%
2	18%

Median Particle Size (mm)*	0.010

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 6-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.19 (2.45)*

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Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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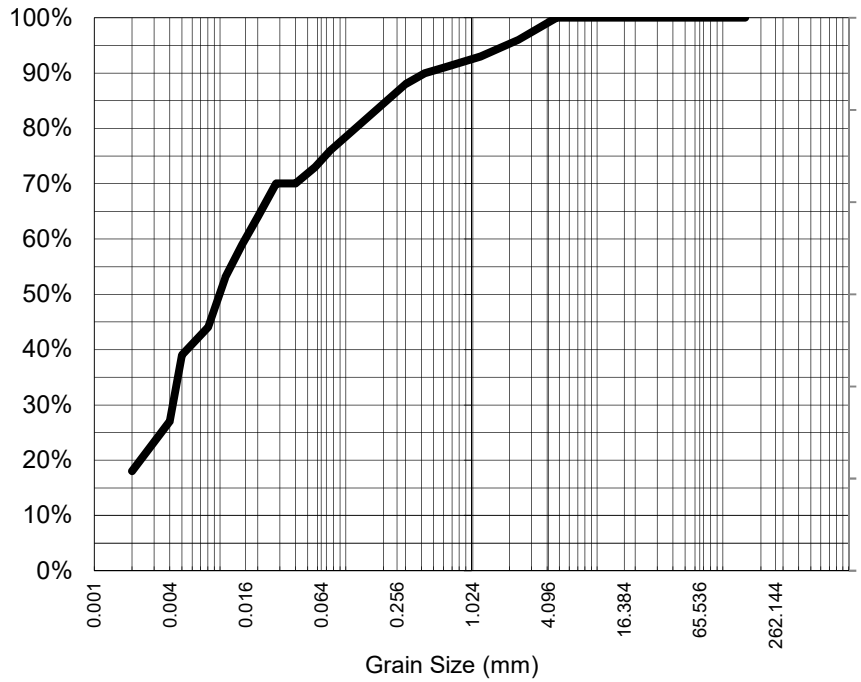
CLIENT:	TIMALEXANDER	**DATE REPORTED:**	12-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	5-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028933-001DUP / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED3 0-55 A

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	96%
1.18	93%
0.600	91%
0.425	90%
0.300	88%
0.150	82%
0.075	76%
Particle Size (microns)	
57	73%
40	70%
28	70%
20	64%
15	59%
11	53%
8	44%
5	39%
2	18%

Median Particle Size (mm)*	0.010

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 6-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.19 (2.45)*

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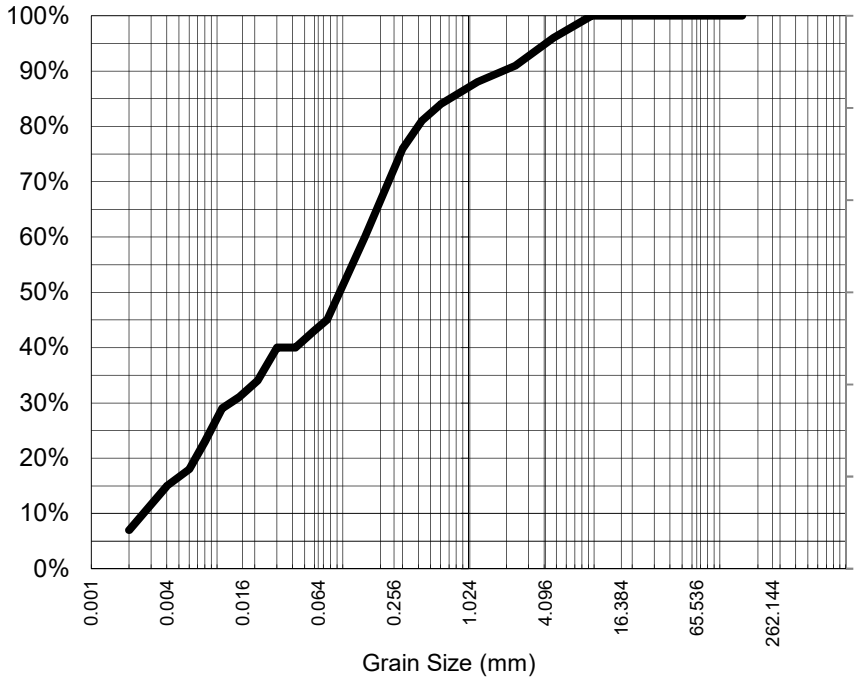
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	5-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028933-004 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED3 55-105

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	96%
2.36	91%
1.18	88%
0.600	84%
0.425	81%
0.300	76%
0.150	60%
0.075	45%
Particle Size (microns)	
59	43%
42	40%
30	40%
21	34%
15	31%
11	29%
8	23%
6	18%
2	7%

Median Particle Size (mm)*	0.100

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 6-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 1.99 (2.45)*

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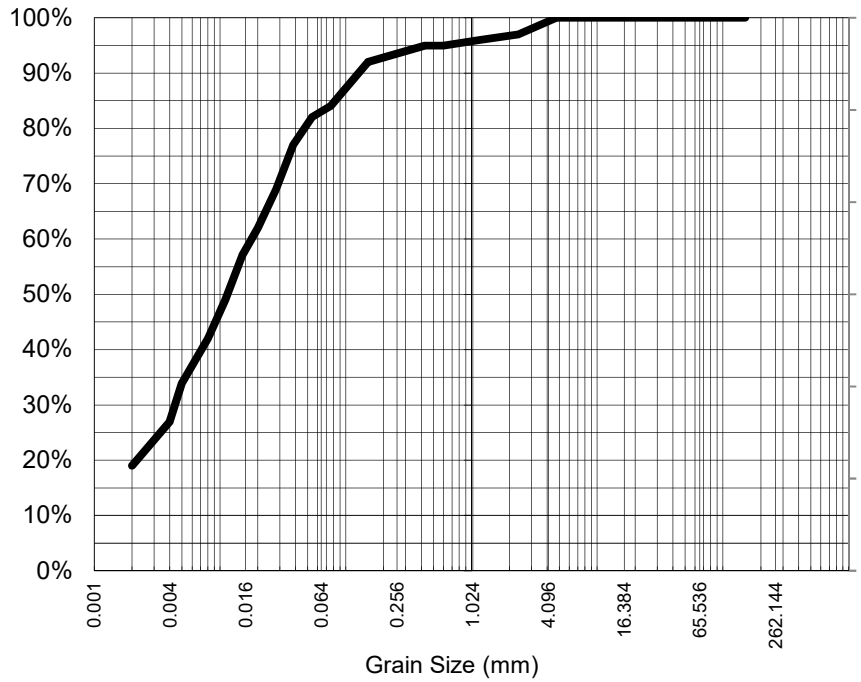
CLIENT:	TIMALEXANDER	**DATE REPORTED:**	12-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	5-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028933-005 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED3 105-153

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	97%
1.18	96%
0.600	95%
0.425	95%
0.300	94%
0.150	92%
0.075	84%
Particle Size (microns)	
54	82%
38	77%
28	69%
20	62%
15	57%
11	49%
8	42%
5	34%
2	19%

Median Particle Size (mm)*	0.012

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 6-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.16 (2.45)*

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

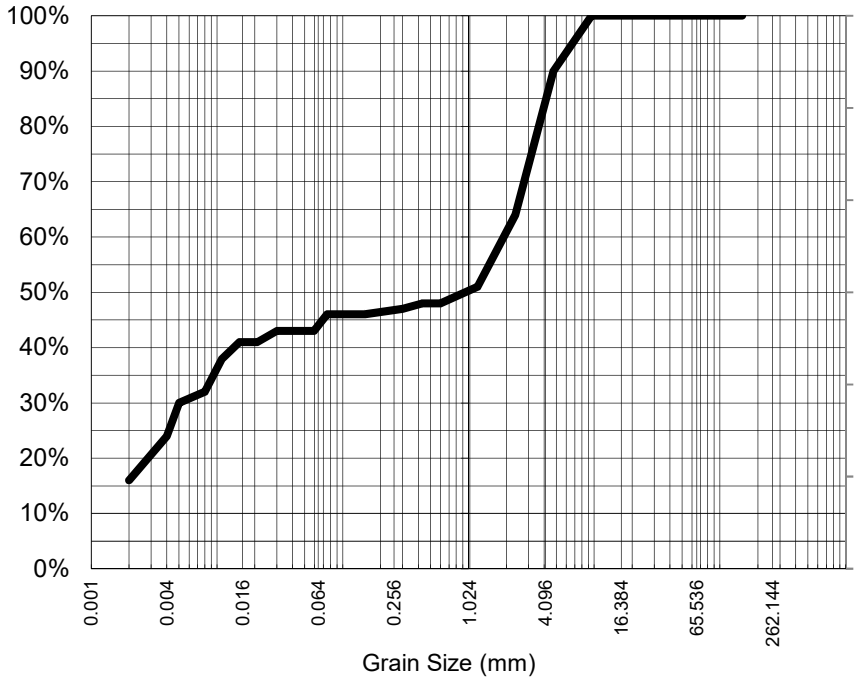
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIMALEXANDER	**DATE REPORTED:**	12-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	5-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028933-006 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED9 0-50

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	90%
2.36	64%
1.18	51%
0.600	48%
0.425	48%
0.300	47%
0.150	46%
0.075	46%
Particle Size (microns)	
59	43%
42	43%
30	43%
21	41%
15	41%
11	38%
8	32%
5	30%
2	16%

Median Particle Size (mm)*	0.987

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 6-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.28 (2.45)*

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Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

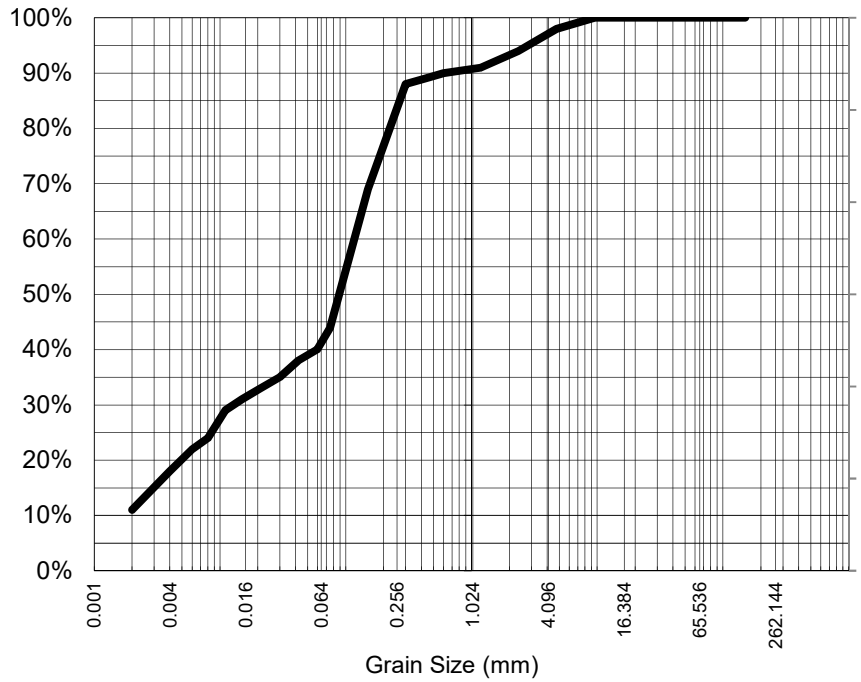
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIMALEXANDER	**DATE REPORTED:**	12-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	5-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028933-007 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED9 50-104

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	98%
2.36	94%
1.18	91%
0.600	90%
0.425	89%
0.300	88%
0.150	69%
0.075	44%
Particle Size (microns)	
59	40%
42	38%
30	35%
21	33%
15	31%
11	29%
8	24%
6	22%
2	11%

Median Particle Size (mm)*	0.093

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 6-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.28 (2.45)*

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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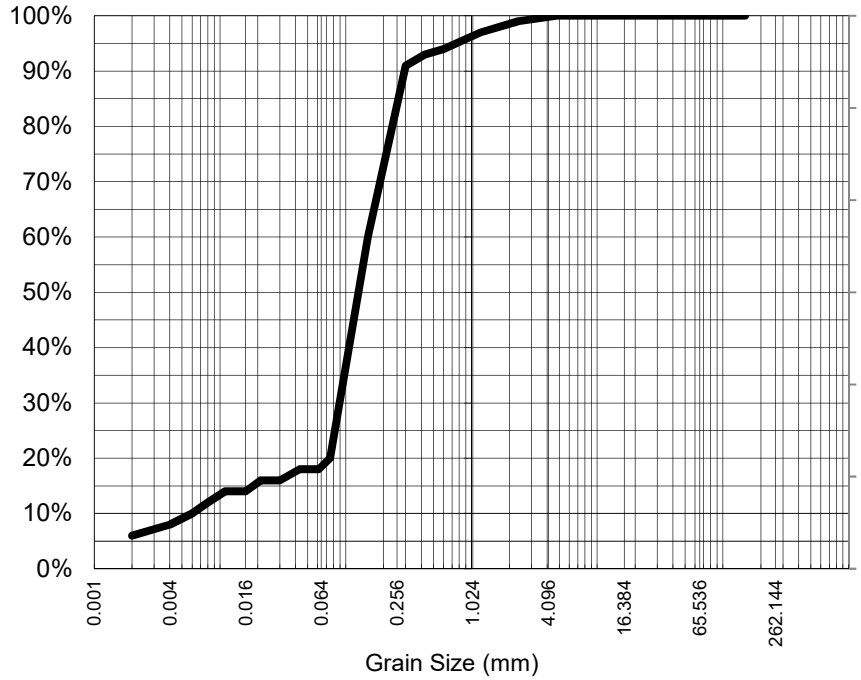
CLIENT:	TIMALEXANDER	**DATE REPORTED:**	12-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	5-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028933-008 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED9 104-153

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	99%
1.18	97%
0.600	94%
0.425	93%
0.300	91%
0.150	60%
0.075	20%
Particle Size (microns)	
61	18%
43	18%
30	16%
21	16%
16	14%
11	14%
8	12%
6	10%
2	6%

Median Particle Size (mm)*	0.131

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Analysis Notes

Samples analysed as received.

Sample Comments:

Analysed: 6-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.51

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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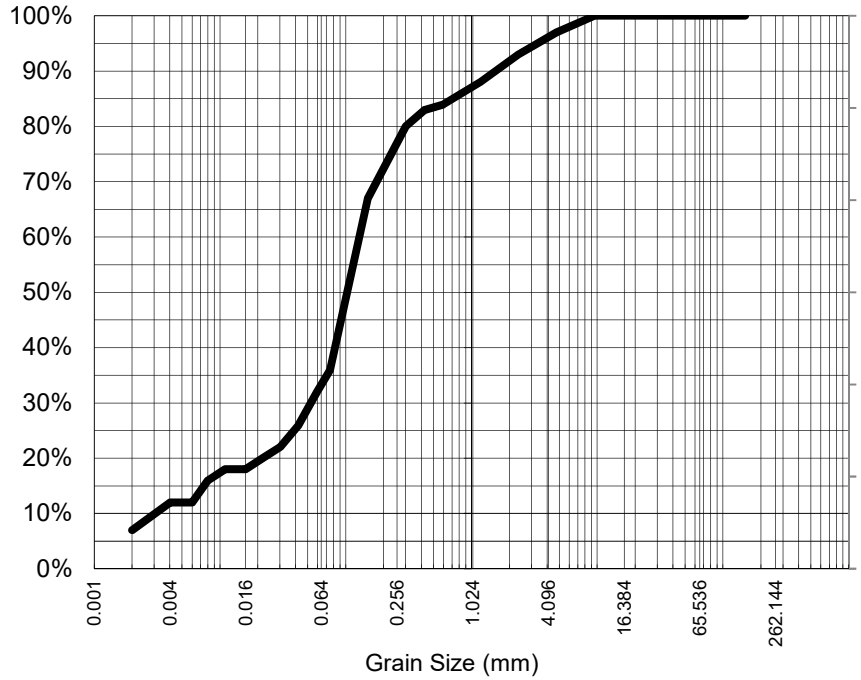
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	5-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028933-009 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED23 0-26

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	97%
2.36	93%
1.18	88%
0.600	84%
0.425	83%
0.300	80%
0.150	67%
0.075	36%
Particle Size (microns)	
59	32%
42	26%
30	22%
22	20%
16	18%
11	18%
8	16%
6	12%
2	7%

Median Particle Size (mm)*	0.109

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 6-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.32 (2.45)*

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Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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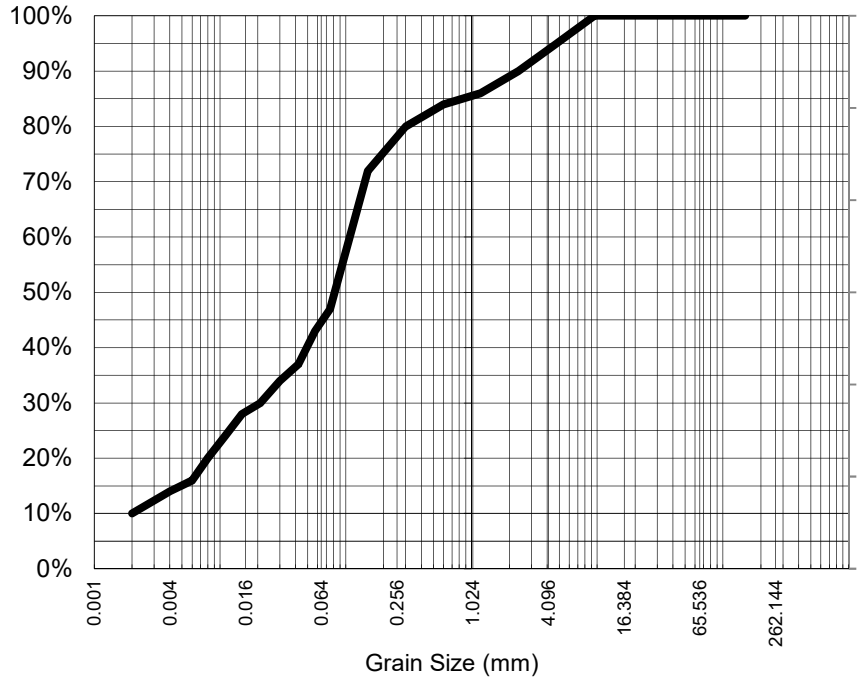
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	5-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028933-010 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED23 26-66

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	95%
2.36	90%
1.18	86%
0.600	84%
0.425	82%
0.300	80%
0.150	72%
0.075	47%
Particle Size (microns)	
57	43%
42	37%
30	34%
21	30%
15	28%
11	24%
8	20%
6	16%
2	10%

Median Particle Size (mm)*	0.084

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 6-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.32 (2.45)*

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Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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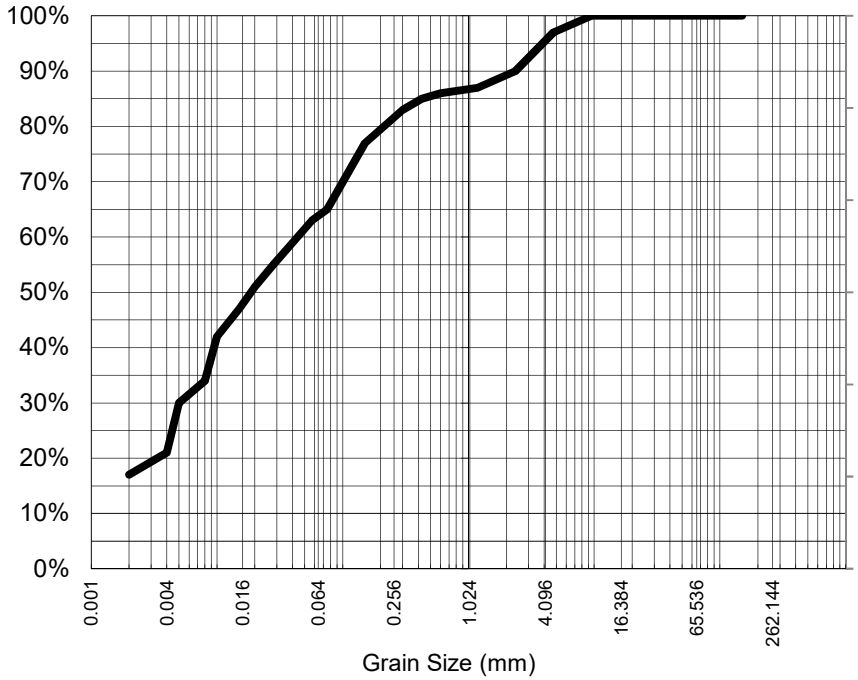
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	5-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2028933-011 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED23 66-118

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	97%
2.36	90%
1.18	87%
0.600	86%
0.425	85%
0.300	83%
0.150	77%
0.075	65%
Particle Size (microns)	
57	63%
40	59%
28	55%
20	51%
15	47%
10	42%
8	34%
5	30%
2	17%

Median Particle Size (mm)*	0.019

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 6-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.16 (2.45)*

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Authorised Signatory

Certificate of Analysis

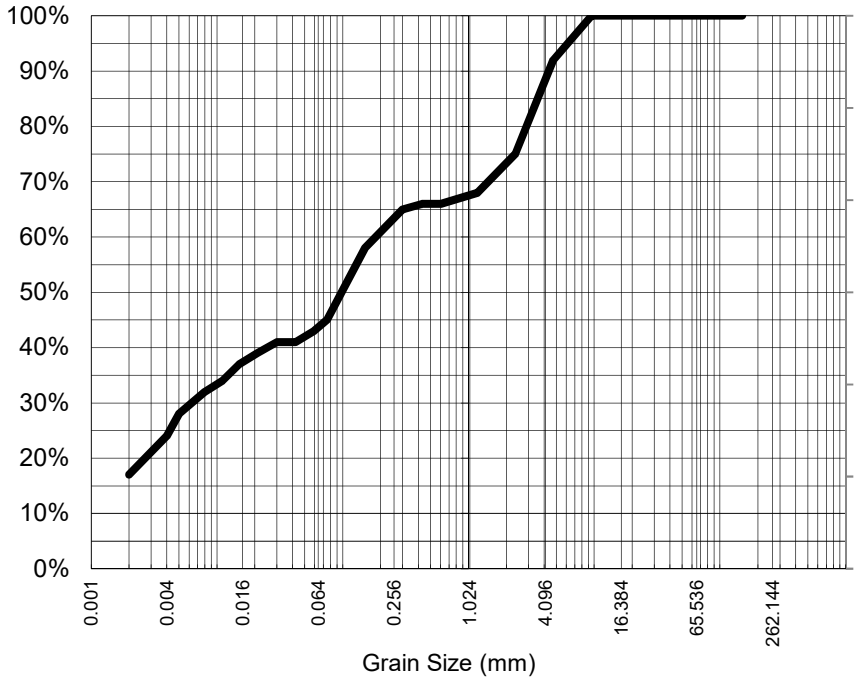
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	18-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	11-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2029486-001 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED6 0-50 A

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	92%
2.36	75%
1.18	68%
0.600	66%
0.425	66%
0.300	65%
0.150	58%
0.075	45%
Particle Size (microns)	
59	43%
42	41%
30	41%
21	39%
15	37%
11	34%
8	32%
5	28%
2	17%

Median Particle Size (mm)*	0.104

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 12-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.07 (2.45)*

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

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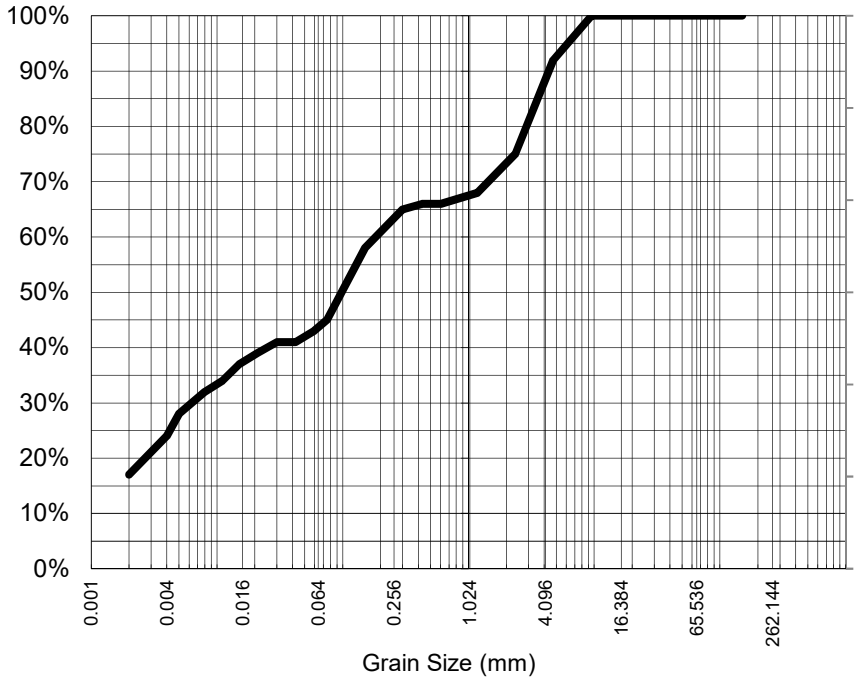
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	18-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	11-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2029486-001DUP / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED6 0-50 A

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	92%
2.36	75%
1.18	68%
0.600	66%
0.425	66%
0.300	65%
0.150	58%
0.075	45%
Particle Size (microns)	
59	43%
42	41%
30	41%
21	39%
15	37%
11	34%
8	32%
5	28%
2	17%

Median Particle Size (mm)*	0.104

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 12-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.07 (2.45)*

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Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

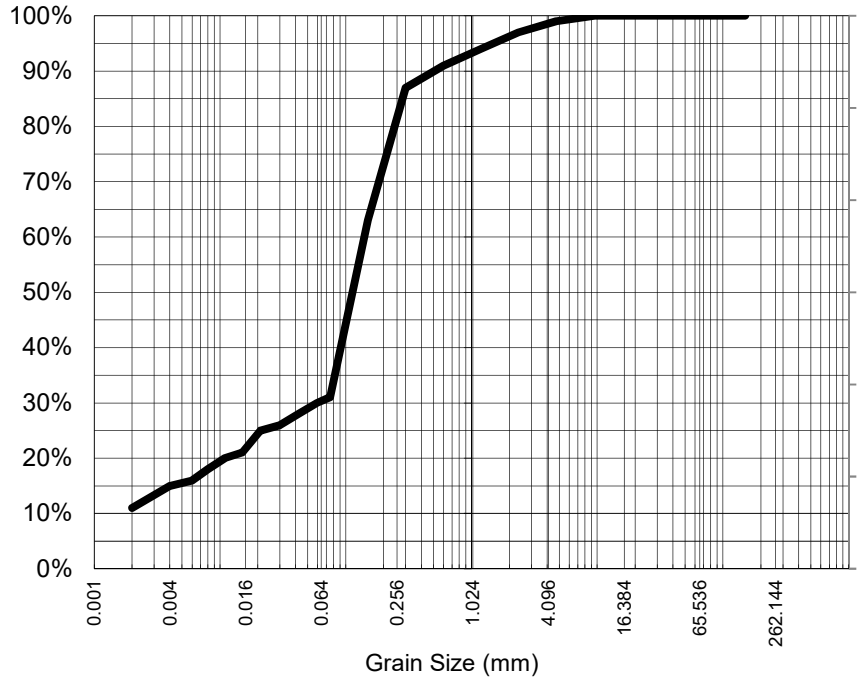
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	18-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	11-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2029486-004 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED6 50-100

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	99%
2.36	97%
1.18	94%
0.600	91%
0.425	89%
0.300	87%
0.150	63%
0.075	31%
Particle Size (microns)	
59	30%
42	28%
30	26%
21	25%
15	21%
11	20%
8	18%
6	16%
2	11%

Median Particle Size (mm)*	0.120

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 12-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.41 (2.45)*

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Authorised Signatory

Certificate of Analysis

ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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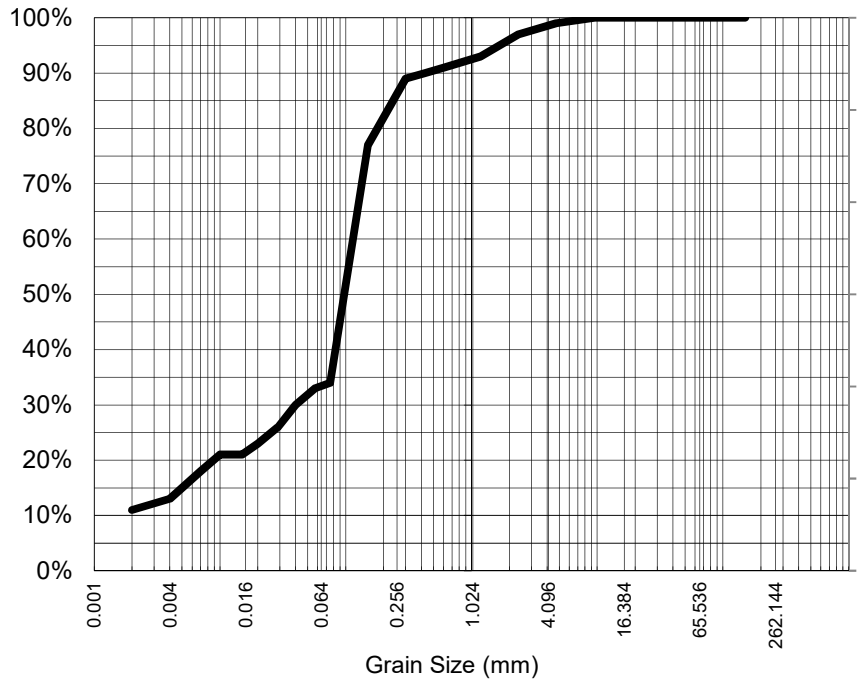
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	11-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2029486-005 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED6 100-151

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	99%
2.36	97%
1.18	93%
0.600	91%
0.425	90%
0.300	89%
0.150	77%
0.075	34%
Particle Size (microns)	
57	33%
40	30%
29	26%
20	23%
15	21%
10	21%
7	18%
5	15%
2	11%

Median Particle Size (mm)*	0.103

Analysis Notes

Samples analysed as received.

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 12-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.55

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2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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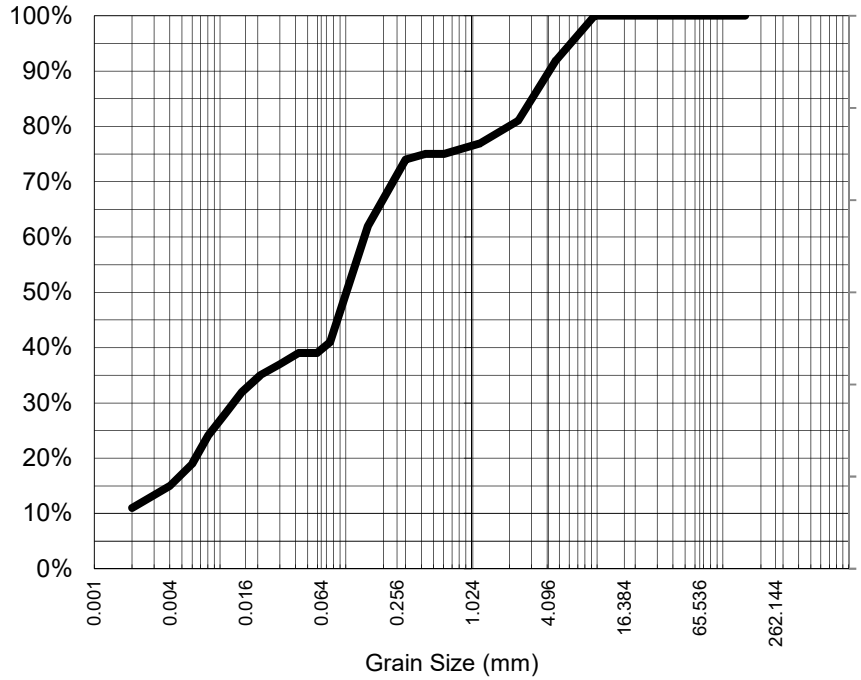
CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	18-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	11-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2029486-006 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED5 0-50

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	92%
2.36	81%
1.18	77%
0.600	75%
0.425	75%
0.300	74%
0.150	62%
0.075	41%
Particle Size (microns)	
59	39%
42	39%
30	37%
21	35%
15	32%
11	28%
8	24%
6	19%
2	11%

Median Particle Size (mm)*	0.107

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 12-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.31 (2.45)*

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Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

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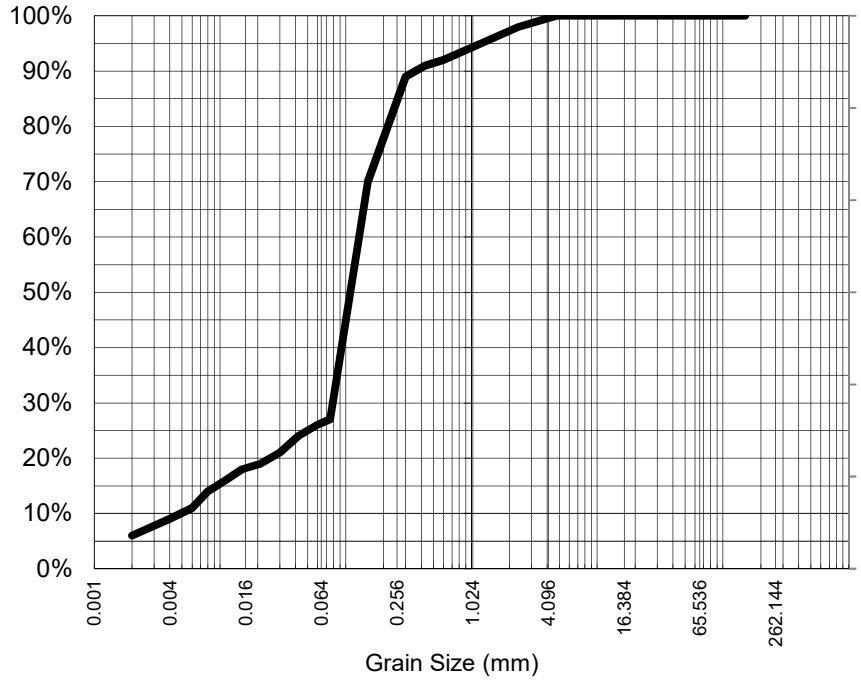
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	11-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2029486-007 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED5 50-100

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	98%
1.18	95%
0.600	92%
0.425	91%
0.300	89%
0.150	70%
0.075	27%
Particle Size (microns)	
59	26%
42	24%
30	21%
21	19%
15	18%
11	16%
8	14%
6	11%
2	6%

Median Particle Size (mm)*	0.115

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 12-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.41 (2.45)*

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

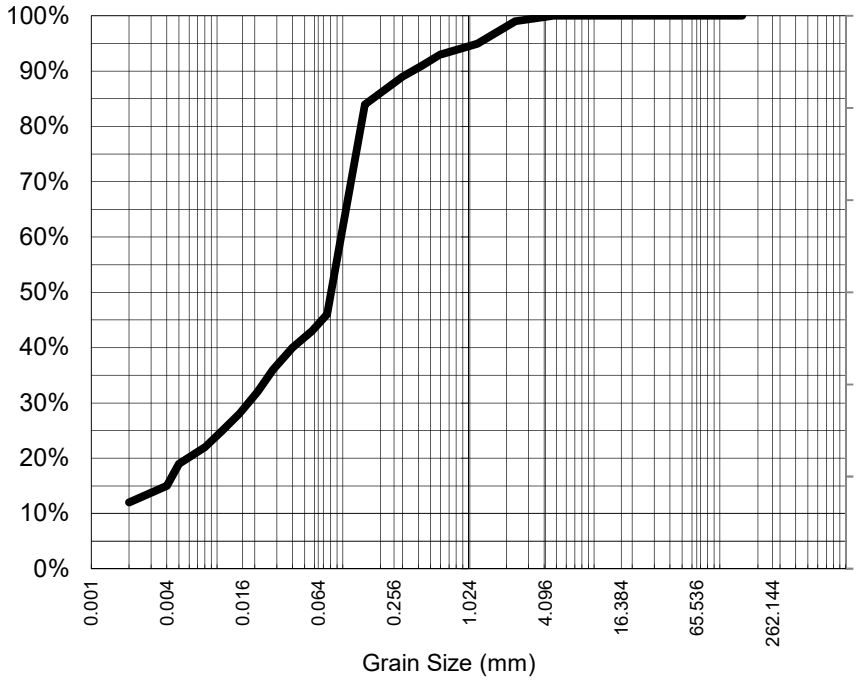
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIM ALEXANDER	**DATE REPORTED:**	18-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	11-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2029486-008 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED5 100-150

Particle Size Distribution



Particle Size (mm)	% Passing
4.75	100%
2.36	99%
1.18	95%
0.600	93%
0.425	91%
0.300	89%
0.150	84%
0.075	46%
Particle Size (microns)	
57	43%
40	40%
28	36%
21	32%
15	28%
11	25%
8	22%
5	19%
2	12%

Median Particle Size (mm)*	0.083

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 12-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.42 (2.45)*

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

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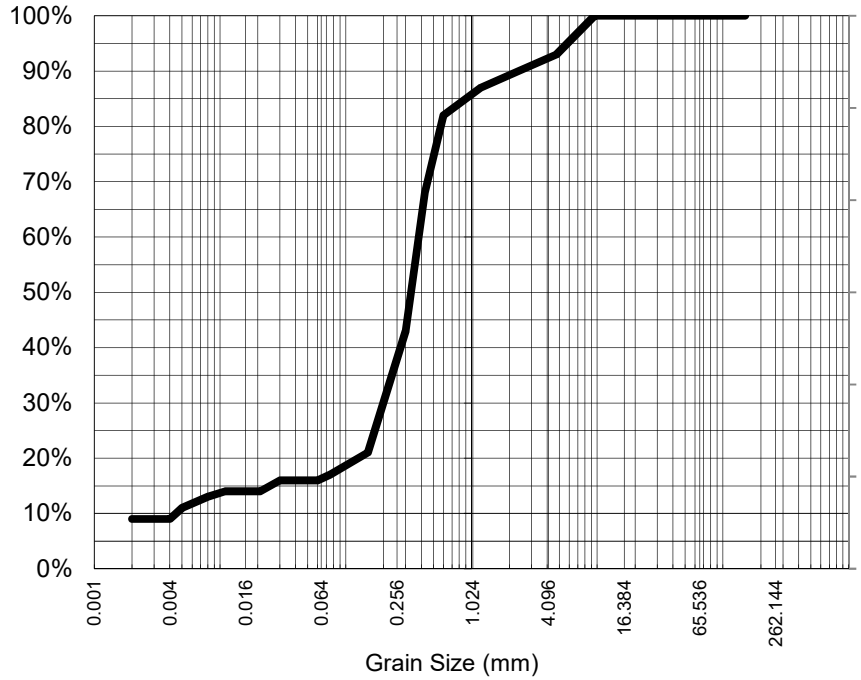
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIMALEXANDER	**DATE REPORTED:**	18-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	11-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2029490-002 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED21 0-50

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	93%
2.36	90%
1.18	87%
0.600	82%
0.425	68%
0.300	43%
0.150	21%
0.075	17%
Particle Size (microns)	
60	16%
42	16%
30	16%
21	14%
15	14%
11	14%
8	13%
5	11%
2	9%

Median Particle Size (mm)*	0.335

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Analysis Notes

Samples analysed as received.

Sample Comments:

Analysed: 12-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.57

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Satish Trivedi
Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

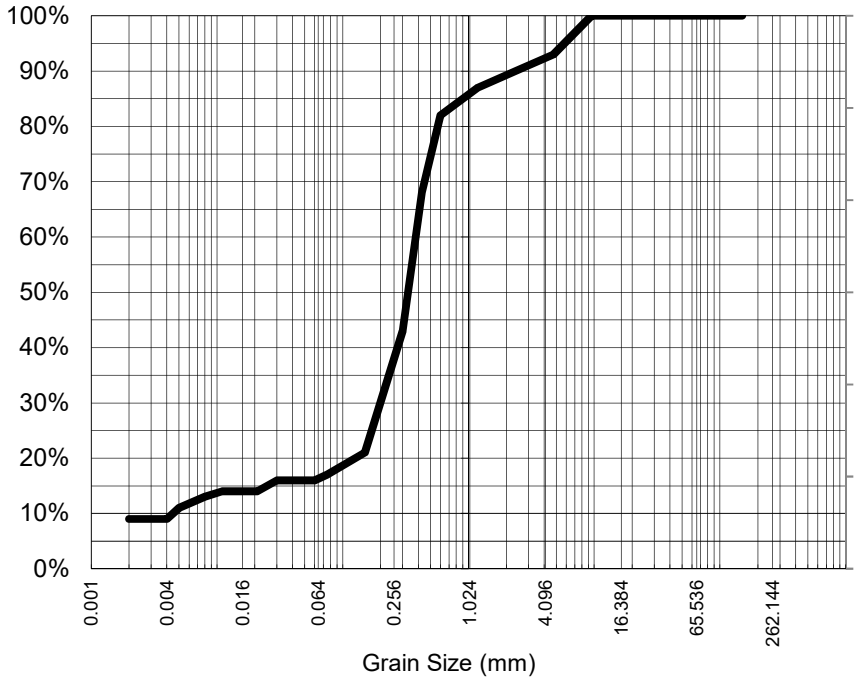
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIMALEXANDER	**DATE REPORTED:**	18-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	11-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2029490-002DUP / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED21 0-50

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	93%
2.36	90%
1.18	87%
0.600	82%
0.425	68%
0.300	43%
0.150	21%
0.075	17%
Particle Size (microns)	
60	16%
42	16%
30	16%
21	14%
15	14%
11	14%
8	13%
5	11%
2	9%

Median Particle Size (mm)*	0.335

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Analysis Notes

Samples analysed as received.

Sample Comments:

Analysed: 12-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.57

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Satish Trivedi
Soil Senior Chemist
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Certificate of Analysis

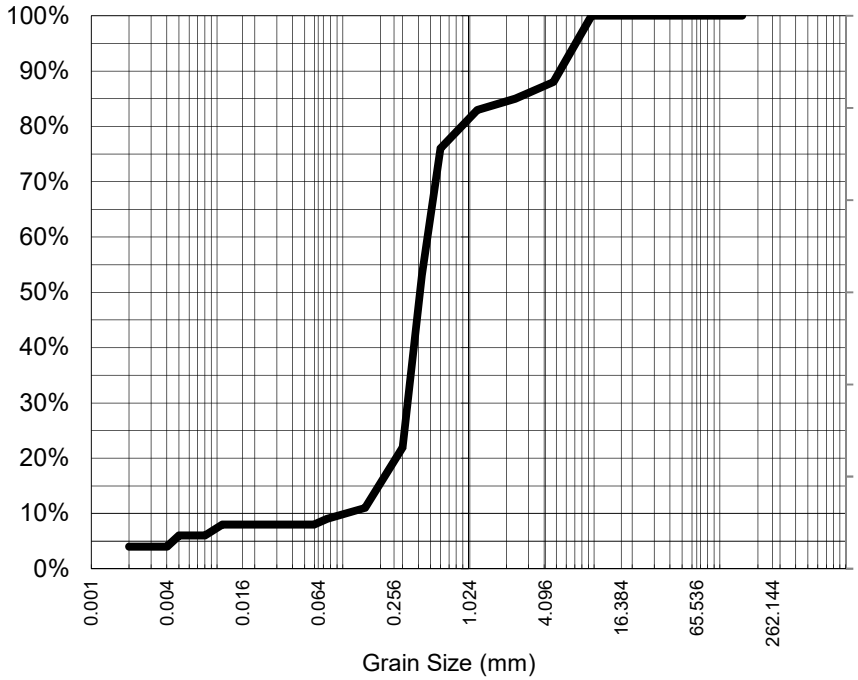
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIMALEXANDER	**DATE REPORTED:**	18-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	11-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2029490-003 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED20 0-50

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	88%
2.36	85%
1.18	83%
0.600	76%
0.425	53%
0.300	22%
0.150	11%
0.075	9%
Particle Size (microns)	
59	8%
41	8%
29	8%
21	8%
15	8%
11	8%
8	6%
5	6%
2	4%

Median Particle Size (mm)*	0.413

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Analysis Notes

Samples analysed as received.

Sample Comments:	AS1289.3.6.3 states that hydrometer analysis is not applicable for samples containing <10% fines (<75um). Results should be assessed accordingly	**Analysed:**	12-Nov-20
Loss on Pretreatment	NA	**Limit of Reporting:**	1%
Sample Description:		**Dispersion Method**	Shaker
Test Method:	AS1289.3.6.2/AS1289.3.6.3		
Soil Particle Density (<2.36mm)	2.62		

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2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

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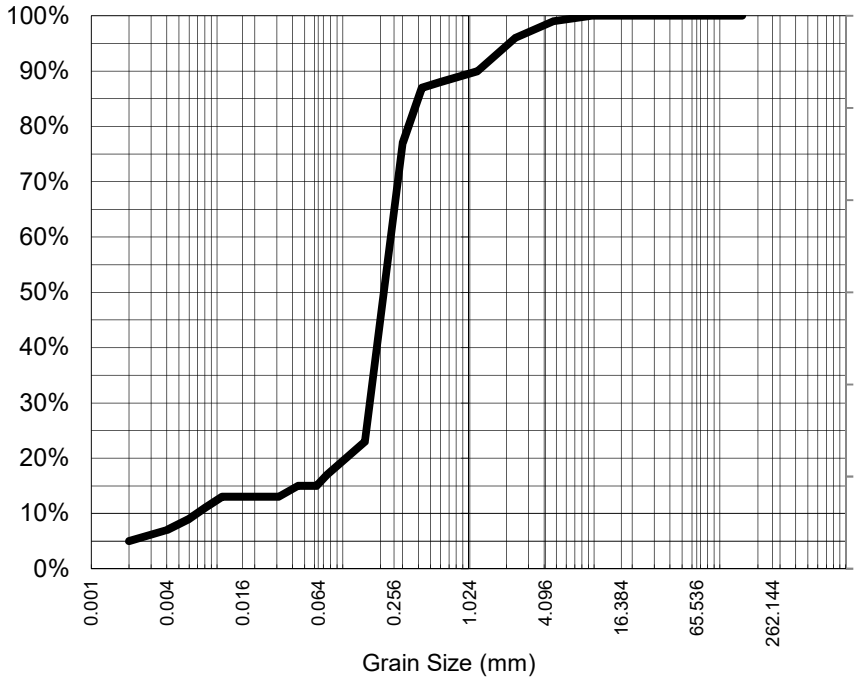
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	11-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2029490-004 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED19 0-50

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	99%
2.36	96%
1.18	90%
0.600	88%
0.425	87%
0.300	77%
0.150	23%
0.075	17%
Particle Size (microns)	
62	15%
44	15%
31	13%
22	13%
16	13%
11	13%
8	11%
6	9%
2	5%

Median Particle Size (mm)*	0.225

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Analysis Notes

Samples analysed as received.

Sample Comments:

Analysed: 12-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.46

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Soil Senior Chemist
Authorised Signatory

Certificate of Analysis

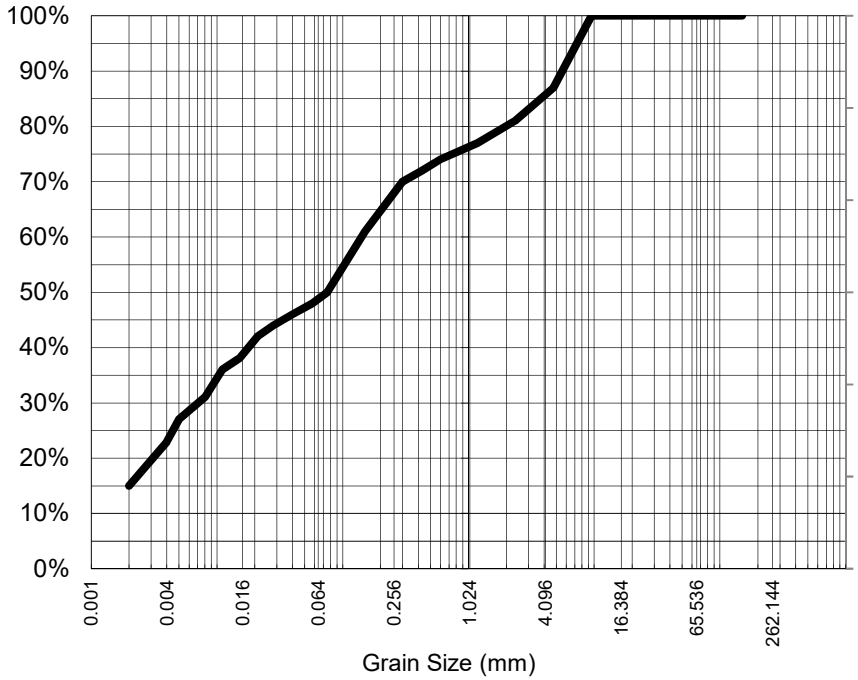
ALS Laboratory Group Pty Ltd
2 Byth Street
Stafford, QLD 4053
pH 07 3243 7222
samples.brisbane@alsenviro.com

ALS Environmental

Brisbane QLD

CLIENT:	TIMALEXANDER	**DATE REPORTED:**	18-Nov-2020
COMPANY:	MARINE SOLUTIONS	**DATE RECEIVED:**	11-Nov-2020
ADDRESS:	110 Swanston Street New Town Hobart, Tasmania	**REPORT NO:**	EB2029490-005 / PSD
PROJECT:	Bridgewater	**SAMPLE ID:**	SED13 0-50

Particle Size Distribution



Particle Size (mm)	% Passing
9.50	100%
4.75	87%
2.36	81%
1.18	77%
0.600	74%
0.425	72%
0.300	70%
0.150	61%
0.075	50%
Particle Size (microns)	
57	48%
40	46%
28	44%
21	42%
15	38%
11	36%
8	31%
5	27%
2	15%

Median Particle Size (mm)*	0.075

Analysis Notes

Samples analysed as received.

** Soil Particle Density results fell outside the scope of AS 1289.3.6.3. Typical sediment SPD values used for calculations and consequently, NATA endorsement does not apply to hydrometer results*

Median Particle Size is not covered under the current scope of ALS's NATA accreditation.

Sample Comments:

Analysed: 12-Nov-20

Loss on Pretreatment NA

Limit of Reporting: 1%

Sample Description:

Dispersion Method Shaker

Test Method: AS1289.3.6.2/AS1289.3.6.3

Soil Particle Density (<2.36mm) 2.39 (2.45)*

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Authorised Signatory