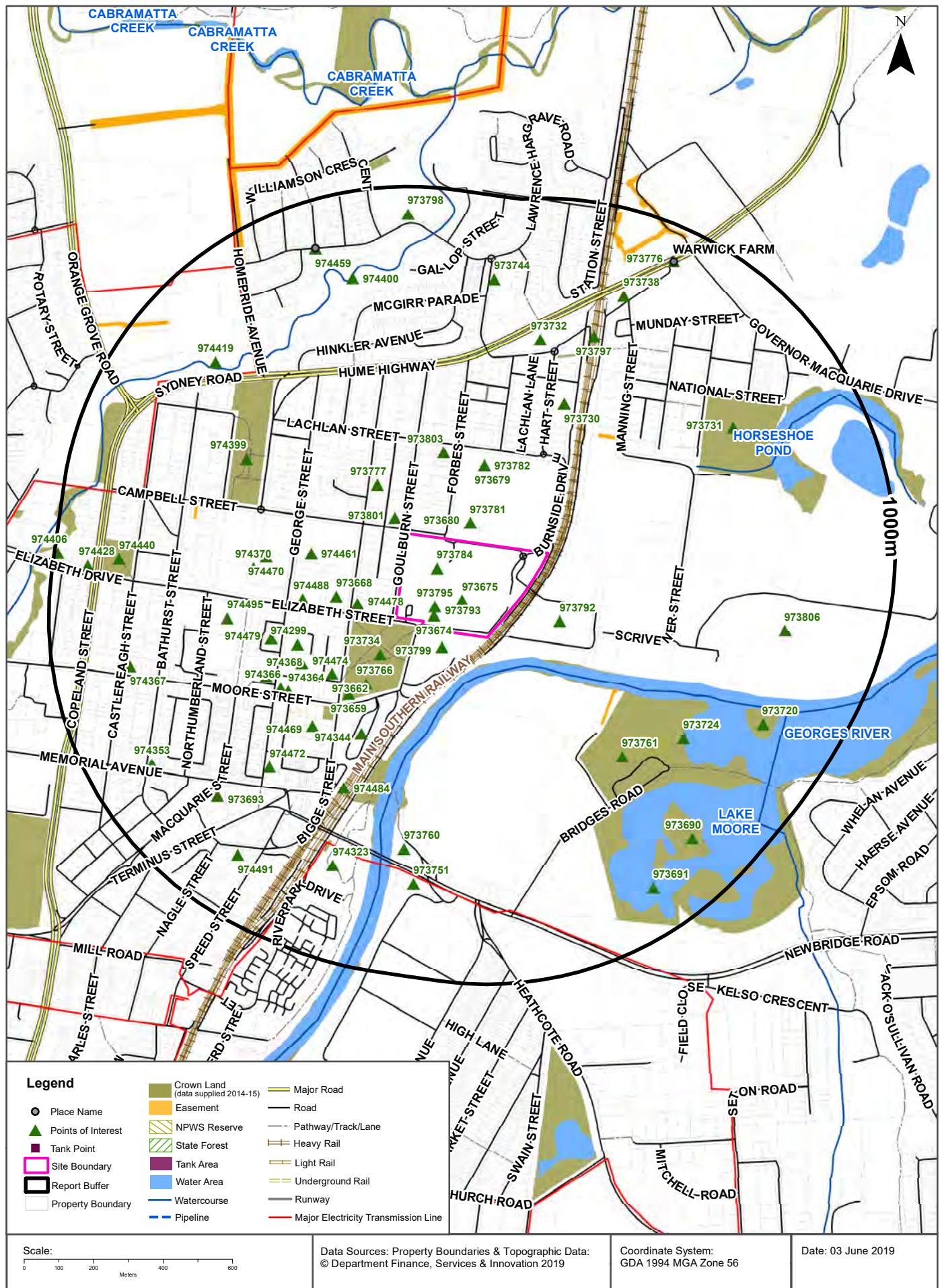


Topographic Features

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170



Topographic Features

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
973674	Helipad	Helipad	0m	Onsite
973675	Helipad	Helipad	0m	Onsite
973784	Special School	LIVERPOOL HOSPITAL SCHOOL	0m	Onsite
973793	General Hospital	LIVERPOOL HOSPITAL	0m	Onsite
973795	Community Home	SOUTH WESTERN ZONE TRANSITION AGED CARE SERVICE	0m	Onsite
973799	TAFE College	LIVERPOOL TAFE COLLEGE	47m	South
973781	High School	LIVERPOOL BOYS HIGH SCHOOL	55m	North
973680	High School	SATURDAY SCHOOL OF COMMUNITY LANGUAGES LIVERPOOL B	55m	North
973801	Medical Centre	LIVERPOOL COMMUNITY HEALTH SERVICE	58m	North West
974478	Medical Centre	BIGGE PARK BUILDING	115m	West
973734	Park	BIGGE PARK	117m	South West
973792	Medical Centre	LIVERPOOL HOSPITAL HUGH JARDINE BUILDING	131m	East
973777	General Hospital	SYDNEY SOUTHWEST PRIVATE HOSPITAL	165m	North West
973668	High School	ALL SAINTS CATHOLIC COLLEGE	178m	West
973766	Sports Court	TENNIS COURTS	211m	South West
973782	High School	LIVERPOOL GIRLS HIGH SCHOOL	226m	North
973679	High School	SATURDAY SCHOOL OF COMMUNITY LANGUAGES LIVERPOOL G	226m	North
973662	Community Facility	HILDA M DAVIS SENIOR CITIZENS CENTRE	245m	South West
973803	Place Of Worship	ST RAPHAEL NICHOLAS AND IRENE LIVERPOOL ORTHODOX C	245m	North
973659	Community Facility	DR JAMES PIRIE COMMUNITY CENTRE	260m	South West
974461	Primary School	ALL SAINTS CATHOLIC PRIMARY SCHOOL	267m	West
974488	Place Of Worship	ALL SAINTS CATHOLIC CHURCH	273m	West
974299	Court House	LIVERPOOL LOCAL COURT	294m	West
974474	Library	LIVERPOOL CITY LIBRARY	301m	South West
974344	Transport Interchange	LIVERPOOL BUS INTERCHANGE	350m	South West
974479	Medical Centre	LIVERPOOL EARLY CHILDHOOD HEALTH CENTRE	365m	West
974364	Police Station	LIVERPOOL POLICE STATION	376m	South West
974366	Local Government Chambers	LIVERPOOL CITY COUNCIL	390m	South West
974470	Post Office	LIVERPOOL WESTFIELD POST OFFICE	394m	West
974469	Primary School	LIVERPOOL PUBLIC SCHOOL	396m	South West

Map Id	Feature Type	Label	Distance	Direction
974368	Club	JOHN EDMONDSON VC MEMORIAL CLUB	409m	South West
973730	Park	HART PARK	411m	North East
974370	Shopping Centre	WESTFIELD SHOPPING COMPLEX	426m	West
974495	Place Of Worship	ST LUKE'S LIVERPOOL	486m	West
974399	Park	LIVERPOOL PIONEERS MEMORIAL PARK	511m	North West
974484	Railway Station	LIVERPOOL RAILWAY STATION	514m	South West
973761	Park	HAIGH PARK	519m	South East
974472	Post Office	LIVERPOOL POST OFFICE	565m	South West
973732	Park	BERRYMAN RESERVE	592m	North
973797	Railway Station	WARWICK FARM RAILWAY STATION	618m	North East
973724	Beach	HAIGH BEACH	619m	South East
973760	Park	BILL MORRISON PARK	638m	South
973731	Park	ROSEDALE PARK	640m	North East
973806	Sewage Works	Sewage Works	717m	East
973693	Park	AUGUSTA CULLEN PLAZA	727m	South West
974323	Park	LIGHTHORSE PARK	732m	South West
973751	Park	MOOREBANK RESERVE	734m	South
974419	Park	MILITARY RESERVE	742m	North West
974400	Park	HARGRAVE PARK	753m	North
973738	Park	WARWICK PARK	753m	North East
973744	Park	THE PLANTATION	760m	North
974367	Place Of Worship	ST PAUL LIVERPOOL CHURCH	778m	West
973720	Island	GANDANGARA ISLAND	781m	South East
974440	Park	LIVERPOOL APEX PARK	813m	West
974353	Place Of Worship	SALVATION ARMY CHURCH	820m	South West
974491	Place Of Worship	LIVERPOOL UNITING CHURCH	822m	South West
973690	Island Like	BULBA-DIBEEN	827m	South East
974459	Village	HARGRAVE PARK	864m	North West
973691	Natural Waterbody	LAKE MOORE	866m	South East
973776	Suburb	WARWICK FARM	898m	North East
974428	Park	MINNIE FREEMAN PARK	899m	West
973798	Primary School	WARWICK FARM PUBLIC SCHOOL	921m	North
974406	Park	WADEL PARK	989m	West

Topographic Data Source: © Land and Property Information (2015)

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Topographic Features

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Tanks (Areas)

What are the Tank Areas located within the dataset buffer?

Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
	No records in buffer					

Tanks (Points)

What are the Tank Points located within the dataset buffer?

Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
	No records in buffer					

Tanks Data Source: © Land and Property Information (2015)

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Major Easements

What Major Easements exist within the dataset buffer?

Note. Easements provided by LPI are not at the detail of local governments. They are limited to major easements such as Right of Carriageway, Electrical Lines (66kVa etc.), Easement to drain water & Significant subterranean pipelines (gas, water etc.).

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
165311834	Primary	Right of way	5m	351m	North East
120113454	Primary	Undefined		377m	South East
120109077	Primary	Undefined		611m	West
163427153	Primary	Right of way	6m	715m	South West
120114345	Primary	Undefined		853m	North East
120118156	Primary	Undefined		917m	North West
120107749	Primary	Undefined		917m	North West
151549573	Primary	Right of way	10.06m	921m	North West

Easements Data Source: © Land and Property Information (2015)

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Topographic Features

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

State Forest

What State Forest exist within the dataset buffer?

State Forest Number	State Forest Name	Distance	Direction
N/A	No records in buffer		

State Forest Data Source: © NSW Department of Finance, Services & Innovation (2018)

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National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

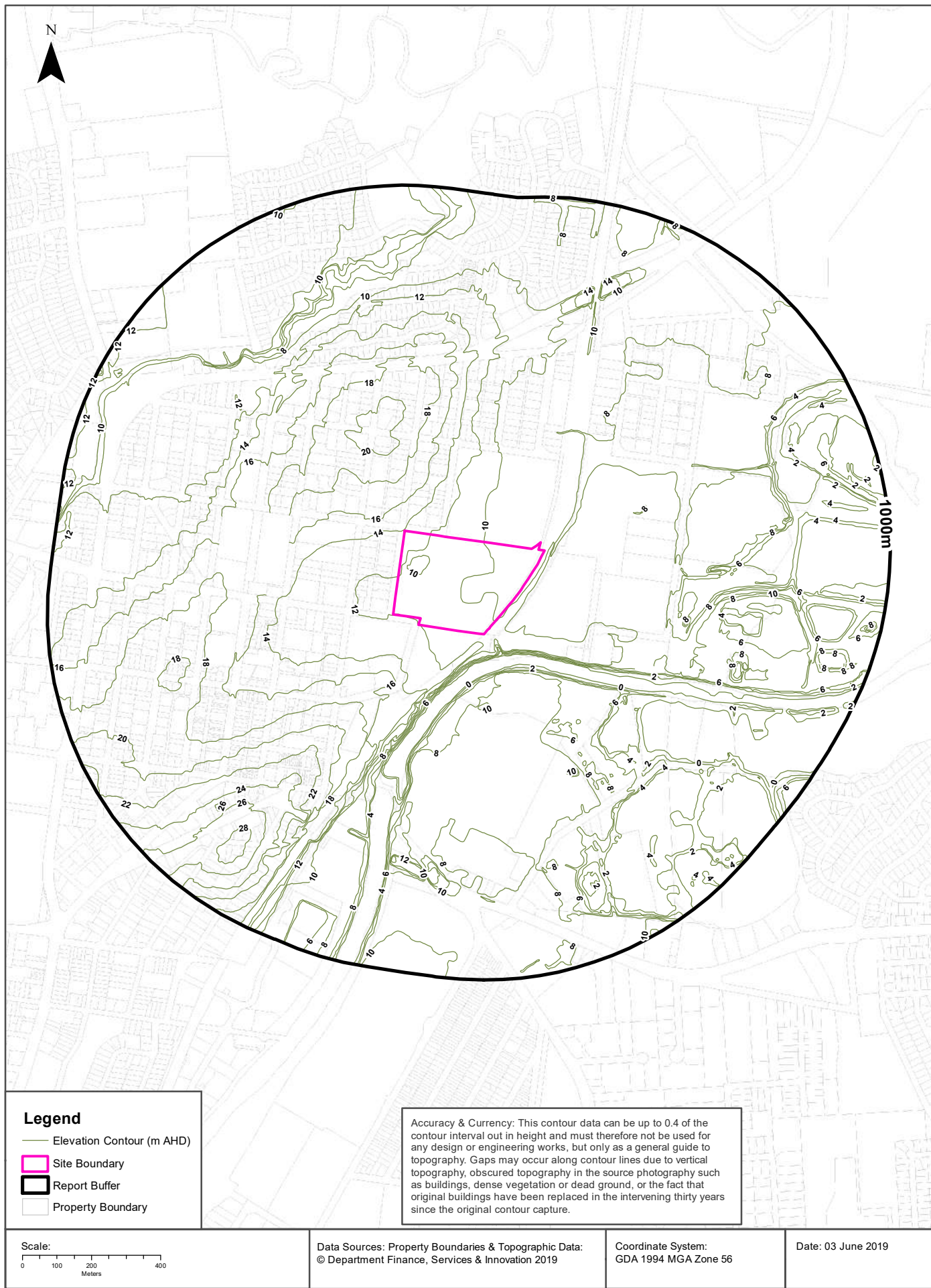
Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N/A	No records in buffer				

NPWS Data Source: © NSW Department of Finance, Services & Innovation (2018)

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Elevation Contours (m AHD)

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170



Hydrogeology & Groundwater

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Hydrogeology

Description of aquifers on-site:

Description
Porous, extensive aquifers of low to moderate productivity

Description of aquifers within the dataset buffer:

Description
Porous, extensive aquifers of low to moderate productivity

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)

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Botany Groundwater Management Zones

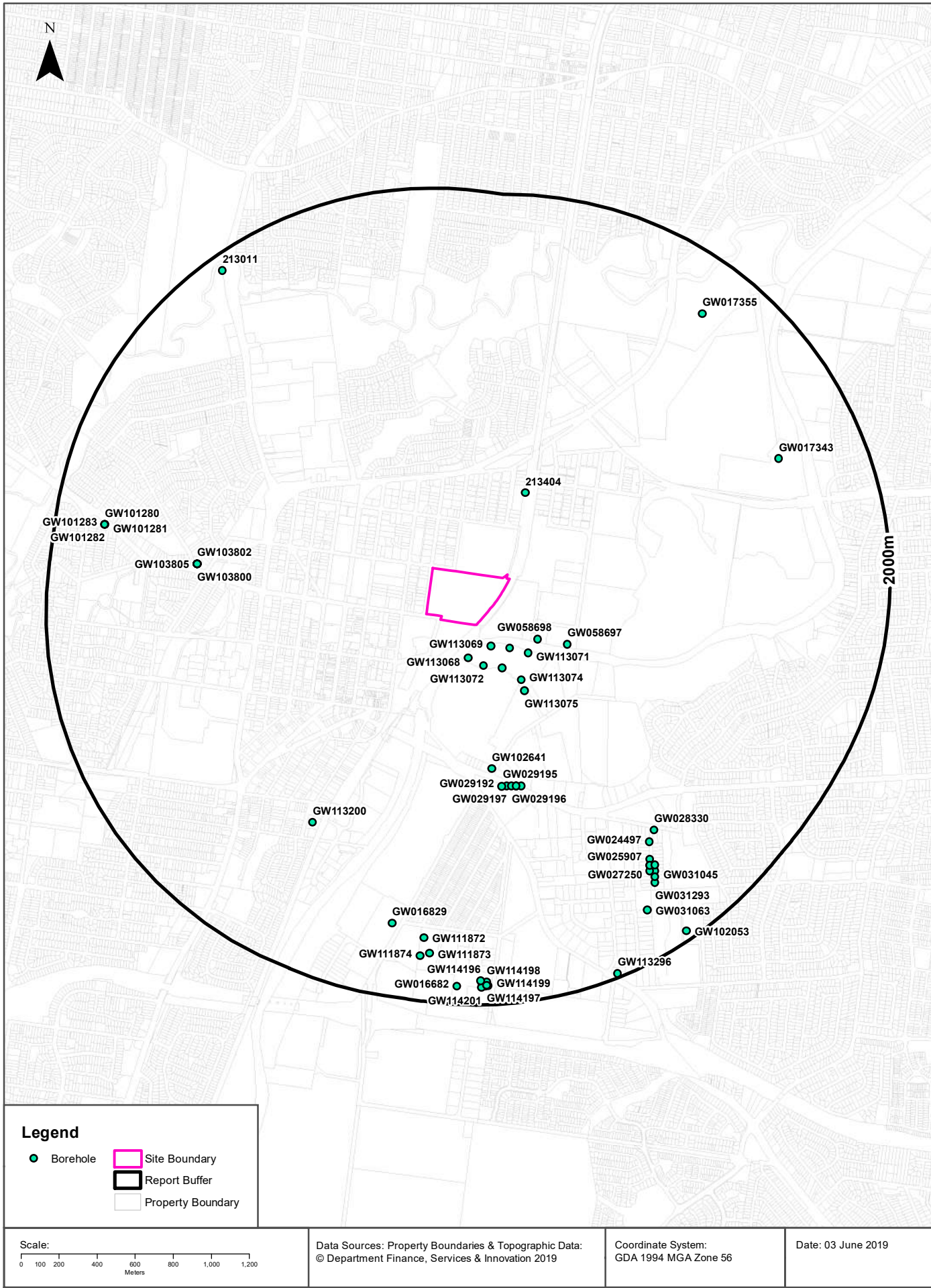
Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

Management Zone No.	Restriction	Distance	Direction
N/A	No records in buffer		

Botany Groundwater Management Zones Data Source : NSW Department of Primary Industries

Groundwater Boreholes

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170



Hydrogeology & Groundwater

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW113 069	10BL163 955	Bore	Private	Monitoring Bore	Monitoring Bore	Metal Manufactur es	10/07/2003	10.00	10.00					136m	South East
GW113 068	10BL163 955	Bore	Private	Monitoring Bore	Monitoring Bore	Metal Manufactur es	10/07/2003	10.00	10.00					179m	South
GW113 070	10BL163 955	Bore	Private	Monitoring Bore	Monitoring Bore	Metal Manufactur es	10/07/2003	10.00	10.00					214m	South East
GW113 072	10BL163 955	Bore	Private	Monitoring Bore	Monitoring Bore	Metal Manufactur es	11/07/2003	9.50	9.50					218m	South
GW113 073	10BL163 955	Bore	Private	Monitoring Bore	Monitoring Bore	Metal Manufactur es	11/07/2003	10.00	10.00					265m	South East
GW058 698		Bore	Private		G/water Xplore		01/07/1984	19.50	19.50					297m	South East
GW113 071	10BL163 955	Bore	Private	Monitoring Bore	Monitoring Bore	Metal Manufactur es	10/07/2003	10.00	10.00					304m	South East
GW113 074	10BL163 955	Bore	Private	Monitoring Bore	Monitoring Bore	Metal Manufactur es	11/07/2003	10.00	10.00					375m	South East
GW113 075	10BL163 955	Bore	Private	Monitoring Bore	Monitoring Bore	Metal Manufactur es	11/07/2003	9.50	9.50					429m	South East
213404					UNK								9.13	438m	North East
GW058 697	10BL130 184	Bore	Private	Test Bore	G/water Xplore		01/07/1984	19.20	19.20					438m	South East
GW102 641	10BL158 829	Bore		Industrial	Industrial		01/01/1998	16.50	16.70	420				763m	South
GW029 192	10BL022 597	Well	Private	Waste Disposal	Waste Disposal		01/11/1968	2.40	2.40					860m	South
GW029 197	10BL023 677	Well	Private	Waste Disposal	Waste Disposal		01/11/1968	2.40	2.40					864m	South
GW029 196	10BL023 676	Well	Private	Waste Disposal	Waste Disposal		01/11/1968	2.40	2.40					869m	South
GW029 195	10BL023 675	Well	Private	Waste Disposal	Waste Disposal		01/11/1968	2.40	2.40					874m	South
GW029 194	10BL023 674	Well	Private	Waste Disposal	Waste Disposal		01/11/1968	2.40	2.40					874m	South
GW029 193	10BL022 598	Well	Private	Waste Disposal	Waste Disposal		01/11/1968	2.40	2.40					880m	South
GW103 801	10BL156 592	Bore		Monitoring Bore	Monitoring Bore		11/03/1992	3.00	3.00					1229m	West
GW103 802	10BL156 592	Bore		Monitoring Bore	Monitoring Bore		10/04/1995	5.00	5.00					1229m	West
GW103 800	10BL156 592	Bore		Monitoring Bore	Monitoring Bore		11/03/1992	3.00	3.00					1229m	West
GW103 804	10BL156 592	Bore		Monitoring Bore	Monitoring Bore		10/04/1995	3.00	3.00					1229m	West
GW103 803	10BL156 592	Bore		Monitoring Bore	Monitoring Bore		10/04/1995	3.00	3.00					1229m	West
GW103 799	10BL156 592	Bore		Monitoring Bore	Monitoring Bore		12/06/1991	3.30	3.30					1229m	West

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW103 805	10BL156 592	Bore		Monitoring Bore	Monitoring Bore		10/03/1995	4.00	4.00					1229m	West
GW113 200	10BL601 833	Bore	Local Govt	Monitoring Bore	Monitoring Bore	The Prospect CC	12/11/2013	10.00	10.00					1250m	South West
GW028 330	10BL019 162, 10BL133 976, 10WA10 8144	Well	Private	Waste Disposal	Waste Disposal		01/01/1966	6.40	6.40					1429m	South East
GW024 497	10BL015 943, 10WA10 8118	Bore	Private	Waste Disposal	Waste Disposal		01/10/1965	3.00	3.00					1461m	South East
GW025 907	10BL016 624	Well	Private	Waste Disposal	Waste Disposal		01/04/1966	2.40	2.40					1535m	South East
GW017 343	10BL008 336	Bore	Private	Irrigation	Irrigation			30.40		3001-7000 ppm				1550m	North East
GW027 745	10BL021 438	Well	Private	Waste Disposal	Waste Disposal		01/02/1968	2.40	2.40					1560m	South East
GW027 249	10BL019 853	Well	Private	Waste Disposal	Waste Disposal		01/07/1967	2.40	2.40					1560m	South East
GW031 044	10BL100 566	Well	Private	Waste Disposal	Waste Disposal		01/10/1968	2.40	2.40					1575m	South East
GW027 250	10BL019 852	Well	Private	Waste Disposal	Waste Disposal		01/07/1967	2.40	2.40					1586m	South East
GW031 045	10BL100 567	Well	Private	Waste Disposal	Waste Disposal		01/10/1968	2.40	2.40					1600m	South East
GW016 829	10BL007 470, 10WA10 8076	Well	Private	Domestic	General Use		01/02/1958	5.40						1618m	South
GW029 639	10BL023 364	Well	Private	Waste Disposal	Waste Disposal		01/02/1969	2.50	2.50					1626m	South East
GW031 293	10BL100 885, 10WA10 8166	Well	Private	Waste Disposal	Waste Disposal		01/12/1968	2.40	2.40					1651m	South East
GW111 872	10BL602 768	Bore	Private	Monitoring Bore	Monitoring Bore		31/10/2008	6.00	6.00					1670m	South
GW017 355	10BL008 335, 10BL008 337, 10BL008 338, 10BL008 340	Bore	Private	Irrigation	Irrigation			9.40	9.40					1712m	North East
GW101 280	10BL157 686	Bore	Private	Monitoring Bore	Monitoring Bore		11/06/1996	6.00	6.00		1.34			1738m	West
GW101 283	10BL157 686	Bore	Private	Monitoring Bore	Monitoring Bore		11/06/1996	4.60	4.60		1.40			1738m	West
GW101 281	10BL157 686	Bore	Private	Monitoring Bore	Monitoring Bore		11/06/1996	3.50	3.50		1.30			1738m	West
GW101 282	10BL157 686	Bore	Private	Monitoring Bore	Monitoring Bore		11/06/1996	4.00	4.00		1.10			1738m	West
GW111 873	10BL602 768	Bore	Private	Monitoring Bore	Monitoring Bore		30/10/2008	7.20	7.20					1747m	South
GW031 063	10BL100 684, 10WA10 8164	Well	Private	Waste Disposal	Waste Disposal		01/05/1969	2.40	2.40					1749m	South East
GW111 874	10BL602 768	Bore	Private	Monitoring Bore	Monitoring Bore		30/10/2008	6.00	6.00					1768m	South
GW114 196	10BL604 047	Bore	Private	Monitoring Bore	Monitoring Bore		01/06/2010	10.00	10.00					1873m	South
GW114 198	10BL604 047	Bore	Private	Monitoring Bore	Monitoring Bore		01/06/2010	4.00	4.00					1881m	South
GW114 202	10BL604 047	Bore	Private	Monitoring Bore	Monitoring Bore		01/06/2010	2.00	2.00					1894m	South

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW114 197	10BL604 047	Bore	Private	Monitoring Bore	Monitoring Bore		01/06/2010	6.00	6.00					1899m	South
GW114 199	10BL604 047	Bore	Private	Monitoring Bore	Monitoring Bore		01/06/2010	4.00	4.00					1901m	South
GW016 682	10BL011 770	Well	Private	Waste Disposal	Waste Disposal		01/09/1961	3.90	4.00					1905m	South
GW114 200	10BL604 047	Bore	Private	Monitoring Bore	Monitoring Bore		01/06/2010	5.00	5.00					1905m	South
GW114 201	10BL604 047	Bore	Private	Monitoring Bore	Monitoring Bore		01/06/2010	2.00	2.00					1911m	South
213011					UNK								11.92	1915m	North West
GW102 053	10BL156 683, 10WA10 9383	Bore		Recreation (groundwater)	Recreation (groundwater r)		14/06/1995		12.00		2.40	0.300		1953m	South East
GW113 296	10BL604 308	Bore	Private	Monitoring Bore	Monitoring Bore	7-Eleven - Moorebank	01/01/2011	8.00	8.00					1980m	South

Borehole Data Source : NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation for all bores prefixed with GW. All other bores © Commonwealth of Australia (Bureau of Meteorology) 2015. Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Hydrogeology & Groundwater

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Driller's Logs

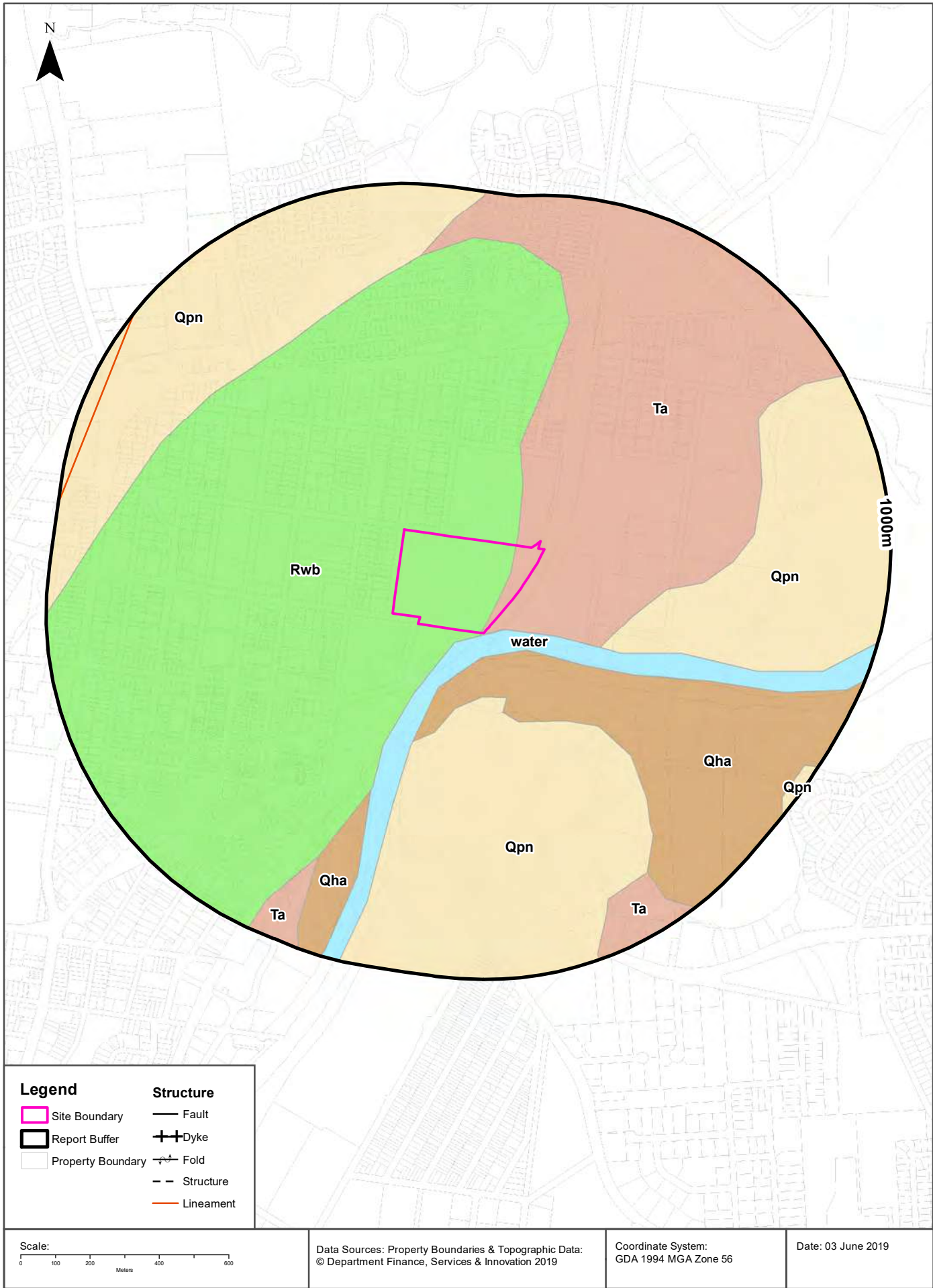
Drill log data relevant to the boreholes within the dataset buffer:

Groundwater No	Drillers Log	Distance	Direction
GW058698	0.00m-11.50m Clay Black Grey 11.50m-12.00m Clay Coarse Sandy Gravel 12.00m-19.00m Clay Grey Sandy 19.00m-19.50m Shale	297m	South East
GW058697	0.00m-5.00m Clay Stiff 5.00m-6.00m Sand Soft Silty 6.00m-8.00m Sand Coarse Silty, Wood Charcoal 8.00m-14.00m Sand Grey Silty Coarse Water Supply 14.00m-16.00m Clay Grey Silty, Some Coarse Sand 16.00m-18.30m Clay Grey Silty 18.30m-19.20m Slate Clayey	438m	South East
GW102641	0.00m-2.00m BROWN LT. CLAY 2.00m-3.40m CLAY RED AND BROWN 3.40m-10.50m SILT LT. BROWN AND FINE SAND 10.50m-14.20m SILT CLAYING BROWN YELLOW 14.20m-16.10m GRAVELS 16.10m-16.70m SHALE	763m	South
GW029192	0.00m-2.43m Loam Sandy	860m	South
GW029197	0.00m-2.43m Loam Sandy	864m	South
GW029196	0.00m-2.43m Loam Sandy	869m	South
GW029194	0.00m-2.43m Loam Sandy	874m	South
GW029195	0.00m-2.43m Loam Sandy	874m	South
GW029193	0.00m-2.43m Loam Sandy	880m	South
GW103799	0.00m-0.10m CONCRETE 0.10m-3.00m SAND/GREY/BROWN MEDIUM 3.00m-3.30m CLAY GREY/BROWN SOFT SILTY	1229m	West
GW103800	0.00m-0.20m CONCRETE 0.20m-1.00m FILL,SAND,DARK GREY 1.00m-3.00m CLAY,GREY,BROWN,SEMIPLASTIC	1229m	West
GW103801	0.00m-0.10m CONCRETE 0.10m-1.00m FILL,SAND/GRAVEL,DARK GREY 1.00m-3.00m CLAY,GREY BROWN	1229m	West
GW103802	0.00m-0.10m CONCRETE 0.10m-0.20m SANDY FILL 0.20m-1.50m CLAY BLACK,SOFT,MOIST 1.50m-4.10m CLAY YELLO BROWN,SOFT 4.10m-5.00m CLAY HIGHLY WEATHERED,BROWN	1229m	West
GW103803	0.00m-0.10m CONCRETE 0.10m-0.20m SANDY FILL 0.20m-1.50m CLAY GREY YELLOW BROWN 1.50m-3.00m CLAY,YELLOW BROWN SOFT PUGGY	1229m	West
GW103804	0.00m-0.10m CONCRETE 0.10m-0.20m SANDY GRAVELLY FILL,BLACK 0.20m-3.00m CLAY,BLACK,YELLOW BROWN,SOFT	1229m	West
GW103805	0.00m-0.20m CONCRETE GRAVELLY FILL 0.20m-1.50m CLAY ORANGY BROWN 1.50m-2.50m CLAY YELLOW BROWN,PUGGY 2.50m-4.00m SANDY CLAY	1229m	West

Groundwater No	Drillers Log	Distance	Direction
GW028330	0.00m-5.48m Driller 5.48m-6.40m Sand Nominal Water Supply	1429m	South East
GW024497	0.00m-0.30m Topsoil 0.30m-1.21m Clay 1.21m-2.43m Loam Sandy 2.43m-3.04m Sand	1461m	South East
GW025907	0.00m-0.91m Clay 0.91m-1.52m Loam Sandy 1.52m-2.43m Sand	1535m	South East
GW027249	0.00m-1.52m Clay Soil 1.52m-2.43m Sand	1560m	South East
GW027745	0.00m-1.52m Loam Sandy 1.52m-2.43m Sand	1560m	South East
GW031044	0.00m-2.44m Loam Sandy	1575m	South East
GW027250	0.00m-1.52m Clay Soil 1.52m-2.43m Sand	1586m	South East
GW031045	0.00m-2.44m Loam Sandy	1600m	South East
GW031293	0.00m-1.83m Clay 1.83m-2.44m Loam Sandy	1651m	South East
GW111872	0.00m-0.10m SURFACE/GRASS 0.10m-0.80m FILL, SAND, M/GRAINED, NO ODOUR 0.80m-1.70m SANDY CLAY, BROWN WITH REDDISH MOTTLING 1.70m-2.00m SANDY GRAVEL, DARK BROWN 2.00m-3.00m CLAY BROWN, M/PLASTICITY, RED MOTTLING 3.00m-4.20m CLAY MORE SILTY 4.20m-6.00m SAND, GREY, FINE GRAINED	1670m	South
GW017355	0.00m-4.26m Clay Yellow 4.26m-5.02m Clay Sandy 5.02m-6.09m Sand Yellow Wet 6.09m-8.07m Sand Yellow Water Supply 8.07m-8.22m Clay Sandy 8.22m-9.44m Sand Coarse	1712m	North East
GW101280	0.00m-0.20m sandy clay (fill) 0.20m-4.20m clay with minor gravel 4.20m-6.00m interbedded gravels and clays	1738m	West
GW101281	0.00m-1.00m clayey sand (fill) 1.00m-3.50m silty to sandy clay	1738m	West
GW101282	0.00m-1.00m sand (fill) 1.00m-3.80m sandy to gravelly clay 3.80m-4.00m clayey gravel	1738m	West
GW101283	0.00m-0.30m gravelly sand (fill) 0.30m-4.00m silt to sandy clay 4.00m-4.60m interbedded sandy gravel and clay	1738m	West
GW111873	0.00m-0.10m ASPHALT 0.10m-0.60m GRAVELLY SAND, BROWN, FINE GRAVEL 0.60m-0.90m SANDY CLAY, BROWN/ORANGE 0.90m-1.60m SAND BROWN RED MOTTLED 1.60m-2.40m SANDY CLAY YELLOWISH BROWN 2.40m-3.60m CLAY RED WITH BROWN AND GREY MOTTLING 3.60m-4.00m SILTY CLAY 4.00m-4.30m SANDY SILT 4.30m-7.20m SAND BROWN, FINE TO MED GRAINED, SILT	1747m	South
GW031063	0.00m-1.52m Clay 1.52m-2.13m Loam Sandy 2.13m-2.43m Sand Water Supply	1749m	South East
GW111874	0.00m-0.10m SURFACE ASPHALT 0.10m-0.30m FILL, GRAVELLY SAND, DARK BROWN 0.30m-1.50m FILL, SAND YELLOW 1.50m-2.40m SANDY CLAY YELLOW BROWN 2.40m-3.30m SANDY SILT BROWN 3.30m-3.60m SILTY SAND, GREY, BROWN MOTTLING 3.60m-6.00m SAND, GREY, MED. GRAINED, ROUNDED	1768m	South
GW016682	0.00m-0.91m Sand 0.91m-1.82m Clay Hard Cemented 1.82m-3.96m Sand Water Supply	1905m	South

Groundwater No	Drillers Log	Distance	Direction
GW102053	0.00m-1.00m Brown Clay 1.00m-3.00m Clay 3.00m-6.00m Sandy Clay 6.00m-9.00m Sandy 9.00m-10.00m Sandy Clay 10.00m-12.00m Black Clay	1953m	South East

Drill Log Data Source: NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corp
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Geology

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Rwb	Shale, carbonaceous claystone, claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff	Bringelly Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
Ta	Clayey quartzose sand, and clay				Tertiary		Penrith	1:100,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Qha	Quartz sand, silty sand, silt and clay				Quaternary		Penrith	1:100,000
Qpn	Medium-grained sand, clay and silt				Quaternary		Penrith	1:100,000
Rwb	Shale, carbonaceous claystone, claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff	Bringelly Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
Ta	Clayey quartzose sand, and clay				Tertiary		Penrith	1:100,000
water							Penrith	1:100,000

Geological Structures

What are the Geological Structures onsite?

Feature	Name	Description	Map Sheet	Dataset
No features				1:100,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Dataset
Lineament		Coastal Lineament	Penrith	1:100,000

Geological Data Source : NSW Department of Industry, Resources & Energy

© State of New South Wales through the NSW Department of Industry, Resources & Energy

Naturally Occurring Asbestos Potential

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Naturally Occurring Asbestos Potential

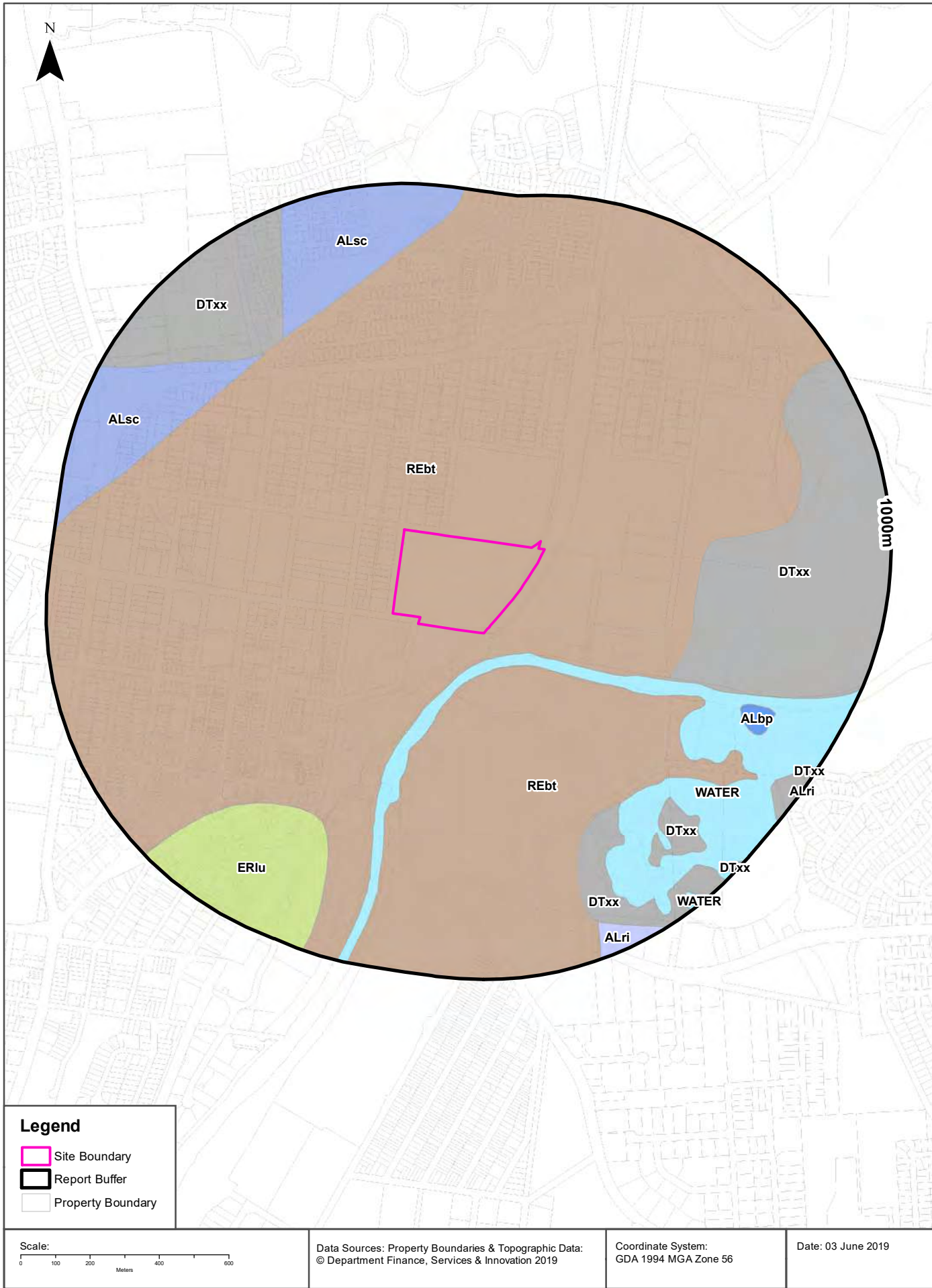
Naturally Occurring Asbestos Potential within the dataset buffer:

Potential	Sym	Strat Name	Group	Formation	Scale	Min Age	Max Age	Rock Type	Dom Lith	Description	Dist	Dir
No records in buffer												

Mining Subsidence District Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy

Soil Landscapes

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170



Soils

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Soil Landscapes

What are the onsite Soil Landscapes?

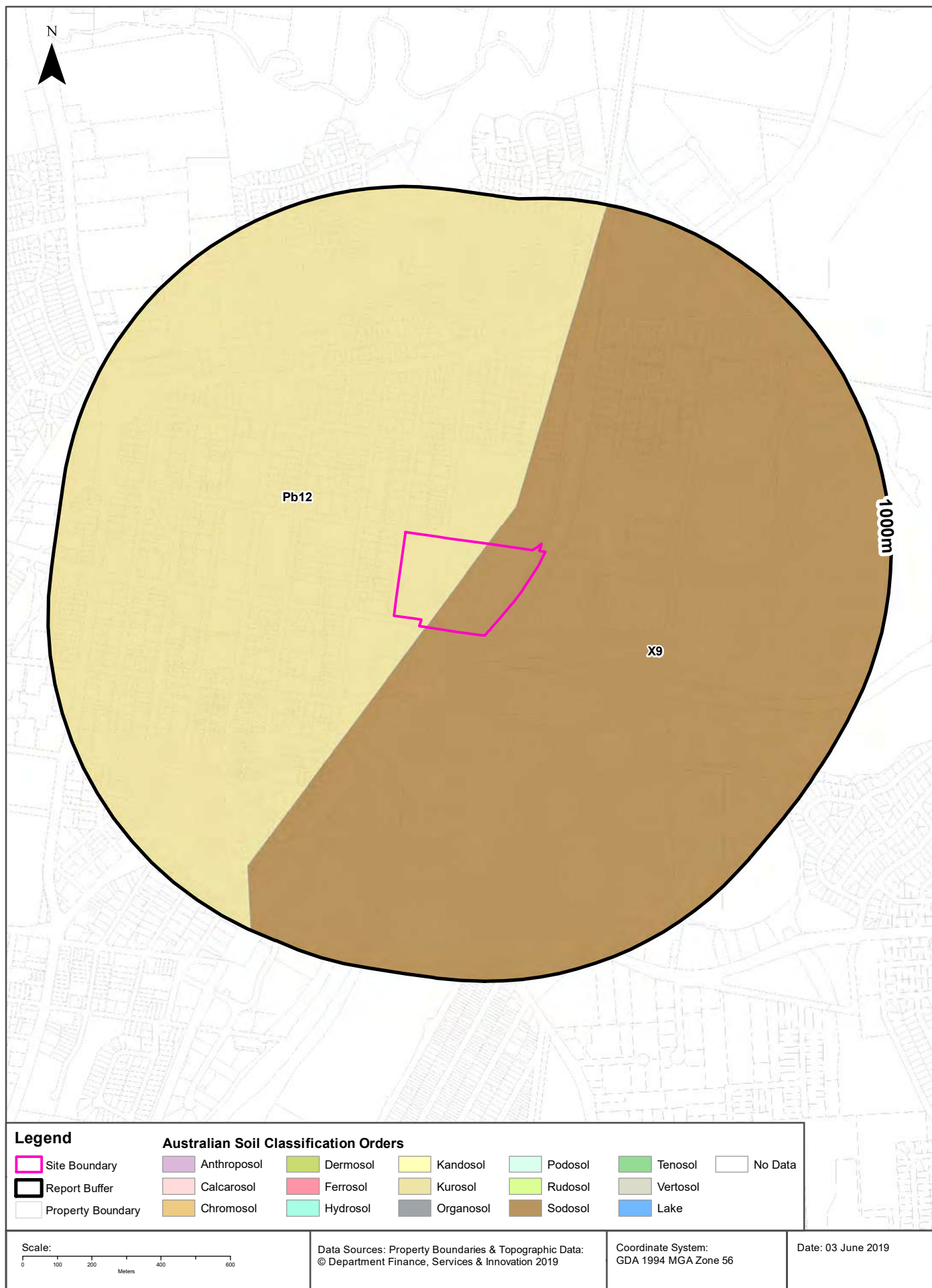
Soil Code	Name	Group	Process	Map Sheet	Scale
REbt	BLACKTOWN		RESIDUAL	Penrith	1:100,000

What are the Soil Landscapes within the dataset buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
ALbp	BERKSHIRE PARK		ALLUVIAL	Penrith	1:100,000
ALri	RICHMOND		ALLUVIAL	Penrith	1:100,000
ALsc	SOUTH CREEK		ALLUVIAL	Penrith	1:100,000
DTxx	DISTURBED TERRAIN		DISTURBED TERRAIN	Penrith	1:100,000
ERlu	LUDDENHAM		EROSIONAL	Penrith	1:100,000
REbt	BLACKTOWN		RESIDUAL	Penrith	1:100,000
WATER	WATER		WATER	Penrith	1:100,000

Soils Landscapes Data Source : NSW Office of Environment and Heritage

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Soils

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Atlas of Australian Soils

Soil mapping units and Australian Soil Classification orders within the dataset buffer:

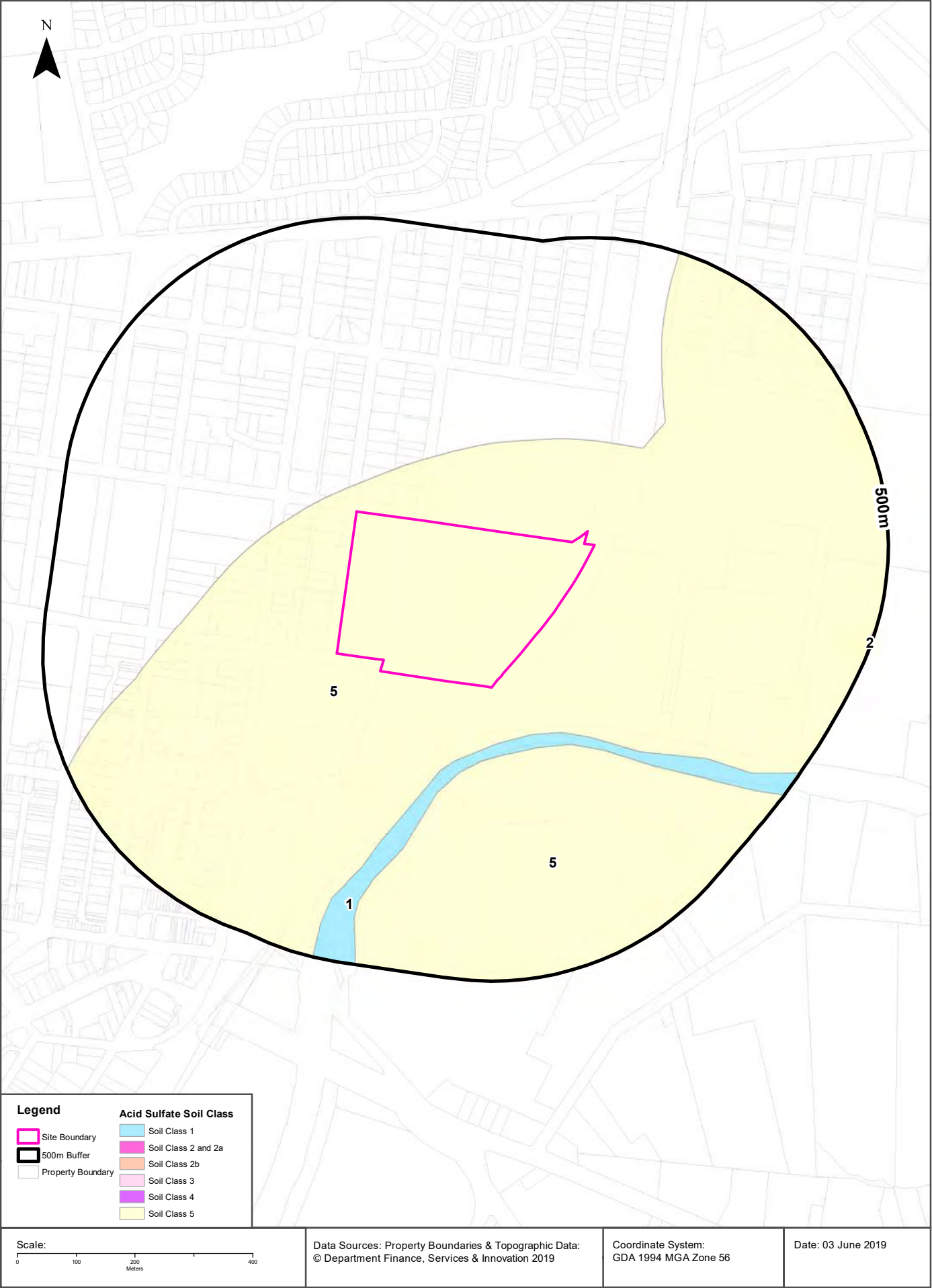
Map Unit Code	Soil Order	Map Unit Description	Distance
Pb12	Kurosol	Gently rolling to rounded hilly country with some steep slopes and broad valleys: chief soils are hard acidic red soils (Dr2.21) with hard neutral and acidic yellow mottled soils (Dy3.42 and Dy3.41) on lower slopes and in valleys. Associated are small areas of various soils including (Gn3.54) on some ridges, (Dr3.31) on some slopes; (Dr2.23) in saddles and some mid-slope positions, and some low-lying swampy areas of (Uf6) soils and (Uc1.2) soils with peaty surfaces. Small areas of other soils such as (Db1.2) are likely throughout.	0m
X9	Sodosol	Plains--former river terraces and levees: chief soils are sandy neutral yellow mottled soils (Dy5.42) with leached sands (Uc2.3) on the broader plains. Associated are (Dy3.41, Dy3.42, and Dy3.43) soils, some containing ironstone gravels, in relatively low-lying areas and depressions, and (Dr2.2), (Gn2.15), and (Gn2.18) soils on levees. Areas of other soils, possibly including (Um4.31), occur throughout what is a complex unit. As mapped, areas of units Gb6 and Sp1 are included.	0m

Atlas of Australian Soils Data Source: CSIRO

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Acid Sulfate Soils

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170



Acid Sulfate Soils

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Environmental Planning Instrument - Acid Sulfate Soils

What is the on-site Acid Sulfate Soil Plan Class that presents the largest environmental risk?

Soil Class	Description	EPI Name
5	Works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the watertable is likely to be lowered below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk	Liverpool Local Environmental Plan 2008

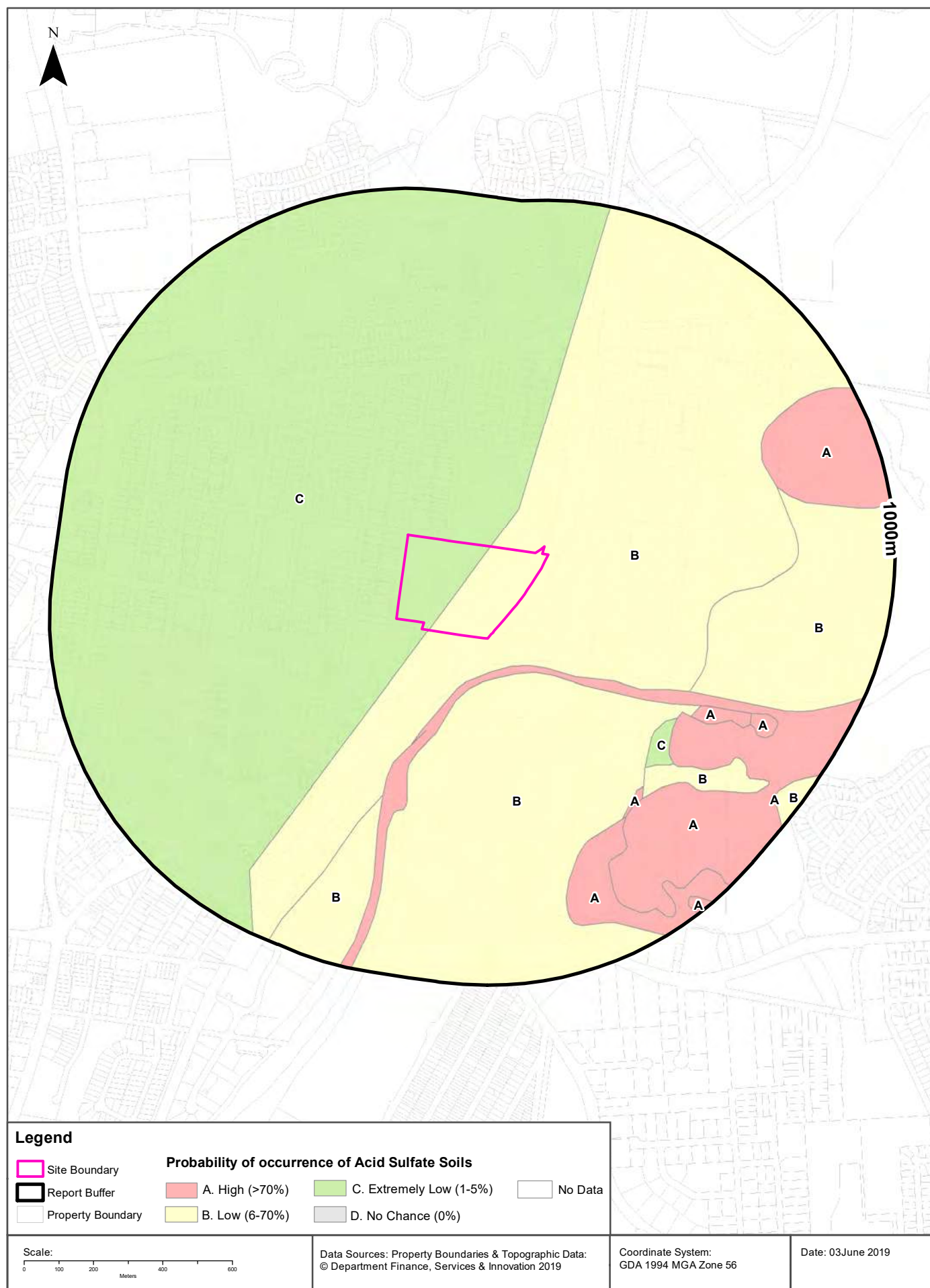
If the on-site Soil Class is 5, what other soil classes exist within 500m?

Soil Class	Description	EPI Name	Distance	Direction
1	Any works present an environmental risk	Liverpool Local Environmental Plan 2008	96m	South
2	Works below natural ground surface present an environmental risk; Works by which the watertable is likely to be lowered present an environmental risk	Liverpool Local Environmental Plan 2008	494m	East

Acid Sulfate Data Source Accessed 23/10/2018: NSW Crown Copyright - Planning and Environment
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Atlas of Australian Acid Sulfate Soils

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170



Acid Sulfate Soils

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

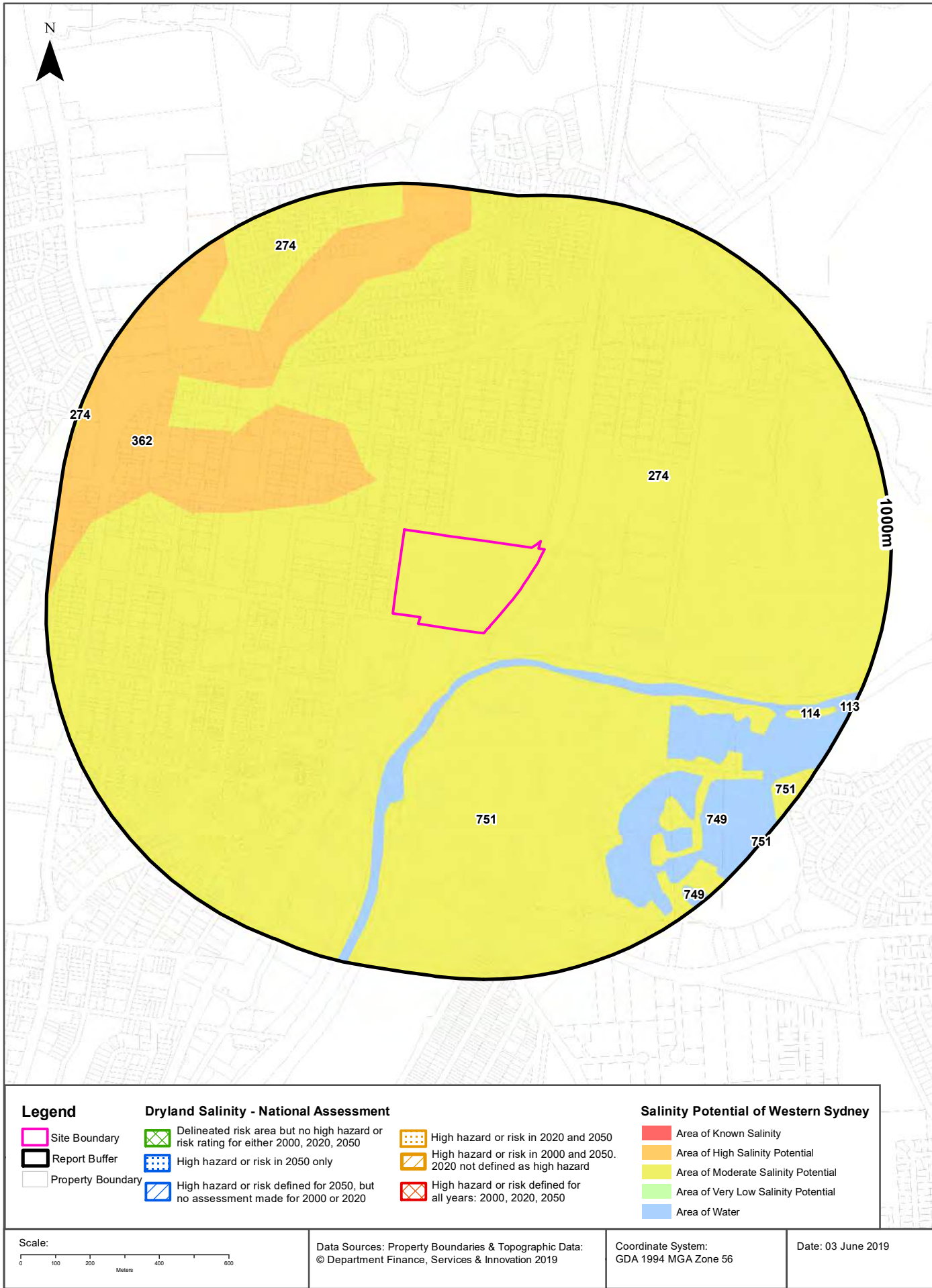
Class	Description	Distance
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m
A	High Probability of occurrence. >70% chance of occurrence.	96m

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

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Dryland Salinity

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170



Dryland Salinity

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

Is there Dryland Salinity - National Assessment data within the dataset buffer?

No

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A	N/A	N/A

Dryland Salinity Data Source : National Land and Water Resources Audit

The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.

In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

Dryland Salinity Potential of Western Sydney

Dryland Salinity Potential of Western Sydney within the dataset buffer?

Feature Id	Classification	Description	Distance	Direction
274	MODERATE	Area of Moderate Salinity Potential	0m	Onsite
749	WATER	Area of Water	89m	South East
751	MODERATE	Area of Moderate Salinity Potential	108m	South
362	HIGH	Area of High Salinity Potential	165m	South West
114	MODERATE	Area of Moderate Salinity Potential	837m	East
113	MODERATE	Area of Moderate Salinity Potential	975m	East

Dryland Salinity Potential of Western Sydney Data Source : NSW Office of Environment and Heritage

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Mining Subsidence Districts

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
There are no Mining Subsidence Districts within the report buffer		

Mining Subsidence District Data Source: © Land and Property Information (2016)
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State Environmental Planning Policy

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

State Significant Precincts

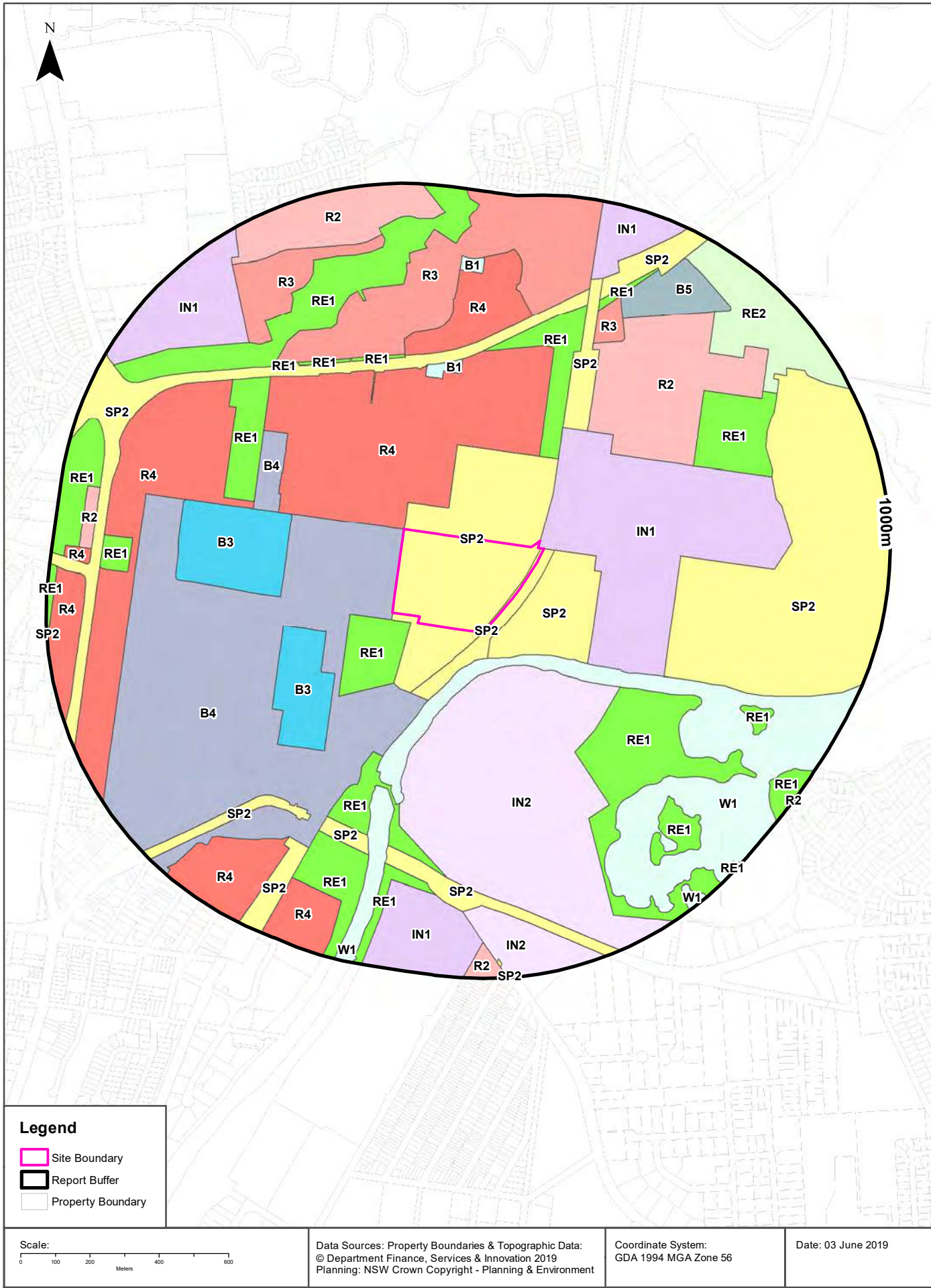
What SEPP State Significant Precincts exist within the dataset buffer?

Map Id	Precinct	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
N/A	No Records in Buffer							

State Environment Planning Policy Data Source: NSW Crown Copyright - Planning & Environment
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EPI Planning Zones

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170



Environmental Planning Instrument

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Land Zoning

What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
SP2	Infrastructure	Health Services & Educational Facilities	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		0m	Onsite
SP2	Infrastructure	Railway	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		0m	Onsite
B4	Mixed Use		Liverpool Local Environmental Plan 2008	22/03/2019	22/03/2019	22/03/2019	Amendment No 56	0m	South West
IN1	General Industrial		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		0m	East
R4	High Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		0m	North
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		19m	South West
SP2	Infrastructure	Health Services & Educational Facilities	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		27m	East
W1	Natural Waterways		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		76m	East
IN2	Light Industrial		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		112m	South
B3	Commercial Core		Liverpool Local Environmental Plan 2008	04/09/2018	04/09/2018	22/03/2019	Amendment No 52	199m	South West
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		241m	North East
R2	Low Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		323m	North East
B3	Commercial Core		Liverpool Local Environmental Plan 2008	04/09/2018	04/09/2018	22/03/2019	Amendment No 52	327m	West
SP2	Infrastructure	Railway	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		333m	North East
B4	Mixed Use		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		366m	North West
SP2	Infrastructure	Classified Road	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		376m	West
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	26/08/2011	26/08/2011	22/03/2019	Amendment No 8	394m	South
SP2	Infrastructure	Sewerage System	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		394m	East
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		403m	South East
R4	High Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		440m	West
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		440m	North West
B1	Neighbourhood Centre		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		447m	North
W1	Natural Waterways		Liverpool Local Environmental Plan 2008	26/08/2011	26/08/2011	22/03/2019	Amendment No 8	483m	South
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		493m	North East
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		495m	North
R4	High Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		502m	North

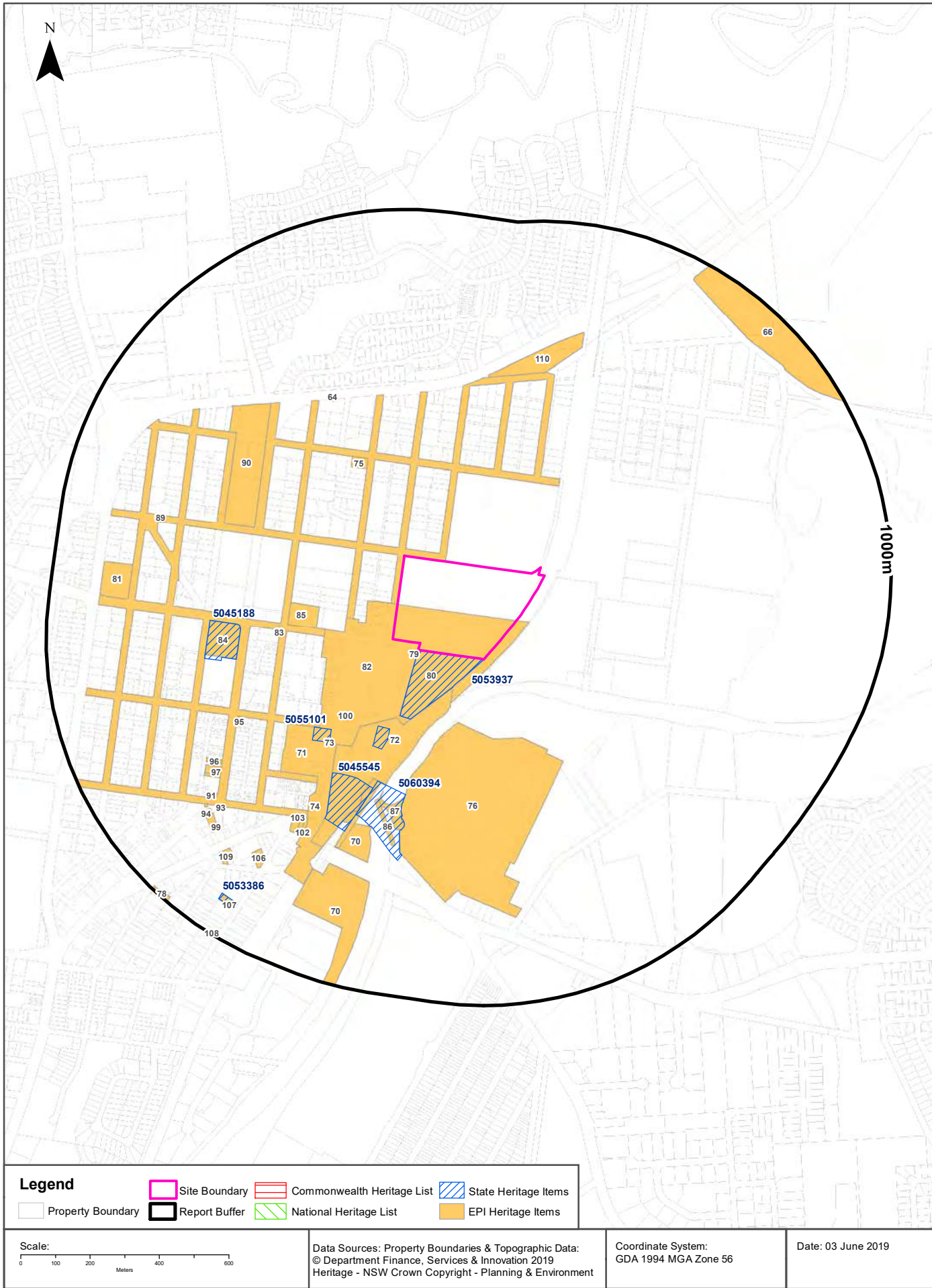
Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R3	Medium Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		504m	North
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		509m	North West
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		572m	North West
R3	Medium Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		590m	North East
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		603m	North
SP2	Infrastructure	Classified Road	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		617m	South West
SP2	Infrastructure	Classified Road	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		649m	South East
R3	Medium Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		665m	North West
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		665m	South West
B5	Business Development		Liverpool Local Environmental Plan 2008	09/12/2011	09/12/2011	22/03/2019	Amendment No 18	684m	North East
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		686m	North East
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		700m	South
IN1	General Industrial		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		701m	North West
R4	High Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		713m	South West
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		713m	South East
SP2	Infrastructure	Railway	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		713m	South West
SP2	Infrastructure	Classified Road	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		717m	North East
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		719m	South East
RE2	Private Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		730m	North East
IN1	General Industrial		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		745m	South
B1	Neighbourhood Centre		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		764m	North
IN1	General Industrial		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		770m	North East
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		773m	West
IN2	Light Industrial		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		789m	South
R4	High Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		820m	South West
R2	Low Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		834m	North
R2	Low Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		886m	West
R4	High Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		886m	West
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		886m	West
R4	High Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		890m	West
R2	Low Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		899m	South
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		911m	East
SP2	Infrastructure	Classified Road	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		944m	South
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		976m	South East

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE1	Public Recreation		Liverpool Local Environmental Plan 2008	23/11/2012	23/11/2012	22/03/2019	Amendment No 23	977m	South West
SP2	Infrastructure	Classified Road	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		979m	South
R2	Low Density Residential		Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		994m	East
SP2	Infrastructure	Electricity Transmission	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	22/03/2019		994m	West

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Heritage Items

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170



Heritage

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Commonwealth Heritage List

What are the Commonwealth Heritage List Items located within the dataset buffer?

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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National Heritage List

What are the National Heritage List Items located within the dataset buffer?

Note. Please click on Place Id to activate a hyperlink to online website.

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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State Heritage Register - Curtilages

What are the State Heritage Register Items located within the dataset buffer?

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
5053937	Liverpool TAFE College (former Liverpool Hospital)	College Street, Liverpool	Liverpool	11/12/2009	01809	2288	0m	South
5045545	Liverpool Railway Station group	Great Southern Railway, Liverpool	Liverpool	02/04/1999	01181	2387	243m	South West
5055101	Liverpool Courthouse (former) and Potential Archaeological Site	251 Bigge Street, Liverpool	Liverpool	03/11/2017	01999	3176	315m	South West
5060394	Liverpool Weir	Georges River, Heathcote Road, near Newbridge Road, Liverpool	Liverpool	13/08/2010	01804	2309	396m	South
5045188	St. Luke's Anglican Church	Elizabeth Drive, Liverpool	Liverpool	02/04/1999	00086	280	440m	West
5053386	Rosebank	17 Speed Street Liverpool	Liverpool	27/05/2005	01729	1991	883m	South West

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Environmental Planning Instrument - Heritage

What are the EPI Heritage Items located within the dataset buffer?

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
	Bigge Park Conservation Area	Conservation Area - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	0m	Onsite
79	Cast-iron letterbox	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	0m	South West
80	Liverpool College (TAFE) site, including Blocks A'G, chimneystack, fences, gatehouses and archaeolo*	Item - General	State	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	0m	South
89	Plan of Town of Liverpool (early town centre street layout'Hoddle 1827)	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	0m	West
82	Bigge Park	Item - General	State	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	19m	South West
72	Liverpool Railway Station Group, including station building, goods shed and jib crane	Item - General	State	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	93m	South West
76	Pirelli Power Cables and Systems Building (formerly MM Cables Factory, and Cable Makers Australia F*	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	191m	South
85	All Saints Roman Catholic School	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	223m	West
100	Dr James Pirie Child Welfare Centre Building (formerly Child Welfare Centre)	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	233m	South West
75	Dwelling	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	273m	North West
73	Former Liverpool Court House	Item - General	State	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	315m	South West
83	Milestone	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	320m	West
71	Liverpool Public School	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	352m	South West
87	Liverpool Weir	Item - General	State	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	419m	South
84	St Luke's Anglican Church Group, including landscaping, church, hall, headstone and memorial gates *	Item - General	State	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	440m	West
90	Liverpool Memorial Pioneer's Park, (formerly St Luke's Cemetery and Liverpool Cemetery)	Item - General	State	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	440m	North West
86	Pylons (former Liverpool railway bridge)	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	448m	South

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
95	The Corner Pub (former Liverpool Hotel)	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	489m	South West
64	Milestone	Item - General	State	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	491m	North West
74	Commercial Hotel (former Marsden's Hotel)	Item - General	State	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	512m	South West
70	Light Horse Park	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	529m	South West
110	Berryman Reserve	Item - Landscape	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	544m	North
101	Commercial building	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	571m	South West
102	Commercial building (former out-building to former Golden Fleece Hotel and former Eugene's laundry)	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	573m	South West
103	Golden Fleece Hotel	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	578m	South West
96	Commercial building	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	603m	South West
97	Legend Hotel	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	617m	South West
98	Commercial building	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	634m	South West
70	Light Horse Park	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	668m	South
91	Commercial building (formerly Rural Bank and State Bank)	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	674m	South West
93	Macquarie Monument	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	688m	South West
106	Residential building ('Del Rosa')	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	715m	South West
92	Boer War Memorial, including memorial to Private A.E Smith	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	716m	South West
94	Row of 3 palm trees	Item - Landscape	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	718m	South West
99	Memorial School of Arts	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	721m	South West
109	Liverpool Fire Station	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	765m	South West
81	Apex Park (first Liverpool Cemetery)	Item - General	State	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	773m	West
107	Residential building ('Rosebank') (former Queen's College)	Item - General	State	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	883m	South West
66	Warwick farm Racecourse Group	Item - General	State	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	890m	North East

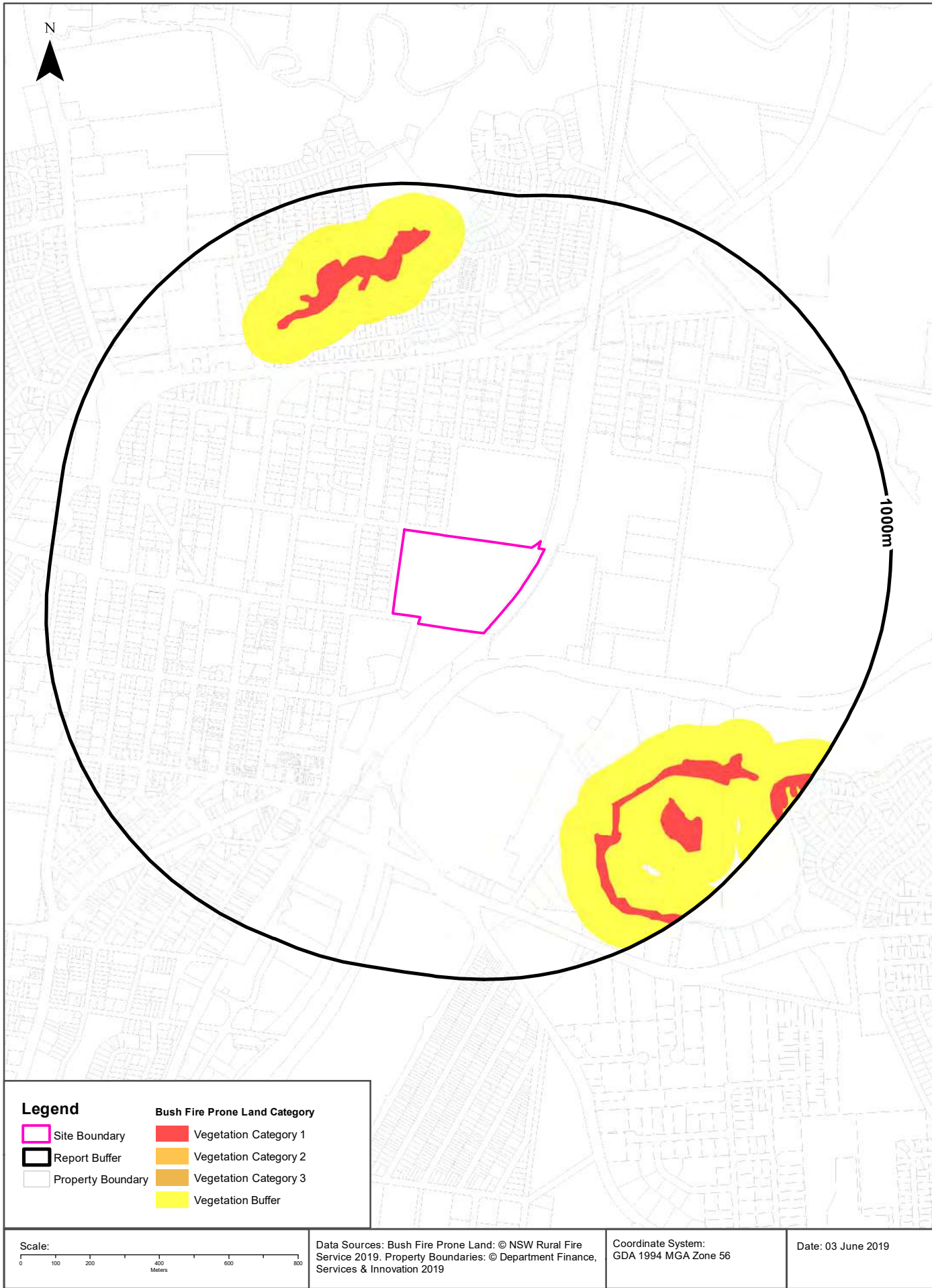
Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
78	Lyndeer House and stables	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	982m	South West
108	Cottage	Item - General	Local	Liverpool Local Environmental Plan 2008	29/08/2008	29/08/2008	08/04/2016	993m	South West

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Natural Hazards - Bush Fire Prone Land

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170



Natural Hazards

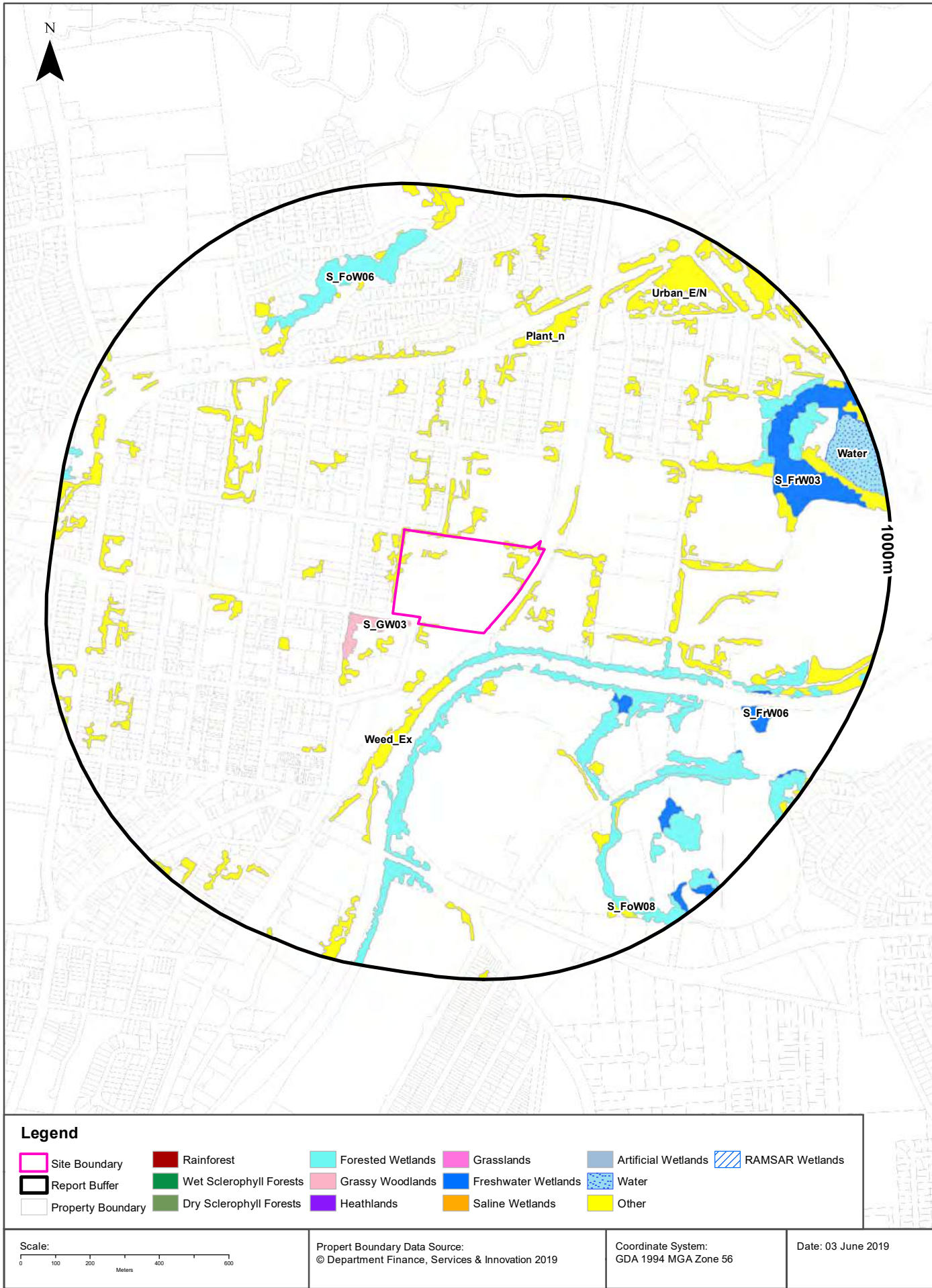
Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Bush Fire Prone Land

What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Buffer	514m	South East
Vegetation Category 1	614m	South East

NSW Bush Fire Prone Land - © NSW Rural Fire Service under Creative Commons 4.0 International Licence



Ecological Constraints

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Native Vegetation

What native vegetation exists within the dataset buffer?

Map ID	Map Unit Name	Threatened Ecological Community NSW	Threatened Ecological Community EPBC Act	Understorey	Disturbance	Disturbance Index	Dominant Species	Dist	Direction
Urban_E/N	Urban_E/N: Urban Exotic/Native			00: Not assessed	00: Not assessed	0: Not assessed	Urban Exotic/Native	0m	Onsite
S_GW03	S_GW03: Cumberland Shale Plains Woodland	Cumberland Plain Woodland	Cumberland Plain Woodland/ Shale Gravel Forest (possible)	15: Grassy natives and exotics	31: Parkland open understorey	4: Very high	E.tereticornis/E.molucannaE.crebra/E.eugeinioides	13m	South West
S_FoW06	S_FoW06: Cumberland Riverflat Forest	River Flat Eucalypt Forest		33: Weedy shrubs	13: Weeds	3: High	E.tereticornis/E.baueriana/A.floribunda	43m	South East
Weed_Ex	Weed_Ex: Weeds and Exotics			00: Not assessed	00: Not assessed	0: Not assessed	Exotic Species >90%cover	134m	South
Plant_n	Plant_n: Plantation (native and/or exotic)			00: Not assessed	00: Not assessed	0: Not assessed	Native or Exotic Plantations	391m	East
S_FrW03	S_FrW03: Coastal Freshwater Wetland	Freshwater Wetlands on Coastal Floodplains		18: Swampy sedges, shrubs, ferns and herbs	13: Weeds	3: High	T.orientalis/fresh water sedges	397m	South East
S_FoW08	S_FoW08: Estuarine Swamp Oak Forest	Swamp Oak Floodplain Forest		31: Saltmarsh	20: Previously cleared 1943	3: High	C.glauca	557m	South East
S_FrW06	S_FrW06: Estuarine Reedland	Swamp Oak Floodplain Forest		33: Weedy shrubs	13: Weeds	3: High	P.australis/B.juncua	710m	South East
Water	Water			00: Not assessed	00: Not assessed	0: Not assessed	Water	849m	East

Native Vegetation of the Sydney Metropolitan Area : NSW Office of Environment and Heritage

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Ramsar Wetlands

What Ramsar Wetland areas exist within the dataset buffer?

Map Id	Ramsar Name	Wetland Name	Designation Date	Source	Distance	Direction
N/A	No records in buffer					

Ramsar Wetlands Data Source: © Commonwealth of Australia - Department of Environment



Ecological Constraints

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Groundwater Dependent Ecosystems Atlas

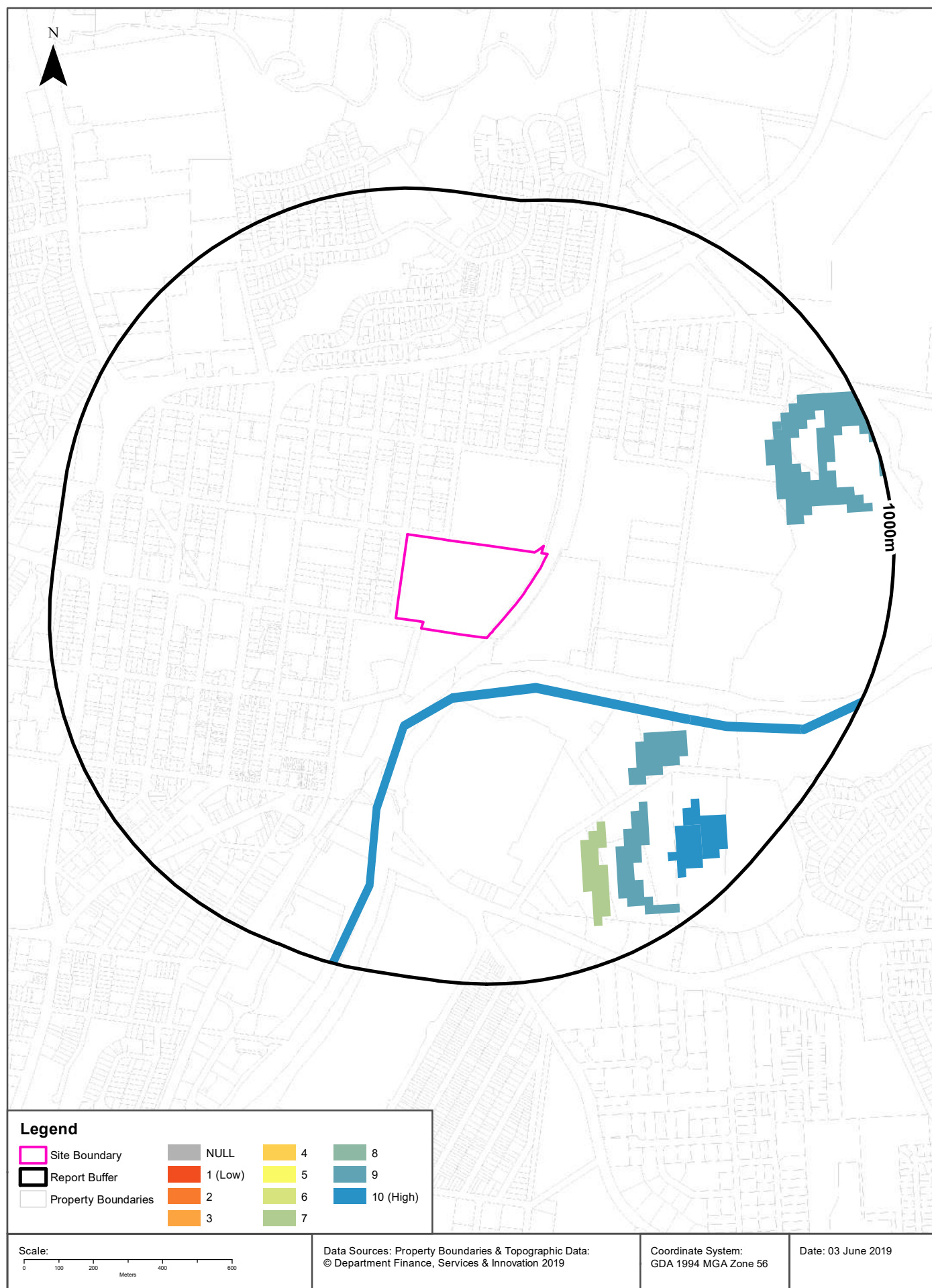
Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Aquatic	High potential GDE - from national assessment	Undulating to low hilly country, mainly on shale.	River		145m
Terrestrial	High potential GDE - from national assessment	Undulating to low hilly country, mainly on shale.	Vegetation	Consolidated sedimentary	519m

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology

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Ecological Constraints - Inflow Dependent Ecosystems Likelihood

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170



Ecological Constraints

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Aquatic	10	Undulating to low hilly country, mainly on shale.	River		145m
Terrestrial	9	Undulating to low hilly country, mainly on shale.	Vegetation	Consolidated sedimentary	519m
Terrestrial	7	Undulating to low hilly country, mainly on shale.	Vegetation	Consolidated sedimentary	617m
Terrestrial	10	Undulating to low hilly country, mainly on shale.	Vegetation		747m

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology
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Ecological Constraints

Liverpool Hospital, Goulburn Street & Elizabeth Street, Liverpool, NSW 2170

NSW BioNet Atlas

Species on the NSW BioNet Atlas that have a NSW or federal conservation status, a NSW sensitivity status, or are listed under a migratory species agreement, and are within 10km of the site?

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Actitis hypoleucos	Common Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Anseranas semipalmata	Magpie Goose	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Ardea ibis	Cattle Egret	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Burhinus grallarius	Bush Stone-curlew	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Chthonicola sagittata	Speckled Warbler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Cyanoramphus novaezelandiae subflavescens	Red-crowned Parakeet (Lord Howe Is. subsp.)	Presumed Extinct	Not Sensitive	Extinct	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Egretta sacra	Eastern Reef Egret	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Epthianura albifrons	White-fronted Chat	Endangered Population, Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Falco hypoleucos	Grey Falcon	Endangered	Category 2	Not Listed	
Animalia	Aves	Falco subniger	Black Falcon	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus fuliginosus	Sooty Oystercatcher	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	<i>Hieraaetus morphnoides</i>	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Hirundapus caudacutus</i>	White-throated Needletail	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Hydroprogne caspia</i>	Caspian Tern	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	<i>Ixobrychus flavicollis</i>	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Lathamus discolor</i>	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	<i>Lophochroa leadbeateri</i>	Major Mitchell's Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	<i>Lophoictinia isura</i>	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Merops ornatus</i>	Rainbow Bee-eater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	<i>Neophema pulchella</i>	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Ninox connivens</i>	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Ninox strenua</i>	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Onychoprion fuscata</i>	Sooty Tern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Pachycephala olivacea</i>	Olive Whistler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Pandion cristatus</i>	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Petroica boodang</i>	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Petroica phoenicea</i>	Flame Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Petroica rodinogaster</i>	Pink Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Pezoporus wallicus wallicus</i>	Eastern Ground Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Plegadis falcinellus</i>	Glossy Ibis	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	<i>Pluvialis squatarola</i>	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Polytelis anthopeplus monarchoides</i>	Regent Parrot (eastern subspecies)	Endangered	Category 3	Vulnerable	
Animalia	Aves	<i>Polytelis swainsonii</i>	Superb Parrot	Vulnerable	Category 3	Vulnerable	
Animalia	Aves	<i>Todiramphus chloris</i>	Collared Kingfisher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Tringa nebularia</i>	Common Greenshank	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Tyto novaehollandiae</i>	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Gastropoda	<i>Meridolum corneovirens</i>	Cumberland Plain Land Snail	Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Cercartetus nanus</i>	Eastern Pygmy-possum	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Miniopterus australis</i>	Little Bentwing-bat	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Mammalia	Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Mormopterus norfolkensis	Eastern Freetail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petrogale penicillata	Brush-tailed Rock-wallaby	Endangered	Not Sensitive	Vulnerable	
Animalia	Mammalia	Phascogale tapoatafa	Brush-tailed Phascogale	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheath-tail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Antaresia stimsoni	Stimson's Python	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Lucasium stenodactylum	Crowned Gecko	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Acacia bakeri	Marblewood	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Acacia pubescens	Downy Wattle	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Allocasuarina diminuta subsp. mimica		Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Allocasuarina glaireicola		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Argyrotegium nitidulum	Shining Cudweed	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Caesia parviflora var. minor	Small Pale Grass-lily	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Vulnerable	Category 3	Not Listed	
Plantae	Flora	Cymbidium canaliculatum	Tiger Orchid	Not Listed	Category 2	Not Listed	
Plantae	Flora	Cynanchum elegans	White-flowered Wax Plant	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Deyeuxia appressa		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Dillwynia tenuifolia		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Diuris aequalis	Buttercup Doubletail	Endangered	Category 2	Vulnerable	
Plantae	Flora	Epacris purpurascens var. purpurascens		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Grevillea parviflora subsp. parviflora	Small-flower Grevillea	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Gyrostemon thesioides		Endangered	Category 3	Not Listed	
Plantae	Flora	Hibbertia fumana		Critically Endangered	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Hibbertia puberula		Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Hibbertia sp. Bankstown		Critically Endangered	Not Sensitive	Critically Endangered	
Plantae	Flora	Hibbertia stricta subsp. furcatula		Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Leucopogon exolasius	Woronora Beard-heath	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia integrifolia	Macadamia Nut	Not Listed	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Marsdenia viridiflora subsp. viridiflora	Native Pear	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Melaleuca deanei	Deane's Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Persoonia hirsuta	Hairy Geebung	Endangered	Category 3	Endangered	
Plantae	Flora	Persoonia nutans	Nodding Geebung	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pimelea spicata	Spiked Rice-flower	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pomaderris prunifolia	Plum-leaf Pomaderris	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Prostanthera saxicola		Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Pterostylis nigricans	Dark Greenhood	Vulnerable	Category 2	Not Listed	
Plantae	Flora	Pterostylis saxicola	Sydney Plains Greenhood	Endangered	Category 2	Endangered	
Plantae	Flora	Pultenaea parviflora		Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Pultenaea pedunculata	Matted Bush-pea	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Rhodamnia rubescens	Scrub Turpentine	Critically Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Wahlenbergia multicaulis	Tadgell's Bluebell	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Wilsonia backhousei	Narrow-leafed Wilsonia	Vulnerable	Not Sensitive	Not Listed	

Data does not include NSW category 1 sensitive species.

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Data obtained 30/05/2019

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 - (c) the Third Party Content Suppliers do not constitute an exhaustive set of all repositories or sources of information available in relation to the property which is the subject of the Report (**Property**) and accordingly neither Lotsearch nor Third Party Content Suppliers gives any warranty in relation to the accuracy or completeness of the Third Party Content incorporated into the report including any contaminated land assessment or other assessment included as part of a Report;
 - (d) Reports are generated at a point in time (as specified by the date/time stamp appearing on the Report) and accordingly the Report is based on the information available at that point in time and Lotsearch is not obliged to undertake any additional reporting to take into consideration any information that may become available between the point in time specified by the date/time stamp and the date on which the Report was provided by Lotsearch to the purchaser of the Report;
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 - (h) the Report does not include any information relating to the actual state or condition of the Property;
 - (i) the Report should not be used or taken to indicate or exclude actual fitness or unfitness of Land or Property for any particular purpose
 - (j) the Report should not be relied upon for determining saleability or value or making any other decisions in relation to the Property and in particular should not be taken to be a rating or assessment of the desirability or market value of the property or its features; and
 - (k) the End User should undertake its own inspections of the Land or Property to satisfy itself that there are no defects or failures
2. The End User may not make the Report or any copies or extracts of the report or any part of it available to any other person. If End User wishes to provide the Report to any other person or make extracts or copies of the Report, it must contact the purchaser of the Report before doing so to ensure the proposed use is consistent with the contract terms between Lotsearch and the purchaser.
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4. The End User hereby to the maximum extent permitted by law:
 - (a) acknowledges that the Lotsearch (nor any of its officers, employees or agents), nor any of its Third Party Content Supplier have any liability to it under or in connection with the

- Report or these Terms;
- (b) waives any right it may have to claim against Third Party Content Supplier in connection with the Report, or the negotiation of, entry into, performance of, or termination of these Terms; and
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5. The End User acknowledges that any Third Party Supplier shall be entitled to plead the benefits conferred on it under clause 4, despite not being a party to these terms.
 6. End User must not remove any copyright notices, trade marks, digital rights management information, other embedded information, disclaimers or limitations from the Report or authorise any person to do so.
 7. End User acknowledges and agrees that Lotsearch and Third Party Content Suppliers retain ownership of all copyright, patent, design right (registered or unregistered), trade marks (registered or unregistered), database right or other data right, moral right or know how or any other intellectual property right in any Report or any other item, information or data included in or provided as part of a Report.
 8. To the extent permitted by law and subject to paragraph 9, all implied terms, representations and warranties whether statutory or otherwise relating to the subject matter of these Terms other than as expressly set out in these Terms are excluded.
 9. Subject to paragraph 6, Lotsearch excludes liability to End User for loss or damage of any kind, however caused, due to Lotsearch's negligence, breach of contract, breach of any law, in equity, under indemnities or otherwise, arising out of all acts, omissions and events whenever occurring.
 10. Lotsearch acknowledges that if, under applicable State, Territory or Commonwealth law, End User is a consumer certain rights may be conferred on End User which cannot be excluded, restricted or modified. If so, and if that law applies to Lotsearch, then, Lotsearch's liability is limited to the greater of an amount equal to the cost of resupplying the Report and the maximum extent permitted under applicable laws.
 11. Subject to paragraph 9, neither Lotsearch nor the End User is liable to the other for:
 - (a) any indirect, incidental, consequential, special or exemplary damages arising out of or in relation to the Report or these Terms; or
 - (b) any loss of profit, loss of revenue, loss of interest, loss of data, loss of goodwill or loss of business opportunities, business interruption arising directly or indirectly out of or in relation to the Report or these Terms,irrespective of how that liability arises including in contract or tort, liability under indemnity or for any other common law, equitable or statutory cause of action or otherwise.
 12. These Terms are subject to New South Wales law.



Section 10.7 Certificates

PLANNING CERTIFICATE UNDER SECTION 10.7
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979**Ref.:** E32160BD:78387
Ppty: 175148**Cert. No.:** 5541**Applicant:**
JK GROUP - EIS
PO BOX 976
NORTH RYDE BC NSW 1670**Receipt No.:** 4276323
Receipt Amt.: 133.00
Date: 03-Jun-2019

The information in this certificate is provided pursuant to Section 10.7(2)&(5) of the Environmental Planning and Assessment Act (EP&A Act) 1979, as prescribed by Schedule 4 of the Environmental Planning and Assessment Regulation (EP&A Regulation) 2000. The information has been extracted from Council's records, as they existed at the date listed on the certificate. Please note that the accuracy of the information contained within the certificate may change after the date of this certificate due to changes in Legislation, planning controls or the environment of the land.

The information in this certificate is applicable to the land described below.

Legal Description: PART LOT 501 DP 1165217**Street Address:** 50 GOULBURN STREET, LIVERPOOL NSW 2170

Note: Items marked with an asterisk () may be reliant upon information transmitted to Council by a third party public authority. The accuracy of this information cannot be verified by Council and may be out-of-date. If such information is vital for the proposed land use or development, applicants should instead verify the information with the appropriate authority.*

Note: Commonly Used Abbreviations:

LEP: Local Environmental Plan
DCP: Development Control Plan
SEPP: State Environmental Planning Policy
EPI: Environmental Planning Instrument

1. Names of relevant planning instruments and DCPs

- (a) The name of each EPI that applies to the carrying out of development on the land is/are listed below:

LEPs:

Liverpool LEP 2008

SEPPs*:

**SEPP No. 33 – Hazardous and Offensive Development
SEPP No. 50 – Canal Estate Development
SEPP No. 55 – Remediation of Land
SEPP No. 62 – Sustainable Aquaculture
SEPP No. 65 – Design Quality of Residential Flat Development
SEPP (Building Sustainability Index: BASIX) 2004
SEPP No. 70 – Affordable Housing (Revised Schemes)
SEPP (Infrastructure) 2007
SEPP (Mining, Petroleum Production and Extractive Industries) 2007
SEPP (Miscellaneous Consent Provisions) 2007
SEPP (State and Regional Development) 2011
SEPP (Education Establishments and Child Care Facilities) 2017
SEPP (Vegetation in Non-Rural Areas) 2017
SEPP (Exempt and Complying Development Codes) 2008
SEPP No 19 – Bushland in Urban Areas
SEPP No 21 – Caravan Parks
SEPP No 30 – Intensive Agriculture
SEPP No 44 – Koala Habitat Protection
SEPP No 64 – Advertising and Signage
SEPP (Affordable Rental Housing) 2009**

Deemed SEPPs*:

Greater Metropolitan Regional Environmental Plan No 2 – Georges River Catchment

- (b) The name of each draft EPI, or Planning Proposal (which has been subject to community consultation).

Draft LEPs:

N/A

Draft SEPPs*:

**Draft SEPP (Competition) 2010
Draft SEPP (Coastal Management) 2016 (part of lot)**

- (c) The name of each DCP that applies to the carrying out of development on the land.

Liverpool DCP 2008

2. Zoning and land use under relevant LEPs and /or SEPPs

This section contains information required under subclauses 2 and 2A of Schedule 4 of the EP&A Regulation 2000. Subclause 2 of the regulation requires Council to provide information with respect to zoning and land-use in areas zoned by, or proposed to be zoned by, a LEP. Subclause 2A of Schedule 4 of the regulation requires Council to provide information with respect to zoning and land-use in areas which are zoned by, or proposed to be zoned by, the SEPP (Sydney Region Growth Centres) 2006. The land use and zoning information under any EPI applying to the land is given below.

- (a) Name of zone, and the EPI from which the land zoning information is derived.

SP2 Infrastructure (Health Services Facility and Education Establishments) - Liverpool LEP 2008

- (b) The purposes for which development may be carried out within the zone without the need for development consent

Nil

- (c) The purposes for which development may not be carried out within the zone except with development consent

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose; Environmental protection works; Roads

- (d) The purposes for which the instrument provides that development is prohibited within the zone

Any development not specified in item (b) or (c)

- (e) If a dwelling house is a permitted use, are there any principal development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house?

No

- (f) Does the land include or comprise critical habitat?

No

- (g) Is the land in a conservation area (however described):

Yes, the land is within the Bigge Park Conservation Area

(h) Is there an item of environmental heritage (however described) situated on the land

No

3. Complying development

The information below outlines whether complying development is permitted on the land as per the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18(1) (c3) and 1.19 SEPP of the (Exempt and Complying Development Codes) 2008.

The first column identifies the code(s). The second column describes the extent of the land in which exempt and complying development is permitted for the code(s) given to the immediate left. The third column indicates the reason as to why exempt and complying development is prohibited on some or all of the land, and will be blank if such development is permitted on all of the land.

Code	Extent of the land for which development is permitted:	The reason(s) as to why development is prohibited:
Housing Code, Low Rise Medium Density Housing Code, Rural Housing Code and Greenfield Housing Code	Part	Part of the land is identified as being within a heritage conservation area (Clause 1.19(1)(a) or Clause 1.19(5)(a)) Part of the land is identified as being within the foreshore area (Clause 1.19(1)(g) or Clause 1.19(5)(h)) Part of the land is identified as being environmentally sensitive land (Clause 1.17A(e))

Code	Extent of the land for which development is permitted:	The reason(s) as to why development is prohibited:
Commercial and Industrial (New Buildings and Additions) Code	Part	Part of the land is identified as being within a heritage conservation area (Clause 1.19(1)(a) or Clause 1.19(5)(a)) Part of the land is identified as being within the foreshore area (Clause 1.19(1)(g) or Clause 1.19(5)(h)) Part of the land is identified as being environmentally sensitive land (Clause 1.17A(e))
General Development Code, Container Recycling Facilities Code, Fire Safety Code, Housing Alterations Code, Commercial and Industrial Alterations Code, Subdivisions Code, and Demolition Code	Part	Part of the land is identified as being environmentally sensitive land (Clause 1.17A(e))

Note: If council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement below will describe that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

Nil

4. Coastal protection*

Has the Department of Finance, Services and Innovation notified Council of the land being affected by 38 or 39 of the Coastal Protection Act, 1979?

No

4A. Certain information relating to beaches and coasts*



(a) Has an order been made under Part 4D of the Coastal Protection Act 1979 on the land (or on public land adjacent to that land)?

No

(b) Has Council been notified under section 55X of the Coastal Protection Act 1979 that temporary coastal protection works have been placed on the land (or on public land adjacent to that land), and if works have been so placed, is council satisfied that the works have been removed and the land restored in accordance with that Act?

Not applicable

4B. Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works*

Has the owner (or any previous owner) of the land consented, in writing, that the land is subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act)?

No

5. Mine subsidence*

Is the land proclaimed to mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961?

No

6. Road widening and road realignment

Is the land affected by any road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993?*

No

(b) An EPI?

No

(c) A resolution of the council?

No

7. Council and other public authority policies on hazard risk restrictions

The following table lists hazard/risk policies that have been adopted by Council (or prepared by another public authority and subsequently adopted by Council). The right-most column indicates whether the land is subject to those policies.

Hazard/Risk	Adopted Policy	Does this hazard/risk policy apply to the land?
Landslip hazard	Nil	No
Bushfire hazard	Liverpool DCP 2008	No
	Liverpool Growth Centre Precincts DCP*	No
	Edmondson Park South DCP 2012	No
	Planning for Bushfire Protection (Rural Fire Services, 2006)*	No
	Pleasure Point Bushfire Management Plan	No
Tidal inundation	Nil	No
Subsidence	Nil	No
Acid Sulphate Soils	Liverpool LEP 2008	Yes
	Liverpool DCP 2008	Yes
Potentially Contaminated Land	Liverpool DCP 2008	Yes , see section 10 of Part 1 of the Liverpool DCP 2008
	Liverpool Growth Centre Precincts DCP*	No
Potentially Saline Soils	Liverpool DCP 2008	Yes
	Liverpool Growth Centre Precincts DCP*	No

Note: Land for which a policy applies does not confirm that the land is affected by that hazard/risk. For example, all land for which the Liverpool DCP applies is subject to controls relating to contaminated land, as this policy contains triggers and procedures for identifying potential contamination. Applicants are encouraged to review the relevant policy, and other sections of this certificate, to determine what effect, if any, the policy may have on the land.

7A. Flood related development controls information

- (a) For the purpose of residential accommodation (excluding group homes or seniors housing), is the land, or part of the land, within the flood planning area and subject to flood planning controls?

Yes

For details of these controls, please refer to the flooding section of the relevant DCP(s) as specified in Section 1(c) of this certificate.

(b) Is development on that land, or part of the land, for any other purpose subject to flood related development controls?

Yes

For details of these controls, please refer to the flooding section of the relevant DCP(s) as specified in Section 1(c) of this certificate.

Note: Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the Standard Instrument (Local Environmental Plans) Order 2006.

8. Land reserved for acquisition

Does a LEP, draft LEP, SEPP or draft SEPP identify the acquisition of the land, or part of the land, by a public authority, as referred to in section 3.15 of the Act?

No

9. Contribution Plans

Liverpool Contributions Plan 2018 - **Liverpool City Centre**

9A. Biodiversity certified land*

Is the land, or part of the land, biodiversity certified land (within the meaning of Part 8 of the Biodiversity Conservation Act 2016)?

No

10. Biobanking agreements*

Is the land subject to a bio-banking agreement under Part 6 of the Biodiversity Conservation Act 2016, as notified to Council by the Chief Executive of the Office of Environment and Heritage?

No

10A. Native vegetation clearing set asides

Does the land contain a set aside area under section 60ZC of the Local Land Services Act 2013?

No, Liverpool is excluded from section 60ZC of the Local Land Services Act 2013

11. Bushfire prone land

Is the land or part of the land, bushfire prone land as defined by the EP&A Act 1979?

No

12. Property vegetation plans*

Is Council aware of the land being subject to a Property Vegetation Plan under the Native Vegetation Act 2003?

No, Liverpool is excluded from the operation of the Native Vegetation Act 2003

13. Orders under Trees (Disputes between Neighbours) Act 2006*

Does an order, made under the Trees (Disputes Between Neighbours) Act 2006 in relation to carrying out of work in relation to a tree on the land, apply?

No, Council has not been notified of an order

14. Directions under Part 3A*

Is there a direction (made by the Minister) that a provision of an EPI in relation to a development does not have effect?

No

15. Site compatibility certificates and conditions for seniors housing*

(a) Is there is a current site compatibility certificate (seniors housing), in respect of proposed development on the land?

No, Council has not been notified of an order.

16. Site compatibility certificates for infrastructure*

(a) Is there is a current site compatibility certificate (infrastructure), in respect of proposed development on the land?

No, Council has not been notified of an order

17. Site compatibility certificates and conditions for affordable rental housing*

Is there is a current site compatibility certificate (Affordable housing), in respect of proposed development on the land?

No, Council has not been notified of an order.

18. Paper subdivision information*

Does any development plan adopted by a relevant authority (or proposed plan subject to a consent ballot) apply to the land? If so the date of the subdivision order that applies to the land.

No

19. Site verification certificates*

Does a current site verification certificate, apply to the land?

No, Council is not aware of a site verification certificate

20. Loose-fill asbestos insulation *

Is a dwelling on the land listed on the register (maintained by the NSW Department of Fair Trading) as containing loose-fill asbestos insulation?

No

Note: despite any listing on the register, any buildings constructed before 1980 may contain loose-fill asbestos insulation or other asbestos products.

21. Affected building notices and building product rectification orders*

Is there any affected building notice (as in Part 4 of the Building Products (Safety) Act 2017) of which the council is aware that is in force in respect of the land?

No

Is there any building product rectification order (as in the Building Products (Safety) Act 2017) of which the council is aware that is in force in respect of the land and has not been fully complied with?

No

Is there any notice of intention to make a building product rectification order (as in the Building Products (Safety) Act 2017) of which the council is aware has been given in respect of the land and is outstanding?

No

22. Contaminated land

Is the land:

(a) Significantly contaminated land within the meaning of that Act?

No

(b) Subject to a management order within the meaning of that Act?

No

(c) Subject of an approved voluntary management proposal within the meaning of that Act?

No

(d) Subject to an ongoing maintenance order within the meaning of that Act?

No

(e) Subject of a site audit statement within the meaning of that Act? *

No

Note: in this clause 'the Act' refers to the Contaminated Land Management Act 1997.

THE FOLLOWING INFORMATION IS PROVIDED PURSUANT TO SECTION 10.7(5) OF THE
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT (EP&A ACT) 1979

1. Controlled access road

Does the land have a boundary to a controlled access road?

No

2. Sewer Access and On-site Management

Nil

3. Other Information in Relation to Water Restrictions

All/part of the property is identified as flood prone and is within the medium risk flood category. Medium Flood Risk Category means land below the 1% Annual Exceedance Probability flood that is not subject to a high hydraulic hazard or where there are no significant evacuation difficulties. Refer to Section 1(c) of this certificate for the relevant DCP which contains controls relating to flood prone land.

All/part of the property is identified as flood prone and is within the low risk flood category. Low Flood Risk Category means the outer extent of the floodplain (within the extent of the probable maximum flood) but not identified within either the High Flood Risk or the Medium Flood Risk Category. Refer to Section 1(c) of this certificate for the relevant DCP which contains controls relating to flood prone land.

Note: No flooding certificate will be provided if the property is only within the low risk flood category.

All/part of the property is identified as flood prone and is within the high risk flood category. High Flood Risk Category means land below the 1% Annual Exceedance Probability flood that is either subject to high hydraulic hazard or where there are significant evacuation difficulties. Refer to Section 1(c) of this certificate for the relevant DCP which contains controls relating to flood prone land.

4. Contaminated Land

Nil

5. Airport Noise Affectation*

Nil

6. Environmentally Significant Land

The subject property is identified as containing environmentally significant land under Liverpool LEP 2008.

7. Archaeological Management Plan

Nil

8. Western Sydney Long Term Strategic Corridors*

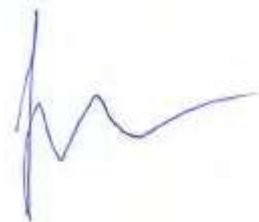
Has the NSW Government identified that the land may be traversed by, or located near, a future transport corridor as identified in the Western Sydney Long Term Strategic Corridors project?

No

For more information on the Western Sydney Long Term Strategic Corridors, visit:
<https://www.transport.nsw.gov.au/corridors>

9. Offensive Odour and Rural Land Uses

Nil



For further information, please contact
CALL CENTRE – 1300 36 2170

Kiersten Fishburn
Chief Executive Officer
Liverpool City Council

**ANNEXURE TO SECTION 10.7(5)
CERTIFICATE**



Issue Date: 4/06/2019

Issue No: 2028018

File No: 2019/0093

Premises at Lot 501 DP 1165217
Goulburn Steet Liverpool

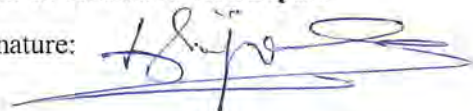
Further to the advice contained in the Section 10.7(2) Certificate and on the basis of the latest information available to the Council:

1. the maximum calculated level of the probable maximum flood (PMF) in the vicinity of your property in metres AHD is **10.9**.
2. the maximum calculated level of the 1% annual exceedance probability flood (previously referred to as the 1 in 100 year) in the vicinity of your property in metres AHD is **8.8**.
3. the maximum calculated level of the 2% annual exceedance probability flood (previously referred to as the 1 in 50 year) in the vicinity of your property in metres AHD is **8.5**.
4. the maximum calculated level of the 5% annual exceedance probability flood (previously referred to as the 1 in 20 year) in the vicinity of your property in metres AHD is **7.8**.

The Council does not possess accurate information on the natural surface levels of individual allotments or on constructed building levels, and these should be established by private survey to ascertain their relationship to the above flood levels.

Flood levels are obtained from **Georges River Floodplain Risk Management Study & Plan - July 2004**

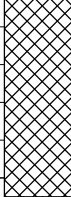
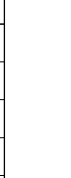
Name of Assessor: **W. Siripala**

Signature: 



Appendix D: Borehole Logs

Borehole No.
MW1
1 / 2

Client: HEALTH INFRASTRUCTURE														
Project: PROPOSED NEW INTEGRATED SERVICES BUILDING														
Location: MAIN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW														
Job No.: 32837A														
Method: SPIRAL AUGER														
R.L. Surface: ~11.7 m														
Date: 26/11/19														
Datum: AHD														
Plant Type: JK305														
Logged/Checked By: J.L./A.J.														
Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
DRY ON COMPLETION OF AUGERING	█	█	█	█	N=SPT 8/ 60mm REFUSAL	11	1		-	ASPHALTIC CONCRETE: 50mm.t	M	VSt	360 360 350	NO FCF AT 0.1 NOT ENOUGH SAMPLE FOR BUCKET 3.9kg BUCKET NO FCF 2.8kg BUCKET NO FCF 7.6kg BUCKET NO FCF APPEARS WELL COMPACTED RESIDUAL
	█	█	█	█					CH	FILL: Gravelly silty sand, fine to medium grained, dark grey, fine to coarse grained igneous gravel. FILL: Silty sand, fine to medium grained, light brown, trace of fine to coarse grained igneous and sandstone gravel. FILL: Silty clay, medium plasticity, brown and red brown, trace of fine to medium grained sand and fine to coarse grained igneous and sandstone gravel. FILL: Silty sandy clay, low plasticity, dark grey, fine to medium grained sand, with fine to medium grained igneous gravel. Silty CLAY: high plasticity, brown orange mottled red brown, trace of fine grained ironstone gravel.	w~PL			
ON 11/12/19	█	█	█	█	N = 10 5,5,5	10	2		CH	as above, but red brown.	w~PL	Hd	560 >600 470	BRINGELLY SHALE LOW TO LOW 'TC' BIT RESISTANCE WITH VERY LOW BANDS
	█	█	█	█						as above, but light grey, with extremely weathered siltstone bands.				
	█	█	█	█	N = 28 9,13,15	9	3		-	SILTSTONE: grey and brown, with clay bands.	HW	L		
	█	█	█	█						SILTSTONE: grey and brown.	MW			
	█	█	█	█		8	4		-	REFER TO CORED BOREHOLE LOG				
	█	█	█	█										
	█	█	█	█		7	5		-					
	█	█	█	█										
	█	█	█	█		6	6		-					
	█	█	█	█										
	█	█	█	█		5	5		-					
	█	█	█	█										

CORED BOREHOLE LOG

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED NEW INTEGRATED SERVICES BUILDING
Location: MAIN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW

Job No.: 32837A **Core Size:** NMLC **R.L. Surface:** ~11.7 m
Date: 26/11/19 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** J.L./A.J.

Water Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX I_p (50)	SPACING (mm)	DEFECT DETAILS		Formation
										Specific	General	
		6			START CORING AT 5.85m						GROUNDWATER MONITORING WELL INSTALLED TO 11.57m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 4.57m TO 11.57m. CASING 0.05m TO 4.57m. 2mm SAND FILTER PACK 4.3m TO 11.57m. BENTONITE SEAL 1.0m TO 4.3m. COMPLETED WITH A CONCRETED GATIC COVER.	
		6	6		SILTSTONE: grey and brown, bedded at 0-5°.	MW	M	0.60			(5.88m) Be, 10°, Ir, Cn (5.90m) Be, 0°, Ir, R, Fe Sn (5.94m) Be, 0°, Ir, R, Fe Sn (5.97m) J, 30°, P, R, Fe Sn (6.01m) Be, 10°, Ir, R, Fe Sn (6.03m) Be, 10°, Ir, R, Fe Sn (6.04m) Cr, 0°, 150 mm.t	
					NO CORE 0.15m						(6.22m) Cr, 0°, 25 mm.t (6.26m) Be, 0°, Ir, R, Fe Sn (6.29m) J, 50°, Ir, R, Fe Sn (6.34m) XWS, 0°, 25 mm.t (6.53m) Be, 0°, Ir, R, Fe Sn (6.59m) Cr, 40°, 80 mm.t (6.67m) Be, 0°, Ir, R, Fe Sn (6.78m) XWS, 0°, 10 mm.t (6.80-6.95m) Be x 8, 0 - 5°, Ir, R, Fe Sn	
		5	7		SILTSTONE: grey and brown, bedded at 0-5°.	MW	M	0.70			(7.13m) CS, 0°, 5 mm.t (7.16m) J, 25°, Ir, R, Clay FILLED, 1 mm.t (7.20m) Cr, 0°, 50 mm.t (7.28m) XWS, 0°, 30 mm.t (7.36m) Be, 0°, P, R, Fe Sn (7.39m) CS, 0°, 3 mm.t (7.45m) Be, 0°, P, R, Cn (7.55m) Be, 0°, P, R, Cn (7.74m) Be, 0°, P, R, Cn	
					SILTSTONE: grey, with light grey and brown laminae, bedded at 0-5°.	SW		0.80				
					as above, but grey, with light grey laminae.	FR	H	1.0				
		3	9					1.5			(8.75m) J, St, R, Cn (8.84m) CS, 0°, 8 mm.t	
								1.3				
		2	10					2.2			(9.68m) XWS, 0°, 10 mm.t	
								1.6				
		1	11					1.1			(10.76m) J, 40°, Ir, R, Cn (10.88m) J, 65°, P, R, Cn (10.91m) J, 20°, P, S, Cn (11.08m) Cr, 0°, 60 mm.t	
								1.1			(11.50m) J, 70 - 90°, Ir, R, Cn	
		0			END OF BOREHOLE AT 11.57 m							

BOREHOLE LOG

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED NEW INTEGRATED SERVICES BUILDING
Location: MAIN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW

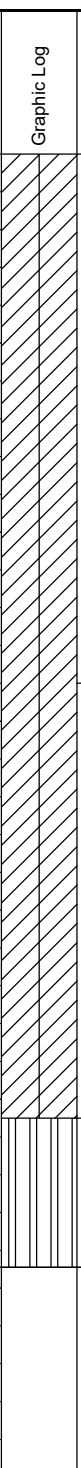
Job No.: 32837A **Method:** SPIRAL AUGER **R.L. Surface:** ~10.6 m
Date: 28/11/19 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** J.L./A.J.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
DRY ON COMPLETION OF AUGERING							10		-	ASPHALTIC CONCRETE: 50mm.t FILL: Silty clay, low to medium plasticity, brown, trace of fine grained igneous gravel, fine to medium grained sand, brick fragments and root fibres.	w<PL			NO FCF AT 0.1m 10.8kg BUCKET NO FCF APPEARS MODERATELY COMPACTED
					N = 10 5,6,4		1		CH	Silty CLAY: high plasticity, light grey and red brown, trace of fine grained ironstone gravel.	w>PL	VSt - Hd	400 380 350	ALLUVIAL HAND PENETROMETER TESTING CARRIED OUT ON REMOULDED SAMPLE
					N = 15 5,6,9		9					Hd	510 510 520	
							2							
							8							
					N = 22 5,8,14		3		CL-CI	Sandy CLAY: low to medium plasticity, light grey, fine to medium grained sand.	w~PL		>600 450 530	
							7		SP	SAND: fine to medium grained, yellow brown and orange brown.	M	MD		
							4							
					N = 30 6,14,16		6		SM	Silty SAND: fine to medium grained, light grey mottled light orange brown, trace of clay fines. as above, but red brown, with iron cemented sand nodules.				
							5							
							5							
					N = 12 5,6,6		6		CL	Silty CLAY: low plasticity, light grey, trace of fine grained sand.	w>PL	VSt	250 320 280	
							4		CH	Silty CLAY: as below		St - VSt		

BOREHOLE LOG

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED NEW INTEGRATED SERVICES BUILDING
Location: MAIN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW

Job No.: 32837A **Method:** SPIRAL AUGER **R.L. Surface:** ~10.6 m
Date: 28/11/19 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** J.L./A.J.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
ON 11/12/19	█						3		CH	Silty CLAY: high plasticity, light grey and light orange brown.	w>PL	St - Vst	50 210 150	
	█				N = 9 3,4,5		8							
	█						2			as above, but grey and red brown.		St		
	█				N = 7 1,3,4		9						140 120 140	
	█						1							
	█						10		CI-CH	as above, but medium to high plasticity, dark grey.				
	█						0						160 100 140	
	█						11							
	█						-1							
	█						12					Vst - Hd L - M	440 330 300	
					N=SPT 10/ 100mm REFUSAL		-2		-	SILTSTONE: grey and brown.	MW			BRINGELLY SHALE LOW TO MODERATE 'TC' BIT RESISTANCE
							13			REFER TO CORED BOREHOLE LOG				
							-3							

CORED BOREHOLE LOG

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED NEW INTEGRATED SERVICES BUILDING
Location: MAIN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW

Job No.: 32837A **Core Size:** NMLC **R.L. Surface:** ~10.6 m
Date: 28/11/19 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** J.L./A.J.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_p(50)$	SPACING (mm)	DEFECT DETAILS		Formation
										DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness		
								VL-0.1 L-0.3 M-1 H-3 VH-10 EH	600 200 60 20	Specific	General	
		-2			START CORING AT 12.89m						GROUNDWATER MONITORING WELL INSTALLED TO 12.1m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 1.1m TO 12.1m. CASING 0.05m TO 1.1m. 2mm SAND FILTER PACK 0.8m TO 12.1m. BENTONITE SEAL 0.1m TO 0.8m. COMPLETED WITH A CONCRETED GATIC COVER.	
		13			SILTSTONE: grey, with light grey laminae, bedded at 0-5°.	FR	M - H	0.80				
		-3						1.6				
		14						1.3			(13.76m) XWS, 0°, 3 mm.t	
		-4						0.80			(14.05m) CS, 0°, 2 mm.t	
		15					H	1.2			(14.25m) CS, 0°, 3 mm.t	
		-5						2.0			(14.42m) XWS, 0°, 2 mm.t	
		16						1.8			(14.47m) XWS, 5°, 3 mm.t	
		-6						1.6				
		17						1.8				
		-7						1.7				
		18					M - H	1.6			(15.28m) Be, 5°, P, R, Cn	
		-8						1.0				
								0.90				
								1.2			(17.55m) Cr, 0°, 15 mm.t	
					END OF BOREHOLE AT 18.89 m						(18.59m) XWS, 0°, 3 mm.t	

BOREHOLE LOG

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED NEW INTEGRATED SERVICES BUILDING
Location: MAIN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW

Job No.: 32837A **Method:** SPIRAL AUGER **R.L. Surface:** ~11.9 m
Date: 27/11/19 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** J.L./A.J.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
DRY ON COMPLETION OF AUGERING ON 11/12/19							11			FILL: Silty clay, low plasticity, brown, with fine to coarse grained igneous and ironstone gravel, trace of fine to medium grained sand, concrete fragments, roots and root fibres.	w<PL			GRASS COVER
					N = 14 7,7,7						w>PL			NO FCF AT 0.1 7.3kg BUCKET NO FCF
														6.4kg BUCKET NO FCF
														APPEARS WELL COMPACTED
					N = 10 5,5,5		10						>600 >600 >600	
									CH	Silty CLAY: high plasticity, light grey and orange brown mottled red brown, trace of fine grained ironstone gravel.	w>PL	VSt	200 250 350	ALLUVIAL
					N = 8 1,2,6		9			as above, but light grey mottled red brown and orange brown.		Hd	500 460 480	HAND PENETROMETER TESTING CARRIED OUT ON REMOULDED SAMPLE
										as above, but with occasional red brown bands.		VSt - Hd		3.2kg BUCKET NO FCF
					N = 21 11,10,11		7						290 340 440	RESIDUAL
							6			as above, but with extremely weathered siltstone bands.		Hd	>600 >600 >600	
					N = 27 4,12,15		6							
							5		-	SILTSTONE: grey and brown.	MW	L		BRINGELLY SHALE
														LOW 'TC' BIT RESISTANCE

BOREHOLE LOG

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED NEW INTEGRATED SERVICES BUILDING
Location: MAIN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW

Job No.: 32837A **Method:** SPIRAL AUGER **R.L. Surface:** ~11.9 m
Date: 27/11/19 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** J.L./A.J.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
									-	SILTSTONE: grey and brown. (continued)	MW - SW	L - M		BRINGELLY SHALE LOW 'TC' BIT RESISTANCE
										REFER TO CORED BOREHOLE LOG				

CORED BOREHOLE LOG

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED NEW INTEGRATED SERVICES BUILDING
Location: MAIN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW

Job No.: 32837A **Core Size:** NMLC **R.L. Surface:** ~11.9 m
Date: 27/11/19 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** J.L./A.J.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_p(50)$	SPACING (mm)	DEFECT DETAILS		Formation
										Specific	General	
					START CORING AT 8.80m						GROUNDWATER MONITORING WELL INSTALLED TO 6.34m. CLASS 18 MACHINE SLOTTED 50 mm DIA. PVC STANDPIPE 2.04M TO 6.34m. CASING 0.05m TO 2.04m. 2mm SAND FILTER PACK 1.9m TO 6.34m. BENTONITE SEAL 0.05m TO 1.9m. COMPLETED WITH A CONCRETED GATIC COVER.	
			3		SILTSTONE: grey, with light grey lamination, bedded at 0-10°.	FR	M - H	0.90			(8.88m) Be, 10°, P, R, Fe Sn	Bringelly Shale
			9					1.4				
			2					1.1				
			10					0.90			(10.05m) J, 75°, P, R, Cn	
			1					1.1			(11.20m) J, 80°, P, R, Cn	
			11								(11.35m) J, 75°, P, R, Cn	
					NO CORE 0.44m							
			0		SILTSTONE: grey, with light grey laminae, bedded at 0-10°.	FR	H	1.0				Bringelly Shale
			12					1.1				
			-1					1.1				
			13					2.8				
			-2					1.7				
			14					2.1				
					END OF BOREHOLE AT 14.59 m							
			-3									

JK 9.024.1B.GLB Log JK CORED BOREHOLE - MASTER 32837A LIVERPOOL.GPJ <<DrawingFile>> 11/02/2020 15:14 10.01.00.01 Digital Lab and In Situ Tool - DGD [Lib: JK 9.02.4.2019-05-31 Proj: JK 9.01.0.2019-03-20]

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ENVIRONMENTAL LOG



Log No.
MW4
1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE	
Project: PROPOSED NEW INTEGRATED SERVICES BUILDING	
Location: GOULBURN STREET, WESTERN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW	
Job No.: E32837BD	Method: HAND TOOLS
Date: 27/11/2019	R.L. Surface: ≈ 11.89m
Plant Type: N/A	Datum: AHD
Logged/Checked by: A.M./M.D.	

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty clayey sand, fine to medium grained, brown, trace of igneous gravel, concrete fragments and root fibres. FILL: Silty clay, low to medium plasticity, brown, trace of igneous gravel, concrete and brick fragments, and root fibres. END OF BOREHOLE AT 0.4m	D			NO FCF 0.1 10.7kg BUCKET NO FCF
						0.5				w<PL			12.7kg BUCKET NO FCF
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							HAND TOOL REFUSAL

JKEnvironments

ENVIRONMENTAL LOG



Log No.
MW5
1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: PROPOSED NEW INTEGRATED SERVICES BUILDING Location: GOULBURN STREET, WESTERN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW													
Job No.: E32837BD Date: 27/11/2019 Plant Type: N/A			Method: HAND TOOLS Logged/Checked by: A.M./M.D.			R.L. Surface: ≈ 11.85m Datum: AHD							
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty sand, fine to medium grained, brown, trace of igneous and sandstone gravel and organic material.	D			NO FCF 0.1 10.9kg BUCKET NO FCF
						0.5			FILL: Silty sandy clay, low to medium plasticity, brown, trace of igneous gravel, trace of river and siltstone gravel and concrete fragments. END OF BOREHOLE AT 0.5m	w<PL			17.2kg BUCKET NO FCF
						0.5							HAND TOOL REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG



Log No.
MW6
1/1

Environmental logs are not to be used for geotechnical purposes

Client:		HEALTH INFRASTRUCTURE											
Project:		PROPOSED NEW INTEGRATED SERVICES BUILDING											
Location:		GOULBURN STREET, WESTERN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW											
Job No.: E32837BD		Method: HAND TOOLS				R.L. Surface: ≈ 11.92m							
Date: 27/11/2019						Datum: AHD							
Plant Type: N/A		Logged/Checked by: A.M./M.D.											
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLE TION						0			FILL: Silty clayey sand, fine to medium grained, brown, trace of igneous and sandstone gravel, concrete fragments and ash.	D w<PL			NO FCF 0.1 10.9kg BUCKET NO FCF 10.2kg BUCKET NO FCF
						0.5			FILL: Silty clay, low to medium plasticity, brown, trace of igneous gravel and concrete fragments. END OF BOREHOLE AT 0.25m				HAND TOOL REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG



Log No.
MW7
1/1

Environmental logs are not to be used for geotechnical purposes

Client:		HEALTH INFRASTRUCTURE											
Project:		PROPOSED NEW INTEGRATED SERVICES BUILDING											
Location:		GOULBURN STREET, WESTERN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW											
Job No.: E32837BD		Method: HAND TOOLS				R.L. Surface: ≈ 8.79m							
Date: 27/11/2019						Datum: AHD							
Plant Type: N/A		Logged/Checked by: A.M./M.D.											
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLE- TION						0			FILL: Silty sandy clay, low to medium plasticity, orange brown, with siltstone gravel, trace of igneous and sandstone gravel and root fibres.	w<PL			NO FCF 0.1 14.2kg BUCKET NO FCF
						0.5			END OF BOREHOLE AT 0.3m				HAND TOOL REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG



Log No.
MW8
1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: PROPOSED NEW INTEGRATED SERVICES BUILDING Location: GOULBURN STREET, WESTERN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW													
Job No.: E32837BD Date: 28/11/2019 Plant Type: N/A			Method: HAND TOOLS Logged/Checked by: M.M.P./M.D.			R.L. Surface: ≈ 11.85m Datum: AHD							
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLE- TION						0			FILL: Silty sand, fine to medium grained, brown, trace ironstone and igneous gravel, and root fibres.	D			GRASS COVER NO FCF 0.1 10.2kg BUCKET NO FCF 8.9kg BUCKET NO FCF
						0.5			FILL: Silty clay, medium to high plasticity, orange brown, trace of igneous gravel, brick fragments, ash and slag.	w<PL			
						1			END OF BOREHOLE AT 0.8m				HAND TOOL REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG



Log No.
MW9
1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE	
Project: PROPOSED NEW INTEGRATED SERVICES BUILDING	
Location: GOULBURN STREET, WESTERN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW	
Job No.: E32837BD	Method: HAND TOOLS
Date: 28/11/2019	R.L. Surface: ≈ 11.81m
Plant Type: N/A	Datum: AHD
Logged/Checked by: M.M.P./M.D.	

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty sandy clay, low to medium plasticity, brown, fine to medium grained sand, trace of concrete and brick fragments, ironstone and igneous gravel, ash, slag and root fibres.	w<PL			NO FCF 0.1 12.3kg BUCKET NO FCF
						0.5			FILL: Silty clay, medium to high plasticity, yellow orange brown, trace of ironstone and igneous gravel.				4.7kg BUCKET NO FCF
						1			END OF BOREHOLE AT 0.9m				HAND TOOL REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG



Log No.
MW10
1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: PROPOSED NEW INTEGRATED SERVICES BUILDING Location: GOULBURN STREET, WESTERN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW														
Job No.: E32837BD Date: 28/11/2019 Plant Type: N/A			Method: HAND TOOLS Logged/Checked by: M.M.P./M.D.			R.L. Surface: ≈ 11.86m Datum: AHD								
Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION							0			FILL: Silty clayey sand, fine to medium grained, brown, trace of igneous gravel, concrete fragments, and root fibres.	D			NO FCF 0.1 5.8kg BUCKET NO FCF
							0.5							
							1			END OF BOREHOLE AT 0.6m				HAND TOOL REFUSAL
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG



Log No.
MW11
1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: PROPOSED NEW INTEGRATED SERVICES BUILDING Location: GOULBURN STREET, WESTERN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW													
Job No.: E32837BD Date: 28/11/2019 Plant Type: N/A			Method: HAND TOOLS Logged/Checked by: M.M.P./M.D.			R.L. Surface: ≈ 10.34m Datum: AHD							
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty clayey sand, fine to medium grained, light brown, trace igneous gravel, ash and root fibres.	D			NO FCF 0.1 7.8kg BUCKET NO FCF
						0.5			FILL: Silty clay, low to medium plasticity, orange brown, trace of ironstone and igneous gravel and root fibres.	w<PL			5.2kg BUCKET NO FCF
						1			END OF BOREHOLE AT 0.8m				HAND TOOL REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

JKEnvironments

ENVIRONMENTAL LOG



Log No.
MW12
1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE	
Project: PROPOSED NEW INTEGRATED SERVICES BUILDING	
Location: GOULBURN STREET, WESTERN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW	
Job No.: E32837BD	Method: HAND TOOLS
Date: 28/11/2019	R.L. Surface: ≈ 9.60m
Plant Type: N/A	Datum: AHD
Logged/Checked by: M.M.P./M.D.	

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Sandy clay, low to medium plasticity, orange brown and brown, trace of ironstone and igneous gravel, ash and root fibres.	w<PL			NO FCF 0.7
						0.5			FILL: silty clay, medium to high plasticity, orange brown, trace of ironstone gravel, concrete fragments, ash, root fibres and slag.	w≈PL			4.1kg BUCKET
									FILL: Sand, fine to medium grained, yellow brown.	D			NO FCF
									END OF BOREHOLE AT 0.55m				2.6kg BUCKET
													NO FCF
													NOT ENOUGH SAMPLE FOR BUCKET
													HAND TOOL REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

JKEnvironments

ENVIRONMENTAL LOG



Log No.
MW13
1/1

Environmental logs are not to be used for geotechnical purposes

Client:		HEALTH INFRASTRUCTURE									
Project:		PROPOSED NEW INTEGRATED SERVICES BUILDING									
Location:		GOULBURN STREET, WESTERN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW									
Job No.: E32837BD		Method: HAND TOOLS				R.L. Surface: ≈ 11.20m					
Date: 28/11/2019						Datum: AHD					
Plant Type: N/A		Logged/Checked by: M.M.P./M.D.									

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty sandy clay, low to medium plasticity, brown, trace of igneous gravel, ash and root fibres. END OF BOREHOLE AT 0.2m	w<PL			GRASS COVER NO FCF 0.1 4.5kg BUCKET NO FCF HAND TOOL REFUSAL
						0.5							
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG



Log No.
MW14
1/1

Environmental logs are not to be used for geotechnical purposes

Client:		HEALTH INFRASTRUCTURE												
Project:		PROPOSED NEW INTEGRATED SERVICES BUILDING												
Location:		GOULBURN STREET, WESTERN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW												
Job No.: E32837BD		Method: HAND TOOLS				R.L. Surface: ≈ 12.54m								
Date: 26/11/2019						Datum: AHD								
Plant Type: N/A		Logged/Checked by: A.M./M.D.												
Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLE- TION							0			FILL: Silty sand, fine to medium grained, brown, trace of igneous gravel, concrete fragments, tile and root fibres.	D			NO FCF 0.1 11.6kg BUCKET NO FCF
						0.5			FILL: Silty clay, low to medium plasticity, brown, trace of concrete fragments and slag. END OF BOREHOLE AT 0.6m	w<PL		4.4kg BUCKET NO FCF		
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG



Log No.
MW15
1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: PROPOSED NEW INTEGRATED SERVICES BUILDING Location: GOULBURN STREET, WESTERN CAMPUS, LIVERPOOL HOSPITAL, LIVERPOOL, NSW													
Job No.: E32837BD			Method: HAND TOOLS			R.L. Surface: ≈ 11.97m							
Date: 26/11/2019			Datum: AHD										
Plant Type: N/A			Logged/Checked by: M.M.P./M.D.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLE- TION						0			FILL: Silty sand, fine to medium grained, brown, trace of ironstone and igneous gravel, brick and concrete fragments, and root fibres. END OF BOREHOLE AT 0.25m	D			NO FCF 0.1 9.7kg BUCKET NO FCF
						0.5							REFUSAL ON INFERRED CONCRETE SLAB
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							



ENVIRONMENTAL LOGS EXPLANATION NOTES

INTRODUCTION

These notes have been provided to amplify the environmental report in regard to classification methods, field procedures and certain matters relating to the logging of soil and rock. Not all notes are necessarily relevant to all reports.

Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies include gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726:2017 'Geotechnical Site Investigations'. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geoenvironmental practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached soil classification table qualified by the grading of other particles present (eg. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose (VL)	< 4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	> 50

Cohesive soils are classified on the basis of strength (consistency) either by use of a hand penetrometer, vane shear, laboratory testing and/or tactile engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	≤ 25	≤ 12
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200
Hard (Hd)	> 400	> 200
Friable (Fr)	Strength not attainable – soil crumbles	

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'shale' is used to describe fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) are referred to as 'laminite'.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for a large excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the

structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of limited reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock cuttings. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be assessed from the cuttings, together with some information from “feel” and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term ‘mud’ encompasses a range of products ranging from bentonite to polymers. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg. from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is

described in Australian Standard 1289.6.3.1–2004 (R2016) ‘*Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)*’.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63.5kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the ‘N’ value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

N = 13
4, 6, 7

- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

N > 30
15, 30/40mm

The results of the test can be related empirically to the engineering properties of the soil.

A modification to the SPT is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as ‘N_c’ on the borehole logs, together with the number of blows per 150mm penetration.

LOGS

The borehole or test pit logs presented herein are an interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will enable the most reliable assessment, but is not always practicable or possible to justify on economic grounds. In any case, the boreholes or test pits represent only a very small sample of the total subsurface conditions.

The terms and symbols used in preparation of the logs are defined in the following pages.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than ‘straight line’ variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg. bricks, steel, etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably assess the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse environmental characteristics or behaviour. If the volume and nature of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classification and rock strengths indicated on the environmental logs unless noted in the report.

SYMBOL LEGENDS

SOIL



FILL



TOPSOIL



CLAY (CL, CI, CH)



SILT (ML, MH)



SAND (SP, SW)



GRAVEL (GP, GW)



SANDY CLAY (CL, CI, CH)



SILTY CLAY (CL, CI, CH)



CLAYEY SAND (SC)



SILTY SAND (SM)



GRAVELLY CLAY (CL, CI, CH)



CLAYEY GRAVEL (GC)



SANDY SILT (ML, MH)



PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK



CONGLOMERATE



SANDSTONE



SHALE/MUDSTONE



SILTSTONE



CLAYSTONE



COAL



LAMINITE



LIMESTONE



PHYLLITE, SCHIST



TUFF



GRANITE, GABBRO



DOLERITE, DIORITE



BASALT, ANDESITE



QUARTZITE

OTHER MATERIALS



BRICKS OR PAVERS



CONCRETE



ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 60% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm)	GW	Gravel and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 6$ $1 < C_c < 3$
		SP	Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		SM	Sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Laboratory Classification Criteria

A well graded coarse grained soil is one for which the coefficient of uniformity $C_u > 4$ and the coefficient of curvature $1 < C_c < 3$. Otherwise, the soil is poorly graded. These coefficients are given by:

$$C_u = \frac{D_{60}}{D_{10}} \quad \text{and} \quad C_c = \frac{(D_{30})^2}{D_{10} D_{60}}$$

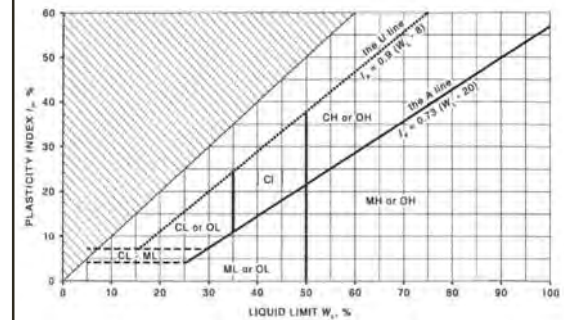
Where D_{10} , D_{30} and D_{60} are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

NOTES:

- For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.
- Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.
- Clay soils with liquid limits $> 35\%$ and $\leq 50\%$ may be classified as being of medium plasticity.
- The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
fine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	—	—	—	—

Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour





LOG SYMBOLS

Log Column	Symbol	Definition
Groundwater Record		Standing water level. Time delay following completion of drilling/excavation may be shown.
		Extent of borehole/test pit collapse shortly after drilling/excavation.
		Groundwater seepage into borehole or test pit noted during drilling or excavation.
Samples	ES	Sample taken over depth indicated, for environmental analysis.
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.
	DB	Bulk disturbed sample taken over depth indicated.
	DS	Small disturbed bag sample taken over depth indicated.
	ASB	Soil sample taken over depth indicated, for asbestos analysis.
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.
	SAL	Soil sample taken over depth indicated, for salinity analysis.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	N _c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25 PID = 100	Vane shear reading in kPa of undrained shear strength. Photoionisation detector reading in ppm (soil sample headspace test).
Moisture Condition (Fine Grained Soils)	w > PL	Moisture content estimated to be greater than plastic limit.
	w ≈ PL	Moisture content estimated to be approximately equal to plastic limit.
	w < PL	Moisture content estimated to be less than plastic limit.
	w ≈ LL	Moisture content estimated to be near liquid limit.
	w > LL	Moisture content estimated to be wet of liquid limit.
(Coarse Grained Soils)	D	DRY – runs freely through fingers.
	M	MOIST – does not run freely but no free water visible on soil surface.
	W	WET – free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS	VERY SOFT – unconfined compressive strength ≤ 25kPa.
	S	SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa.
	F	FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa.
	St	STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa.
	VSt	VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa.
	Hd	HARD – unconfined compressive strength > 400kPa.
	Fr	FRIABLE – strength not attainable, soil crumbles.
	()	Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.
Density Index/ Relative Density (Cohesionless Soils)	VL	VERY LOOSE
	L	LOOSE
	MD	MEDIUM DENSE
	D	DENSE
	VD	VERY DENSE
	()	Bracketed symbol indicates estimated density based on ease of drilling or other assessment.
Hand Penetrometer Readings	300	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.
	250	



Log Column	Symbol	Definition
Remarks	'V' bit 'TC' bit T_{60} Soil Origin	Hardened steel 'V' shaped bit. Twin pronged tungsten carbide bit. Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers. The geological origin of the soil can generally be described as: RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock. EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock. ALLUVIAL – soil deposited by creeks and rivers. ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents. MARINE – soil deposited in a marine environment. AEOLIAN – soil carried and deposited by wind. COLLUVIAL – soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits. LITTORAL – beach deposited soil.

Classification of Material Weathering

Term		Abbreviation		Definition
Residual Soil		RS		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
Extremely Weathered		XW		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.
Highly Weathered	Distinctly Weathered (Note 1)	HW	DW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately Weathered		MW		The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly Weathered		SW		Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
Fresh		FR		Rock shows no sign of decomposition of individual minerals or colour changes.

NOTE 1: The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: 'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'. There is some change in rock strength.

Rock Material Strength Classification

Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Guide to Strength	
			Point Load Strength Index $Is_{(50)}$ (MPa)	Field Assessment
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	M	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	H	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	> 10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.



Borehole Logs JKE Stage 2 ESA 2019

JKEnvironments

ENVIRONMENTAL LOG



Log No.
JKE129
1/1

Environmental logs are not to be used for geotechnical purposes

Client: JOHNSTAFF PROJECTS PTY LTD
Project: PROPOSED LIVERPOOL HOSPITAL - CIVIC & INFRASTRUCTURE WORKS
Location: ELIZABETH STREET, LIVERPOOL, NSW

Job No.: E32465BD **Method:** HAND TOOLS **R.L. Surface:** ≈ 9.91m
Date: 9/8/2019 **Datum:** AHD
Plant Type: N/A **Logged/Checked by:** A.M./M.D.

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB								
DRY ON COMPLETION						0		-	ASPHALTIC CONCRETE: 90mm.t FILL: Gravelly sand, fine to medium grained, grey, fine to medium grained igneous. FILL: Silty clay, low to medium plasticity, brown, with ironstone gravel, trace igneous and sandstone gravel. END OF BOREHOLE AT 0.3m	D w<PL			4.3kg BUCKET NO FCF NOT ENOUGH SAMPLE FOR BUCKET HAND TOOL REFUSAL
						1							
						2							
						3							
						4							
						5							
						6							
						7							

Environmental logs are not to be used for geotechnical purposes

Client:	JOHNSTAFF PROJECTS PTY LTD												
Project:	PROPOSED LIVERPOOL HOSPITAL - CIVIC & INFRASTRUCTURE WORKS												
Location:	ELIZABETH STREET, LIVERPOOL, NSW												
Job No.:	E32465BD	Method:	HAND TOOLS	R.L. Surface:	≈ 10.03m								
Date:	9/8/2019	Datum:	AHD										
Plant Type:	N/A	Logged/Checked by:	A.M./M.D.										
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL DB									
DRY ON COMPLETION						0		-	ASPHALTIC CONCRETE: 70mm.t FILL: Gravelly sand, fine to medium grained, grey, fine to medium grained igneous, trace of sandstone gravel. FILL: Silty clay, low to medium plasticity, brown, with sandstone gravel, trace of igneous gravel. END OF BOREHOLE AT 0.4m	D w<PL			3.4kg BUCKET NO FCF 3.4kg BUCKET NO FCF HAND TOOL REFUSAL
						1							
						2							
						3							
						4							
						5							
						6							
						7							

JKEnvironments

ENVIRONMENTAL LOG



Log No.
JKE133
1/1

Environmental logs are not to be used for geotechnical purposes

Client:

JOHNSTAFF PROJECTS PTY LTD

Project:

PROPOSED LIVERPOOL HOSPITAL - CIVIC & INFRSTRUCTURE WORKS

Location:

ELIZABETH STREET, LIVERPOOL, NSW

Job No.:

E32465BD

Method:

HAND TOOL

R.L. Surface:

≈ 10.35m

Date:

9/8/2019

Datum:

AHD

Plant Type:

N/A

Logged/Checked by:

A.M./M.D.

JKEnvironments

ENVIRONMENTAL LOG



Log No.
JKE134
1/1

Environmental logs are not to be used for geotechnical purposes

Client: JOHNSTAFF PROJECTS PTY LTD Project: PROPOSED LIVERPOOL HOSPITAL - CIVIC & INFRASTRUCTURE WORKS Location: ELIZABETH STREET, LIVERPOOL, NSW															
Job No.: E32465BD Date: 8/8/2019 Plant Type: JK305			Method: SPIRAL AUGER Logged/Checked by: A.M./M.D.			R.L. Surface: ≈ 10.66m Datum: AHD									
Groundwater Record	ES	ASS	ASB	SAL	DB	SAMPLES	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION								0			FILL: Silty sand, fine to coarse grained, brown, trace of igneous gravel and root fibres.	D			12.5kg BUCKET NO FCF
							N = 28 10,15,13	1			FILL: Silty clayey sand, fine to medium grained, red brown, with ironstone gravel, trace of igneous gravel.				8.9kg BUCKET NO FCF
								N = 30 8,13,17		CI-CH	Silty CLAY: medium to high plasticity, brown mottled grey, trace of root fibres.	w<PL			ALLUVIAL
								2			END OF BOREHOLE AT 1.95m				
								3							
								4							
								5							
								6							
								7							

ENVIRONMENTAL LOG

Log No.
JKE135
1/2

Environmental logs are not to be used for geotechnical purposes

Client: JOHNSTAFF PROJECTS PTY LTD
Project: PROPOSED LIVERPOOL HOSPITAL - CIVIC & INFRASTRUCTURE WORKS
Location: ELIZABETH STREET, LIVERPOOL, NSW

Job No.: E32465BD **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 10.87m
Date: 8/8/2019 **Datum:** AHD
Plant Type: JK305 **Logged/Checked by:** A.M./M.D.

Groundwater Record	ES	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
							0		-	ASPHALTIC CONCRETE: 50mm.t FILL: Gravelly sand, fine to medium grained, grey, fine to medium grained igneous.	D			2.7kg BUCKET NO FCF NOT ENOUGH SAMPLE FOR BUCKET 11.7kg BUCKET NO FCF
						N = 20 9,12,8	1			FILL: Sandy gravel, fine to coarse grained, light brown, sandstone, fine to medium grained sand.	w<PL			
									CI-CH	FILL: Silty clay, low to medium plasticity, brown, trace of sandstone, igneous and ironstone gravel, brick fragment, slag and ash.	w<PL			ALLUVIAL
						N = 25 7,10,15	2			Silty CLAY: medium to high plasticity, brown mottled grey, trace of root fibres.				
							3			Silty CLAY: medium to high plasticity, grey mottled red brown.	w≈PL			
						N = 13 4,5,8	4			Silty CLAY: medium to high plasticity, brown.	w>PL			
							5			Silty CLAY: medium to high plasticity, grey mottled orange brown, trace of ironstone gravel.	w<PL			
						N = 15 4,6,9	6							
							7							
						N = 17 5,7,10								

JKEnvironments

ENVIRONMENTAL LOG



Log No.
JKE135
2/2

Environmental logs are not to be used for geotechnical purposes

Client: JOHNSTAFF PROJECTS PTY LTD Project: PROPOSED LIVERPOOL HOSPITAL - CIVIC & INFRASTRUCTURE WORKS Location: ELIZABETH STREET, LIVERPOOL, NSW															
Job No.: E32465BD Date: 8/8/2019 Plant Type: JK305		Method: SPIRAL AUGER Logged/Checked by: A.M./M.D.			R.L. Surface: ≈ 10.87m Datum: AHD										
Groundwater Record	ES	ASS	ASB	SAMPLES	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
ON 16/8/19 ON COMPLETION OF AUGERING 							N = 12 4,5,7	8		CI-CH	Silty CLAY: medium to high plasticity, grey mottled orange brown, trace of ironstone gravel.	w>PL			
							N = 7 4,3,4	9		CL-CI	Silty sandy CLAY: low to medium plasticity, brown, mottled orange brown, fine to coarse grained sand.	w>PL			
								10			END OF BORHEOLE AT 10.0m				Groundwater monitoring well installed to 10.0m. Class 18 machine slotted 50mm dia. PVC standpipe 10.0m to 2.0m. Casing 2.0m to 0.0m. 2mm sand filter pack 10.0m to 1.8m. Bentonite seal 1.8m to 1.0m. Backfilled with sand (and/or cuttings) to the surface. Completed with a concreted gatic cover.
								11							
								12							
								13							
								14							

JKEnvironments

ENVIRONMENTAL LOG



Log No.
JKE136
1/1

Environmental logs are not to be used for geotechnical purposes

Client: JOHNSTAFF PROJECTS PTY LTD Project: PROPOSED LIVERPOOL HOSPITAL - CIVIC & INFRSTRUCTURE WORKS Location: ELIZABETH STREET, LIVERPOOL, NSW													
Job No.: E32465BD Date: 8/8/19 Plant Type: JK305			Method: SPIRAL AUGER Logged/Checked by: A.M./M.D.			R.L. Surface: ≈ 10.48m Datum: AHD							
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty clay, low to medium plasticity, brown, trace of sandstone and igneous gravel and ash.	w<PL			11.1kg BUCKET NO FCF
									FILL: Silty clay, medium to high plasticity, grey brown, trace of igneous gravel, concrete fragments, ash and root fibres.	w>PL			10.4kg BUCKET NO FCF
					N = 8 4,4,4	1		CI-CH	Silty CLAY: medium to high plasticity, brown mottled grey, trace of root fibres.	w>PL			ALLUVIAL
					N = 10 4,4,6					as above, but red brown mottled grey.	w>PL		
						2			END OF BOREHOLE AT 1.95m				
						3							
						4							
						5							
						6							
						7							

JKEnvironments

ENVIRONMENTAL LOG



Log No.
JKE137
1/1

Environmental logs are not to be used for geotechnical purposes

Client:

JOHNSTAFF PROJECTS PTY LTD

Project:

PROPOSED LIVERPOOL HOSPITAL - CIVIC & INFRSTRUCTURE WORKS

Location:

ELIZABETH STREET, LIVERPOOL, NSW

Job No.:

E32465BD

Method:

SPIRAL AUGER

R.L. Surface:

≈ 10.58m

Date:

8/8/19

Datum:

AHD

Plant Type:

JK305

Logged/Checked by:

A.M./M.D.



ENVIRONMENTAL LOGS EXPLANATION NOTES

INTRODUCTION

These notes have been provided to amplify the environmental report in regard to classification methods, field procedures and certain matters relating to the logging of soil and rock. Not all notes are necessarily relevant to all reports.

Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies include gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726:2017 'Geotechnical Site Investigations'. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geoenvironmental practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached soil classification table qualified by the grading of other particles present (eg. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose (VL)	< 4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	> 50

Cohesive soils are classified on the basis of strength (consistency) either by use of a hand penetrometer, vane shear, laboratory testing and/or tactile engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	≤ 25	≤ 12
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200
Hard (Hd)	> 400	> 200
Friable (Fr)	Strength not attainable – soil crumbles	

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'shale' is used to describe fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) are referred to as 'laminite'.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for a large excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the

structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of limited reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock cuttings. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be assessed from the cuttings, together with some information from “feel” and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term ‘mud’ encompasses a range of products ranging from bentonite to polymers. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg. from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is

described in Australian Standard 1289.6.3.1–2004 (R2016) ‘*Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)*’.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63.5kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the ‘N’ value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

N = 13
4, 6, 7

- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

N > 30
15, 30/40mm

The results of the test can be related empirically to the engineering properties of the soil.

A modification to the SPT is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as ‘N_c’ on the borehole logs, together with the number of blows per 150mm penetration.

LOGS

The borehole or test pit logs presented herein are an interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will enable the most reliable assessment, but is not always practicable or possible to justify on economic grounds. In any case, the boreholes or test pits represent only a very small sample of the total subsurface conditions.

The terms and symbols used in preparation of the logs are defined in the following pages.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than ‘straight line’ variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg. bricks, steel, etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably assess the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse environmental characteristics or behaviour. If the volume and nature of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classification and rock strengths indicated on the environmental logs unless noted in the report.

SYMBOL LEGENDS

SOIL



FILL



TOPSOIL



CLAY (CL, CI, CH)



SILT (ML, MH)



SAND (SP, SW)



GRAVEL (GP, GW)



SANDY CLAY (CL, CI, CH)



SILTY CLAY (CL, CI, CH)



CLAYEY SAND (SC)



SILTY SAND (SM)



GRAVELLY CLAY (CL, CI, CH)



CLAYEY GRAVEL (GC)



SANDY SILT (ML, MH)



PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK



CONGLOMERATE



SANDSTONE



SHALE/MUDSTONE



SILTSTONE



CLAYSTONE



COAL



LAMINITE



LIMESTONE



PHYLLITE, SCHIST



TUFF



GRANITE, GABBRO



DOLERITE, DIORITE



BASALT, ANDESITE



QUARTZITE

OTHER MATERIALS



BRICKS OR PAVERS



CONCRETE



ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 60% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm)	GW	Gravel and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 6$ $1 < C_c < 3$
		SP	Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		SM	Sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Laboratory Classification Criteria

A well graded coarse grained soil is one for which the coefficient of uniformity $C_u > 4$ and the coefficient of curvature $1 < C_c < 3$. Otherwise, the soil is poorly graded. These coefficients are given by:

$$C_u = \frac{D_{60}}{D_{10}} \quad \text{and} \quad C_c = \frac{(D_{30})^2}{D_{10} D_{60}}$$

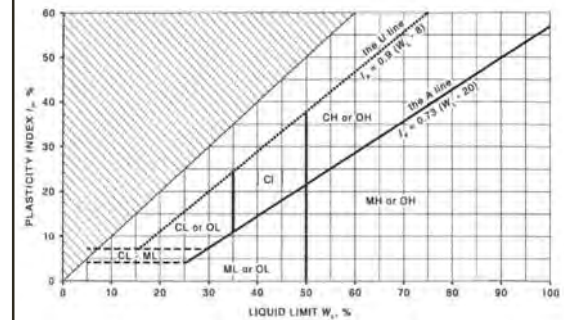
Where D_{10} , D_{30} and D_{60} are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

NOTES:

- For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.
- Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.
- Clay soils with liquid limits $> 35\%$ and $\leq 50\%$ may be classified as being of medium plasticity.
- The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
fine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	—	—	—	—

Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour





LOG SYMBOLS

Log Column	Symbol	Definition
Groundwater Record		Standing water level. Time delay following completion of drilling/excavation may be shown.
		Extent of borehole/test pit collapse shortly after drilling/excavation.
		Groundwater seepage into borehole or test pit noted during drilling or excavation.
Samples	ES	Sample taken over depth indicated, for environmental analysis.
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.
	DB	Bulk disturbed sample taken over depth indicated.
	DS	Small disturbed bag sample taken over depth indicated.
	ASB	Soil sample taken over depth indicated, for asbestos analysis.
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.
	SAL	Soil sample taken over depth indicated, for salinity analysis.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	N _c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25 PID = 100	Vane shear reading in kPa of undrained shear strength. Photoionisation detector reading in ppm (soil sample headspace test).
Moisture Condition (Fine Grained Soils)	w > PL	Moisture content estimated to be greater than plastic limit.
	w ≈ PL	Moisture content estimated to be approximately equal to plastic limit.
	w < PL	Moisture content estimated to be less than plastic limit.
	w ≈ LL	Moisture content estimated to be near liquid limit.
	w > LL	Moisture content estimated to be wet of liquid limit.
(Coarse Grained Soils)	D	DRY – runs freely through fingers.
	M	MOIST – does not run freely but no free water visible on soil surface.
	W	WET – free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS	VERY SOFT – unconfined compressive strength ≤ 25kPa.
	S	SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa.
	F	FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa.
	St	STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa.
	VSt	VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa.
	Hd	HARD – unconfined compressive strength > 400kPa.
	Fr	FRIABLE – strength not attainable, soil crumbles.
	()	Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.
Density Index/ Relative Density (Cohesionless Soils)	VL	VERY LOOSE
	L	LOOSE
	MD	MEDIUM DENSE
	D	DENSE
	VD	VERY DENSE
	()	Bracketed symbol indicates estimated density based on ease of drilling or other assessment.
Hand Penetrometer Readings	300	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.
	250	



Log Column	Symbol	Definition
Remarks	'V' bit 'TC' bit T_{60} Soil Origin	Hardened steel 'V' shaped bit. Twin pronged tungsten carbide bit. Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers. The geological origin of the soil can generally be described as: RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock. EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock. ALLUVIAL – soil deposited by creeks and rivers. ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents. MARINE – soil deposited in a marine environment. AEOLIAN – soil carried and deposited by wind. COLLUVIAL – soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits. LITTORAL – beach deposited soil.

Classification of Material Weathering

Term		Abbreviation		Definition
Residual Soil		RS		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
Extremely Weathered		XW		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.
Highly Weathered	Distinctly Weathered (Note 1)	HW	DW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately Weathered		MW		The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly Weathered		SW		Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
Fresh		FR		Rock shows no sign of decomposition of individual minerals or colour changes.

NOTE 1: The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: 'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'. There is some change in rock strength.

Rock Material Strength Classification

Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Guide to Strength	
			Point Load Strength Index $Is_{(50)}$ (MPa)	Field Assessment
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	M	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	H	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	> 10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.



Appendix E: Laboratory Reports & COC Documents

CERTIFICATE OF ANALYSIS 232077

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	32837BD, Liverpool
Number of Samples	42 Soil, 2 Water, 3 Material
Date samples received	02/12/2019
Date completed instructions received	02/12/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	09/12/2019
Date of Issue	06/12/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

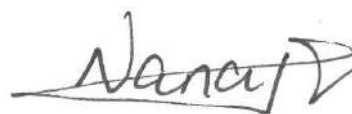
Asbestos Approved By

Analysed by Asbestos Approved Identifier: Aida Marner, Lucy Zhu
 Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Jaimie Loa-Kum-Cheung, Metals Supervisor
 Josh Williams, Senior Chemist
 Lucy Zhu, Senior Asbestos Analyst
 Steven Luong, Organics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		232077-4	232077-5	232077-6	232077-7	232077-8
Your Reference	UNITS	MW1	MW1	MW2	MW2	MW3
Depth		0.7-0.9	1.5-1.7	0.05-0.3	1.5-1.7	0-0.2
Date Sampled		26/11/2019	26/11/2019	28/11/2019	28/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	109	116	117	113	102

vTRH(C6-C10)/BTEXN in Soil

Our Reference		232077-9	232077-10	232077-11	232077-13	232077-14
Your Reference	UNITS	MW3	MW3	MW3	MW4	MW4
Depth		1-1.5	2.1-2.4	3.3-3.45	0-0.2	0.2-0.4
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	93	124	107	108	97

vTRH(C6-C10)/BTEXN in Soil

Our Reference		232077-15	232077-16	232077-17	232077-18	232077-19
Your Reference	UNITS	MW5	MW5	MW6	MW6	MW7
Depth		0-0.2	0.3-0.4	0-0.1	0.1-0.2	0-0.1
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	114	107	115	124	124

vTRH(C6-C10)/BTEXN in Soil

Our Reference		232077-20	232077-21	232077-22	232077-23	232077-24
Your Reference	UNITS	MW8	MW8	MW9	MW9	MW10
Depth		0-0.2	0.2-0.4	0-0.15	0.2-0.4	0-0.3
Date Sampled		27/11/2019	27/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	109	99	100	104	87

vTRH(C6-C10)/BTEXN in Soil

Our Reference		232077-25	232077-26	232077-27	232077-28	232077-30
Your Reference	UNITS	MW11	MW11	MW12	MW12	MW13
Depth		0-0.2	0.2-0.6	0-0.1	0.15-0.3	0-0.1
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	126	104	105	120	115

vTRH(C6-C10)/BTEXN in Soil

Our Reference		232077-31	232077-32	232077-33	232077-35	232077-39
Your Reference	UNITS	MW14	MW14	MW15	DUPMP102	DUPMP107
Depth		0-0.2	0.45-0.6	0-0.2	-	-
Date Sampled		26/11/2019	26/11/2019	26/11/2019	26/11/2019	26/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	111	110	107	108	123

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		232077-41	232077-47
Your Reference	UNITS	TB-S1	TS-S1
Depth		-	-
Date Sampled		26/11/2019	26/11/2019
Type of sample		Soil	Soil
Date extracted	-	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019
Benzene	mg/kg	<0.2	94%
Toluene	mg/kg	<0.5	88%
Ethylbenzene	mg/kg	<1	91%
m+p-xylene	mg/kg	<2	100%
o-Xylene	mg/kg	<1	99%
naphthalene	mg/kg	<1	[NA]
Total +ve Xylenes	mg/kg	<3	[NA]
Surrogate aaa-Trifluorotoluene	%	119	114

svTRH (C10-C40) in Soil						
Our Reference	UNITS	232077-4	232077-5	232077-6	232077-7	232077-8
Your Reference		MW1	MW1	MW2	MW2	MW3
Depth		0.7-0.9	1.5-1.7	0.05-0.3	1.5-1.7	0-0.2
Date Sampled		26/11/2019	26/11/2019	28/11/2019	28/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	05/12/2019	04/12/2019	04/12/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	140	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	130	<100	320	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	160	<100	340	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	160	<100	400	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	320	<50	740	<50	<50
Surrogate o-Terphenyl	%	80	81	87	81	82

svTRH (C10-C40) in Soil						
Our Reference	UNITS	232077-9	232077-10	232077-11	232077-13	232077-14
Your Reference		MW3	MW3	MW3	MW4	MW4
Depth		1-1.5	2.1-2.4	3.3-3.45	0-0.2	0.2-0.4
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	140	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	81	82	82	84	82

svTRH (C10-C40) in Soil

Our Reference		232077-15	232077-16	232077-17	232077-18	232077-19
Your Reference	UNITS	MW5	MW5	MW6	MW6	MW7
Depth		0-0.2	0.3-0.4	0-0.1	0.1-0.2	0-0.1
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	83	83	84	83	84

svTRH (C10-C40) in Soil

Our Reference		232077-20	232077-21	232077-22	232077-23	232077-24
Your Reference	UNITS	MW8	MW8	MW9	MW9	MW10
Depth		0-0.2	0.2-0.4	0-0.15	0.2-0.4	0-0.3
Date Sampled		27/11/2019	27/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	05/12/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	81	82	87	82	83

svTRH (C10-C40) in Soil

Our Reference		232077-25	232077-26	232077-27	232077-28	232077-30
Your Reference	UNITS	MW11	MW11	MW12	MW12	MW13
Depth		0-0.2	0.2-0.6	0-0.1	0.15-0.3	0-0.1
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	120	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	220	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	270	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	230	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	500	<50	<50
Surrogate o-Terphenyl	%	81	82	83	79	81

svTRH (C10-C40) in Soil

Our Reference		232077-31	232077-32	232077-33	232077-35	232077-39
Your Reference	UNITS	MW14	MW14	MW15	DUPMP102	DUPMP107
Depth		0-0.2	0.45-0.6	0-0.2	-	-
Date Sampled		26/11/2019	26/11/2019	26/11/2019	26/11/2019	26/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	260	130	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	250	150	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	65	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	65	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	420	240	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	190	140	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	680	370	<50
Surrogate o-Terphenyl	%	81	81	88	87	84

PAHs in Soil						
Our Reference		232077-4	232077-5	232077-6	232077-7	232077-8
Your Reference	UNITS	MW1	MW1	MW2	MW2	MW3
Depth		0.7-0.9	1.5-1.7	0.05-0.3	1.5-1.7	0-0.2
Date Sampled		26/11/2019	26/11/2019	28/11/2019	28/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.4	<0.1	0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.5	<0.1	0.2	<0.1	0.1
Pyrene	mg/kg	0.7	<0.1	0.2	<0.1	0.1
Benzo(a)anthracene	mg/kg	0.2	<0.1	0.1	<0.1	<0.1
Chrysene	mg/kg	0.2	<0.1	0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.3	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.2	<0.05	0.1	<0.05	0.06
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	<0.1	0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	2.8	<0.05	0.90	<0.05	0.3
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	98	98	96	95	96

PAHs in Soil						
Our Reference		232077-9	232077-10	232077-11	232077-13	232077-14
Your Reference	UNITS	MW3	MW3	MW3	MW4	MW4
Depth		1-1.5	2.1-2.4	3.3-3.45	0-0.2	0.2-0.4
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.2	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	1.6	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	97	95	98	93	89

PAHs in Soil						
Our Reference		232077-15	232077-16	232077-17	232077-18	232077-19
Your Reference	UNITS	MW5	MW5	MW6	MW6	MW7
Depth		0-0.2	0.3-0.4	0-0.1	0.1-0.2	0-0.1
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.08	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.08	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	95	100	93	95	100

PAHs in Soil						
Our Reference		232077-20	232077-21	232077-22	232077-23	232077-24
Your Reference	UNITS	MW8	MW8	MW9	MW9	MW10
Depth		0-0.2	0.2-0.4	0-0.15	0.2-0.4	0-0.3
Date Sampled		27/11/2019	27/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.1	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	0.3	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	92	95	96	95	96

PAHs in Soil						
Our Reference		232077-25	232077-26	232077-27	232077-28	232077-30
Your Reference	UNITS	MW11	MW11	MW12	MW12	MW13
Depth		0-0.2	0.2-0.6	0-0.1	0.15-0.3	0-0.1
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.1	<0.1	<0.1	0.2
Pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	0.2
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.3
Benzo(a)pyrene	mg/kg	<0.05	0.08	<0.05	<0.05	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Total +ve PAH's	mg/kg	<0.05	0.3	<0.05	<0.05	1.5
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	95	95	94	95	92

PAHs in Soil						
Our Reference		232077-31	232077-32	232077-33	232077-35	232077-39
Your Reference	UNITS	MW14	MW14	MW15	DUPMP102	DUPMP107
Depth		0-0.2	0.45-0.6	0-0.2	-	-
Date Sampled		26/11/2019	26/11/2019	26/11/2019	26/11/2019	26/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Pyrene	mg/kg	<0.1	<0.1	0.2	<0.1	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.06
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	0.3	<0.05	0.3
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	94	96	96	94	94

Organochlorine Pesticides in soil						
Our Reference	UNITS	232077-6	232077-8	232077-9	232077-13	232077-14
Your Reference		MW2	MW3	MW3	MW4	MW4
Depth		0.05-0.3	0-0.2	1-1.5	0-0.2	0.2-0.4
Date Sampled		28/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	90	90	85	82

Organochlorine Pesticides in soil

Our Reference		232077-15	232077-16	232077-17	232077-18	232077-19
Your Reference	UNITS	MW5	MW5	MW6	MW6	MW7
Depth		0-0.2	0.3-0.4	0-0.1	0.1-0.2	0-0.1
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	92	85	87	91

Organochlorine Pesticides in soil						
Our Reference		232077-20	232077-21	232077-22	232077-23	232077-24
Your Reference	UNITS	MW8	MW8	MW9	MW9	MW10
Depth		0-0.2	0.2-0.4	0-0.15	0.2-0.4	0-0.3
Date Sampled		27/11/2019	27/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	85	86	90	87	98

Organochlorine Pesticides in soil

Our Reference		232077-25	232077-26	232077-27	232077-28	232077-30
Your Reference	UNITS	MW11	MW11	MW12	MW12	MW13
Depth		0-0.2	0.2-0.6	0-0.1	0.15-0.3	0-0.1
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	95	93	94	91

Organochlorine Pesticides in soil					
Our Reference		232077-31	232077-32	232077-33	232077-35
Your Reference	UNITS	MW14	MW14	MW15	DUPMP102
Depth		0-0.2	0.45-0.6	0-0.2	-
Date Sampled		26/11/2019	26/11/2019	26/11/2019	26/11/2019
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	97	97	96	96

Organophosphorus Pesticides in Soil						
Our Reference	UNITS	232077-6	232077-8	232077-9	232077-13	232077-14
Your Reference		MW2	MW3	MW3	MW4	MW4
Depth		0.05-0.3	0-0.2	1-1.5	0-0.2	0.2-0.4
Date Sampled		28/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	90	90	85	82

Organophosphorus Pesticides in Soil

Our Reference		232077-15	232077-16	232077-17	232077-18	232077-19
Your Reference	UNITS	MW5	MW5	MW6	MW6	MW7
Depth		0-0.2	0.3-0.4	0-0.1	0.1-0.2	0-0.1
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	92	85	87	91

Organophosphorus Pesticides in Soil

Our Reference		232077-20	232077-21	232077-22	232077-23	232077-24
Your Reference	UNITS	MW8	MW8	MW9	MW9	MW10
Depth		0-0.2	0.2-0.4	0-0.15	0.2-0.4	0-0.3
Date Sampled		27/11/2019	27/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	85	86	90	87	98

Organophosphorus Pesticides in Soil

Our Reference		232077-25	232077-26	232077-27	232077-28	232077-30
Your Reference	UNITS	MW11	MW11	MW12	MW12	MW13
Depth		0-0.2	0.2-0.6	0-0.1	0.15-0.3	0-0.1
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	95	93	94	91

Organophosphorus Pesticides in Soil

Our Reference		232077-31	232077-32	232077-33	232077-35
Your Reference	UNITS	MW14	MW14	MW15	DUPMP102
Depth		0-0.2	0.45-0.6	0-0.2	-
Date Sampled		26/11/2019	26/11/2019	26/11/2019	26/11/2019
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	97	97	96	96

PCBs in Soil						
Our Reference	UNITS	232077-6	232077-8	232077-9	232077-13	232077-14
Your Reference		MW2	MW3	MW3	MW4	MW4
Depth		0.05-0.3	0-0.2	1-1.5	0-0.2	0.2-0.4
Date Sampled		28/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	90	90	85	82

PCBs in Soil						
Our Reference	UNITS	232077-15	232077-16	232077-17	232077-18	232077-19
Your Reference		MW5	MW5	MW6	MW6	MW7
Depth		0-0.2	0.3-0.4	0-0.1	0.1-0.2	0-0.1
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	92	85	87	91

PCBs in Soil						
Our Reference		232077-20	232077-21	232077-22	232077-23	232077-24
Your Reference	UNITS	MW8	MW8	MW9	MW9	MW10
Depth		0-0.2	0.2-0.4	0-0.15	0.2-0.4	0-0.3
Date Sampled		27/11/2019	27/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	85	86	90	87	98

PCBs in Soil						
Our Reference		232077-25	232077-26	232077-27	232077-28	232077-30
Your Reference	UNITS	MW11	MW11	MW12	MW12	MW13
Depth		0-0.2	0.2-0.6	0-0.1	0.15-0.3	0-0.1
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	95	93	94	91

PCBs in Soil					
Our Reference		232077-31	232077-32	232077-33	232077-35
Your Reference	UNITS	MW14	MW14	MW15	DUPMP102
Depth		0-0.2	0.45-0.6	0-0.2	-
Date Sampled		26/11/2019	26/11/2019	26/11/2019	26/11/2019
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	05/12/2019	05/12/2019	05/12/2019	05/12/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	97	97	96	96

Acid Extractable metals in soil

Our Reference		232077-4	232077-5	232077-6	232077-7	232077-8
Your Reference	UNITS	MW1	MW1	MW2	MW2	MW3
Depth		0.7-0.9	1.5-1.7	0.05-0.3	1.5-1.7	0-0.2
Date Sampled		26/11/2019	26/11/2019	28/11/2019	28/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Arsenic	mg/kg	7	13	5	<4	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	23	19	8	15
Copper	mg/kg	22	16	29	4	20
Lead	mg/kg	130	15	20	7	29
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	21	5	17	1	19
Zinc	mg/kg	140	18	34	2	39

Acid Extractable metals in soil

Our Reference		232077-9	232077-10	232077-11	232077-13	232077-14
Your Reference	UNITS	MW3	MW3	MW3	MW4	MW4
Depth		1-1.5	2.1-2.4	3.3-3.45	0-0.2	0.2-0.4
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Arsenic	mg/kg	5	6	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	8	4	12	380
Copper	mg/kg	26	8	2	12	57
Lead	mg/kg	39	9	<1	11	23
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	23	2	<1	6	15
Zinc	mg/kg	44	5	1	40	63

Acid Extractable metals in soil

Our Reference		232077-15	232077-16	232077-17	232077-18	232077-19
Your Reference	UNITS	MW5	MW5	MW6	MW6	MW7
Depth		0-0.2	0.3-0.4	0-0.1	0.1-0.2	0-0.1
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Arsenic	mg/kg	<4	<4	<4	<4	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	13	8	10	9
Copper	mg/kg	7	39	6	11	14
Lead	mg/kg	7	21	7	14	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	52	4	11	3
Zinc	mg/kg	20	48	17	35	63

Acid Extractable metals in soil

Our Reference		232077-20	232077-21	232077-22	232077-23	232077-24
Your Reference	UNITS	MW8	MW8	MW9	MW9	MW10
Depth		0-0.2	0.2-0.4	0-0.15	0.2-0.4	0-0.3
Date Sampled		27/11/2019	27/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Arsenic	mg/kg	<4	6	<4	9	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	14	5	10	14
Copper	mg/kg	23	12	10	22	18
Lead	mg/kg	21	18	25	19	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	7	3	11	14
Zinc	mg/kg	66	17	54	49	58

Acid Extractable metals in soil

Our Reference		232077-25	232077-26	232077-27	232077-28	232077-30
Your Reference	UNITS	MW11	MW11	MW12	MW12	MW13
Depth		0-0.2	0.2-0.6	0-0.1	0.15-0.3	0-0.1
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Arsenic	mg/kg	<4	9	5	5	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	20	12	10	13
Copper	mg/kg	9	13	13	23	16
Lead	mg/kg	5	33	30	39	53
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	7	11	5	10	5
Zinc	mg/kg	17	44	74	56	37

Acid Extractable metals in soil

Our Reference		232077-31	232077-32	232077-33	232077-35	232077-39
Your Reference	UNITS	MW14	MW14	MW15	DUPMP102	DUPMP107
Depth		0-0.2	0.45-0.6	0-0.2	-	-
Date Sampled		26/11/2019	26/11/2019	26/11/2019	26/11/2019	26/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Arsenic	mg/kg	<4	<4	<4	5	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	22	15	15	18	5
Copper	mg/kg	27	25	29	27	12
Lead	mg/kg	16	24	18	17	24
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	19	8	8	3
Zinc	mg/kg	50	43	70	49	60

Acid Extractable metals in soil		
Our Reference		232077-48
Your Reference	UNITS	MW8 - [TRIPLICATE]
Depth		0.2-0.4
Date Sampled		27/11/2019
Type of sample		Soil
Date prepared	-	04/12/2019
Date analysed	-	04/12/2019
Arsenic	mg/kg	9
Cadmium	mg/kg	<0.4
Chromium	mg/kg	17
Copper	mg/kg	17
Lead	mg/kg	15
Mercury	mg/kg	<0.1
Nickel	mg/kg	7
Zinc	mg/kg	24

Moisture						
Our Reference	UNITS	232077-4	232077-5	232077-6	232077-7	232077-8
Your Reference		MW1	MW1	MW2	MW2	MW3
Depth		0.7-0.9	1.5-1.7	0.05-0.3	1.5-1.7	0-0.2
Date Sampled		26/11/2019	26/11/2019	28/11/2019	28/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Moisture	%	12	24	12	16	7.3

Moisture						
Our Reference	UNITS	232077-9	232077-10	232077-11	232077-13	232077-14
Your Reference		MW3	MW3	MW3	MW4	MW4
Depth		1-1.5	2.1-2.4	3.3-3.45	0-0.2	0.2-0.4
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Moisture	%	8.6	14	16	11	7.8

Moisture						
Our Reference	UNITS	232077-15	232077-16	232077-17	232077-18	232077-19
Your Reference		MW5	MW5	MW6	MW6	MW7
Depth		0-0.2	0.3-0.4	0-0.1	0.1-0.2	0-0.1
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Moisture	%	7.9	4.6	7.7	5.6	8.5

Moisture						
Our Reference	UNITS	232077-20	232077-21	232077-22	232077-23	232077-24
Your Reference		MW8	MW8	MW9	MW9	MW10
Depth		0-0.2	0.2-0.4	0-0.15	0.2-0.4	0-0.3
Date Sampled		27/11/2019	27/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Moisture	%	11	16	4.2	13	5.4

Moisture						
Our Reference	UNITS	232077-25	232077-26	232077-27	232077-28	232077-30
Your Reference		MW11	MW11	MW12	MW12	MW13
Depth		0-0.2	0.2-0.6	0-0.1	0.15-0.3	0-0.1
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Moisture	%	4.1	11	14	14	7.9

Moisture						
Our Reference	UNITS	232077-31	232077-32	232077-33	232077-35	232077-39
Your Reference		MW14	MW14	MW15	DUPMP102	DUPMP107
Depth		0-0.2	0.45-0.6	0-0.2	-	-
Date Sampled		26/11/2019	26/11/2019	26/11/2019	26/11/2019	26/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Moisture	%	6.6	7.1	11	7.6	4.6

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Our Reference		232077-1	232077-2	232077-3	232077-6	232077-8
Your Reference	UNITS	MW1	MW1	MW1	MW2	MW3
Depth		0.05-0.2	0.2-0.4	0.5-0.7	0.05-0.3	0-0.2
Date Sampled		26/11/2019	26/11/2019	26/11/2019	28/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Sample mass tested	g	726.31	718.01	727.26	490.39	789.9
Sample Description	-	Grey coarse-grained soil & rocks	Brown clayey soil & rocks	Brown coarse-grained soil & rocks	Brown clayey soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

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Our Reference		232077-9	232077-13	232077-14	232077-15	232077-16
Your Reference	UNITS	MW3	MW4	MW4	MW5	MW5
Depth		1-1.5	0-0.2	0.2-0.4	0-0.2	0.3-0.4
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Sample mass tested	g	449.01	444.37	956.26	577.97	1,009.4
Sample Description	-	Brown coarse-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

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Our Reference		232077-17	232077-18	232077-19	232077-20	232077-21
Your Reference	UNITS	MW6	MW6	MW7	MW8	MW8
Depth		0-0.1	0.1-0.2	0-0.1	0-0.2	0.2-0.4
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Sample mass tested	g	581.03	790.1	479.9	693.16	593.46
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown coarse-grained soil & rocks	Brown fine-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001

Our Reference		232077-22	232077-23	232077-24	232077-25	232077-26
Your Reference	UNITS	MW9	MW9	MW10	MW11	MW11
Depth		0-0.15	0.2-0.4	0-0.3	0-0.2	0.2-0.6
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Sample mass tested	g	763.37	641.82	874.2	869.42	694.34
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown fine-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

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Our Reference		232077-27	232077-28	232077-30	232077-31	232077-32
Your Reference	UNITS	MW12	MW12	MW13	MW14	MW14
Depth		0-0.1	0.15-0.3	0-0.1	0-0.2	0.45-0.6
Date Sampled		28/11/2019	28/11/2019	28/11/2019	26/11/2019	26/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Sample mass tested	g	552.03	582.42	740.11	615.94	839.2
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected Synthetic mineral fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001		
Our Reference		232077-33
Your Reference	UNITS	MW15
Depth		0-0.2
Date Sampled		26/11/2019
Type of sample		Soil
Date analysed	-	04/12/2019
Sample mass tested	g	541.86
Sample Description	-	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected
ACM >7mm Estimation*	g	—
FA and AF Estimation*	g	—
ACM >7mm Estimation*	%(w/w)	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001

Asbestos ID - materials				
Our Reference	UNITS	232077-44	232077-45	232077-46
Your Reference		FCF1	FCF2	FCF3
Depth		-	-	-
Date Sampled		26/11/2019	26/11/2019	26/11/2019
Type of sample		Material	Material	Material
Date analysed	-	04/12/2019	04/12/2019	04/12/2019
Mass / Dimension of Sample	-	42x27x4mm	25x25x4mm	76x72x4mm
Sample Description	-	Beige fibre cement material	Beige fibre cement material	Beige fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected
Trace Analysis	-	Not Tested	Not Tested	Not Tested

BTEX in Water		
Our Reference	UNITS	232077-42
Your Reference		FRMW1
Depth		-
Date Sampled		26/11/2019
Type of sample		Water
Date extracted	-	04/12/2019
Date analysed	-	05/12/2019
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Surrogate Dibromofluoromethane	%	107
Surrogate toluene-d8	%	98
Surrogate 4-BFB	%	109

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) NOTE #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
AT-008	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).

Method ID	Methodology Summary
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-012/017	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS.
Org-012/017	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS and/or GC-MS/MS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-012/017	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate		Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	232077-8
Date extracted	-			04/12/2019	6	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			05/12/2019	6	05/12/2019	05/12/2019		05/12/2019	05/12/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	6	<25	<25	0	118	121
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	6	<25	<25	0	118	121
Benzene	mg/kg	0.2	Org-016	<0.2	6	<0.2	<0.2	0	96	90
Toluene	mg/kg	0.5	Org-016	<0.5	6	<0.5	<0.5	0	123	115
Ethylbenzene	mg/kg	1	Org-016	<1	6	<1	<1	0	124	133
m+p-xylene	mg/kg	2	Org-016	<2	6	<2	<2	0	124	133
o-Xylene	mg/kg	1	Org-016	<1	6	<1	<1	0	122	130
naphthalene	mg/kg	1	Org-014	<1	6	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	116	6	117	110	6	136	127

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate		Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	232077-22
Date extracted	-			[NT]	21	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			[NT]	21	05/12/2019	05/12/2019		05/12/2019	05/12/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	21	<25	<25	0	105	106
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	21	<25	<25	0	105	106
Benzene	mg/kg	0.2	Org-016	[NT]	21	<0.2	<0.2	0	81	78
Toluene	mg/kg	0.5	Org-016	[NT]	21	<0.5	<0.5	0	102	106
Ethylbenzene	mg/kg	1	Org-016	[NT]	21	<1	<1	0	114	117
m+p-xylene	mg/kg	2	Org-016	[NT]	21	<2	<2	0	113	115
o-Xylene	mg/kg	1	Org-016	[NT]	21	<1	<1	0	112	114
naphthalene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	21	99	109	10	108	111

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate		Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	27	04/12/2019	04/12/2019		[NT]	[NT]
Date analysed	-			[NT]	27	05/12/2019	05/12/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	27	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	27	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	27	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	27	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	27	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	27	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	27	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	27	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	27	105	118	12	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	232077-8
Date extracted	-			04/12/2019	6	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			05/12/2019	6	05/12/2019	05/12/2019		04/12/2019	04/12/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	6	<50	<50	0	110	110
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	6	140	160	13	118	123
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	6	320	310	3	121	72
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	6	<50	<50	0	110	110
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	6	340	370	8	118	123
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	6	400	410	2	121	72
Surrogate o-Terphenyl	%		Org-003	82	6	87	85	2	93	96

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	232077-22
Date extracted	-			[NT]	21	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			[NT]	21	04/12/2019	04/12/2019		05/12/2019	04/12/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	21	<50	<50	0	106	107
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	21	<100	<100	0	109	109
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	21	<100	<100	0	106	105
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	21	<50	<50	0	106	107
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	21	<100	<100	0	109	109
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	21	<100	<100	0	106	105
Surrogate o-Terphenyl	%		Org-003	[NT]	21	82	83	1	94	97

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	27	04/12/2019	04/12/2019		[NT]	[NT]
Date analysed	-			[NT]	27	05/12/2019	05/12/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	27	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	27	120	<100	18	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	27	220	100	75	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	27	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	27	270	130	70	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	27	230	110	71	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	27	83	86	4	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	232077-8
Date extracted	-			04/12/2019	6	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			05/12/2019	6	05/12/2019	05/12/2019		05/12/2019	05/12/2019
Naphthalene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	112	110
Acenaphthylene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	112	113
Phenanthrene	mg/kg	0.1	Org-012/017	<0.1	6	0.1	<0.1	0	118	111
Anthracene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012/017	<0.1	6	0.2	0.1	67	112	104
Pyrene	mg/kg	0.1	Org-012/017	<0.1	6	0.2	0.2	0	112	118
Benzo(a)anthracene	mg/kg	0.1	Org-012/017	<0.1	6	0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012/017	<0.1	6	0.1	<0.1	0	120	122
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012/017	<0.2	6	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012/017	<0.05	6	0.1	0.08	22	112	130
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012/017	<0.1	6	0.1	0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012/017	98	6	96	95	1	98	95

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	232077-22
Date extracted	-			[NT]	21	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			[NT]	21	05/12/2019	05/12/2019		05/12/2019	05/12/2019
Naphthalene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	110	107
Acenaphthylene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	114	109
Phenanthrene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	116	108
Anthracene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	112	124
Pyrene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	112	132
Benzo(a)anthracene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	118	128
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012/017	[NT]	21	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012/017	[NT]	21	<0.05	<0.05	0	108	132
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012/017	[NT]	21	95	96	1	96	95

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	27	04/12/2019	04/12/2019		[NT]	[NT]
Date analysed	-			[NT]	27	05/12/2019	05/12/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012/017	[NT]	27	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012/017	[NT]	27	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012/017	[NT]	27	94	93	1	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	232077-8
Date extracted	-			04/12/2019	6	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			05/12/2019	6	05/12/2019	05/12/2019		05/12/2019	05/12/2019
alpha-BHC	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	116	115
HCB	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	112	111
gamma-BHC	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	112	110
delta-BHC	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	118	115
Heptachlor Epoxide	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	114	111
gamma-Chlordane	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	116	111
Dieldrin	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	118	127
Endrin	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	110	115
Endosulfan II	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	112	113
Endrin Aldehyde	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	108	120
Methoxychlor	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-012/017	98	6	88	89	1	98	87

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	232077-22
Date extracted	-			[NT]	21	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			[NT]	21	05/12/2019	05/12/2019		05/12/2019	05/12/2019
alpha-BHC	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	106	115
HCB	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	116	111
gamma-BHC	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	100	103
delta-BHC	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	122	115
Heptachlor Epoxide	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	122	111
gamma-Chlordane	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	118	115
Dieldrin	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	136	120
Endrin	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	124	111
Endosulfan II	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	114	113
Endrin Aldehyde	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	72	115
Methoxychlor	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-012/017	[NT]	21	86	88	2	100	86

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	27	04/12/2019	04/12/2019		[NT]	[NT]
Date analysed	-			[NT]	27	05/12/2019	05/12/2019		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-012/017	[NT]	27	93	91	2	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	232077-8
Date extracted	-			04/12/2019	6	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			05/12/2019	6	05/12/2019	05/12/2019		05/12/2019	05/12/2019
Dichlorvos	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	98	122
Dimethoate	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	90	124
Fenitrothion	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	84	95
Malathion	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	76	92
Chlorpyrifos	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	92	93
Parathion	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	94	93
Bromophos-ethyl	mg/kg	0.1	AT-008	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	72	92
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-012/017	98	6	88	89	1	98	87

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	232077-22
Date extracted	-			[NT]	21	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			[NT]	21	05/12/2019	05/12/2019		05/12/2019	05/12/2019
Dichlorvos	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	72	113
Dimethoate	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	84	120
Fenitrothion	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	126	89
Malathion	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	71	85
Chlorpyrifos	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	88	93
Parathion	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	73	93
Bromophos-ethyl	mg/kg	0.1	AT-008	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	75	89
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-012/017	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-012/017	[NT]	21	86	88	2	100	86

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	27	04/12/2019	04/12/2019		[NT]	[NT]
Date analysed	-			[NT]	27	05/12/2019	05/12/2019		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	AT-008	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-012/017	[NT]	27	93	91	2	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	232077-8
Date extracted	-			04/12/2019	6	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			05/12/2019	6	05/12/2019	05/12/2019		05/12/2019	05/12/2019
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	6	<0.1	<0.1	0	96	90
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	98	6	88	89	1	98	87

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	232077-22
Date extracted	-			[NT]	21	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			[NT]	21	05/12/2019	05/12/2019		05/12/2019	05/12/2019
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	115	90
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	21	86	88	2	100	86

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	27	04/12/2019	04/12/2019		[NT]	[NT]
Date analysed	-			[NT]	27	05/12/2019	05/12/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	27	93	91	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	232077-8
Date prepared	-			04/12/2019	6	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			04/12/2019	6	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Arsenic	mg/kg	4	Metals-020	<4	6	5	6	18	112	102
Cadmium	mg/kg	0.4	Metals-020	<0.4	6	<0.4	<0.4	0	102	92
Chromium	mg/kg	1	Metals-020	<1	6	19	15	24	117	98
Copper	mg/kg	1	Metals-020	<1	6	29	27	7	106	113
Lead	mg/kg	1	Metals-020	<1	6	20	21	5	121	79
Mercury	mg/kg	0.1	Metals-021	<0.1	6	<0.1	<0.1	0	107	99
Nickel	mg/kg	1	Metals-020	<1	6	17	13	27	103	87
Zinc	mg/kg	1	Metals-020	<1	6	34	35	3	112	76

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	232077-22
Date prepared	-			[NT]	21	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			[NT]	21	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Arsenic	mg/kg	4	Metals-020	[NT]	21	6	5	18	110	112
Cadmium	mg/kg	0.4	Metals-020	[NT]	21	<0.4	<0.4	0	101	98
Chromium	mg/kg	1	Metals-020	[NT]	21	14	11	24	116	106
Copper	mg/kg	1	Metals-020	[NT]	21	12	11	9	108	120
Lead	mg/kg	1	Metals-020	[NT]	21	18	11	48	120	126
Mercury	mg/kg	0.1	Metals-021	[NT]	21	<0.1	<0.1	0	93	103
Nickel	mg/kg	1	Metals-020	[NT]	21	7	5	33	104	105
Zinc	mg/kg	1	Metals-020	[NT]	21	17	12	34	111	107

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	27	04/12/2019	04/12/2019		[NT]	[NT]
Date analysed	-			[NT]	27	04/12/2019	04/12/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	27	5	5	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	27	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	27	12	13	8	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	27	13	13	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	27	30	27	11	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	27	5	6	18	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	27	74	69	7	[NT]	[NT]

QUALITY CONTROL: BTEX in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			04/12/2019	[NT]	[NT]	[NT]	[NT]	04/12/2019	[NT]
Date analysed	-			05/12/2019	[NT]	[NT]	[NT]	[NT]	05/12/2019	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	100	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate Dibromofluoromethane	%		Org-016	103	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate toluene-d8	%		Org-016	100	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-BFB	%		Org-016	106	[NT]	[NT]	[NT]	[NT]	100	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Asbestos-ID in soil: NEPM

This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 232077-21 for Pb. Therefore a triplicate result has been issued as laboratory sample number 232077-48.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	32837BD, Liverpool
Envirolab Reference	232077
Date Sample Received	02/12/2019
Date Instructions Received	02/12/2019
Date Results Expected to be Reported	09/12/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	42 Soil, 2 Water, 3 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	12.3
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	BTEX in Water	On Hold
MW1 -0.05-								✓			
MW1-0.2-0.4								✓			
MW1-0.5-0.7								✓			
MW1-0.7-0.9	✓	✓	✓				✓				
MW1-1.5-1.7	✓	✓	✓				✓				
MW2-0.05-0.3	✓	✓	✓	✓	✓	✓	✓	✓			
MW2-1.5-1.7	✓	✓	✓				✓				
MW3-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
MW3-1-1.5	✓	✓	✓	✓	✓	✓	✓	✓			
MW3-2.1-2.4	✓	✓	✓				✓				
MW3-3.3-3.45	✓	✓	✓				✓				
MW3-4-4.3											✓
MW4-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
MW4-0.2-0.4	✓	✓	✓	✓	✓	✓	✓	✓			
MW5-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
MW5-0.3-0.4	✓	✓	✓	✓	✓	✓	✓	✓			
MW6-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓			
MW6-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
MW7-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓			
MW8-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
MW8-0.2-0.4	✓	✓	✓	✓	✓	✓	✓	✓			
MW9-0-0.15	✓	✓	✓	✓	✓	✓	✓	✓			
MW9-0.2-0.4	✓	✓	✓	✓	✓	✓	✓	✓			
MW10-0-0.3	✓	✓	✓	✓	✓	✓	✓	✓			
MW11-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
MW11-0.2-0.6	✓	✓	✓	✓	✓	✓	✓	✓			
MW12-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓			
MW12-0.15-0.3	✓	✓	✓	✓	✓	✓	✓	✓			
MW12-0.5-0.55											✓
MW13-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓			
MW14-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
MW14-0.45-0.6	✓	✓	✓	✓	✓	✓	✓	✓			

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	BTEX in Water	On Hold
MW15-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
DUPMP101											✓
DUPMP102	✓	✓	✓	✓	✓	✓	✓				
DUPMP104											✓
DUPMP105											✓
DUPMP106											✓
DUPMP107	✓	✓	✓				✓				
DUPMP108											✓
TB-S1	✓										
FRMW1										✓	
FRMW2											✓
FCF1									✓		
FCF2									✓		
FCF3									✓		
TS-S1	✓										

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen		EIS Job Number: 328378D Date Results Required: STANDARD Page: 1 of 2		FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: mdelaney@jkenvironments.com.au	

Location:		Sample Preserved In Esky on Ice					Tests Required									
Sampler:		AM / MMP														
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 3a	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos	Asbestos NEPM
26.11.19	1	MW1	0.05-0.2	G, A, A	0	F: Gravelly silty sand										X
26.11.19	2	MW1	0.2-0.4	G, A, A	0	F: Silty sand										X
26.11.19	3	MW1	0.5-0.7	G, A, A	3.3	F: Silty clay										X
26.11.19	4	MW1	0.7-0.9	G, A, A	0.1	F: Silty sandy clay	X									
26.11.19	5	MW1	1.5-1.7	G, A	18.1	Silty clay	X									
28.11.19	6	MW2	0.05-0.3	G, A, A	0	F: Silty clay			X							X
28.11.19	7	MW2	1.5-1.7	G, A	0	silty clay	X									
27.11.19	8	MW3	0-0.2	G, A	0	F: Silty clay			X							X
27.11.19	9	MW3	1-1.5	G, A, A	0	F: Silty clay			X							X
27.11.19	10	MW3	2.1-2.4	G, A, A	0	Silty clay	X									
27.11.19	11	MW3	3.3-3.45	G	3.1	Silty clay	X									
27.11.19	12	MW3	4-4.3	G, A	0	Silty clay										
27.11.19	13	MW4	0-0.2	G, A, A	0	F: Silty clayey sand			X							X
27.11.19	14	MW4	0.2-0.4	G, A, A	0	F: Silty clay			X							X
27.11.19	15	MW5	0-0.2	G, A	0	F: Silty sand			X							X
27.11.19	16	MW5	0.3-0.4	G, A, A	0	F: Silty sandy clay			X							X
27.11.19	17	MW6	0-0.1	G, A, A	0	F: Silty clayey sand			X							X
27.11.19	18	MW6	0.1-0.2	G, A, A	0	F: Silty clay			X							X
27.11.19	19	MW7	0-0.1	G, A, A	0	F: Silty sandy clay			X							X
27.11.19	20	MW8	0-0.2	G, A, A	0	F: Silty sand			X							X
27.11.19	21	MW8	0.2-0.4	G, A, A	0.1	F: Silty clay			X							X
28.11.19	22	MW9	0-0.15	G, A, A	0	F: Silty sandy clay			X							X
28.11.19	23	MW9	0.2-0.4	G, A, A	0	F: Silty clay			X							X
28.11.19	24	MW10	0-0.3	G, A, A	0	F: Silty clayey sand			X							X
28.11.19	25	MW11	0-0.2	G, A, A	0	F: Silty clayey sand			X							X

Remarks (comments/detection limits required):		Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	
Relinquished By: MD	Date: 2-12-19	Time:	Received By: <i>Jason King</i> <i>ELS</i> <i>SO</i> <i>2017</i> Date: 2/12/19 1655


Envirolab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200

Job No: 232077
 Date Received: 2/12/19
 Time Received: 1655
 Received by: *SO*
 Temp: Cool/Ambient
 Cooling: Ice/icepack
 Security: Intact/Broken/None

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E32837BD Date Results Required: STANDARD Page: 2 OF 2	FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: mdelaney@jkenvironments.com.au

Location: Liverpool							Sample Preserved In Esky on Ice												
Sampler: AM/ MMP							Tests Required												
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 3a	Combo 6	Combo 6a	8 Metals	PAHs	THH/BTEX	BTEX	Asbestos	Asbestos NEPM			
28.11.19	26	MW11	0.2-0.6	G, A	0	F: Silty clayey sand			X							X			
28.11.19	27	MW12	0-0.1	G, A, A	0	F: Sandy clay			X							X			
28.11.19	28	MW12	0.15-0.3	G, A, A	0	F: Silty clay			X							X			
28.11.19	29	MW12	0.5-0.55	G	0	F: Sand													
28.11.19	30	MW13	0-0.1	G, A, A	0	F: Silty sandy clay			X							X			
26.11.19	31	MW14	0-0.2	G, A, A	0	F: Silty sand			X							X			
26.11.19	32	MW14	0.45-0.6	G, A, A	0	F: Silty clay			X							X			
26.11.19	33	MW15	0-0.2	G, A, A	0	F: Silty sand			X							X			
	34	DUPMP101	-	G	-	Soil													
	35	DUPMP102	-	G	-	Soil			X										
	36	DUPMP103	-	G	-	Soil			X										
	37	DUPMP104	-	G	-	Soil													
	38	DUPMP105	-	G	-	Soil													
	39	DUPMP106	-	G	-	Soil													
	40	DUPMP107	-	G	-	Soil	X												
	41	DUPMP108	-	G	-	Soil													
	42	DUPMP109	-	G	-	Soil	X												
	43	TB-S1		G	-	Soil									X				
26/11/2019	44	FRMW1		V	-	Water									X				
26/11/2019	45	FRMW2		V	-	Water													
	46	FCF1		A	-	Material										X			
	47	FCF2		A	-	Material										X			
	48	FCF3		A	-	Material										X			
	49	TS-S1		G	-	Soil									X				

Remarks (comments/detection limits required):		Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	
Relinquished By: MD	Date: 2-12-19	Time:	Received By: <i>EWS JEFF</i> <i>SAD</i>
		Date: 2/12/19 1655	

CERTIFICATE OF ANALYSIS 232050

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32837BD, Liverpool</u>
Number of Samples	34 Soil
Date samples received	02/12/2019
Date completed instructions received	02/12/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

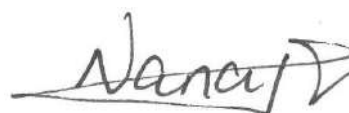
Report Details

Date results requested by	04/12/2019
Date of Issue	14/01/2020
Reissue Details	This report replaces R00 created on 04/12/2019 due to: Sample ID Amended (Client Request)
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Nick Sarlamis, Inorganics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

sPOCAS field test

Our Reference		232050-1	232050-2	232050-3	232050-4	232050-5
Your Reference	UNITS	MW1	MW1	MW1	MW1	MW2
Depth		1.1-1.3	2.4-2.7	3-3.3	4-4.2	1.1-1.2
Date Sampled		26/11/2019	26/11/2019	26/11/2019	26/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
pH _F (field pH test)*	pH Units	5.8	5.5	5.2	5.4	7.4
pH _{FOX} (field peroxide test)*	pH Units	4.0	4.1	4.1	4.0	6.2
Reaction Rate*	-	Low reaction	Low reaction	Low reaction	Low reaction	Medium reaction

sPOCAS field test

Our Reference		232050-6	232050-7	232050-8	232050-9	232050-10
Your Reference	UNITS	MW2	MW2	MW2	MW2	MW2
Depth		1.8-2	2.8-3	3-3.35	3.8-4	4.85-5
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
pH _F (field pH test)*	pH Units	4.6	4.7	4.6	5.2	7.1
pH _{FOX} (field peroxide test)*	pH Units	3.6	3.5	3.5	4.0	5.8
Reaction Rate*	-	Low reaction	Low reaction	Low reaction	Low reaction	Low reaction

sPOCAS field test

Our Reference		232050-11	232050-12	232050-13	232050-14	232050-15
Your Reference	UNITS	MW2	MW2	MW2	MW2	MW2
Depth		5.4-5.7	6.2-6.45	7-7.5	7.65-7.85	8.6-8.9
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
pH _F (field pH test)*	pH Units	7.6	8.3	8.4	8.3	8.3
pH _{FOX} (field peroxide test)*	pH Units	6.2	6.1	7.1	6.4	6.8
Reaction Rate*	-	Medium reaction	Low reaction	Low reaction	Low reaction	Low reaction

sPOCAS field test

Our Reference		232050-16	232050-17	232050-18	232050-19	232050-20
Your Reference	UNITS	MW2	MW2	MW2	MW2	MW3
Depth		9.2-9.4	9.9-10.2	10.6-10.8	11.7-11.9	2.1-2.4
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
pH _F (field pH test)*	pH Units	7.9	8.0	7.6	7.8	5.7
pH _{FOX} (field peroxide test)*	pH Units	6.3	5.4	4.0	4.9	4.2
Reaction Rate*	-	Low reaction	Low reaction	Low reaction	Low reaction	Medium reaction

sPOCAS field test

Our Reference		232050-21	232050-22	232050-23	232050-24	232050-26
Your Reference	UNITS	MW3	MW3	MW3	MW3	MW5
Depth		4-4.3	5.3-5.7	6-6.45	6.8-7.2	0.3-0.5
Date Sampled		27/11/2019	27/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
pH _F (field pH test)*	pH Units	7.5	7.6	8.2	8.0	8.2
pH _{FOX} (field peroxide test)*	pH Units	5.9	6.1	6.1	6.4	7.7
Reaction Rate*	-	Low reaction	Low reaction	Low reaction	Low reaction	Extreme reaction

sPOCAS field test

Our Reference		232050-27	232050-29	232050-30	232050-32	232050-34
Your Reference	UNITS	MW7	MW8	MW10	MW11	MW14
Depth		0-0.1	0.2-0.4	0-0.3	0.2-0.6	0.45-0.6
Date Sampled		27/11/2019	28/11/2019	28/11/2019	28/11/2019	26/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
pH _F (field pH test)*	pH Units	7.4	7.4	8.2	7.0	6.5
pH _{FOX} (field peroxide test)*	pH Units	5.0	5.2	6.6	3.8	3.7
Reaction Rate*	-	Medium reaction	Medium reaction	Extreme reaction	Medium reaction	Medium reaction

Method ID	Methodology Summary
Inorg-063	pH- measured using pH meter and electrode. Soil is oxidised with Hydrogen Peroxide or extracted with water. Based on section H, Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004. To ensure accurate results these tests are recommended to be done in the field as pH may change with time thus these results may not be representative of true field conditions.

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32837BD, Liverpool
Envirolab Reference	232050
Date Sample Received	02/12/2019
Date Instructions Received	02/12/2019
Date Results Expected to be Reported	04/12/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	34 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3.1
Cooling Method	None
Sampling Date Provided	YES

Comments

Received one bag labelled as MW2 11.7-11.9 instead of 11.7 and 11.9 as two separate item on COC

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	sPOCAs field test	On Hold
MW1-1.1-1.3	✓	
MW1-2.4-2.7	✓	
MW1-3-3.3	✓	
MW1-4-4.2	✓	
MW2-1.1-1.2	✓	
MW2-1.8-2	✓	
MW2-2.8-3	✓	
MW2-3-3.35	✓	
MW2-3.8-4	✓	
MW2-4.85-5	✓	
MW2-5.4-5.7	✓	
MW2-6.2-6.45	✓	
MW2-7-7.5	✓	
MW2-7.6-7.85	✓	
MW2-8.6-8.9	✓	
MW2-9.2-9.4	✓	
MW2-9.9-10.2	✓	
MW2-10.6-10.8	✓	
MW2-11.7-11.9	✓	
MW3-2.1-2.4	✓	
MW3-4-4.3	✓	
MW3-5.3-5.7	✓	
MW3-6-6.45	✓	
MW3-6.8-7.2	✓	
MW5-0-0.2		✓
MW5-0.3-0.5	✓	
MW7-0-0.1	✓	
MW8-0-0.2		✓
MW8-0.2-0.4	✓	
MW10-0-0.3	✓	
MW11-0-0.2		✓
MW11-0.2-0.6	✓	

Sample ID	sPOCAs field test	On Hold
MW14-0-0.2		✓
MW14-0.45-0.6	✓	

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen				EIS Job Number: E32837BD Date Results Required: STANDARD Page: 1 of 2				FROM: JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: mdejaney@jkenvironments.com.au												
Location: Liverpool						Sample Preserved in Esky on Ice														
Sampler: AM/ MMP						Tests Required:														
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	Sample Description	ASS field test														
26.11.19	1	MW1	1.1-1.3	P	Silty clay	X														
26.11.19	2	MW1	2.4-2.7	P	Silty clay	X														
26.11.19	3	MW1	3-3.3	P	Silty clay	X														
26.11.19	4	MW1	4-4.2	P	Siltstone	X														
28.11.19	5	MW2	1.1-1.2	P	Silty clay	X														
28.11.19	6	MW2	1.8-2	P	Silty clay	X														
28.11.19	7	MW2	2.8-3	P	Silty clay	X														
28.11.19	8	MW2	3-3.35	P	Silty clay	X														
28.11.19	9	MW2	3.8-4	P	Sand	X														
28.11.19	10	MW2	4.85-5	P	Silty sand	X														
28.11.19	11	MW2	5.4-5.7	P	Silty sand	X														
28.11.19	12	MW2	6.2-6.45	P	Silty clay	X														
28.11.19	13	MW2	7-7.5	P	Silty clay	X														
28.11.19	14	MW2	7.6-7.85	P	Silty clay	X														
28.11.19	15	MW2	8.6-8.9	P	Silty clay	X														
28.11.19	16	MW2	9.2-9.4	P	Silty clay	X														
28.11.19	17	MW2	9.9-10.2	P	Silty clay	X														
28.11.19	18	MW2	10.6-10.8	P	Silty clay	X														
28.11.19	19	MW2	11.7 - 11.25m	P	Silty clay	X														
28.11.19	20	MW2	11.9	P	Silty clay	X														
27.11.19	21	MW3	2.1 - 2.4 m	P	Silty clay	X														
27.11.19	22	MW3	4-4.3	P	Silty clay	X														
27.11.19	23	MW3	5.3-5.7	P	Silty clay	X														
27.11.19	24	MW3	6-6.45	P	Silty clay	X														
27.11.19	25	MW3	6.8-7.2	P	Siltstone	X														
Remarks (comments/detection limits required):						Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag														
Relinquished By: MD				Date: 2-12-19		Time: 1655		Received By: S. Bolton				Date: 02/12/19								

232050
SBC

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen				EIS Job Number: E92837BD Date Results Required: STANDARD Page: 2 OF 2				FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: MDELANEY@JKENVIRONMENTS.COM.AU										
Location: LIVERPOOL						Sample Preserved In Esky on Ice												
Sampler: AM/ MMP						Tests Required												
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	Sample Description	ASS field test												
25 27.11.19	26	MW5	0-0.2	P	F: Silty sand													
26 27.11.19	27	MW5	0.3-0.5	P	F: Silty sandy clay	X												
27 27.11.19	28	MW7	0-0.1	P	F: Silty sandy clay	X												
28 28.11.19	29	MW8	0-0.2	P	F: Silty sand													
29 28.11.19	30	MW8	0.2-0.4	P	F: Silty clay	X												
30 28.11.19	31	MW10	0-0.3	P	F: Silty clayey sand	X												
31 28.11.19	32	MW11	0-0.2	P	F: Silty clayey sand													
32 28.11.19	33	MW11	0.2-0.6	P	F: Silty clay	X												
33 26.11.19	34	MW14	0-0.2	P	F: Silty sand													
34 26.11.19	35	MW14	0.45-0.6	P	F: Silty clay	X												
Remarks (comments/detection limits required):						Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag												
Relinquished By: MD				Date: 2-12-12		Time: 1655		Received By: S. Bolton				Date: 02/12/19						

CERTIFICATE OF ANALYSIS 232131

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32837BD, Liverpool</u>
Number of Samples	34 Soil
Date samples received	02/12/2019
Date completed instructions received	02/12/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

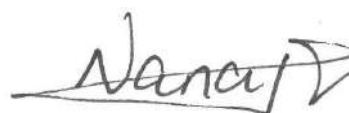
Report Details

Date results requested by	09/12/2019
Date of Issue	14/01/2020
Reissue Details	This report replaces R00 created on 06/12/2019 due to: Sample ID Amended (Client Request)
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Diego Bigolin, Team Leader, Inorganics
 Loren Bardwell, Senior Chemist
 Priya Samarawickrama, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

Misc Inorg - Soil

Our Reference		232131-1	232131-4	232131-5	232131-8	232131-9
Your Reference	UNITS	MW1	MW1	MW2	MW2	MW2
Depth		1.1-1.3	4-4.2	1.1-1.2	3-3.35	3.8-4
Date Sampled		26/11/2019	26/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
pH 1:5 soil:water	pH Units	6.1	6.0	8.0	5.0	5.5
Chloride, Cl 1:5 soil:water	mg/kg	95	140	550	770	300
Sulphate, SO4 1:5 soil:water	mg/kg	120	150	340	130	61
Resistivity in soil*	ohm m	67	49	18	19	41

Misc Inorg - Soil

Our Reference		232131-13	232131-19	232131-20	232131-24	232131-26
Your Reference	UNITS	MW2	MW2	MW3	MW3	MW5
Depth		7-7.5	11.7-11.9	2.1-2.4	6.8-7.2	0.3-0.5
Date Sampled		28/11/2019	28/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	05/12/2019	05/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	05/12/2019	05/12/2019	04/12/2019
pH 1:5 soil:water	pH Units	8.9	8.5	5.7	8.5	8.8
Chloride, Cl 1:5 soil:water	mg/kg	110	940	260	660	20
Sulphate, SO4 1:5 soil:water	mg/kg	62	160	230	150	23
Resistivity in soil*	ohm m	60	14	41	33	87

Misc Inorg - Soil

Our Reference		232131-27	232131-29	232131-30	232131-32	232131-34
Your Reference	UNITS	MW7	MW8	MW10	MW11	MW14
Depth		0-0.1	0.2-0.4	0-0.3	0.2-0.6	0.45-0.6
Date Sampled		27/11/2019	28/11/2019	28/11/2019	28/11/2019	26/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
pH 1:5 soil:water	pH Units	7.5	7.9	9.6	7.3	7.0
Chloride, Cl 1:5 soil:water	mg/kg	34	<10	<10	10	20
Sulphate, SO4 1:5 soil:water	mg/kg	10	10	54	10	49
Resistivity in soil*	ohm m	120	240	100	180	120

Texture and Salinity*						
Our Reference	UNITS	232131-1	232131-4	232131-5	232131-8	232131-9
Your Reference		MW1	MW1	MW2	MW2	MW2
Depth		1.1-1.3	4-4.2	1.1-1.2	3-3.35	3.8-4
Date Sampled		26/11/2019	26/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Electrical Conductivity 1:5 soil:water	µS/cm	150	200	570	540	240
Texture Value	-	8.0	9.0	7.0	7.0	14
Texture		LIGHT MEDIUM CLAY	CLAY LOAM	MEDIUM CLAY	MEDIUM CLAY	SANDY LOAM
ECe	dS/m	<2	<2	4.0	3.8	3.4
Class		NON SALINE	NON SALINE	SLIGHTLY SALINE	SLIGHTLY SALINE	SLIGHTLY SALINE

Texture and Salinity*						
Our Reference	UNITS	232131-13	232131-19	232131-20	232131-24	232131-26
Your Reference		MW2	MW2	MW3	MW3	MW5
Depth		7-7.5	11.7-11.9	2.1-2.4	6.8-7.2	0.3-0.5
Date Sampled		28/11/2019	28/11/2019	27/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Electrical Conductivity 1:5 soil:water	µS/cm	170	740	240	300	110
Texture Value	-	8.0	8.5	8.0	9.0	9.0
Texture		LIGHT MEDIUM CLAY	LIGHT CLAY	LIGHT MEDIUM CLAY	CLAY LOAM	CLAY LOAM
ECe	dS/m	<2	6.3	<2	2.7	<2
Class		NON SALINE	MODERATELY SALINE	NON SALINE	SLIGHTLY SALINE	NON SALINE

Texture and Salinity*						
Our Reference		232131-27	232131-29	232131-30	232131-32	232131-34
Your Reference	UNITS	MW7	MW8	MW10	MW11	MW14
Depth		0-0.1	0.2-0.4	0-0.3	0.2-0.6	0.45-0.6
Date Sampled		27/11/2019	28/11/2019	28/11/2019	28/11/2019	26/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Electrical Conductivity 1:5 soil:water	µS/cm	86	42	96	57	83
Texture Value	-	7.0	7.0	9.0	9.0	9.0
Texture		MEDIUM CLAY	MEDIUM CLAY	CLAY LOAM	CLAY LOAM	CLAY LOAM
ECe	dS/m	<2	<2	<2	<2	<2
Class		NON SALINE	NON SALINE	NON SALINE	NON SALINE	NON SALINE

CEC						
Our Reference		232131-4	232131-5	232131-9	232131-20	232131-24
Your Reference	UNITS	MW1	MW2	MW2	MW3	MW3
Depth		4-4.2	1.1-1.2	3.8-4	2.1-2.4	6.8-7.2
Date Sampled		26/11/2019	28/11/2019	28/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Exchangeable Ca	meq/100g	0.4	1.2	<0.1	0.5	0.5
Exchangeable K	meq/100g	0.2	<0.1	<0.1	<0.1	0.1
Exchangeable Mg	meq/100g	3.2	2.0	0.79	2.5	3.2
Exchangeable Na	meq/100g	1.7	0.80	0.40	1.3	2.0
Cation Exchange Capacity	meq/100g	5.6	4.1	1.2	4.3	5.8

CEC						
Our Reference		232131-26	232131-27	232131-29	232131-30	232131-32
Your Reference	UNITS	MW5	MW7	MW8	MW10	MW11
Depth		0.3-0.5	0-0.1	0.2-0.4	0-0.3	0.2-0.6
Date Sampled		27/11/2019	27/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Date analysed	-	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Exchangeable Ca	meq/100g	15	7.4	12	26	5.7
Exchangeable K	meq/100g	0.2	0.8	0.3	0.3	0.3
Exchangeable Mg	meq/100g	2.9	4.6	2.1	1.5	2.5
Exchangeable Na	meq/100g	0.11	<0.1	<0.1	<0.1	<0.1
Cation Exchange Capacity	meq/100g	18	13	14	27	8.6

CEC		
Our Reference		232131-34
Your Reference	UNITS	MW14
Depth		0.45-0.6
Date Sampled		26/11/2019
Type of sample		Soil
Date prepared	-	04/12/2019
Date analysed	-	04/12/2019
Exchangeable Ca	meq/100g	8.7
Exchangeable K	meq/100g	0.3
Exchangeable Mg	meq/100g	2.6
Exchangeable Na	meq/100g	0.31
Cation Exchange Capacity	meq/100g	12

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons. Resistivity is calculated from Conductivity (non NATA). Resistivity (calculated) may not correlate with results otherwise obtained using Resistivity-Current method, depending on the nature of the soil being analysed.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-123	Determined using a "Texture by Feel" method.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	232131-13
Date prepared	-			04/12/2019	5	04/12/2019	04/12/2019		04/12/2019	04/12/2019
Date analysed	-			04/12/2019	5	04/12/2019	04/12/2019		04/12/2019	04/12/2019
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	5	8.0	8.0	0	102	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	5	550	620	12	108	100
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	5	340	370	8	114	103
Resistivity in soil*	ohm m	1	Inorg-002	<1	5	18	17	6	[NT]	[NT]

QUALITY CONTROL: Texture and Salinity*						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			04/12/2019	[NT]	[NT]	[NT]	[NT]	04/12/2019	[NT]
Date analysed	-			04/12/2019	[NT]	[NT]	[NT]	[NT]	04/12/2019	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: CEC					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			04/12/2019	4	04/12/2019	04/12/2019		04/12/2019	[NT]
Date analysed	-			04/12/2019	4	04/12/2019	04/12/2019		04/12/2019	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	4	0.4	0.3	29	100	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	4	0.2	0.2	0	99	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	4	3.2	3.0	6	100	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	4	1.7	1.8	6	103	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32837BD, Liverpool
Envirolab Reference	232131
Date Sample Received	02/12/2019
Date Instructions Received	02/12/2019
Date Results Expected to be Reported	09/12/2019

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	34 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	12.3
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Received one bag labelled as MW2 11.7-11.9 instead of 11.7 and 11.9 as two separate items on the COC

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolab.com.au	Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	Misc Inorg - Soil	Texture and Salinity*	CEC	On Hold
MW1-1.1-1.3	✓	✓		
MW1-2.4-2.7				✓
MW1-3-3.3				✓
MW1-4-4.2	✓	✓	✓	
MW2-1.1-1.2	✓	✓	✓	
MW2-1.8-2				✓
MW2-2.8-3				✓
MW2-3-3.35	✓	✓		
MW2-3.8-4	✓	✓	✓	
MW2-4.85-5				✓
MW2-5.4-5.7				✓
MW2-6.2-6.45				✓
MW2-7-7.5	✓	✓		
MW2-7.6-7.85				✓
MW2-8.6-8.9				✓
MW2-9.2-9.4				✓
MW2-9.9-10.2				✓
MW2-10.6-10.8				✓
MW2-11.7-11.9	✓	✓		
MW3-2.1	✓	✓	✓	
MW3-4-4.3				✓
MW3-5.3-5.7				✓
MW3-6-6.45				✓
MW3-6.8-7.2	✓	✓	✓	
MW5-0-0.2				✓
MW5-0.3-0.5	✓	✓	✓	
MW7-0-0.1	✓	✓	✓	
MW8-0-0.2				✓
MW8-0.2-0.4	✓	✓	✓	
MW10-0-0.3	✓	✓	✓	
MW11-0-0.2				✓
MW11-0.2-0.6	✓	✓	✓	

Sample ID	Misc Inorg - Soil	Texture and Salinity*	CEC	On Hold
MW14-0-0.2				✓
MW14-0.45-0.6	✓	✓	✓	

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen		EIS Job Number: E32837BD Date Results Required: STANDARD Page: 1 of 2		FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: mdelaney@jkenvironments.com.au	

Location:		Sample Preserved in Esky on Ice				Tests Required									
Sampler:															
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	Sample Description	pH	EC	ECe (texture)	Sulphate	Chloride	Resistivity	CEC			
26.11.19	1	MW1	1.1-1.3	P	Silty clay	X	X	X	X	X	X				
26.11.19	2	MW1	2.4-2.7	P	Silty clay										
26.11.19	3	MW1	3-3.3	P	Silty clay										
26.11.19	4	MW1	4-4.2	P	Siltstone	X	X	X	X	X	X	X			
28.11.19	5	MW2	1.1-1.2	P	Silty clay	X	X	X	X	X	X	X			
28.11.19	6	MW2	1.8-2	P	Silty clay										
28.11.19	7	MW2	2.8-3	P	Silty clay										
28.11.19	8	MW2	3-3.35	P	Silty clay	X	X	X	X	X	X				
28.11.19	9	MW2	3.8-4	P	Sand	X	X	X	X	X	X	X			
28.11.19	10	MW2	4.85-5	P	Silty sand										
28.11.19	11	MW2	5.4-5.7	P	Silty sand										
28.11.19	12	MW2	6.2-6.45	P	Silty clay										
28.11.19	13	MW2	7-7.5	P	Silty clay	X	X	X	X	X	X				
28.11.19	14	MW2	7.6-7.85	P	Silty clay										
28.11.19	15	MW2	8.5-8.9	P	Silty clay										
28.11.19	16	MW2	9.2-9.4	P	Silty clay										
28.11.19	17	MW2	9.9-10.2	P	Silty clay										
28.11.19	18	MW2	10.6-10.8	P	Silty clay										
28.11.19	19	MW2	11.7-11.9 SD	P	Silty clay										
28.11.19	NR2	MW2	11.9	P	Silty clay	X	X	X	X	X	X				
27.11.19	20	MW3	2.1	P	Silty clay	X	X	X	X	X	X	X			
27.11.19	21	MW3	4-4.3	P	Silty clay										
27.11.19	22	MW3	5.3-5.7	P	Silty clay										
27.11.19	23	MW3	6-6.45	P	Silty clay										
27.11.19	24	MW3	6.8-7.2	P	Siltstone	X	X	X	X	X	X	X			

Remarks (comments/detection limits required): 		Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	

Relinquished By: MD	Date: 2-12-19	Time:	Received By: Jason Day EWS SM	Date: 2/12/19 1655

Envirolab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200
 Job No: 232181
 Date Received: 2/12/19
 Time Received: 1655
 Received by: Jason Day
 Temp: Chain Ambient
 Cooling: cool check
 Security: intact/broken/none

12.34

SAMPLE AND CHAIN OF CUSTODY FORM

[illegible]

CERTIFICATE OF ANALYSIS 19227

Client Details

Client	JK Environments
Attention	Mitch Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32837BD</u>
Number of Samples	2 Soil
Date samples received	04/12/2019
Date completed instructions received	04/12/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	10/12/2019
Date of Issue	10/12/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Chris De Luca, Operations Manager

Authorised By



Pamela Adams, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		19227-1	19227-2
Your Reference	UNITS	DUPMP103	DUPMP109
Type of sample		Soil	Soil
Date Sampled		26/11/2019	26/11/2019
Date extracted	-	05/12/2019	05/12/2019
Date analysed	-	07/12/2019	07/12/2019
vTRH C ₆ - C ₉	mg/kg	<25	<25
vTRH C ₆ - C ₁₀	mg/kg	<25	<25
TRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	76	73

TRH Soil C10-C40 NEPM			
Our Reference		19227-1	19227-2
Your Reference	UNITS	DUPMP103	DUPMP109
Type of sample		Soil	Soil
Date Sampled		26/11/2019	26/11/2019
Date extracted	-	5/12/2019	5/12/2019
Date analysed	-	07/12/2019	07/12/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	380	<100
TRH C ₂₉ - C ₃₆	mg/kg	260	<100
Total +ve TRH (C10-C36)	mg/kg	650	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	550	<100
TRH >C ₃₄ -C ₄₀	mg/kg	110	<100
Total +ve TRH (>C10-C40)	mg/kg	660	<50
Surrogate o-Terphenyl	%	91	88

PAHs in Soil			
Our Reference		19227-1	19227-2
Your Reference	UNITS	DUPMP103	DUPMP109
Type of sample		Soil	Soil
Date Sampled		26/11/2019	26/11/2019
Date extracted	-	05/12/2019	05/12/2019
Date analysed	-	08/12/2019	10/12/2019
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	1.0	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	0.3	<0.1
Phenanthrene	mg/kg	5.6	<0.1
Anthracene	mg/kg	2.0	<0.1
Fluoranthene	mg/kg	14	<0.1
Pyrene	mg/kg	15	<0.1
Benzo(a)anthracene	mg/kg	11	<0.1
Chrysene	mg/kg	8.6	<0.1
Benzo(b,j&k)fluoranthene	mg/kg	15	<0.2
Benzo(a)pyrene	mg/kg	10	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	3.6	<0.1
Dibenzo(a,h)anthracene	mg/kg	1.1	<0.1
Benzo(g,h,i)perylene	mg/kg	3.8	<0.1
Total +ve PAH's	mg/kg	92	<0.05
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	15	<0.5
Benzo(a)pyrene TEQ calc (Half)	mg/kg	15	<0.5
Benzo(a)pyrene TEQ calc (PQL)	mg/kg	15	<0.5
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	104	98

OCP in Soil		
Our Reference		19227-1
Your Reference	UNITS	DUPMP103
Type of sample		Soil
Date Sampled		26/11/2019
Date extracted	-	05/12/2019
Date analysed	-	08/12/2019
alpha-BHC	mg/kg	<0.1
Hexachlorobenzene	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	0.2
gamma-Chlordane	mg/kg	0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve reported DDT+DDD+DDE	mg/kg	<0.1
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	104

OP in Soil		
Our Reference		19227-1
Your Reference	UNITS	DUPMP103
Type of sample		Soil
Date Sampled		26/11/2019
Date extracted	-	05/12/2019
Date analysed	-	08/12/2019
Azinphos-methyl	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyrifos	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorovos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	104

PCBs in Soil		
Our Reference		19227-1
Your Reference	UNITS	DUPMP103
Type of sample		Soil
Date Sampled		26/11/2019
Date extracted	-	05/12/2019
Date analysed	-	08/12/2019
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	104

Acid Extractable metals in soil			
Our Reference		19227-1	19227-2
Your Reference	UNITS	DUPMP103	DUPMP109
Type of sample		Soil	Soil
Date Sampled		26/11/2019	26/11/2019
Date digested	-	05/12/2019	05/12/2019
Date analysed	-	06/12/2019	06/12/2019
Arsenic	mg/kg	5	6
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	13	11
Copper	mg/kg	24	13
Lead	mg/kg	17	14
Mercury	mg/kg	0.1	0.1
Nickel	mg/kg	19	4
Zinc	mg/kg	31	15

Moisture			
Our Reference		19227-1	19227-2
Your Reference	UNITS	DUPMP103	DUPMP109
Type of sample		Soil	Soil
Date Sampled		26/11/2019	26/11/2019
Date prepared	-	05/12/2019	05/12/2019
Date analysed	-	06/12/2019	06/12/2019
Moisture	%	7.3	11

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 12 hours.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Note, For OCs the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD or GC-MS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			05/12/2019	[NT]	[NT]	[NT]	[NT]	05/12/2019	[NT]
Date analysed	-			07/12/2019	[NT]	[NT]	[NT]	[NT]	07/12/2019	[NT]
vTRH C ₆ - C ₉	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	102	[NT]
vTRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	103	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	95	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	95	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	106	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	80	[NT]	[NT]	[NT]	[NT]	77	[NT]

QUALITY CONTROL: TRH Soil C10-C40 NEPM						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			05/12/2019	[NT]	[NT]	[NT]	[NT]	05/12/2019	[NT]
Date analysed	-			07/12/2019	[NT]	[NT]	[NT]	[NT]	07/12/2019	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	102	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	107	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	102	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate o-Terphenyl	%		Org-003	94	[NT]	[NT]	[NT]	[NT]	84	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			05/12/2019	[NT]	[NT]	[NT]	[NT]	05/12/2019	[NT]
Date analysed	-			08/12/2019	[NT]	[NT]	[NT]	[NT]	08/12/2019	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	126	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	132	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	114	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Benzo(b,j&k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	[NT]	[NT]	130	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d ₁₄	%		Org-012	96	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: OCP in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			05/12/2019	[NT]	[NT]	[NT]	[NT]	05/12/2019	[NT]
Date analysed	-			08/12/2019	[NT]	[NT]	[NT]	[NT]	08/12/2019	[NT]
alpha-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Hexachlorobenzene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
gamma-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
delta-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
gamma-Chlordane	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
alpha-chlordane	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Dieldrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Endrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Methoxychlor	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d ₁₄	%		Org-012	96	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: OP in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	19227-1
Date extracted	-			05/12/2019	1	05/12/2019	05/12/2019		05/12/2019	05/12/2019
Date analysed	-			08/12/2019	1	08/12/2019	08/12/2019		08/12/2019	08/12/2019
Azinphos-methyl	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	124	89
Chlorpyrifos-methyl	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorovos	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	130	98
Fenitrothion	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	134	113
Malathion	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d ₁₄	%		Org-012	96	1	104	104	0	88	84

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			05/12/2019	[NT]	[NT]	[NT]	[NT]	05/12/2019	[NT]
Date analysed	-			08/12/2019	[NT]	[NT]	[NT]	[NT]	08/12/2019	[NT]
Aroclor 1016	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	130	[NT]
Aroclor 1260	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d ₁₄	%		Org-012	96	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	19227-1
Date digested	-			05/12/2019	[NT]	[NT]	[NT]	[NT]	05/12/2019	05/12/2019
Date analysed	-			06/12/2019	[NT]	[NT]	[NT]	[NT]	06/12/2019	06/12/2019
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	[NT]	[NT]	92	92
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	[NT]	[NT]	89	81
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	88	84
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	95	92
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	91	82
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	[NT]	[NT]	100	113
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	90	79
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	89	91

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Mitch Delaney

Sample Login Details

Your reference	E32837BD
Envirolab Reference	19227
Date Sample Received	04/12/2019
Date Instructions Received	04/12/2019
Date Results Expected to be Reported	10/12/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	2 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	11.6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Pamela Adams

Phone: 03 9763 2500
Fax: 03 9763 2633
Email: padams@envirolab.com.au

Analisa Mathrick

Phone: 03 9763 2500
Fax: 03 9763 2633
Email: amathrick@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	VTRH(C6-C10)/BTEXN in Soil	TRH Soil C10-C40 NEPM	PAHs in Soil	OCP in Soil	OP in Soil	PCBs in Soil	Acid Extractable metals in soil
DUPMP103	✓	✓	✓	✓	✓	✓	✓
DUPMP109	✓	✓	✓				✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E32837BD Date Results Required: STANDARD Page: 2 OF 2	FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: mdelaney@jkenvironments.com.au

Location: Liverpool							Sample Preserved in Esky on Ice												
Sampler: AM/ MMP							Tests Required												
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 3a	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos	Asbestos NEPM			
28.11.19	26	MW11	0.2-0.6	G, A	0	F: Silty clayey sand			X							X			
28.11.19	27	MW12	0-0.1	G, A, A	0	F: Sandy clay			X							X			
28.11.19	28	MW12	0.15-0.3	G, A, A	0	F: Silty clay			X							X			
28.11.19	29	MW12	0.5-0.55	G	0	F: Sand													
28.11.19	30	MW13	0-0.1	G, A, A	0	F: Silty sandy clay			X							X			
26.11.19	31	MW14	0-0.2	G, A, A	0	F: Silty sand			X							X			
26.11.19	32	MW14	0.45-0.6	G, A, A	0	F: Silty clay			X							X			
26.11.19	33	MW15	0-0.2	G, A, A	0	F: Silty sand			X							X			
	34	DUPMP101	-	G	-	Soil													
	35	DUPMP102	-	G	-	Soil			X										
	36	DUPMP103	-	G	-	Soil			X										
	37	DUPMP104	-	G	-	Soil													
	38	DUPMP105	-	G	-	Soil													
	39	DUPMP106	-	G	-	Soil													
	40	DUPMP107	-	G	-	Soil	X												
	41	DUPMP108	-	G	-	Soil													
	42	DUPMP109	-	G	-	Soil	X												
	43	TB-S1		G	-	Soil									X				
26/11/2019	44	FRMW1		V	-	Water									X				
26/11/2019	45	FRMW2		V	-	Water													
	46	FCF1		A	-	Material										X			
	47	FCF2		A	-	Material										X			
	48	FCF3		A	-	Material										X			
	49	TS-S1		G	-	Soil									X				

Remarks (comments/detection limits required): 	Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag 232077
Relinquished By: MD  25 Research Drive Croydon VIC 3135 Ph: (03) 9703 2500	Received By: Jason Day Date: 2/12/19 1655

Job No: 19227

Date Received: 4/12/19

Time Received: 12:50pm

Received By: KS

Temp: Cool/Ambient

Cooling: Ice/Insack

Security: Intact/Broken: None

relinquished by: Jason Day

ELS STD

3/12/19 1338

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen		EIS Job Number: 328378D Date Results Required: STANDARD Page: 1 of 2		FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: mdelaney@jkenvironments.com.au	

Location: Liverpool							Sample Preserved in Esky on Ice											
Sampler: AM / MMP							Tests Required											
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 3a	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos	Asbestos NEPM		
26.11.19	1	MW1	0.05-0.2	G, A, A	0	F: Gravelly silty sand										X		
26.11.19	2	MW1	0.2-0.4	G, A, A	0	F: Silty sand										X		
26.11.19	3	MW1	0.5-0.7	G, A, A	3.3	F: Silty clay										X		
26.11.19	4	MW1	0.7-0.9	G, A, A	0.1	F: Silty sandy clay	X											
26.11.19	5	MW1	1.5-1.7	G, A	18.1	Silty clay	X											
28.11.19	6	MW2	0.05-0.3	G, A, A	0	F: Silty clay			X							X		
28.11.19	7	MW2	1.5-1.7	G, A	0	silty clay	X											
27.11.19	8	MW3	0-0.2	G, A	0	F: Silty clay			X							X		
27.11.19	9	MW3	1-1.5	G, A, A	0	F: Silty clay			X							X		
27.11.19	10	MW3	2.1-2.4	G, A, A	0	Silty clay	X											
27.11.19	11	MW3	3.3-3.45	G	3.1	Silty clay	X											
27.11.19	12	MW3	4-4.3	G, A	0	Silty clay												
27.11.19	13	MW4	0-0.2	G, A, A	0	F: Silty clayey sand			X							X		
27.11.19	14	MW4	0.2-0.4	G, A, A	0	F: Silty clay			X							X		
27.11.19	15	MW5	0-0.2	G, A	0	F: Silty sand			X							X		
27.11.19	16	MW5	0.3-0.4	G, A, A	0	F: Silty sandy clay			X							X		
27.11.19	17	MW6	0-0.1	G, A, A	0	F: Silty clayey sand			X							X		
27.11.19	18	MW6	0.1-0.2	G, A, A	0	F: Silty clay			X							X		
27.11.19	19	MW7	0-0.1	G, A, A	0	F: Silty sandy clay			X							X		
27.11.19	20	MW8	0-0.2	G, A, A	0	F: Silty sand			X							X		
27.11.19	21	MW8	0.2-0.4	G, A, A	0.1	F: Silty clay			X							X		
28.11.19	22	MW9	0-0.15	G, A, A	0	F: Silty sandy clay			X							X		
28.11.19	23	MW9	0.2-0.4	G, A, A	0	F: Silty clay			X							X		
28.11.19	24	MW10	0-0.3	G, A, A	0	F: Silty clayey sand			X							X		
28.11.19	25	MW11	0-0.2	G, A, A	0	F: Silty clayey sand			X							X		

Remarks (comments/detection limits required): 		Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	
Relinquished By: MD	Date: 2-12-19	Time:	Received By: <i>Jason Day</i> <i>ELS</i> <i>2/12/19</i> <i>1655</i>


Envirolab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200

Job No: 232077

Date Received: 2/12/19

Time Received: 1655

Received by: 310

Temp: Cool/Ambient

Cooling: Ice/Icepack

Security: Intact/Broken/None

relinquished by: *Jason Day* *ELS* *3/12/19*
1338

CERTIFICATE OF ANALYSIS 232050-A

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32837BD, Liverpool</u>
Number of Samples	34 Soil
Date samples received	02/12/2019
Date completed instructions received	05/12/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

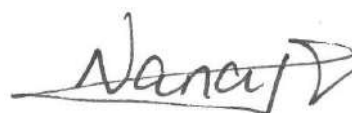
Report Details

Date results requested by	12/12/2019
Date of Issue	12/12/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Priya Samarawickrama, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

Chromium Suite						
Our Reference		232050-A-7	232050-A-8	232050-A-9	232050-A-11	232050-A-12
Your Reference	UNITS	MW2	MW2	MW2	MW2	MW2
Depth		2.8-3	3-3.35	3.8-4	5.4-5.7	6.2-6.45
Date Sampled		28/11/2019	28/11/2019	28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019
Date analysed	-	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019
pH _{kcl}	pH units	4.0	4.1	4.8	6.5	6.8
s-TAA pH 6.5	%w/w S	0.06	0.04	<0.01	<0.01	<0.01
TAA pH 6.5	moles H ⁺ /t	36	26	<5	<5	<5
Chromium Reducible Sulfur	%w/w	<0.005	<0.005	<0.005	<0.005	<0.005
a-Chromium Reducible Sulfur	moles H ⁺ /t	<3	<3	<3	<3	<3
S _{HCl}	%w/w S	0.039	0.020	<0.005	<0.005	<0.005
S _{KCl}	%w/w S	0.026	0.014	<0.005	<0.005	<0.005
S _{NAS}	%w/w S	0.013	0.006	<0.005	<0.005	<0.005
ANC _{BT}	% CaCO ₃	<0.05	<0.05	<0.05	<0.05	0.10
s-ANC _{BT}	%w/w S	<0.05	<0.05	<0.05	<0.05	<0.05
s-Net Acidity	%w/w S	0.071	0.048	0.0060	<0.005	<0.005
a-Net Acidity	moles H ⁺ /t	45	30	<5	<5	<5
Liming rate	kg CaCO ₃ /t	3	2	<0.75	<0.75	<0.75
a-Net Acidity without ANCE	moles H ⁺ /t	45	30	<5	<5	<5
Liming rate without ANCE	kg CaCO ₃ /t	3.4	2.2	<0.75	<0.75	<0.75
s-Net Acidity without ANCE	%w/w S	0.071	0.048	0.0060	<0.005	<0.005

Chromium Suite				
Our Reference		232050-A-17	232050-A-18	232050-A-19
Your Reference	UNITS	MW2	MW2	MW2
Depth		9.9-10.2	10.6-10.8	11.7-11.9
Date Sampled		28/11/2019	28/11/2019	28/11/2019
Type of sample		Soil	Soil	Soil
Date prepared	-	12/12/2019	12/12/2019	12/12/2019
Date analysed	-	12/12/2019	12/12/2019	12/12/2019
pH _{kcl}	pH units	7.7	7.5	7.6
s-TAA pH 6.5	%w/w S	<0.01	<0.01	<0.01
TAA pH 6.5	moles H ⁺ /t	<5	<5	<5
Chromium Reducible Sulfur	%w/w	<0.005	<0.005	<0.005
a-Chromium Reducible Sulfur	moles H ⁺ /t	<3	<3	<3
S _{HCl}	%w/w S	<0.005	<0.005	<0.005
S _{KCl}	%w/w S	0.011	0.009	0.011
S _{NAS}	%w/w S	<0.005	<0.005	<0.005
ANC _{BT}	% CaCO ₃	0.40	0.33	0.30
s-ANC _{BT}	%w/w S	0.13	0.10	0.1
s-Net Acidity	%w/w S	<0.005	<0.005	<0.005
a-Net Acidity	moles H ⁺ /t	<5	<5	<5
Liming rate	kg CaCO ₃ /t	<0.75	<0.75	<0.75
a-Net Acidity without ANCE	moles H ⁺ /t	<5	<5	<5
Liming rate without ANCE	kg CaCO ₃ /t	<0.75	<0.75	<0.75
s-Net Acidity without ANCE	%w/w S	<0.005	<0.005	<0.005

Method ID	Methodology Summary
Inorg-068	Chromium Reducible Sulfur - Hydrogen Sulfide is quantified by iodometric titration after distillation to determine potential acidity. Based on Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004.

QUALITY CONTROL: Chromium Suite						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			12/12/2019	11	12/12/2019	12/12/2019		12/12/2019	[NT]
Date analysed	-			12/12/2019	11	12/12/2019	12/12/2019		12/12/2019	[NT]
pH _{KCl}	pH units		Inorg-068	[NT]	11	6.5	6.5	0	92	[NT]
s-TAA pH 6.5	%w/w S	0.01	Inorg-068	<0.01	11	<0.01	<0.01	0	[NT]	[NT]
TAA pH 6.5	moles H ⁺ /t	5	Inorg-068	<5	11	<5	<5	0	95	[NT]
Chromium Reducible Sulfur	%w/w	0.005	Inorg-068	<0.005	11	<0.005	<0.005	0	114	[NT]
a-Chromium Reducible Sulfur	moles H ⁺ /t	3	Inorg-068	<3	11	<3	<3	0	[NT]	[NT]
S _{HCl}	%w/w S	0.005	Inorg-068	<0.005	11	<0.005	<0.005	0	[NT]	[NT]
S _{KCl}	%w/w S	0.005	Inorg-068	<0.005	11	<0.005	<0.005	0	[NT]	[NT]
S _{NAS}	%w/w S	0.005	Inorg-068	<0.005	11	<0.005	<0.005	0	[NT]	[NT]
ANC _{BT}	% CaCO ₃	0.05	Inorg-068	<0.05	11	<0.05	<0.05	0	[NT]	[NT]
s-ANC _{BT}	%w/w S	0.05	Inorg-068	<0.05	11	<0.05	<0.05	0	[NT]	[NT]
s-Net Acidity	%w/w S	0.005	Inorg-068	<0.005	11	<0.005	<0.005	0	[NT]	[NT]
a-Net Acidity	moles H ⁺ /t	5	Inorg-068	<5	11	<5	<5	0	[NT]	[NT]
Liming rate	kg CaCO ₃ /t	0.75	Inorg-068	<0.75	11	<0.75	<0.75	0	[NT]	[NT]
a-Net Acidity without ANCE	moles H ⁺ /t	5	Inorg-068	<5	11	<5	<5	0	[NT]	[NT]
Liming rate without ANCE	kg CaCO ₃ /t	0.75	Inorg-068	<0.75	11	<0.75	<0.75	0	[NT]	[NT]
s-Net Acidity without ANCE	%w/w S	0.005	Inorg-068	<0.005	11	<0.005	<0.005	0	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Jessica Hie

From: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Sent: Thursday, 5 December 2019 11:29 AM
To: Samplereceipt
Subject: FW: Results for Registration 232050 E32837BD, Liverpool
Attachments: 232050-[R00].pdf; 232050-COC.pdf; 232050.Excel.xlsx

Hi All,

Can we please schedule SCr Suite Complete

232050-A
Due: 12/12/19
Std TAT.

MW2	2.8-3	- 7
MW2	3-3.35	- 8
MW2	3.8-4	- 9
MW2	5.4-5.7	- 11
MW2	6.2-6.45	- 12
MW2	9.9-10.2	- 17
MW2	10.6-10.8	- 18
MW2	11.7-11.9	- 19

Many thanks.

Regards
Mitchell Delaney
Senior Associate | Environmental Scientist

South East Queensland Announcement

The JK Group are excited to announce that from 4 November 2019 we will have a full time presence in South East Queensland, based in Maroochydore and supported by our head office in Sydney. For all enquiries regarding our South East Queensland office, please contact Paul Roberts (proberts@jkgeotechnics.com.au).



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JKEnvironments

This email and any attachments are confidential and may be privileged in which case neither is intended to be waived. If you have received this message in error, please notify us and remove it from your system. It is your responsibility to check any attachments for viruses and defects before opening or sending them on. At the Company's discretion we may send a paper copy for confirmation. In the event of any discrepancy between paper and electronic versions the paper version is to take precedence.

From: Ken Nguyen <KNguyen@envirolab.com.au>
Sent: Wednesday, 4 December 2019 4:22 PM
To: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Subject: Results for Registration 232050 E32837BD, Liverpool

Please refer to attached for:
a copy of the Certificate of Analysis

CERTIFICATE OF ANALYSIS 232077-A

Client Details

Client	Environmental Investigation Services
Attention	Alistair Mitchell
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>32837BD, Liverpool</u>
Number of Samples	42 Soil, 2 Water, 3 Material
Date samples received	02/12/2019
Date completed instructions received	09/12/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

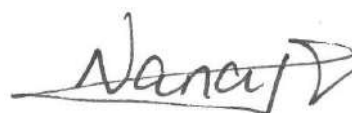
Report Details

Date results requested by	16/12/2019
Date of Issue	13/12/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Jaimie Loa-Kum-Cheung, Metals Supervisor
 Priya Samarawickrama, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

Acid Extractable metals in soil			
Our Reference		232077-A-38	232077-A-49
Your Reference	UNITS	DUPMP106	DUPMP106 - [TRIPLICATE]
Depth		-	-
Date Sampled		26/11/2019	26/11/2019
Type of sample		Soil	Soil
Date prepared	-	10/12/2019	10/12/2019
Date analysed	-	10/12/2019	10/12/2019
Chromium	mg/kg	170	230

Moisture		
Our Reference	UNITS	232077-A-38
Your Reference		DUPMP106
Depth		-
Date Sampled		26/11/2019
Type of sample		Soil
Date prepared	-	10/12/2019
Date analysed	-	11/12/2019
Moisture	%	6.0

Misc Soil - Inorg			
Our Reference		232077-A-14	232077-A-38
Your Reference	UNITS	MW4	DUPMP106
Depth		0.2-0.4	-
Date Sampled		27/11/2019	26/11/2019
Type of sample		Soil	Soil
Date prepared	-	10/12/2019	10/12/2019
Date analysed	-	10/12/2019	10/12/2019
Hexavalent Chromium, Cr ⁶⁺	mg/kg	<10	<10

Metals in TCLP USEPA1311				
Our Reference		232077-A-4	232077-A-14	232077-A-16
Your Reference	UNITS	MW1	MW4	MW5
Depth		0.7-0.9	0.2-0.4	0.3-0.4
Date Sampled		26/11/2019	27/11/2019	27/11/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	10/12/2019	10/12/2019	10/12/2019
Date analysed	-	10/12/2019	10/12/2019	10/12/2019
pH of soil for fluid# determ.	pH units	7.5	9.3	9.0
pH of soil TCLP (after HCl)	pH units	1.7	1.8	1.8
Extraction fluid used	-	1	1	1
pH of final Leachate	pH units	5.0	6.0	5.1
Chromium in TCLP	mg/L	[NA]	<0.01	[NA]
Lead in TCLP	mg/L	0.97	[NA]	[NA]
Nickel in TCLP	mg/L	[NA]	[NA]	0.04

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP) using Zero Headspace Extraction (zHE) using AS4439 and USEPA 1311.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using in house method INORG-004. Please note that the mass used may be scaled down from the default based on sample mass available.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-024	Hexavalent Chromium (Cr6+) - determined colourimetrically. Waters samples are filtered on receipt prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date prepared	-			10/12/2019	38	10/12/2019	10/12/2019		10/12/2019	[NT]
Date analysed	-			10/12/2019	38	10/12/2019	10/12/2019		10/12/2019	[NT]
Chromium	mg/kg	1	Metals-020	<1	38	170	270	45	122	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			10/12/2019	38	10/12/2019	10/12/2019		10/12/2019	[NT]
Date analysed	-			10/12/2019	38	10/12/2019	10/12/2019		10/12/2019	[NT]
Hexavalent Chromium, Cr ⁶⁺	mg/kg	1	Inorg-024	<1	38	<10	<10	0	115	[NT]

QUALITY CONTROL: Metals in TCLP USEPA1311						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			10/12/2019	[NT]	[NT]	[NT]	[NT]	10/12/2019	[NT]
Date analysed	-			10/12/2019	[NT]	[NT]	[NT]	[NT]	10/12/2019	[NT]
Chromium in TCLP	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	[NT]	[NT]	95	[NT]
Lead in TCLP	mg/L	0.03	Metals-020 ICP-AES	<0.03	[NT]	[NT]	[NT]	[NT]	93	[NT]
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	[NT]	[NT]	95	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
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For VOCs in water samples, three vials are required for duplicate or spike analysis.

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Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

MISC_INORG_CRVI: Hexavalent Chromium PQL has been raised due to matrix interferences, samples were diluted and reanalysed however same results were achieved.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 232077-A-38 for Cr. Therefore a triplicate result has been issued as laboratory sample number 232077-A-49.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Alistair Mitchell

Sample Login Details

Your reference	32837BD, Liverpool
Envirolab Reference	232077-A
Date Sample Received	02/12/2019
Date Instructions Received	09/12/2019
Date Results Expected to be Reported	16/12/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	42 Soil, 2 Water, 3 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	12.3
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	Acid Extractable metals in soil	Misc Soil - Inorg	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Chromium in TCLP	Lead in TCLP	Nickel in TCLP	On Hold
MW1 -0.05-0.2										✓
MW1-0.2-0.4										✓
MW1-0.5-0.7										✓
MW1-0.7-0.9			✓	✓	✓	✓		✓		
MW1-1.5-1.7										✓
MW2-0.05-0.3										✓
MW2-1.5-1.7										✓
MW3-0-0.2										✓
MW3-1-1.5										✓
MW3-2.1-2.4										✓
MW3-3.3-3.45										✓
MW3-4-4.3										✓
MW4-0-0.2										✓
MW4-0.2-0.4		✓	✓	✓	✓	✓	✓			
MW5-0-0.2										✓
MW5-0.3-0.4			✓	✓	✓	✓			✓	
MW6-0-0.1										✓
MW6-0.1-0.2										✓
MW7-0-0.1										✓
MW8-0-0.2										✓
MW8-0.2-0.4										✓
MW9-0-0.15										✓
MW9-0.2-0.4										✓
MW10-0-0.3										✓
MW11-0-0.2										✓
MW11-0.2-0.6										✓
MW12-0-0.1										✓
MW12-0.15-0.3										✓
MW12-0.5-0.55										✓
MW13-0-0.1										✓
MW14-0-0.2										✓
MW14-0.45-0.6										✓

Sample ID	Acid Extractable metals in soil	Misc Soil - Inorg	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Chromium in TCLP	Lead in TCLP	Nickel in TCLP	On Hold
MW15-0-0.2										✓
DUPMP101										✓
DUPMP102										✓
DUPMP104										✓
DUPMP105										✓
DUPMP106	✓	✓								
DUPMP107										✓
DUPMP108										✓
TB-S1										✓
FRMW1										✓
FRMW2										✓
FCF1										✓
FCF2										✓
FCF3										✓
TS-S1										✓
MW8 - [TRIPLICATE]-0.2-0.4										✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Cc: Mitchell Delaney <MDelaney@jkenvironments.com.au>

Subject: Additional Analysis E32837BD 232077

Hi,

Can I please get Chromium VI analysis for:

- MW4 (0.2-0.4); and 14
- DUPMP106. 38

Can I please get total Chromium analysis for:

- DUPMP106. 38

Can I please get TCLP analysis for:

- MW1 (0.7-0.9) for Lead; -4 - 16
- MW5 (0.3-0.4) for Nickel; and
- MW4 (0.2-0.4) for Chromium. - 14

Ref: 232077-A
TAT: Std
Due: 16/12/19

ftz

Thanks,

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CERTIFICATE OF ANALYSIS 19227-A

Client Details

Client	JK Environments
Attention	Alistair Mitchell
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32837BD</u>
Number of Samples	2 Soil
Date samples received	04/12/2019
Date completed instructions received	12/12/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	18/12/2019
Date of Issue	18/12/2019
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Results Approved By

Chris De Luca, Operations Manager

Authorised By



Pamela Adams, Laboratory Manager

PAHs in ASLP pH5		
Our Reference		19227-A-1
Your Reference	UNITS	DUPMP103
Type of sample		Soil
Date Sampled		26/11/2019
Date extracted	-	13/12/2019
Date analysed	-	14/12/2019
pH of final Leachate	pH units	5.4
Naphthalene in ASLP	mg/L	<0.001
Acenaphthylene in ASLP	mg/L	<0.001
Acenaphthene in ASLP	mg/L	<0.001
Fluorene in ASLP	mg/L	<0.001
Phenanthrene in ASLP	mg/L	<0.001
Anthracene in ASLP	mg/L	<0.001
Fluoranthene in ASLP	mg/L	<0.001
Pyrene in ASLP	mg/L	<0.001
Benzo(a)anthracene in ASLP	mg/L	<0.001
Chrysene in ASLP	mg/L	<0.001
Benzo(b,j,k)fluoranthene in ASLP	mg/L	<0.002
Benzo(a)pyrene in ASLP	mg/L	<0.001
Indeno(1,2,3-c,d)pyrene - ASLP	mg/L	<0.001
Dibenzo(a,h)anthracene in ASLP	mg/L	<0.001
Benzo(g,h,i)perylene in ASLP	mg/L	<0.001
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	94

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only as analysis outside of the APHA storage times.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-012	Leachates are extracted with Dichloromethane and analysed by GC-MS.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater 2013.

QUALITY CONTROL: PAHs in ASLP pH5					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			13/12/2019	[NT]	[NT]	[NT]	[NT]	13/12/2019	[NT]
Date analysed	-			14/12/2019	[NT]	[NT]	[NT]	[NT]	14/12/2019	[NT]
Naphthalene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	80	[NT]
Acenaphthylene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	92	[NT]
Acenaphthene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	98	[NT]
Phenanthrene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	106	[NT]
Anthracene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	104	[NT]
Pyrene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	106	[NT]
Benzo(a)anthracene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	112	[NT]
Benzo(b)k)fluoranthene in ASLP	mg/L	0.002	Org-012	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	112	[NT]
Indeno(1,2,3-c,d)pyrene - ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene in ASLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d ₁₄	%		Org-012	94	[NT]	[NT]	[NT]	[NT]	92	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Alistair Mitchell

Sample Login Details

Your reference	E32837BD
Envirolab Reference	19227-A
Date Sample Received	04/12/2019
Date Instructions Received	12/12/2019
Date Results Expected to be Reported	18/12/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	2 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	11.6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Pamela Adams

Phone: 03 9763 2500

Fax: 03 9763 2633

Email: padams@envirolab.com.au

Analisa Mathrick

Phone: 03 9763 2500

Fax: 03 9763 2633

Email: amathrick@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	PAHs in ASLP pH5	On Hold
DUPMP103	✓	
DUPMP109		✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

Chris De Luca

19227-A

From: Alistair Mitchell <AMitchell@jkenvironments.com.au>
Sent: Thursday, 12 December 2019 9:35 AM
To: Chris De Luca
Cc: Mitchell Delaney
Subject: Additional Analysis E32837BD 19227

Hi Chris,

Can I please get TCLP PAHs analysis for:

- DUPMP103. -#1

Thanks,

Regards
Alistair Mitchell
Environmental Scientist

We would like to take this opportunity to wish all our clients and suppliers Seasons Greetings. Thank you all for contributing to yet another great year for the JK Group. Our office will be closed from 5pm on Tuesday 24th December 2019 and will reopen on Thursday 2nd January 2020.

South East Queensland Announcement

The JK Group are excited to announce that from 4 November 2019 we will have a full time presence in South East Queensland, based in Maroochydore and supported by our head office in Sydney. For all enquiries regarding our South East Queensland office, please contact Paul Roberts (proberts@jkeotechnics.com.au).



T: +612 9888 5000
E: AMitchell@jkenvironments.com.au
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PO Box 976
NORTH RYDE BC NSW 1670
115 Wicks Road
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JKEnvironments

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CERTIFICATE OF ANALYSIS 233029

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32837BD, Liverpool</u>
Number of Samples	7 WATER
Date samples received	12/12/2019
Date completed instructions received	12/12/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

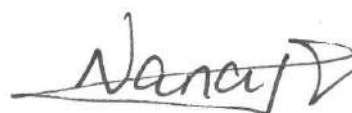
Report Details

Date results requested by	19/12/2019
Date of Issue	18/12/2019
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Results Approved By

Josh Williams, Senior Chemist
 Loren Bardwell, Senior Chemist
 Priya Samarawickrama, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

VOCs in water					
Our Reference		233029-1	233029-2	233029-4	233029-5
Your Reference	UNITS	MW1	MW2	MW135	DUPW1
Date Sampled		11/12/2019	11/12/2019	11/12/2019	11/12/2019
Type of sample		WATER	WATER	WATER	WATER
Date extracted	-	13/12/2019	13/12/2019	13/12/2019	13/12/2019
Date analysed	-	14/12/2019	14/12/2019	14/12/2019	14/12/2019
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1

VOCs in water					
Our Reference		233029-1	233029-2	233029-4	233029-5
Your Reference	UNITS	MW1	MW2	MW135	DUPW1
Date Sampled		11/12/2019	11/12/2019	11/12/2019	11/12/2019
Type of sample		WATER	WATER	WATER	WATER
Bromoform	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	106	105	106	105
Surrogate toluene-d8	%	99	99	98	99
Surrogate 4-BFB	%	106	106	108	106

vTRH(C6-C10)/BTEXN in Water

Our Reference		233029-1	233029-2	233029-4	233029-5	233029-6
Your Reference	UNITS	MW1	MW2	MW135	DUPW1	TB-W1
Date Sampled		11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019
Type of sample		WATER	WATER	WATER	WATER	WATER
Date extracted	-	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019
Date analysed	-	14/12/2019	14/12/2019	14/12/2019	14/12/2019	14/12/2019
TRH C ₆ - C ₉	µg/L	<10	<10	<10	<10	<10
TRH C ₆ - C ₁₀	µg/L	<10	<10	<10	<10	<10
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	106	105	106	105	105
Surrogate toluene-d8	%	99	99	98	99	99
Surrogate 4-BFB	%	106	106	108	106	106

vTRH(C6-C10)/BTEXN in Water

Our Reference		233029-7
Your Reference	UNITS	TS-W1
Date Sampled		11/12/2019
Type of sample		WATER
Date extracted	-	13/12/2019
Date analysed	-	14/12/2019
Benzene	µg/L	123%
Toluene	µg/L	107%
Ethylbenzene	µg/L	98%
m+p-xylene	µg/L	95%
o-xylene	µg/L	98%
Surrogate Dibromofluoromethane	%	107
Surrogate toluene-d8	%	102
Surrogate 4-BFB	%	106

svTRH (C10-C40) in Water						
Our Reference		233029-1	233029-2	233029-3	233029-4	233029-5
Your Reference	UNITS	MW1	MW2	MW3	MW135	DUPW1
Date Sampled		11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019
Type of sample		WATER	WATER	WATER	WATER	WATER
Date extracted	-	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019
Date analysed	-	14/12/2019	14/12/2019	14/12/2019	14/12/2019	14/12/2019
TRH C ₁₀ - C ₁₄	µg/L	<50	<50	830	<50	<50
TRH C ₁₅ - C ₂₈	µg/L	<100	<100	1,400	<100	<100
TRH C ₂₉ - C ₃₆	µg/L	<100	<100	1,200	<100	<100
TRH >C ₁₀ - C ₁₆	µg/L	<50	<50	800	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	<50	[NT]	<50	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100	<100	2,100	<100	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100	<100	910	<100	<100
Surrogate o-Terphenyl	%	96	103	#	107	104

PAHs in Water - Low Level						
Our Reference	UNITS	233029-1	233029-2	233029-3	233029-4	233029-5
Your Reference		MW1	MW2	MW3	MW135	DUPW1
Date Sampled		11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019
Type of sample		WATER	WATER	WATER	WATER	WATER
Date extracted	-	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019
Date analysed	-	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019
Naphthalene	µg/L	<0.2	0.3	3.5	<0.2	<0.2
Acenaphthylene	µg/L	<0.1	<0.1	<0.3	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.3	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	1.5	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	3.4	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.3	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.3	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.3	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	1.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.6	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	0.4	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.3	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.3	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.3	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	0.32	11	<0.1	<0.1
Surrogate <i>p</i> -Terphenyl-d14	%	88	94	#	90	95

HM in water - dissolved						
Our Reference	UNITS	233029-1	233029-2	233029-3	233029-4	233029-5
Your Reference		MW1	MW2	MW3	MW135	DUPW1
Date Sampled		11/12/2019	11/12/2019	11/12/2019	11/12/2019	11/12/2019
Type of sample		WATER	WATER	WATER	WATER	WATER
Date prepared	-	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019
Date analysed	-	13/12/2019	13/12/2019	13/12/2019	13/12/2019	13/12/2019
Arsenic-Dissolved	µg/L	<1	3	7	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	<1	<1	3	<1	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	2	2	4	<1	2
Zinc-Dissolved	µg/L	8	9	17	5	11

Miscellaneous Inorganics					
Our Reference		233029-1	233029-2	233029-3	233029-4
Your Reference	UNITS	MW1	MW2	MW3	MW135
Date Sampled		11/12/2019	11/12/2019	11/12/2019	11/12/2019
Type of sample		WATER	WATER	WATER	WATER
Date prepared	-	12/12/2019	12/12/2019	12/12/2019	12/12/2019
Date analysed	-	12/12/2019	12/12/2019	12/12/2019	12/12/2019
pH	pH Units	7.0	7.1	7.5	7.3
Electrical Conductivity	µS/cm	15,000	23,000	7,600	13,000
Chloride, Cl	mg/L	5,200	8,500	3,100	4,500
Sulphate, SO ₄	mg/L	420	970	380	590

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012/017	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			13/12/2019	2	13/12/2019	16/12/2019		13/12/2019	[NT]
Date analysed	-			14/12/2019	2	14/12/2019	17/12/2019		14/12/2019	[NT]
Dichlorodifluoromethane	µg/L	10	Org-013	<10	2	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-013	<10	2	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-013	<10	2	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-013	<10	2	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-013	<10	2	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-013	<10	2	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-013	<1	2	<1	<1	0	115	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-013	<1	2	<1	<1	0	120	[NT]
2,2-dichloropropane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-013	<1	2	<1	<1	0	115	[NT]
1,1,1-trichloroethane	µg/L	1	Org-013	<1	2	<1	<1	0	113	[NT]
1,1-dichloropropene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Dibromomethane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-013	<1	2	<1	<1	0	126	[NT]
Bromodichloromethane	µg/L	1	Org-013	<1	2	<1	<1	0	114	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-013	<1	2	<1	<1	0	105	[NT]
1,2-dibromoethane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-013	<1	2	<1	<1	0	112	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Bromoform	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-013	<2	2	<2	<2	0	[NT]	[NT]
Styrene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
o-xylene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-013	104	2	105	104	1	101	[NT]
Surrogate toluene-d8	%		Org-013	100	2	99	100	1	101	[NT]
Surrogate 4-BFB	%		Org-013	105	2	106	103	3	100	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			13/12/2019	2	13/12/2019	16/12/2019		13/12/2019	[NT]
Date analysed	-			14/12/2019	2	14/12/2019	17/12/2019		14/12/2019	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-016	<10	2	<10	<10	0	115	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-016	<10	2	<10	<10	0	115	[NT]
Benzene	µg/L	1	Org-016	<1	2	<1	<1	0	116	[NT]
Toluene	µg/L	1	Org-016	<1	2	<1	<1	0	118	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	2	<1	<1	0	113	[NT]
m+p-xylene	µg/L	2	Org-016	<2	2	<2	<2	0	115	[NT]
o-xylene	µg/L	1	Org-016	<1	2	<1	<1	0	114	[NT]
Naphthalene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	104	2	105	104	1	101	[NT]
Surrogate toluene-d8	%		Org-016	100	2	99	100	1	101	[NT]
Surrogate 4-BFB	%		Org-016	105	2	106	103	3	100	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			13/12/2019	[NT]	[NT]	[NT]	[NT]	13/12/2019	[NT]
Date analysed	-			14/12/2019	[NT]	[NT]	[NT]	[NT]	14/12/2019	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	115	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	103	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	115	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate o-Terphenyl	%		Org-003	121	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: PAHs in Water - Low Level					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			13/12/2019	[NT]	[NT]	[NT]	[NT]	13/12/2019	[NT]
Date analysed	-			13/12/2019	[NT]	[NT]	[NT]	[NT]	13/12/2019	[NT]
Naphthalene	µg/L	0.2	Org-012/017	<0.2	[NT]	[NT]	[NT]	[NT]	120	[NT]
Acenaphthylene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Phenanthrene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	126	[NT]
Anthracene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	126	[NT]
Pyrene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	124	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	128	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-012/017	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012/017	75	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	233029-2
Date prepared	-			13/12/2019	1	13/12/2019	13/12/2019		13/12/2019	13/12/2019
Date analysed	-			13/12/2019	1	13/12/2019	13/12/2019		13/12/2019	13/12/2019
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		95	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	[NT]		92	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		101	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		102	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		104	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	103	91
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	2	[NT]		102	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	8	[NT]		99	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			12/12/2019	[NT]	[NT]	[NT]	[NT]	12/12/2019	[NT]
Date analysed	-			12/12/2019	[NT]	[NT]	[NT]	[NT]	12/12/2019	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	102	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

TRH Water(C10-C40) NEPM - # Percent recovery for the surrogate is not possible to report as the high concentration of analytes in sample 233029-3 have caused interference

PAHs in Water - Low Level:

- # Percent recovery for the surrogate is not possible to report due to interference from analytes in sample 233029-3.
- The PQL has been raised due to interferences from analytes (other than those being tested) in sample 233029-3.

VOCs in water - Analysis of the sample 233029-3 was not undertaken as the supplied vial contained high sediment load.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32837BD, Liverpool
Envirolab Reference	233029
Date Sample Received	12/12/2019
Date Instructions Received	12/12/2019
Date Results Expected to be Reported	19/12/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	7 WATER
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	13.9
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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Jacinta Hurst

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Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	VOCs in water	VTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water - Low Level	HM in water - dissolved	pH	Electrical Conductivity	Chloride, Cl	Sulphate, SO4
MW1	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW2	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW3	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW135	✓	✓	✓	✓	✓	✓	✓	✓	✓
DUPW1	✓	✓	✓	✓	✓				
TB-W1		✓							
TS-W1		✓							

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

[illegible]

CERTIFICATE OF ANALYSIS 19445

Client Details

Client	JK Environments
Attention	Mitch Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32837BD - Liverpool</u>
Number of Samples	1 Water
Date samples received	17/12/2019
Date completed instructions received	17/12/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	06/01/2020
Date of Issue	14/01/2020
Reissue Details	This report supersedes 19445_R00 due to mislabelled sample ID.
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Results Approved By

Chris De Luca, Operations Manager

Authorised By



Pamela Adams, Laboratory Manager

VOCs in water		
Our Reference		19445-1
Your Reference	UNITS	DUPW2
Date Sampled		11/12/2019
Type of sample		Water
Date extracted	-	20/12/2019
Date analysed	-	20/12/2019
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1

VOCs in water		
Our Reference		19445-1
Your Reference	UNITS	DUPW2
Date Sampled		11/12/2019
Type of sample		Water
Bromoform	µg/L	<1
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	98
Surrogate toluene-d8	%	94
Surrogate 4-BFB	%	118

vTRH(C6-C10)/BTEXN in Water		
Our Reference		19445-1
Your Reference	UNITS	DUPW2
Date Sampled		11/12/2019
Type of sample		Water
Date extracted	-	20/12/2019
Date analysed	-	20/12/2019
TRH C ₆ - C ₉	µg/L	<10
TRH C ₆ - C ₁₀	µg/L	<10
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Total +ve Xylenes	µg/L	<1
Surrogate Dibromofluoromethane	%	103
Surrogate toluene-d8	%	98
Surrogate 4-BFB	%	125

TRH Water(C10-C40) NEPM		
Our Reference		19445-1
Your Reference	UNITS	DUPW2
Date Sampled		11/12/2019
Type of sample		Water
Date extracted	-	19/12/2019
Date analysed	-	31/12/2019
TRH C ₁₀ - C ₁₄	µg/L	<50
TRH C ₁₅ - C ₂₈	µg/L	<100
TRH C ₂₉ - C ₃₆	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C ₁₀ - C ₁₆	µg/L	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	86

PAHs in Water - Low Level		
Our Reference		19445-1
Your Reference	UNITS	DUPW2
Date Sampled		11/12/2019
Type of sample		Water
Date extracted	-	19/12/2019
Date analysed	-	01/01/2020
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j&k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Total +ve PAH's	µg/L	NIL (+)VE PAH
Benzo(a)pyrene TEQ	µg/L	<0.5
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	88

HM in water - dissolved		
Our Reference		19445-1
Your Reference	UNITS	DUPW2
Date Sampled		11/12/2019
Type of sample		Water
Date prepared	-	17/12/2019
Date analysed	-	17/12/2019
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	2
Lead-Dissolved	µg/L	<1
Nickel-Dissolved	µg/L	1
Zinc-Dissolved	µg/L	3
Mercury-Dissolved	µg/L	<0.05

Method ID	Methodology Summary
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater 2013.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			20/12/2019	[NT]	[NT]	[NT]	[NT]	20/12/2019	[NT]
Date analysed	-			20/12/2019	[NT]	[NT]	[NT]	[NT]	20/12/2019	[NT]
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	81	[NT]
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	87	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-013	84	[NT]	[NT]	[NT]	[NT]	85	[NT]
Surrogate toluene-d8	%		Org-013	97	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate 4-BFB	%		Org-013	94	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			20/12/2019	[NT]	[NT]	[NT]	[NT]	20/12/2019	[NT]
Date analysed	-			20/12/2019	[NT]	[NT]	[NT]	[NT]	20/12/2019	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	99	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	99	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	101	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate Dibromofluoromethane	%		Org-016	89	[NT]	[NT]	[NT]	[NT]	88	[NT]
Surrogate toluene-d8	%		Org-016	100	[NT]	[NT]	[NT]	[NT]	93	[NT]
Surrogate 4-BFB	%		Org-016	100	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: TRH Water(C10-C40) NEPM						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/12/2019	[NT]	[NT]	[NT]	[NT]	19/12/2019	[NT]
Date analysed	-			31/12/2019	[NT]	[NT]	[NT]	[NT]	31/12/2019	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	81	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	120	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	81	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	120	[NT]
Surrogate o-Terphenyl	%		Org-003	73	[NT]	[NT]	[NT]	[NT]	86	[NT]

QUALITY CONTROL: PAHs in Water - Low Level					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/12/2019	[NT]	[NT]	[NT]	[NT]	19/12/2019	[NT]
Date analysed	-			01/01/2020	[NT]	[NT]	[NT]	[NT]	01/01/2020	[NT]
Naphthalene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	60	[NT]
Acenaphthylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Acenaphthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Phenanthrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Benzo(b,j&k)fluoranthene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d ₁₄	%		Org-012	104	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			17/12/2019	[NT]	[NT]	[NT]	[NT]	17/12/2019	[NT]
Date analysed	-			17/12/2019	[NT]	[NT]	[NT]	[NT]	17/12/2019	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Mitch Delaney

Sample Login Details

Your reference	E32837BD - Liverpool
Envirolab Reference	19445
Date Sample Received	17/12/2019
Date Instructions Received	17/12/2019
Date Results Expected to be Reported	06/01/2020

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	9.9C
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Pamela Adams

Phone: 03 9763 2500
Fax: 03 9763 2633
Email: padams@envirolab.com.au

Analisa Mathrick

Phone: 03 9763 2500
Fax: 03 9763 2633
Email: amathrick@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	VOCs in water	VTRH(C6-C10)/BTEXN in Water	TRH Water(C10-C40) NEPM	PAHs in Water - Low Level	HM in water - dissolved
DUP2W	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen		EIS Job Number: E32837BD Date Results Required: STANDARD Page: 1		FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitchell Delaney													
Location: Liverpool		Sample Preserved in Esky on Ice															
Sampler: AM		Tests Required															
Date Sampled	Lab Ref:	Sample Number	Sample Containers	PID	Sample Description	Combo 3L	VOCs	pH / EC	Sulphate/ Chlorides	BTEX							
11.12.19	1	MW1	2 x G1, 4 x V, H, PVC	6	Water	X	X	X	X								
11.12.19	2	MW2	2 x G1, 4 x V, H, PVC	12.2	Water	X	X	X	X								
11.12.19	3	MW3	2 x G1, 4 x V, H, PVC	18.2	Water - Very High Silt Load	X	X	X	X								
11.12.19	4	MW135	2 x G1, 4 x V, H, PVC	0	Water	X	X	X	X								
11.12.19	5	DUPW1	2 x G1, 4 x V, H,	-	Dup Water	X	X										
11.12.19	-	DUPW2	2 x G1, 4 x V, H,	-	Dup Water	X	X										
3.12.19	6	TB-W1	V	-	Trip Blank Water					X							
3.12.19	7	TS-W1	V	-	Trip Spike Water					X							
 Envirolab Services 25 Research Drive Croydon South VIC 3136 Ph: (03) 9763 2500						 Envirolab Services 12 Ashley St Chatswood NSW 2067 Ph: (02) 9910 6200											
Job No: 19445						Job No: 233029											
Date Received: 17/12/19						Date Received: 12/12/19											
Time Received: 12:45pm						Time Received: 15:32											
Received By: KS						Received By: MT											
Temp: Cool Ambient						Temp: Cool Ambient											
Cooling: Ice/Insulation						Cooling: Ice/Insulation											
Security: Intact/Broken/None						Security: Intact/Broken/None											
Remarks (comments/detection limits required): All analysis PQLs to ANZECC (2000) Detection Limits Please Note: Water samples extremely silty particularly MW3. Please contact JKE if any issues with scheduled analysis. Thanks.						Sample Containers: G1 - 500mL Amber Glass Bottle G2 - 1L Amber Glass Bottle V - BTEX Vial H - HNO3 Wash PVC PVC - HDPE Plastic Bottles											
Relinquished By: MD		Date: 12.12.19		Time:		Received By:		Date:									
ELS Syd K-Lore		16.12.19 1200				Ming Yan To		12/12/19 15:32									



Laboratory Reports & COC Documents

JKE Stage 2 ESA 2019

CERTIFICATE OF ANALYSIS 223302

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32465BD, Liverpool</u>
Number of Samples	59 soil, 1 water
Date samples received	06/08/2019
Date completed instructions received	06/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	14/08/2019
Date of Issue	13/08/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Asbestos Approved By

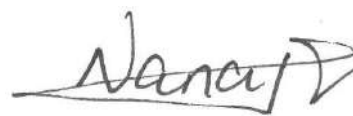
Analysed by Asbestos Approved Identifier: Panika Wongchanda, Lucy Zhu

Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Hinoko Miyazaki, Senior Chemist
 Loren Bardwell, Senior Chemist
 Lucy Zhu, Senior Asbestos Analyst
 Steven Luong, Organics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223302-1	223302-3	223302-5	223302-6	223302-7
Your Reference	UNITS	JKE101	JKE101	JKE102	JKE102	JKE102
Depth		0.04-0.2	1.4-1.7	0.1-0.3	0.3-0.5	1.2-1.6
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	110	105	102	116	110

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223302-8	223302-9	223302-10	223302-11	223302-12
Your Reference	UNITS	JKE102	JKE103	JKE103	JKE104	JKE104
Depth		1.6-2.0	0-0.1	0.1-0.4	0-0.1	0.1-0.3
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	112	97	107	91	110

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223302-13	223302-14	223302-15	223302-16	223302-17
Your Reference	UNITS	JKE104	JKE104	JKE105	JKE105	JKE106
Depth		0.7-1.0	1.5-1.7	0-0.1	0.5-0.95	0.08-0.2
Date Sampled		31/07/2019	31/07/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	118	119	106	116	116

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223302-18	223302-20	223302-23	223302-24	223302-26
Your Reference	UNITS	JKE106	JKE106	JKE106	JKE107	JKE107
Depth		0.5-0.9	1.5-1.95	4.5-4.7	0-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	124	115	121	116	92

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223302-29	223302-30	223302-33	223302-34	223302-37
Your Reference	UNITS	JKE108	JKE108	JKE108	JKE110	JKE110
Depth		0.22-0.4	0.5-0.95	3.0-3.45	0.04-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	108	114	119	125	87

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223302-38	223302-39	223302-42	223302-43	223302-45
Your Reference	UNITS	JKE110	JKE111	JKE111	JKE111	JKE111
Depth		3.0-3.2	0-0.2	1.4-1.7	1.8-2.0	3.0-3.2
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	107	118	105	114	135

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223302-46	223302-48	223302-49	223302-50	223302-51
Your Reference	UNITS	JKE120	JKE120	JKE120	JKE121	JKE121
Depth		0-0.2	0.85-1.1	1.5-1.7	0-0.2	0.4-0.85
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	115	121	128	111	115

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223302-53	223302-54	223302-55	223302-56	223302-57
Your Reference	UNITS	JKE121	DUPAM101	DUPAM102	TB2	TB3
Depth		1.5-1.7	-	-	-	-
Date Sampled		02/08/2019	31/07/2019	01/08/2019	31/07/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	122	110	113	123	118

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		223302-58	223302-59
Your Reference	UNITS	TB4	T1
Depth		-	-
Date Sampled		02/08/2019	31/07/2019
Type of sample		soil	soil
Date extracted	-	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019
TRH C ₆ - C ₉	mg/kg	<25	[NA]
TRH C ₆ - C ₁₀	mg/kg	<25	[NA]
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	[NA]
Benzene	mg/kg	<0.2	83%
Toluene	mg/kg	<0.5	91%
Ethylbenzene	mg/kg	<1	88%
m+p-xylene	mg/kg	<2	87%
o-Xylene	mg/kg	<1	92%
naphthalene	mg/kg	<1	[NA]
Total +ve Xylenes	mg/kg	<3	[NA]
Surrogate aaa-Trifluorotoluene	%	113	119

svTRH (C10-C40) in Soil						
Our Reference		223302-1	223302-3	223302-5	223302-6	223302-7
Your Reference	UNITS	JKE101	JKE101	JKE102	JKE102	JKE102
Depth		0.04-0.2	1.4-1.7	0.1-0.3	0.3-0.5	1.2-1.6
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	240	160
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	150	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	50	290	170
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	50	290	170
TRH >C ₁₆ -C ₃₄	mg/kg	170	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	200	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	370	<50	50	290	170
Surrogate o-Terphenyl	%	98	86	80	83	78

svTRH (C10-C40) in Soil						
Our Reference		223302-8	223302-9	223302-10	223302-11	223302-12
Your Reference	UNITS	JKE102	JKE103	JKE103	JKE104	JKE104
Depth		1.6-2.0	0-0.1	0.1-0.4	0-0.1	0.1-0.3
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	100	<50	96	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	1,200	<100	1,400	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	1,500	<100	1,300	100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	180	<50	160	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	180	<50	160	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	2,100	100	2,300	120
TRH >C ₃₄ -C ₄₀	mg/kg	<100	1,100	<100	930	100
Total +ve TRH (>C10-C40)	mg/kg	<50	3,400	100	3,400	220
Surrogate o-Terphenyl	%	77	#	81	132	91

svTRH (C10-C40) in Soil

Our Reference		223302-13	223302-14	223302-15	223302-16	223302-17
Your Reference	UNITS	JKE104	JKE104	JKE105	JKE105	JKE106
Depth		0.7-1.0	1.5-1.7	0-0.1	0.5-0.95	0.08-0.2
Date Sampled		31/07/2019	31/07/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	63	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	260	<100	310
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	390	<100	730
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	80	<50	68
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	80	<50	68
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	500	<100	740
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	280	<100	820
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	860	<50	1,600
Surrogate o-Terphenyl	%	77	76	109	77	127

svTRH (C10-C40) in Soil

Our Reference		223302-18	223302-20	223302-23	223302-24	223302-26
Your Reference	UNITS	JKE106	JKE106	JKE106	JKE107	JKE107
Depth		0.5-0.9	1.5-1.95	4.5-4.7	0-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	77	79	76	80	78

svTRH (C10-C40) in Soil

Our Reference		223302-29	223302-30	223302-33	223302-34	223302-37
Your Reference	UNITS	JKE108	JKE108	JKE108	JKE110	JKE110
Depth		0.22-0.4	0.5-0.95	3.0-3.45	0.04-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	120	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	250	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	250	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	330	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	580	<50
Surrogate o-Terphenyl	%	76	77	77	109	78

svTRH (C10-C40) in Soil

Our Reference		223302-38	223302-39	223302-42	223302-43	223302-45
Your Reference	UNITS	JKE110	JKE111	JKE111	JKE111	JKE111
Depth		3.0-3.2	0-0.2	1.4-1.7	1.8-2.0	3.0-3.2
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	51	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	210	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	340	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	60	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	60	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	430	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	260	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	750	<50	<50	<50
Surrogate o-Terphenyl	%	#	99	78	77	77

svTRH (C10-C40) in Soil

Our Reference		223302-46	223302-48	223302-49	223302-50	223302-51
Your Reference	UNITS	JKE120	JKE120	JKE120	JKE121	JKE121
Depth		0-0.2	0.85-1.1	1.5-1.7	0-0.2	0.4-0.85
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	130	<100	<100	140	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	180	<100	<100	170	<100
TRH >C ₃₄ -C ₄₀	mg/kg	100	<100	<100	120	<100
Total +ve TRH (>C10-C40)	mg/kg	280	<50	<50	290	<50
Surrogate o-Terphenyl	%	91	77	77	102	81

svTRH (C10-C40) in Soil

Our Reference		223302-53	223302-54	223302-55
Your Reference	UNITS	JKE121	DUPAM101	DUPAM102
Depth		1.5-1.7	-	-
Date Sampled		02/08/2019	31/07/2019	01/08/2019
Type of sample		soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	09/08/2019	09/08/2019	09/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	190
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	190
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	120
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	310
Surrogate o-Terphenyl	%	83	77	80

PAHs in Soil						
Our Reference		223302-1	223302-3	223302-5	223302-6	223302-7
Your Reference	UNITS	JKE101	JKE101	JKE102	JKE102	JKE102
Depth		0.04-0.2	1.4-1.7	0.1-0.3	0.3-0.5	1.2-1.6
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Pyrene	mg/kg	0.2	<0.1	<0.1	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.08	<0.05	0.09	0.2	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1
Total +ve PAH's	mg/kg	0.70	<0.05	0.09	1.1	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	97	76	75	80	78

PAHs in Soil						
Our Reference		223302-8	223302-9	223302-10	223302-11	223302-12
Your Reference	UNITS	JKE102	JKE103	JKE103	JKE104	JKE104
Depth		1.6-2.0	0-0.1	0.1-0.4	0-0.1	0.1-0.3
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.1	<0.1	0.5	0.2
Pyrene	mg/kg	<0.1	0.1	<0.1	0.5	0.2
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.3	0.1
Chrysene	mg/kg	<0.1	0.1	<0.1	0.4	0.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.4	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.08	<0.05	0.4	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.2	0.1	0.3	0.2
Total +ve PAH's	mg/kg	<0.05	0.57	0.1	3.2	0.94
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	0.6	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	0.6	<0.5
Surrogate p-Terphenyl-d14	%	77	97	84	92	79

PAHs in Soil						
Our Reference		223302-13	223302-14	223302-15	223302-16	223302-17
Your Reference	UNITS	JKE104	JKE104	JKE105	JKE105	JKE106
Depth		0.7-1.0	1.5-1.7	0-0.1	0.5-0.95	0.08-0.2
Date Sampled		31/07/2019	31/07/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.6	<0.1	0.1	<0.1	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.6	<0.1	0.3	<0.1	0.3
Pyrene	mg/kg	0.6	<0.1	0.3	<0.1	0.4
Benzo(a)anthracene	mg/kg	0.3	<0.1	0.2	<0.1	0.1
Chrysene	mg/kg	0.4	<0.1	0.3	<0.1	0.2
Benzo(b,j+k)fluoranthene	mg/kg	0.2	<0.2	0.3	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.3	<0.05	0.2	0.06	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	0.3	<0.1	0.2
Total +ve PAH's	mg/kg	3.0	<0.05	2.1	0.06	1.5
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	70	82	82	84	82

PAHs in Soil						
Our Reference		223302-18	223302-20	223302-23	223302-24	223302-26
Your Reference	UNITS	JKE106	JKE106	JKE106	JKE107	JKE107
Depth		0.5-0.9	1.5-1.95	4.5-4.7	0-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.3	<0.1	<0.1	0.4	<0.1
Pyrene	mg/kg	0.2	<0.1	<0.1	0.4	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	0.4	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.3	<0.2
Benzo(a)pyrene	mg/kg	0.07	<0.05	0.06	0.2	0.09
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Total +ve PAH's	mg/kg	0.86	<0.05	0.06	2.8	0.09
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	84	82	88	79	82

PAHs in Soil						
Our Reference		223302-29	223302-30	223302-33	223302-34	223302-37
Your Reference	UNITS	JKE108	JKE108	JKE108	JKE110	JKE110
Depth		0.22-0.4	0.5-0.95	3.0-3.45	0.04-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	0.4	0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	0.4	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.1	<0.05	0.05	0.2	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Total +ve PAH's	mg/kg	0.4	<0.05	0.05	1.6	0.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	82	79	85	88	84

PAHs in Soil						
Our Reference		223302-38	223302-39	223302-42	223302-43	223302-45
Your Reference	UNITS	JKE110	JKE111	JKE111	JKE111	JKE111
Depth		3.0-3.2	0-0.2	1.4-1.7	1.8-2.0	3.0-3.2
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Naphthalene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.2	0.5	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.7	0.7	0.1	<0.1
Pyrene	mg/kg	<0.1	0.7	0.7	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.4	0.4	0.1	<0.1
Chrysene	mg/kg	<0.1	0.5	0.5	0.2	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.5	0.3	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.5	0.3	0.2	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.3	0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.5	0.2	0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	4.4	4.0	0.94	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	0.8	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	0.8	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	0.8	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	80	81	82	85	84

PAHs in Soil						
Our Reference		223302-46	223302-48	223302-49	223302-50	223302-51
Your Reference	UNITS	JKE120	JKE120	JKE120	JKE121	JKE121
Depth		0-0.2	0.85-1.1	1.5-1.7	0-0.2	0.4-0.85
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.2	<0.1	<0.1	0.4	0.1
Pyrene	mg/kg	0.2	<0.1	<0.1	0.4	0.2
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.2	<0.1	<0.1	0.3	0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.3	<0.2
Benzo(a)pyrene	mg/kg	0.1	<0.05	<0.05	0.5	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1	0.2	0.1
Total +ve PAH's	mg/kg	0.78	<0.05	<0.05	2.4	0.66
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	0.6	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	0.6	<0.5
Surrogate p-Terphenyl-d14	%	82	91	86	90	89

PAHs in Soil				
Our Reference		223302-53	223302-54	223302-55
Your Reference	UNITS	JKE121	DUPAM101	DUPAM102
Depth		1.5-1.7	-	-
Date Sampled		02/08/2019	31/07/2019	01/08/2019
Type of sample		soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.4
Pyrene	mg/kg	<0.1	<0.1	0.4
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.3
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.3
Benzo(a)pyrene	mg/kg	<0.05	0.1	0.3
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	0.2
Total +ve PAH's	mg/kg	<0.05	0.1	2.5
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	82	83	92

Organochlorine Pesticides in soil						
Our Reference		223302-1	223302-3	223302-5	223302-9	223302-10
Your Reference	UNITS	JKE101	JKE101	JKE102	JKE103	JKE103
Depth		0.04-0.2	1.4-1.7	0.1-0.3	0-0.1	0.1-0.4
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	112	88	86	99	93

Organochlorine Pesticides in soil

Our Reference		223302-11	223302-12	223302-13	223302-14	223302-15
Your Reference	UNITS	JKE104	JKE104	JKE104	JKE104	JKE105
Depth		0-0.1	0.1-0.3	0.7-1.0	1.5-1.7	0-0.1
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	90	85	93	88

Organochlorine Pesticides in soil

Our Reference		223302-17	223302-18	223302-20	223302-24	223302-26
Your Reference	UNITS	JKE106	JKE106	JKE106	JKE107	JKE107
Depth		0.08-0.2	0.5-0.9	1.5-1.95	0-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	92	94	83	89

Organochlorine Pesticides in soil						
Our Reference		223302-29	223302-30	223302-33	223302-34	223302-37
Your Reference	UNITS	JKE108	JKE108	JKE108	JKE110	JKE110
Depth		0.22-0.4	0.5-0.95	3.0-3.45	0.04-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	88	93	92	93

Organochlorine Pesticides in soil

Our Reference		223302-38	223302-39	223302-42	223302-43	223302-45
Your Reference	UNITS	JKE110	JKE111	JKE111	JKE111	JKE111
Depth		3.0-3.2	0-0.2	1.4-1.7	1.8-2.0	3.0-3.2
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	91	94	95	89

Organochlorine Pesticides in soil

Our Reference		223302-46	223302-48	223302-49	223302-50	223302-51
Your Reference	UNITS	JKE120	JKE120	JKE120	JKE121	JKE121
Depth		0-0.2	0.85-1.1	1.5-1.7	0-0.2	0.4-0.85
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	93	83	91	85

Organochlorine Pesticides in soil				
Our Reference		223302-53	223302-54	223302-55
Your Reference	UNITS	JKE121	DUPAM101	DUPAM102
Depth		1.5-1.7	-	-
Date Sampled		02/08/2019	31/07/2019	01/08/2019
Type of sample		soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	82	86	90

Organophosphorus Pesticides						
Our Reference		223302-1	223302-3	223302-5	223302-9	223302-10
Your Reference	UNITS	JKE101	JKE101	JKE102	JKE103	JKE103
Depth		0.04-0.2	1.4-1.7	0.1-0.3	0-0.1	0.1-0.4
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	112	88	86	99	93

Organophosphorus Pesticides

Our Reference		223302-11	223302-12	223302-13	223302-14	223302-15
Your Reference	UNITS	JKE104	JKE104	JKE104	JKE104	JKE105
Depth		0-0.1	0.1-0.3	0.7-1.0	1.5-1.7	0-0.1
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	90	85	93	88

Organophosphorus Pesticides						
Our Reference		223302-17	223302-18	223302-20	223302-24	223302-26
Your Reference	UNITS	JKE106	JKE106	JKE106	JKE107	JKE107
Depth		0.08-0.2	0.5-0.9	1.5-1.95	0-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	92	94	83	89

Organophosphorus Pesticides

Our Reference		223302-29	223302-30	223302-33	223302-34	223302-37
Your Reference	UNITS	JKE108	JKE108	JKE108	JKE110	JKE110
Depth		0.22-0.4	0.5-0.95	3.0-3.45	0.04-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	88	93	92	93

Organophosphorus Pesticides						
Our Reference		223302-38	223302-39	223302-42	223302-43	223302-45
Your Reference	UNITS	JKE110	JKE111	JKE111	JKE111	JKE111
Depth		3.0-3.2	0-0.2	1.4-1.7	1.8-2.0	3.0-3.2
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	91	94	95	89

Organophosphorus Pesticides

Our Reference		223302-46	223302-48	223302-49	223302-50	223302-51
Your Reference	UNITS	JKE120	JKE120	JKE120	JKE121	JKE121
Depth		0-0.2	0.85-1.1	1.5-1.7	0-0.2	0.4-0.85
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	93	83	91	85

Organophosphorus Pesticides				
Our Reference		223302-53	223302-54	223302-55
Your Reference	UNITS	JKE121	DUPAM101	DUPAM102
Depth		1.5-1.7	-	-
Date Sampled		02/08/2019	31/07/2019	01/08/2019
Type of sample		soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	82	86	90

PCBs in Soil						
Our Reference	UNITS	223302-1	223302-3	223302-5	223302-9	223302-10
Your Reference		JKE101	JKE101	JKE102	JKE103	JKE103
Depth		0.04-0.2	1.4-1.7	0.1-0.3	0-0.1	0.1-0.4
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	112	88	86	99	93

PCBs in Soil						
Our Reference	UNITS	223302-11	223302-12	223302-13	223302-14	223302-15
Your Reference		JKE104	JKE104	JKE104	JKE104	JKE105
Depth		0-0.1	0.1-0.3	0.7-1.0	1.5-1.7	0-0.1
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	90	85	93	88

PCBs in Soil						
Our Reference	UNITS	223302-17	223302-18	223302-20	223302-24	223302-26
Your Reference		JKE106	JKE106	JKE106	JKE107	JKE107
Depth		0.08-0.2	0.5-0.9	1.5-1.95	0-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	92	94	83	89

PCBs in Soil						
Our Reference	UNITS	223302-29	223302-30	223302-33	223302-34	223302-37
Your Reference		JKE108	JKE108	JKE108	JKE110	JKE110
Depth		0.22-0.4	0.5-0.95	3.0-3.45	0.04-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	88	93	92	93

PCBs in Soil						
Our Reference	UNITS	223302-38	223302-39	223302-42	223302-43	223302-45
Your Reference		JKE110	JKE111	JKE111	JKE111	JKE111
Depth		3.0-3.2	0-0.2	1.4-1.7	1.8-2.0	3.0-3.2
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	91	94	95	89

PCBs in Soil						
Our Reference	UNITS	223302-46	223302-48	223302-49	223302-50	223302-51
Your Reference		JKE120	JKE120	JKE120	JKE121	JKE121
Depth		0-0.2	0.85-1.1	1.5-1.7	0-0.2	0.4-0.85
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	93	83	91	85

PCBs in Soil				
Our Reference		223302-53	223302-54	223302-55
Your Reference	UNITS	JKE121	DUPAM101	DUPAM102
Depth		1.5-1.7	-	-
Date Sampled		02/08/2019	31/07/2019	01/08/2019
Type of sample		soil	soil	soil
Date extracted	-	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	82	86	90

Acid Extractable metals in soil

Our Reference		223302-1	223302-3	223302-5	223302-6	223302-7
Your Reference	UNITS	JKE101	JKE101	JKE102	JKE102	JKE102
Depth		0.04-0.2	1.4-1.7	0.1-0.3	0.3-0.5	1.2-1.6
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Arsenic	mg/kg	<4	14	4	6	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	17	8	10	14
Copper	mg/kg	35	18	15	9	10
Lead	mg/kg	19	12	20	19	13
Mercury	mg/kg	<0.1	<0.1	0.1	0.2	<0.1
Nickel	mg/kg	27	3	12	3	3
Zinc	mg/kg	54	20	29	16	9

Acid Extractable metals in soil

Our Reference		223302-8	223302-9	223302-10	223302-11	223302-12
Your Reference	UNITS	JKE102	JKE103	JKE103	JKE104	JKE104
Depth		1.6-2.0	0-0.1	0.1-0.4	0-0.1	0.1-0.3
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Arsenic	mg/kg	5	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	8	9	9	10	11
Copper	mg/kg	5	33	10	30	16
Lead	mg/kg	8	19	16	51	28
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	1	13	10	8	11
Zinc	mg/kg	4	72	21	93	75

Acid Extractable metals in soil

Our Reference		223302-13	223302-14	223302-15	223302-16	223302-17
Your Reference	UNITS	JKE104	JKE104	JKE105	JKE105	JKE106
Depth		0.7-1.0	1.5-1.7	0-0.1	0.5-0.95	0.08-0.2
Date Sampled		31/07/2019	31/07/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Arsenic	mg/kg	4	<4	5	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	11	12	14	11	10
Copper	mg/kg	15	4	60	10	44
Lead	mg/kg	100	17	61	16	16
Mercury	mg/kg	0.6	0.4	0.2	<0.1	<0.1
Nickel	mg/kg	10	1	8	7	7
Zinc	mg/kg	80	5	130	56	35

Acid Extractable metals in soil

Our Reference		223302-18	223302-20	223302-23	223302-24	223302-26
Your Reference	UNITS	JKE106	JKE106	JKE106	JKE107	JKE107
Depth		0.5-0.9	1.5-1.95	4.5-4.7	0-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	8	14	9	12
Copper	mg/kg	15	8	7	32	12
Lead	mg/kg	15	13	13	78	18
Mercury	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Nickel	mg/kg	8	5	2	9	6
Zinc	mg/kg	18	15	8	100	23

Acid Extractable metals in soil

Our Reference		223302-29	223302-30	223302-33	223302-34	223302-37
Your Reference	UNITS	JKE108	JKE108	JKE108	JKE110	JKE110
Depth		0.22-0.4	0.5-0.95	3.0-3.45	0.04-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	11	12	18	20	11
Copper	mg/kg	13	7	6	29	24
Lead	mg/kg	43	15	13	16	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	4	4	9	10
Zinc	mg/kg	43	16	8	48	44

Acid Extractable metals in soil

Our Reference		223302-38	223302-39	223302-42	223302-43	223302-45
Your Reference	UNITS	JKE110	JKE111	JKE111	JKE111	JKE111
Depth		3.0-3.2	0-0.2	1.4-1.7	1.8-2.0	3.0-3.2
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Arsenic	mg/kg	<4	5	4	6	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	12	10	8	14
Copper	mg/kg	5	28	23	12	8
Lead	mg/kg	11	37	100	33	14
Mercury	mg/kg	<0.1	<0.1	0.3	0.1	<0.1
Nickel	mg/kg	1	7	8	5	1
Zinc	mg/kg	4	92	73	36	5

Acid Extractable metals in soil

Our Reference		223302-46	223302-48	223302-49	223302-50	223302-51
Your Reference	UNITS	JKE120	JKE120	JKE120	JKE121	JKE121
Depth		0-0.2	0.85-1.1	1.5-1.7	0-0.2	0.4-0.85
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Arsenic	mg/kg	5	6	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	11	13	8	9	10
Copper	mg/kg	17	2	2	41	12
Lead	mg/kg	23	24	11	61	13
Mercury	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Nickel	mg/kg	7	2	1	23	17
Zinc	mg/kg	36	3	3	88	24

Acid Extractable metals in soil

Our Reference		223302-53	223302-54	223302-55	223302-61
Your Reference	UNITS	JKE121	DUPAM101	DUPAM102	JKE121 - [TRIPLICATE]
Depth		1.5-1.7	-	-	0.4-0.85
Date Sampled		02/08/2019	31/07/2019	01/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Arsenic	mg/kg	4	5	4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	7	13	11
Copper	mg/kg	5	13	62	9
Lead	mg/kg	18	20	50	16
Mercury	mg/kg	<0.1	0.1	0.1	<0.1
Nickel	mg/kg	2	12	8	13
Zinc	mg/kg	5	29	120	24

Moisture						
Our Reference	UNITS	223302-1	223302-3	223302-5	223302-6	223302-7
Your Reference		JKE101	JKE101	JKE102	JKE102	JKE102
Depth		0.04-0.2	1.4-1.7	0.1-0.3	0.3-0.5	1.2-1.6
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Moisture	%	4.7	18	17	20	23

Moisture						
Our Reference	UNITS	223302-8	223302-9	223302-10	223302-11	223302-12
Your Reference		JKE102	JKE103	JKE103	JKE104	JKE104
Depth		1.6-2.0	0-0.1	0.1-0.4	0-0.1	0.1-0.3
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Moisture	%	20	30	4.5	20	11

Moisture						
Our Reference	UNITS	223302-13	223302-14	223302-15	223302-16	223302-17
Your Reference		JKE104	JKE104	JKE105	JKE105	JKE106
Depth		0.7-1.0	1.5-1.7	0-0.1	0.5-0.95	0.08-0.2
Date Sampled		31/07/2019	31/07/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Moisture	%	11	17	23	14	9.3

Moisture						
Our Reference	UNITS	223302-18	223302-20	223302-23	223302-24	223302-26
Your Reference		JKE106	JKE106	JKE106	JKE107	JKE107
Depth		0.5-0.9	1.5-1.95	4.5-4.7	0-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Moisture	%	21	11	16	7.1	16

Moisture						
Our Reference	UNITS	223302-29	223302-30	223302-33	223302-34	223302-37
Your Reference		JKE108	JKE108	JKE108	JKE110	JKE110
Depth		0.22-0.4	0.5-0.95	3.0-3.45	0.04-0.2	1.5-1.95
Date Sampled		01/08/2019	01/08/2019	01/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Moisture	%	12	14	23	11	17

Moisture						
Our Reference	UNITS	223302-38	223302-39	223302-42	223302-43	223302-45
Your Reference		JKE110	JKE111	JKE111	JKE111	JKE111
Depth		3.0-3.2	0-0.2	1.4-1.7	1.8-2.0	3.0-3.2
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Moisture	%	18	12	19	16	18

Moisture						
Our Reference	UNITS	223302-46	223302-48	223302-49	223302-50	223302-51
Your Reference		JKE120	JKE120	JKE120	JKE121	JKE121
Depth		0-0.2	0.85-1.1	1.5-1.7	0-0.2	0.4-0.85
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Moisture	%	9.2	15	20	5.7	7.0

Moisture				
Our Reference	UNITS	223302-53	223302-54	223302-55
Your Reference		JKE121	DUPAM101	DUPAM102
Depth		1.5-1.7	-	-
Date Sampled		02/08/2019	31/07/2019	01/08/2019
Type of sample		soil	soil	soil
Date prepared	-	07/08/2019	07/08/2019	07/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019
Moisture	%	16	16	23

Asbestos ID - soils NEPM - ASB-001

Our Reference		223302-1	223302-5	223302-9	223302-10	223302-11
Your Reference	UNITS	JKE101	JKE102	JKE103	JKE103	JKE104
Depth		0.04-0.2	0.1-0.3	0-0.1	0.1-0.4	0-0.1
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	9-12/08/2019	9-12/08/2019	9-12/08/2019	9-12/08/2019	9-12/08/2019
Sample mass tested	g	1,112.28	642.43	494.68	860	223.67
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown fine-grained soil & rocks	Brown clayey soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001

Our Reference		223302-12	223302-13	223302-15	223302-16	223302-17
Your Reference	UNITS	JKE104	JKE104	JKE105	JKE105	JKE106
Depth		0.1-0.3	0.7-1.0	0-0.1	0.5-0.95	0.08-0.2
Date Sampled		31/07/2019	31/07/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	9-12/08/2019	9-12/08/2019	9-12/08/2019	9-12/08/2019	9-12/08/2019
Sample mass tested	g	712.2	685.17	504.43	448.91	679.95
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001

Our Reference		223302-18	223302-20	223302-24	223302-26	223302-29
Your Reference	UNITS	JKE106	JKE106	JKE107	JKE107	JKE108
Depth		0.5-0.9	1.5-1.95	0-0.2	1.5-1.95	0.22-0.4
Date Sampled		01/08/2019	01/08/2019	01/08/2019	01/08/2019	01/08/2019
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	9-12/08/2019	9-12/08/2019	9-12/08/2019	9-12/08/2019	9-12/08/2019
Sample mass tested	g	635.11	539.07	615.1	369.09	693.93
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown sandy soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001

Our Reference		223302-30	223302-34	223302-37	223302-39	223302-42
Your Reference	UNITS	JKE108	JKE110	JKE110	JKE111	JKE111
Depth		0.5-0.95	0.04-0.2	1.5-1.95	0-0.2	1.4-1.7
Date Sampled		01/08/2019	02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	9-12/08/2019	9-12/08/2019	9-12/08/2019	9-12/08/2019	9-12/08/2019
Sample mass tested	g	464.38	769.21	583.07	632.26	466.3
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001

Our Reference		223302-46	223302-48	223302-50	223302-51
Your Reference	UNITS	JKE120	JKE120	JKE121	JKE121
Depth		0-0.2	0.85-1.1	0-0.2	0.4-0.85
Date Sampled		02/08/2019	02/08/2019	02/08/2019	02/08/2019
Type of sample		soil	soil	soil	soil
Date analysed	-	9-12/08/2019	9-12/08/2019	9-12/08/2019	9-12/08/2019
Sample mass tested	g	703.79	477.41	574.67	971.69
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—
FA and AF Estimation*	g	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001

BTEX in Water		
Our Reference		223302-60
Your Reference	UNITS	FR1
Depth		-
Date Sampled		31/07/2019
Type of sample		water
Date extracted	-	07/08/2019
Date analysed	-	08/08/2019
Benzene	µg/L	<1
Toluene	µg/L	2
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate toluene-d8	%	100
Surrogate 4-BFB	%	108

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) NOTE #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	223302-3
Date extracted	-			07/08/2019	1	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			08/08/2019	1	08/08/2019	08/08/2019		08/08/2019	08/08/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	1	<25	<25	0	118	108
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	1	<25	<25	0	118	108
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	107	102
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	107	105
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	123	110
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	127	111
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	130	115
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	129	1	110	107	3	112	109

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	223302-37
Date extracted	-			[NT]	15	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			[NT]	15	08/08/2019	08/08/2019		08/08/2019	08/08/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	15	<25	<25	0	123	108
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	15	<25	<25	0	123	108
Benzene	mg/kg	0.2	Org-016	[NT]	15	<0.2	<0.2	0	117	109
Toluene	mg/kg	0.5	Org-016	[NT]	15	<0.5	<0.5	0	116	105
Ethylbenzene	mg/kg	1	Org-016	[NT]	15	<1	<1	0	127	106
m+p-xylene	mg/kg	2	Org-016	[NT]	15	<2	<2	0	127	111
o-Xylene	mg/kg	1	Org-016	[NT]	15	<1	<1	0	132	110
naphthalene	mg/kg	1	Org-014	[NT]	15	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	15	106	119	12	111	117

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	34	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	34	08/08/2019	08/08/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	34	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	34	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	34	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	34	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	34	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	34	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	34	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	34	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	34	125	114	9	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	08/08/2019	08/08/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	51	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	51	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	51	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	51	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	51	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	51	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	51	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	51	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	51	115	104	10	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	223302-3
Date extracted	-			07/08/2019	1	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			08/08/2019	1	08/08/2019	08/08/2019		08/08/2019	08/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	1	<50	<50	0	121	113
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	1	<100	<100	0	99	119
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	1	150	140	7	88	74
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	1	<50	<50	0	121	113
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	1	170	140	19	99	119
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	1	200	210	5	88	74
Surrogate o-Terphenyl	%		Org-003	81	1	98	111	12	112	86

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	223302-37
Date extracted	-			[NT]	15	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			[NT]	15	08/08/2019	08/08/2019		09/08/2019	09/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	15	63	70	11	112	116
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	15	260	290	11	96	95
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	15	390	410	5	75	107
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	15	80	86	7	112	116
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	15	500	540	8	96	95
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	15	280	300	7	75	107
Surrogate o-Terphenyl	%		Org-003	[NT]	15	109	108	1	107	78

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	34	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	34	09/08/2019	09/08/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	34	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	34	120	120	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	34	250	230	8	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	34	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	34	250	220	13	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	34	330	320	3	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	34	109	107	2	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	09/08/2019	09/08/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	51	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	51	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	51	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	51	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	51	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	51	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	51	81	81	0	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	223302-3
Date extracted	-			07/08/2019	1	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			08/08/2019	1	08/08/2019	08/08/2019		08/08/2019	08/08/2019
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	98	91
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	90	82
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	0.1	<0.1	0	100	85
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	0.1	0.1	0	82	75
Pyrene	mg/kg	0.1	Org-012	<0.1	1	0.2	0.1	67	88	78
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	0.1	0.1	0	118	108
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	0.08	0.1	22	96	94
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	90	1	97	80	19	89	82

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	223302-37
Date extracted	-			[NT]	15	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			[NT]	15	08/08/2019	08/08/2019		08/08/2019	08/08/2019
Naphthalene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	96	98
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	88	88
Phenanthrene	mg/kg	0.1	Org-012	[NT]	15	0.1	0.4	120	92	90
Anthracene	mg/kg	0.1	Org-012	[NT]	15	<0.1	0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	15	0.3	0.9	100	80	86
Pyrene	mg/kg	0.1	Org-012	[NT]	15	0.3	0.9	100	84	90
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	15	0.2	0.4	67	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	15	0.3	0.5	50	118	117
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	[NT]	15	0.3	0.5	50	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	15	0.2	0.53	90	102	98
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	15	0.1	0.2	67	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	15	<0.1	0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	15	0.3	0.3	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	15	82	79	4	88	88

QUALITY CONTROL: PAHs in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	34	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	34	08/08/2019	08/08/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	34	0.2	0.2	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	34	0.4	0.4	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	34	0.4	0.4	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	34	0.2	0.2	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	34	0.2	0.2	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	34	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	34	0.2	0.2	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	34	0.1	0.2	67	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d14	%		Org-012	[NT]	34	88	80	10	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	08/08/2019	08/08/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	51	0.1	0.2	67	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	51	0.2	0.2	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	51	0.1	0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	51	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	51	0.2	0.2	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	51	0.1	0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	51	89	101	13	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	223302-3
Date extracted	-			07/08/2019	1	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			08/08/2019	1	08/08/2019	08/08/2019		08/08/2019	08/08/2019
HCB	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	92	91
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	94	84
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	76	68
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	108	100
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	108	98
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	112	104
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	126	115
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	100	91
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	92	91
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	88	84
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	97	1	112	90	22	95	88

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	223302-37
Date extracted	-			[NT]	15	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			[NT]	15	08/08/2019	08/08/2019		08/08/2019	08/08/2019
HCB	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	74	70
gamma-BHC	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	86	77
Heptachlor	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	80	77
delta-BHC	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	88	86
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	89	85
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	98	93
Dieldrin	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	105	101
Endrin	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	91	90
pp-DDD	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	94	91
Endosulfan II	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	103	98
Methoxychlor	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	15	88	85	3	92	91

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	34	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	34	08/08/2019	08/08/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	34	92	85	8	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	08/08/2019	08/08/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	51	85	98	14	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	223302-3
Date extracted	-			07/08/2019	1	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			08/08/2019	1	08/08/2019	08/08/2019		08/08/2019	08/08/2019
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	96	88
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	96	98
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	92	85
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	82	72
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	92	104
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	112	95
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	100	88
Surrogate TCMX	%		Org-008	97	1	112	90	22	95	88

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	223302-37
Date extracted	-			[NT]	15	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			[NT]	15	08/08/2019	08/08/2019		08/08/2019	08/08/2019
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	88	89
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	70	82
Dimethoate	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	90	88
Fenitrothion	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	70	70
Malathion	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	66	77
Parathion	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	114	110
Ronnel	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	84	86
Surrogate TCMX	%		Org-008	[NT]	15	88	85	3	92	91

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	34	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	34	08/08/2019	08/08/2019		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	34	92	85	8	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	08/08/2019	08/08/2019		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	51	85	98	14	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	223302-3
Date extracted	-			07/08/2019	1	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			08/08/2019	1	08/08/2019	08/08/2019		08/08/2019	08/08/2019
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	103	90
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	97	1	112	90	22	95	88

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	223302-37
Date extracted	-			[NT]	15	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			[NT]	15	08/08/2019	08/08/2019		08/08/2019	08/08/2019
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	94	96
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	15	88	85	3	92	91

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	34	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	34	08/08/2019	08/08/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	34	92	85	8	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	08/08/2019	08/08/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	51	85	98	14	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	223302-3
Date prepared	-			07/08/2019	1	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			07/08/2019	1	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	101	77
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	97	83
Chromium	mg/kg	1	Metals-020	<1	1	14	18	25	102	79
Copper	mg/kg	1	Metals-020	<1	1	35	38	8	96	88
Lead	mg/kg	1	Metals-020	<1	1	19	19	0	100	75
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	0.1	0	101	106
Nickel	mg/kg	1	Metals-020	<1	1	27	28	4	97	81
Zinc	mg/kg	1	Metals-020	<1	1	54	58	7	99	83

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	223302-37
Date prepared	-			[NT]	15	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Date analysed	-			[NT]	15	07/08/2019	07/08/2019		07/08/2019	07/08/2019
Arsenic	mg/kg	4	Metals-020	[NT]	15	5	8	46	99	88
Cadmium	mg/kg	0.4	Metals-020	[NT]	15	<0.4	<0.4	0	97	83
Chromium	mg/kg	1	Metals-020	[NT]	15	14	17	19	102	85
Copper	mg/kg	1	Metals-020	[NT]	15	60	73	20	96	77
Lead	mg/kg	1	Metals-020	[NT]	15	61	63	3	99	82
Mercury	mg/kg	0.1	Metals-021	[NT]	15	0.2	0.2	0	101	95
Nickel	mg/kg	1	Metals-020	[NT]	15	8	8	0	96	85
Zinc	mg/kg	1	Metals-020	[NT]	15	130	150	14	99	#

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	34	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	34	07/08/2019	07/08/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	34	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	34	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	34	20	15	29	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	34	29	23	23	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	34	16	14	13	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	34	9	9	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	34	48	36	29	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	51	07/08/2019	07/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	07/08/2019	07/08/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	51	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	51	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	51	10	8	22	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	51	12	14	15	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	51	13	13	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	51	17	9	62	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	51	24	26	8	[NT]	[NT]

QUALITY CONTROL: BTEX in Water						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			07/08/2019	[NT]	[NT]	[NT]	[NT]	07/08/2019	[NT]
Date analysed	-			08/08/2019	[NT]	[NT]	[NT]	[NT]	08/08/2019	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	117	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Surrogate Dibromofluoromethane	%		Org-016	97	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate toluene-d8	%		Org-016	100	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate 4-BFB	%		Org-016	106	[NT]	[NT]	[NT]	[NT]	104	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Report Comments

Acid Extractable Metals in Soil:

The laboratory RPD acceptance criteria has been exceeded for 223302-51 for Ni. Therefore a triplicate result has been issued as laboratory sample number 223302-61.

Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

TRH Soil C10-C40 NEPM - # Percent recovery for the surrogate/matrix spike is not possible to report as the high concentration of analytes in sample 223302-9 and 38 have caused interference.

Asbestos-ID in soil: NEPM

This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Note: All samples analysed as received. However, samples 223302-11, 16, 26, 30, 42 & 48 are below the minimum 500mL sample volume as per National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.

PAHs in Soil - The RPD for duplicate results is accepted due to the non homogenous nature of sample 223302-15.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32465BD, Liverpool
Envirolab Reference	223302
Date Sample Received	06/08/2019
Date Instructions Received	06/08/2019
Date Results Expected to be Reported	14/08/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	59 soil, 1 water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	17.3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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Jacinta Hurst

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Analysis Underway, details on the following page:

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	BTEX in Water	On Hold
JKE101-0.04-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
JKE101-0.5-1.1										✓
JKE101-1.4-1.7	✓	✓	✓	✓	✓	✓	✓			
JKE101-1.7-1.9										✓
JKE102-0.1-0.3	✓	✓	✓	✓	✓	✓	✓	✓		
JKE102-0.3-0.5	✓	✓	✓				✓			
JKE102-1.2-1.6	✓	✓	✓				✓			
JKE102-1.6-2.0	✓	✓	✓				✓			
JKE103-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓		
JKE103-0.1-0.4	✓	✓	✓	✓	✓	✓	✓	✓		
JKE104-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓		
JKE104-0.1-0.3	✓	✓	✓	✓	✓	✓	✓	✓		
JKE104-0.7-1.0	✓	✓	✓	✓	✓	✓	✓	✓		
JKE104-1.5-1.7	✓	✓	✓	✓	✓	✓	✓			
JKE105-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓		
JKE105-0.5-0.95	✓	✓	✓				✓	✓		
JKE106-0.08-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
JKE106-0.5-0.9	✓	✓	✓	✓	✓	✓	✓	✓		
JKE106-1.0-1.2										✓
JKE106-1.5-1.95	✓	✓	✓	✓	✓	✓	✓	✓		
JKE106-2.5-2.9										✓
JKE106-3.5-4.0										✓
JKE106-4.5-4.7	✓	✓	✓				✓			
JKE107-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
JKE107-0.5-0.95										✓
JKE107-1.5-1.95	✓	✓	✓	✓	✓	✓	✓	✓		
JKE107-2.5-3.0										✓
JKE107-3.1-3.4										✓
JKE108-0.22-0.4	✓	✓	✓	✓	✓	✓	✓	✓		
JKE108-0.5-0.95	✓	✓	✓	✓	✓	✓	✓	✓		
JKE108-1.5-1.95										✓
JKE108-2.5-2.9										✓

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	BTEX in Water	On Hold
JKE108-3.0-3.45	✓	✓	✓	✓	✓	✓	✓			
JKE110-0.04-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
JKE110-0.4-0.6										✓
JKE110-0.6-0.95										✓
JKE110-1.5-1.95	✓	✓	✓	✓	✓	✓	✓	✓		
JKE110-3.0-3.2	✓	✓	✓	✓	✓	✓	✓			
JKE111-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
JKE111-0.5-0.7										✓
JKE111-0.7-0.95										✓
JKE111-1.4-1.7	✓	✓	✓	✓	✓	✓	✓	✓		
JKE111-1.8-2.0	✓	✓	✓	✓	✓	✓	✓			
JKE111-2.0-2.3										✓
JKE111-3.0-3.2	✓	✓	✓	✓	✓	✓	✓			
JKE120-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
JKE120-0.5-0.85										✓
JKE120-0.85-1.1	✓	✓	✓	✓	✓	✓	✓	✓		
JKE120-1.5-1.7	✓	✓	✓	✓	✓	✓	✓			
JKE121-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
JKE121-0.4-0.85	✓	✓	✓	✓	✓	✓	✓	✓		
JKE121-1.0-1.2										✓
JKE121-1.5-1.7	✓	✓	✓	✓	✓	✓	✓			
DUPAM101	✓	✓	✓	✓	✓	✓	✓			
DUPAM102	✓	✓	✓	✓	✓	✓	✓			
TB2	✓									
TB3	✓									
TB4	✓									
T1	✓									
FR1									✓	

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job E32465BD Number: Date Results STANDARD Required: Page: 1 of 3	FROM: JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitch Delaney mdelaney@jkenvironments.com.au

Location:		Liverpool					Sample Preserved In Esky on Ice									
Sampler:		AM					Tests Required									
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 3a	Combo 5	Combo 6a	B Metals	PAHs	TRH/BTEX	BTEX	Asbestos (WA Method)	Asbestos (Detection)
31/7/19	1	JKE101	0.04-0.2	G.A	0	F: Gravelly Sand			X						X	
	2		0.5-1.1		0	F: Silty Clay										
	3		1.4-1.7	↓	0	Silty Clay			X							
	4	↓	1.7-1.9	G	0	X: Silty Sand										
	5	JKE102	0.1-0.3	G.A	3	F: Gravelly Sand			X						X	
	6		0.3-0.5		57	F: Silty Clay	X									
	7		1.2-1.6		120	F: Silty Clay	X									
	8	↓	1.6-2.0		41	Silty Clay	X									
	9	JKE103	0-0.1		0	F: Silty Sand			X						X	
	10		0.1-0.4		0	F: Silty Gravel			X						X	
	11	JKE104	0-0.1		0	F: Silty Clay			X						X	
	12		0.1-0.3		0	F: Silty Gravel			X						X	
	13		0.7-1.0		1	F: Silty Clay			X						X	
↓	14	↓	1.5-1.7		0	Silty Clay			X						X	
1/8/19	15	JKE105	0-0.1		10	F: Silty Sand			X						X	
	16	↓	0.5-0.95		14	F: Silty Clay	X								X	
	17	JKE106	0.08-0.2		0	F: Silty Gravel			X						X	
	18		0.5-0.9		1	F: Silty Clay			X						X	
	19		1.0-1.2		0											
	20		1.5-1.95		1				X						X	
	21		2.5-2.9		0											
	22		3.5-4.0		0	↓										
	23	↓	4.5-4.7		3	Silty Clay	X									
	24	JKE107	0-0.2		0	F: Silty Sand			X						X	
↓	25	↓	0.5-0.95	↓	0	F: Silty Clay										

Remarks (comments/detection limits required):		Sample Containers:	
		G - 250mg Glass Jar	P - Plastic Bag
Relinquished By: <u>MD</u>		A - 500mL Ziplock Asbestos Bag	
		A1 - 40g Ziplock Asbestos Bag	
Date: <u>6/8/19</u>	Time:	Received By: <u>Ming Yan To</u>	Date: <u>06/08/19</u>
		Job No: <u>223302</u>	

Date Received: 06/08/19
 Time Received: 16:35
 Received by: M7
 Temp: 20°C Ambient
 Cooling: Ice/Cool Pack
 Security: Intact/Broken/None 173

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2057 P: (02) 99106200 F: (02) 99106201 Attention: Aileen		EIS Job Number: E32465BD Date Results Required: STANDARD Page: 2 of 3		FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitch Delaney mdelaney@jkenvironments.com.au	

Location: Liverpool		Sample Preserved in Esky on Ice																																
Sampler: AM		Tests Required																																
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 3a	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos (WA Method)	Asbestos (Detection)																		
	26	JKE107	1.5-1.95	G.A	0	↓			X						X																			
	27	↓	2.5-3.0			↓																												
	28	↓	3.1-3.4			SILTY CLAY																												
	29	JKE108	0.22-0.4			F: silty clayey sand			X						X																			
	30		0.5-0.95			F: silty clay			X						X																			
	31		1.5-1.95			↓																												
	32	↓	2.5-2.9			↓																												
2/8/19	33	↓	3.0-3.45			Silty clay			X																									
	34	JKE110	0.09-0.2			F: silty sand			X						X																			
	35		0.4-0.6			↓																												
	36		0.6-0.95			F: silty clay																												
	37		1.5-1.95			F: silty clay			X						X																			
↓	38	↓	3.0-3.2			SILTY CLAY			X																									
	39	JKE111	0-0.2			F: sandy gravel			X						X																			
	40		0.5-0.7			F: clayey sand																												
	41		0.7-0.95			F: silty clay																												
	42		1.4-1.7			↓			X						X																			
	43		1.8-2.0			F: silty clay sand			X																									
	44		2.0-2.3			F: silty clay																												
	45	↓	3.0-3.2			SILTY CLAY			X																									
2/8/19	46	JKE120	0-0.2			F: silty sand			X						X																			
	47		0.5-0.85			F: silty sand																												
	48		0.85-1.1			F: silty clay			X						X																			
	49	↓	1.5-1.7			SILTY CLAY			X																									
↓	50	JKE121	0-0.2		↓	F: silty sand			X						X																			
Remarks (comments/detection limits required):							Sample Containers: G - 250mg Glass Jar P - Plastic Bag A - 500mL Ziplock Asbestos Bag A1 - 40g Ziplock Asbestos Bag																											
Relinquished By: MD							Date: 6/8/19							Time:							Received By:							Date:						

CERTIFICATE OF ANALYSIS 223661

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	E32465BD, Liverpool
Number of Samples	73 Soil, 2 Water, 1 Material
Date samples received	11/02/2019
Date completed instructions received	12/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	19/08/2019
Date of Issue	19/08/2019
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Asbestos Approved By

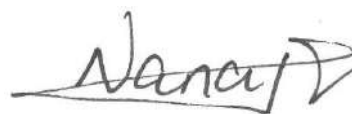
Analysed by Asbestos Approved Identifier: Panika Wongchanda, Aida Marnier

Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Diego Bigolin, Team Leader, Inorganics
 Jaimie Loa-Kum-Cheung, Metals Supervisor
 Loren Bardwell, Senior Chemist
 Lucy Zhu, Senior Asbestos Analyst
 Nancy Zhang, Laboratory Manager, Sydney
 Steven Luong, Organics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223661-1	223661-3	223661-6	223661-7	223661-8
Your Reference	UNITS	JKE109	JKE109	JKE112	JKE112	JKE112
Depth		0.045-0.2	0.6-0.95	0-0.02	0.5-0.95	1.3-1.5
Date Sampled		05/08/2019	05/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	16/08/2019	16/08/2019	16/08/2019	16/08/2019	16/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	94	101	104	102	96

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223661-9	223661-11	223661-12	223661-13	223661-15
Your Reference	UNITS	JKE113	JKE114	JKE115	JKE115	JKE116
Depth		0-0.2	0-0.2	0-0.2	0.2-0.4	0-0.2
Date Sampled		07/08/2019	06/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	16/08/2019	16/08/2019	16/08/2019	16/08/2019	16/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	102	108	79	106	99

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223661-17	223661-18	223661-19	223661-21	223661-22
Your Reference	UNITS	JKE117	JKE117	JKE118	JKE119	JKE122
Depth		0-0.2	0.4-0.6	0-0.2	0-0.2	0.04-0.2
Date Sampled		05/08/2019	05/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	16/08/2019	16/08/2019	16/08/2019	16/08/2019	16/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	103	69	63	80	75

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223661-23	223661-24	223661-25	223661-26	223661-27
Your Reference	UNITS	JKE122	JKE122	JKE122	JKE123	JKE123
Depth		0.5-0.8	0.8-1.0	1.5-1.95	0.03-0.2	0.5-0.8
Date Sampled		06/08/2019	06/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	16/08/2019	16/08/2019	16/08/2019	16/08/2019	16/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	63	89	66	81	76

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223661-28	223661-29	223661-30	223661-32	223661-33
Your Reference	UNITS	JKE123	JKE124	JKE124	JKE124	JKE125
Depth		0.8-0.95	0.05-0.2	0.2-0.3	0.6-0.95	0.05-0.2
Date Sampled		06/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	16/08/2019	16/08/2019	16/08/2019	16/08/2019	16/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	104	111	69	65	77

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223661-35	223661-36	223661-37	223661-39	223661-40
Your Reference	UNITS	JKE125	JKE125	JKE126	JKE126	JKE127
Depth		0.4-0.7	0.7-0.95	0.08-0.2	0.5-0.95	0.06-0.3
Date Sampled		07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	16/08/2019	16/08/2019	16/08/2019	16/08/2019	16/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	81	77	88	95	107

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223661-41	223661-42	223661-43	223661-44	223661-45
Your Reference	UNITS	JKE127	JKE127	JKE128	JKE128	JKE128
Depth		0.3-0.5	0.6-0.95	0.08-0.2	0.3-0.4	0.4-0.6
Date Sampled		07/08/2019	07/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	101	96	101	103	96

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223661-46	223661-47	223661-48	223661-49	223661-50
Your Reference	UNITS	JKE129	JKE129	JKE130	JKE130	JKE131
Depth		0.09-0.25	0.25-0.3	0.07-0.2	0.2-0.25	0.07-0.2
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	108	88	101	87	103

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223661-51	223661-52	223661-53	223661-54	223661-55
Your Reference	UNITS	JKE131	JKE132	JKE132	JKE133	JKE133
Depth		0.2-0.3	0.08-0.15	0.15-0.3	0.08-0.2	0.2-0.3
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	99	106	95	102	103

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223661-56	223661-57	223661-58	223661-59	223661-61
Your Reference	UNITS	JKE134	JKE134	JKE134	JKE135	JKE135
Depth		0-0.2	0.5-0.95	1.5-1.7	0.05-0.25	0.4-0.6
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	101	103	96	92	96

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223661-62	223661-63	223661-64	223661-65	223661-66
Your Reference	UNITS	JKE135	JKE136	JKE136	JKE136	JKE137
Depth		1.5-1.7	0-0.2	0.4-0.8	1.5-1.7	0.04-0.2
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	97	95	95	93	100

vTRH(C6-C10)/BTEXN in Soil

Our Reference		223661-67	223661-69	223661-71	223661-72	223661-73
Your Reference	UNITS	JKE137	DUPAM104	DUPAM108	TB4	TS2
Depth		0.5-0.7	-	-	-	-
Date Sampled		08/08/2019	05/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	17/08/2019	17/08/2019	17/08/2019	17/08/2019	17/08/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	[NA]	[NA]
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	[NA]	[NA]
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	[NA]	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	83%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	84%
Ethylbenzene	mg/kg	<1	<1	<1	<1	89%
m+p-xylene	mg/kg	<2	<2	<2	<2	89%
o-Xylene	mg/kg	<1	<1	<1	<1	89%
naphthalene	mg/kg	<1	<1	<1	[NA]	[NA]
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	[NA]
Surrogate aaa-Trifluorotoluene	%	95	98	105	103	102

svTRH (C10-C40) in Soil

Our Reference		223661-1	223661-3	223661-6	223661-7	223661-8
Your Reference	UNITS	JKE109	JKE109	JKE112	JKE112	JKE112
Depth		0.045-0.2	0.6-0.95	0-0.02	0.5-0.95	1.3-1.5
Date Sampled		05/08/2019	05/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	14/08/2019	15/08/2019	14/08/2019	14/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	130	<100	130	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	140	<100	170	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	170	<100	110	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	310	<50	270	<50	<50
Surrogate o-Terphenyl	%	88	90	90	88	87

svTRH (C10-C40) in Soil

Our Reference		223661-9	223661-11	223661-12	223661-13	223661-15
Your Reference	UNITS	JKE113	JKE114	JKE115	JKE115	JKE116
Depth		0-0.2	0-0.2	0-0.2	0.2-0.4	0-0.2
Date Sampled		07/08/2019	06/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	14/08/2019	15/08/2019	14/08/2019	14/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	280	<100	<100	<100	110
TRH C ₂₉ - C ₃₆	mg/kg	420	<100	120	<100	120
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	66
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	66
TRH >C ₁₆ -C ₃₄	mg/kg	560	<100	170	<100	150
TRH >C ₃₄ -C ₄₀	mg/kg	280	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	830	<50	170	<50	220
Surrogate o-Terphenyl	%	97	87	95	85	91

svTRH (C10-C40) in Soil

Our Reference		223661-17	223661-18	223661-19	223661-21	223661-22
Your Reference	UNITS	JKE117	JKE117	JKE118	JKE119	JKE122
Depth		0-0.2	0.4-0.6	0-0.2	0-0.2	0.04-0.2
Date Sampled		05/08/2019	05/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	14/08/2019	14/08/2019	15/08/2019	15/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	68	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	420	<100	<100	260	<100
TRH C ₂₉ - C ₃₆	mg/kg	310	<100	<100	<100	140
TRH >C ₁₀ -C ₁₆	mg/kg	50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	630	<100	<100	310	180
TRH >C ₃₄ -C ₄₀	mg/kg	170	<100	<100	<100	170
Total +ve TRH (>C10-C40)	mg/kg	850	<50	<50	310	350
Surrogate o-Terphenyl	%	97	86	86	91	91

svTRH (C10-C40) in Soil

Our Reference		223661-23	223661-24	223661-25	223661-26	223661-27
Your Reference	UNITS	JKE122	JKE122	JKE122	JKE123	JKE123
Depth		0.5-0.8	0.8-1.0	1.5-1.95	0.03-0.2	0.5-0.8
Date Sampled		06/08/2019	06/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	120	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	120	<50
Surrogate o-Terphenyl	%	89	86	88	91	88

svTRH (C10-C40) in Soil

Our Reference		223661-28	223661-29	223661-30	223661-32	223661-33
Your Reference	UNITS	JKE123	JKE124	JKE124	JKE124	JKE125
Depth		0.8-0.95	0.05-0.2	0.2-0.3	0.6-0.95	0.05-0.2
Date Sampled		06/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	120
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	120
Surrogate o-Terphenyl	%	86	91	90	90	92

svTRH (C10-C40) in Soil

Our Reference		223661-35	223661-36	223661-37	223661-39	223661-40
Your Reference	UNITS	JKE125	JKE125	JKE126	JKE126	JKE127
Depth		0.4-0.7	0.7-0.95	0.08-0.2	00.5-0.95	0.06-0.3
Date Sampled		07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	200	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	160	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	320	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	480	<50	<50
Surrogate o-Terphenyl	%	86	86	97	93	90

svTRH (C10-C40) in Soil

Our Reference		223661-41	223661-42	223661-43	223661-44	223661-45
Your Reference	UNITS	JKE127	JKE127	JKE128	JKE128	JKE128
Depth		0.3-0.5	0.6-0.95	0.08-0.2	0.3-0.4	0.4-0.6
Date Sampled		07/08/2019	07/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	85	86	85	85	91

svTRH (C10-C40) in Soil

Our Reference		223661-46	223661-47	223661-48	223661-49	223661-50
Your Reference	UNITS	JKE129	JKE129	JKE130	JKE130	JKE131
Depth		0.09-0.25	0.25-0.3	0.07-0.2	0.2-0.25	0.07-0.2
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	89	89	91	91	91

svTRH (C10-C40) in Soil

Our Reference		223661-51	223661-52	223661-53	223661-54	223661-55
Your Reference	UNITS	JKE131	JKE132	JKE132	JKE133	JKE133
Depth		0.2-0.3	0.08-0.15	0.15-0.3	0.08-0.2	0.2-0.3
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	91	101	89	92	89

svTRH (C10-C40) in Soil

Our Reference		223661-56	223661-57	223661-58	223661-59	223661-61
Your Reference	UNITS	JKE134	JKE134	JKE134	JKE135	JKE135
Depth		0-0.2	0.5-0.95	1.5-1.7	0.05-0.25	0.4-0.6
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	92	90	90	90	89

svTRH (C10-C40) in Soil

Our Reference		223661-62	223661-63	223661-64	223661-65	223661-66
Your Reference	UNITS	JKE135	JKE136	JKE136	JKE136	JKE137
Depth		1.5-1.7	0-0.2	0.4-0.8	1.5-1.7	0.04-0.2
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	96	89	89	90	92

svTRH (C10-C40) in Soil

Our Reference		223661-67	223661-69	223661-71
Your Reference	UNITS	JKE137	DUPAM104	DUPAM108
Depth		0.5-0.7	-	-
Date Sampled		08/08/2019	05/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	87	89	88

PAHs in Soil						
Our Reference		223661-1	223661-3	223661-6	223661-7	223661-8
Your Reference	UNITS	JKE109	JKE109	JKE112	JKE112	JKE112
Depth		0.045-0.2	0.6-0.95	0-0.02	0.5-0.95	1.3-1.5
Date Sampled		05/08/2019	05/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	0.2	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.5	<0.1	0.6	<0.1	<0.1
Pyrene	mg/kg	0.7	<0.1	0.6	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.3	<0.1	0.3	<0.1	<0.1
Chrysene	mg/kg	0.4	<0.1	0.4	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.4	<0.2	0.5	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.4	<0.05	0.60	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	<0.1	0.2	<0.1	<0.1
Total +ve PAH's	mg/kg	3.1	<0.05	3.5	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.6	<0.5	0.7	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.6	<0.5	0.7	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.6	<0.5	0.8	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	84	89	79	87	93

PAHs in Soil						
Our Reference		223661-9	223661-11	223661-12	223661-13	223661-15
Your Reference	UNITS	JKE113	JKE114	JKE115	JKE115	JKE116
Depth		0-0.2	0-0.2	0-0.2	0.2-0.4	0-0.2
Date Sampled		07/08/2019	06/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	0.2	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.1	0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.1	<0.05	0.2	0.3	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	88	92	85	88	85

PAHs in Soil						
Our Reference		223661-17	223661-18	223661-19	223661-21	223661-22
Your Reference	UNITS	JKE117	JKE117	JKE118	JKE119	JKE122
Depth		0-0.2	0.4-0.6	0-0.2	0-0.2	0.04-0.2
Date Sampled		05/08/2019	05/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.3	0.2	0.4
Pyrene	mg/kg	<0.1	<0.1	0.3	0.2	0.4
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.1	<0.1	0.2
Chrysene	mg/kg	<0.1	<0.1	0.2	0.2	0.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.2	<0.2	0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.3
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	1.1	0.52	1.9
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	87	132	85	100	86

PAHs in Soil						
Our Reference		223661-23	223661-24	223661-25	223661-26	223661-27
Your Reference	UNITS	JKE122	JKE122	JKE122	JKE123	JKE123
Depth		0.5-0.8	0.8-1.0	1.5-1.95	0.03-0.2	0.5-0.8
Date Sampled		06/08/2019	06/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.6	<0.1	0.2	<0.1
Pyrene	mg/kg	<0.1	0.6	<0.1	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.5	<0.1	0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.6	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.2	<0.1	0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	3.5	<0.05	0.62	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	83	85	79	89	89

PAHs in Soil						
Our Reference		223661-28	223661-29	223661-30	223661-32	223661-33
Your Reference	UNITS	JKE123	JKE124	JKE124	JKE124	JKE125
Depth		0.8-0.95	0.05-0.2	0.2-0.3	0.6-0.95	0.05-0.2
Date Sampled		06/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	91	88	84	88	89

PAHs in Soil						
Our Reference		223661-35	223661-36	223661-37	223661-39	223661-40
Your Reference	UNITS	JKE125	JKE125	JKE126	JKE126	JKE127
Depth		0.4-0.7	0.7-0.95	0.08-0.2	00.5-0.95	0.06-0.3
Date Sampled		07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.07	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.2	0.07	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	84	91	91	88	95

PAHs in Soil						
Our Reference		223661-41	223661-42	223661-43	223661-44	223661-45
Your Reference	UNITS	JKE127	JKE127	JKE128	JKE128	JKE128
Depth		0.3-0.5	0.6-0.95	0.08-0.2	0.3-0.4	0.4-0.6
Date Sampled		07/08/2019	07/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.5
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	1.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.5
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.6
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.7
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	4.7
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	88	93	91	89	91

PAHs in Soil						
Our Reference		223661-46	223661-47	223661-48	223661-49	223661-50
Your Reference	UNITS	JKE129	JKE129	JKE130	JKE130	JKE131
Depth		0.09-0.25	0.25-0.3	0.07-0.2	0.2-0.25	0.07-0.2
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	90	93	93	90	91

PAHs in Soil						
Our Reference		223661-51	223661-52	223661-53	223661-54	223661-55
Your Reference	UNITS	JKE131	JKE132	JKE132	JKE133	JKE133
Depth		0.2-0.3	0.08-0.15	0.15-0.3	0.08-0.2	0.2-0.3
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	89	91	88	89	94

PAHs in Soil						
Our Reference		223661-56	223661-57	223661-58	223661-59	223661-61
Your Reference	UNITS	JKE134	JKE134	JKE134	JKE135	JKE135
Depth		0-0.2	0.5-0.95	1.5-1.7	0.05-0.25	0.4-0.6
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	89	84	90	82	98

PAHs in Soil						
Our Reference		223661-62	223661-63	223661-64	223661-65	223661-66
Your Reference	UNITS	JKE135	JKE136	JKE136	JKE136	JKE137
Depth		1.5-1.7	0-0.2	0.4-0.8	1.5-1.7	0.04-0.2
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.6
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.6
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.4
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.4
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.8
Benzo(a)pyrene	mg/kg	<0.05	0.1	<0.05	<0.05	0.52
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Total +ve PAH's	mg/kg	<0.05	0.1	<0.05	<0.05	4.0
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	0.7
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	0.7
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	0.8
Surrogate p-Terphenyl-d14	%	92	85	98	89	84

PAHs in Soil				
Our Reference		223661-67	223661-69	223661-71
Your Reference	UNITS	JKE137	DUPAM104	DUPAM108
Depth		0.5-0.7	-	-
Date Sampled		08/08/2019	05/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	92	89	90

Organochlorine Pesticides in soil						
Our Reference		223661-1	223661-3	223661-6	223661-7	223661-8
Your Reference	UNITS	JKE109	JKE109	JKE112	JKE112	JKE112
Depth		0.045-0.2	0.6-0.95	0-0.02	0.5-0.95	1.3-1.5
Date Sampled		05/08/2019	05/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	85	94	87	87	97

Organochlorine Pesticides in soil

Our Reference		223661-9	223661-11	223661-12	223661-13	223661-15
Your Reference	UNITS	JKE113	JKE114	JKE115	JKE115	JKE116
Depth		0-0.2	0-0.2	0-0.2	0.2-0.4	0-0.2
Date Sampled		07/08/2019	06/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	96	93	92	94

Organochlorine Pesticides in soil						
Our Reference		223661-17	223661-18	223661-19	223661-21	223661-22
Your Reference	UNITS	JKE117	JKE117	JKE118	JKE119	JKE122
Depth		0-0.2	0.4-0.6	0-0.2	0-0.2	0.04-0.2
Date Sampled		05/08/2019	05/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	134	86	97	87

Organochlorine Pesticides in soil						
Our Reference		223661-23	223661-24	223661-25	223661-26	223661-27
Your Reference	UNITS	JKE122	JKE122	JKE122	JKE123	JKE123
Depth		0.5-0.8	0.8-1.0	1.5-1.95	0.03-0.2	0.5-0.8
Date Sampled		06/08/2019	06/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	93	85	90	92

Organochlorine Pesticides in soil

Our Reference		223661-28	223661-29	223661-30	223661-32	223661-33
Your Reference	UNITS	JKE123	JKE124	JKE124	JKE124	JKE125
Depth		0.8-0.95	0.05-0.2	0.2-0.3	0.6-0.95	0.05-0.2
Date Sampled		06/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	92	92	93	90

Organochlorine Pesticides in soil

Our Reference		223661-35	223661-36	223661-37	223661-39	223661-40
Your Reference	UNITS	JKE125	JKE125	JKE126	JKE126	JKE127
Depth		0.4-0.7	0.7-0.95	0.08-0.2	00.5-0.95	0.06-0.3
Date Sampled		07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	92	90	85	97

Organochlorine Pesticides in soil

Our Reference		223661-41	223661-42	223661-43	223661-44	223661-45
Your Reference	UNITS	JKE127	JKE127	JKE128	JKE128	JKE128
Depth		0.3-0.5	0.6-0.95	0.08-0.2	0.3-0.4	0.4-0.6
Date Sampled		07/08/2019	07/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	91	88	89	91

Organochlorine Pesticides in soil

Our Reference		223661-46	223661-47	223661-48	223661-49	223661-50
Your Reference	UNITS	JKE129	JKE129	JKE130	JKE130	JKE131
Depth		0.09-0.25	0.25-0.3	0.07-0.2	0.2-0.25	0.07-0.2
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	90	91	90	90

Organochlorine Pesticides in soil

Our Reference		223661-51	223661-52	223661-53	223661-54	223661-55
Your Reference	UNITS	JKE131	JKE132	JKE132	JKE133	JKE133
Depth		0.2-0.3	0.08-0.15	0.15-0.3	0.08-0.2	0.2-0.3
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	93	91	83	91

Organochlorine Pesticides in soil

Our Reference		223661-56	223661-57	223661-58	223661-59	223661-61
Your Reference	UNITS	JKE134	JKE134	JKE134	JKE135	JKE135
Depth		0-0.2	0.5-0.95	1.5-1.7	0.05-0.25	0.4-0.6
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	90	95	87	97

Organochlorine Pesticides in soil

Our Reference		223661-62	223661-63	223661-64	223661-65	223661-66
Your Reference	UNITS	JKE135	JKE136	JKE136	JKE136	JKE137
Depth		1.5-1.7	0-0.2	0.4-0.8	1.5-1.7	0.04-0.2
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	86	93	91	91

Organochlorine Pesticides in soil				
Our Reference		223661-67	223661-69	223661-71
Your Reference	UNITS	JKE137	DUPAM104	DUPAM108
Depth		0.5-0.7	-	-
Date Sampled		08/08/2019	05/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	92	89

Organophosphorus Pesticides

Our Reference		223661-1	223661-3	223661-6	223661-7	223661-8
Your Reference	UNITS	JKE109	JKE109	JKE112	JKE112	JKE112
Depth		0.045-0.2	0.6-0.95	0-0.02	0.5-0.95	1.3-1.5
Date Sampled		05/08/2019	05/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	85	94	87	87	97

Organophosphorus Pesticides						
Our Reference		223661-9	223661-11	223661-12	223661-13	223661-15
Your Reference	UNITS	JKE113	JKE114	JKE115	JKE115	JKE116
Depth		0-0.2	0-0.2	0-0.2	0.2-0.4	0-0.2
Date Sampled		07/08/2019	06/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	96	93	92	94

Organophosphorus Pesticides

Our Reference		223661-17	223661-18	223661-19	223661-21	223661-22
Your Reference	UNITS	JKE117	JKE117	JKE118	JKE119	JKE122
Depth		0-0.2	0.4-0.6	0-0.2	0-0.2	0.04-0.2
Date Sampled		05/08/2019	05/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	134	86	97	87

Organophosphorus Pesticides						
Our Reference		223661-23	223661-24	223661-25	223661-26	223661-27
Your Reference	UNITS	JKE122	JKE122	JKE122	JKE123	JKE123
Depth		0.5-0.8	0.8-1.0	1.5-1.95	0.03-0.2	0.5-0.8
Date Sampled		06/08/2019	06/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	93	85	90	92

Organophosphorus Pesticides

Our Reference		223661-28	223661-29	223661-30	223661-32	223661-33
Your Reference	UNITS	JKE123	JKE124	JKE124	JKE124	JKE125
Depth		0.8-0.95	0.05-0.2	0.2-0.3	0.6-0.95	0.05-0.2
Date Sampled		06/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	92	92	93	90

Organophosphorus Pesticides						
Our Reference		223661-35	223661-36	223661-37	223661-39	223661-40
Your Reference	UNITS	JKE125	JKE125	JKE126	JKE126	JKE127
Depth		0.4-0.7	0.7-0.95	0.08-0.2	00.5-0.95	0.06-0.3
Date Sampled		07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	92	90	85	97

Organophosphorus Pesticides						
Our Reference		223661-41	223661-42	223661-43	223661-44	223661-45
Your Reference	UNITS	JKE127	JKE127	JKE128	JKE128	JKE128
Depth		0.3-0.5	0.6-0.95	0.08-0.2	0.3-0.4	0.4-0.6
Date Sampled		07/08/2019	07/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	91	88	89	91

Organophosphorus Pesticides						
Our Reference		223661-46	223661-47	223661-48	223661-49	223661-50
Your Reference	UNITS	JKE129	JKE129	JKE130	JKE130	JKE131
Depth		0.09-0.25	0.25-0.3	0.07-0.2	0.2-0.25	0.07-0.2
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	90	91	90	90

Organophosphorus Pesticides						
Our Reference		223661-51	223661-52	223661-53	223661-54	223661-55
Your Reference	UNITS	JKE131	JKE132	JKE132	JKE133	JKE133
Depth		0.2-0.3	0.08-0.15	0.15-0.3	0.08-0.2	0.2-0.3
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	93	91	83	91

Organophosphorus Pesticides						
Our Reference		223661-56	223661-57	223661-58	223661-59	223661-61
Your Reference	UNITS	JKE134	JKE134	JKE134	JKE135	JKE135
Depth		0-0.2	0.5-0.95	1.5-1.7	0.05-0.25	0.4-0.6
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	90	95	87	97

Organophosphorus Pesticides

Our Reference		223661-62	223661-63	223661-64	223661-65	223661-66
Your Reference	UNITS	JKE135	JKE136	JKE136	JKE136	JKE137
Depth		1.5-1.7	0-0.2	0.4-0.8	1.5-1.7	0.04-0.2
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	86	93	91	91

Organophosphorus Pesticides				
Our Reference		223661-67	223661-69	223661-71
Your Reference	UNITS	JKE137	DUPAM104	DUPAM108
Depth		0.5-0.7	-	-
Date Sampled		08/08/2019	05/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	92	89

PCBs in Soil						
Our Reference	UNITS	223661-1	223661-3	223661-6	223661-7	223661-8
Your Reference		JKE109	JKE109	JKE112	JKE112	JKE112
Depth		0.045-0.2	0.6-0.95	0-0.02	0.5-0.95	1.3-1.5
Date Sampled		05/08/2019	05/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	85	94	87	87	97

PCBs in Soil						
Our Reference	UNITS	223661-9	223661-11	223661-12	223661-13	223661-15
Your Reference		JKE113	JKE114	JKE115	JKE115	JKE116
Depth		0-0.2	0-0.2	0-0.2	0.2-0.4	0-0.2
Date Sampled		07/08/2019	06/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	96	93	92	94

PCBs in Soil						
Our Reference	UNITS	223661-17	223661-18	223661-19	223661-21	223661-22
Your Reference		JKE117	JKE117	JKE118	JKE119	JKE122
Depth		0-0.2	0.4-0.6	0-0.2	0-0.2	0.04-0.2
Date Sampled		05/08/2019	05/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	134	86	97	87

PCBs in Soil						
Our Reference	UNITS	223661-23	223661-24	223661-25	223661-26	223661-27
Your Reference		JKE122	JKE122	JKE122	JKE123	JKE123
Depth		0.5-0.8	0.8-1.0	1.5-1.95	0.03-0.2	0.5-0.8
Date Sampled		06/08/2019	06/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	93	85	90	92

PCBs in Soil						
Our Reference		223661-28	223661-29	223661-30	223661-32	223661-33
Your Reference	UNITS	JKE123	JKE124	JKE124	JKE124	JKE125
Depth		0.8-0.95	0.05-0.2	0.2-0.3	0.6-0.95	0.05-0.2
Date Sampled		06/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	92	92	93	90

PCBs in Soil						
Our Reference		223661-35	223661-36	223661-37	223661-39	223661-40
Your Reference	UNITS	JKE125	JKE125	JKE126	JKE126	JKE127
Depth		0.4-0.7	0.7-0.95	0.08-0.2	00.5-0.95	0.06-0.3
Date Sampled		07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	92	90	85	97

PCBs in Soil						
Our Reference	UNITS	223661-41	223661-42	223661-43	223661-44	223661-45
Your Reference		JKE127	JKE127	JKE128	JKE128	JKE128
Depth		0.3-0.5	0.6-0.95	0.08-0.2	0.3-0.4	0.4-0.6
Date Sampled		07/08/2019	07/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	91	88	89	91

PCBs in Soil						
Our Reference	UNITS	223661-46	223661-47	223661-48	223661-49	223661-50
Your Reference		JKE129	JKE129	JKE130	JKE130	JKE131
Depth		0.09-0.25	0.25-0.3	0.07-0.2	0.2-0.25	0.07-0.2
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	90	91	90	90

PCBs in Soil						
Our Reference	UNITS	223661-51	223661-52	223661-53	223661-54	223661-55
Your Reference		JKE131	JKE132	JKE132	JKE133	JKE133
Depth		0.2-0.3	0.08-0.15	0.15-0.3	0.08-0.2	0.2-0.3
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	93	91	83	91

PCBs in Soil						
Our Reference	UNITS	223661-56	223661-57	223661-58	223661-59	223661-61
Your Reference		JKE134	JKE134	JKE134	JKE135	JKE135
Depth		0-0.2	0.5-0.95	1.5-1.7	0.05-0.25	0.4-0.6
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	90	95	87	97

PCBs in Soil						
Our Reference		223661-62	223661-63	223661-64	223661-65	223661-66
Your Reference	UNITS	JKE135	JKE136	JKE136	JKE136	JKE137
Depth		1.5-1.7	0-0.2	0.4-0.8	1.5-1.7	0.04-0.2
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	86	93	91	91

PCBs in Soil				
Our Reference		223661-67	223661-69	223661-71
Your Reference	UNITS	JKE137	DUPAM104	DUPAM108
Depth		0.5-0.7	-	-
Date Sampled		08/08/2019	05/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	92	89

Acid Extractable metals in soil

Our Reference		223661-1	223661-3	223661-6	223661-7	223661-8
Your Reference	UNITS	JKE109	JKE109	JKE112	JKE112	JKE112
Depth		0.045-0.2	0.6-0.95	0-0.02	0.5-0.95	1.3-1.5
Date Sampled		05/08/2019	05/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Arsenic	mg/kg	<4	<4	7	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	13	17	9	12
Copper	mg/kg	34	8	41	7	5
Lead	mg/kg	16	15	250	20	11
Mercury	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Nickel	mg/kg	8	3	13	3	2
Zinc	mg/kg	47	8	130	16	7

Acid Extractable metals in soil

Our Reference		223661-9	223661-11	223661-12	223661-13	223661-15
Your Reference	UNITS	JKE113	JKE114	JKE115	JKE115	JKE116
Depth		0-0.2	0-0.2	0-0.2	0.2-0.4	0-0.2
Date Sampled		07/08/2019	06/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Arsenic	mg/kg	5	4	4	4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	14	12	14	9
Copper	mg/kg	74	9	25	22	13
Lead	mg/kg	27	22	39	32	15
Mercury	mg/kg	0.2	<0.1	0.1	0.1	<0.1
Nickel	mg/kg	7	5	9	5	7
Zinc	mg/kg	120	30	71	26	29

Acid Extractable metals in soil

Our Reference		223661-17	223661-18	223661-19	223661-21	223661-22
Your Reference	UNITS	JKE117	JKE117	JKE118	JKE119	JKE122
Depth		0-0.2	0.4-0.6	0-0.2	0-0.2	0.04-0.2
Date Sampled		05/08/2019	05/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Arsenic	mg/kg	8	<4	4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	25	12	10	13	14
Copper	mg/kg	43	5	41	30	25
Lead	mg/kg	22	13	44	33	33
Mercury	mg/kg	<0.1	<0.1	0.2	0.1	<0.1
Nickel	mg/kg	6	2	23	24	15
Zinc	mg/kg	70	8	80	56	57

Acid Extractable metals in soil

Our Reference		223661-23	223661-24	223661-25	223661-26	223661-27
Your Reference	UNITS	JKE122	JKE122	JKE122	JKE123	JKE123
Depth		0.5-0.8	0.8-1.0	1.5-1.95	0.03-0.2	0.5-0.8
Date Sampled		06/08/2019	06/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Arsenic	mg/kg	4	5	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	12	7	24	13
Copper	mg/kg	15	34	4	20	8
Lead	mg/kg	28	100	7	28	12
Mercury	mg/kg	0.2	1.4	<0.1	<0.1	<0.1
Nickel	mg/kg	14	6	<1	9	4
Zinc	mg/kg	37	110	3	40	17

Acid Extractable metals in soil

Our Reference		223661-28	223661-29	223661-30	223661-32	223661-33
Your Reference	UNITS	JKE123	JKE124	JKE124	JKE124	JKE125
Depth		0.8-0.95	0.05-0.2	0.2-0.3	0.6-0.95	0.05-0.2
Date Sampled		06/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	13	11	10	11
Copper	mg/kg	3	51	24	4	48
Lead	mg/kg	11	4	14	9	4
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	62	29	2	64
Zinc	mg/kg	5	33	28	4	31

Acid Extractable metals in soil

Our Reference		223661-35	223661-36	223661-37	223661-39	223661-40
Your Reference	UNITS	JKE125	JKE125	JKE126	JKE126	JKE127
Depth		0.4-0.7	0.7-0.95	0.08-0.2	0.5-0.95	0.06-0.3
Date Sampled		07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Arsenic	mg/kg	5	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	11	10	5	10
Copper	mg/kg	21	6	49	3	48
Lead	mg/kg	58	9	2	4	2
Mercury	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	3	67	1	59
Zinc	mg/kg	57	6	33	2	29

Acid Extractable metals in soil

Our Reference		223661-41	223661-42	223661-43	223661-44	223661-45
Your Reference	UNITS	JKE127	JKE127	JKE128	JKE128	JKE128
Depth		0.3-0.5	0.6-0.95	0.08-0.2	0.3-0.4	0.4-0.6
Date Sampled		07/08/2019	07/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	11	7	25	9
Copper	mg/kg	17	4	68	23	4
Lead	mg/kg	7	10	1	3	8
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	24	3	76	43	2
Zinc	mg/kg	23	6	34	18	4

Acid Extractable metals in soil

Our Reference		223661-46	223661-47	223661-48	223661-49	223661-50
Your Reference	UNITS	JKE129	JKE129	JKE130	JKE130	JKE131
Depth		0.09-0.25	0.25-0.3	0.07-0.2	0.2-0.25	0.07-0.2
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	8	16	6	30	5
Copper	mg/kg	66	27	58	37	73
Lead	mg/kg	2	4	1	2	1
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	80	39	73	66	53
Zinc	mg/kg	34	19	31	25	27

Acid Extractable metals in soil

Our Reference		223661-51	223661-52	223661-53	223661-54	223661-55
Your Reference	UNITS	JKE131	JKE132	JKE132	JKE133	JKE133
Depth		0.2-0.3	0.08-0.15	0.15-0.3	0.08-0.2	0.2-0.3
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	6	45	6	9
Copper	mg/kg	28	93	2	63	30
Lead	mg/kg	2	2	4	2	2
Mercury	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Nickel	mg/kg	35	64	24	63	50
Zinc	mg/kg	16	41	3	29	21

Acid Extractable metals in soil

Our Reference		223661-56	223661-57	223661-58	223661-59	223661-61
Your Reference	UNITS	JKE134	JKE134	JKE134	JKE135	JKE135
Depth		0-0.2	0.5-0.95	1.5-1.7	0.05-0.25	0.4-0.6
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Arsenic	mg/kg	<4	<4	<4	<4	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	6	5	10	16
Copper	mg/kg	11	<1	4	40	12
Lead	mg/kg	8	4	4	1	49
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	13	<1	<1	80	5
Zinc	mg/kg	21	1	2	30	86

Acid Extractable metals in soil

Our Reference		223661-62	223661-63	223661-64	223661-65	223661-66
Your Reference	UNITS	JKE135	JKE136	JKE136	JKE136	JKE137
Depth		1.5-1.7	0-0.2	0.4-0.8	1.5-1.7	0.04-0.2
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Arsenic	mg/kg	<4	<4	4	<4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	8	9	11	7	14
Copper	mg/kg	5	16	6	5	21
Lead	mg/kg	10	26	16	7	51
Mercury	mg/kg	<0.1	0.1	<0.1	<0.1	0.2
Nickel	mg/kg	1	9	3	1	7
Zinc	mg/kg	5	63	10	4	57

Acid Extractable metals in soil

Our Reference		223661-67	223661-69	223661-71	223661-77	223661-78
Your Reference	UNITS	JKE137	DUPAM104	DUPAM108	JKE117 - [TRIPLICATE]	JKE123 - [TRIPLICATE]
Depth		0.5-0.7	-	-	0-0.2	0.8-0.95
Date Sampled		08/08/2019	05/08/2019	09/08/2019	05/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Arsenic	mg/kg	<4	<4	<4	6	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	8	7	5	12	7
Copper	mg/kg	4	4	60	42	3
Lead	mg/kg	8	8	1	26	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	1	56	7	3
Zinc	mg/kg	3	4	25	63	4

Acid Extractable metals in soil		
Our Reference		223661-79
Your Reference	UNITS	JKE127 - [TRIPLICATE]
Depth		0.3-0.5
Date Sampled		07/08/2019
Type of sample		Soil
Date prepared	-	14/08/2019
Date analysed	-	14/08/2019
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	9
Copper	mg/kg	10
Lead	mg/kg	8
Mercury	mg/kg	<0.1
Nickel	mg/kg	14
Zinc	mg/kg	19

Moisture						
Our Reference	UNITS	223661-1	223661-3	223661-6	223661-7	223661-8
Your Reference		JKE109	JKE109	JKE112	JKE112	JKE112
Depth		0.045-0.2	0.6-0.95	0-0.02	0.5-0.95	1.3-1.5
Date Sampled		05/08/2019	05/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Moisture	%	10	18	16	17	20

Moisture						
Our Reference	UNITS	223661-9	223661-11	223661-12	223661-13	223661-15
Your Reference		JKE113	JKE114	JKE115	JKE115	JKE116
Depth		0-0.2	0-0.2	0-0.2	0.2-0.4	0-0.2
Date Sampled		07/08/2019	06/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Moisture	%	20	10	17	16	2.1

Moisture						
Our Reference	UNITS	223661-17	223661-18	223661-19	223661-21	223661-22
Your Reference		JKE117	JKE117	JKE118	JKE119	JKE122
Depth		0-0.2	0.4-0.6	0-0.2	0-0.2	0.04-0.2
Date Sampled		05/08/2019	05/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Moisture	%	5.2	19	5.4	3.7	13

Moisture						
Our Reference	UNITS	223661-23	223661-24	223661-25	223661-26	223661-27
Your Reference		JKE122	JKE122	JKE122	JKE123	JKE123
Depth		0.5-0.8	0.8-1.0	1.5-1.95	0.03-0.2	0.5-0.8
Date Sampled		06/08/2019	06/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Moisture	%	18	16	15	8.5	18

Moisture						
Our Reference	UNITS	223661-28	223661-29	223661-30	223661-32	223661-33
Your Reference		JKE123	JKE124	JKE124	JKE124	JKE125
Depth		0.8-0.95	0.05-0.2	0.2-0.3	0.6-0.95	0.05-0.2
Date Sampled		06/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Moisture	%	13	5.4	8.7	19	7.0

Moisture						
Our Reference	UNITS	223661-35	223661-36	223661-37	223661-39	223661-40
Your Reference		JKE125	JKE125	JKE126	JKE126	JKE127
Depth		0.4-0.7	0.7-0.95	0.08-0.2	0.5-0.95	0.06-0.3
Date Sampled		07/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Moisture	%	14	18	2.6	12	4.4

Moisture						
Our Reference	UNITS	223661-41	223661-42	223661-43	223661-44	223661-45
Your Reference		JKE127	JKE127	JKE128	JKE128	JKE128
Depth		0.3-0.5	0.6-0.95	0.08-0.2	0.3-0.4	0.4-0.6
Date Sampled		07/08/2019	07/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Moisture	%	9.4	17	5.7	8.1	9.8

Moisture						
Our Reference	UNITS	223661-46	223661-47	223661-48	223661-49	223661-50
Your Reference		JKE129	JKE129	JKE130	JKE130	JKE131
Depth		0.09-0.25	0.25-0.3	0.07-0.2	0.2-0.25	0.07-0.2
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Moisture	%	2.1	9.6	3.3	4.2	2.4

Moisture						
Our Reference	UNITS	223661-51	223661-52	223661-53	223661-54	223661-55
Your Reference		JKE131	JKE132	JKE132	JKE133	JKE133
Depth		0.2-0.3	0.08-0.15	0.15-0.3	0.08-0.2	0.2-0.3
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Moisture	%	5.8	3.9	10	3.2	5.7

Moisture						
Our Reference	UNITS	223661-56	223661-57	223661-58	223661-59	223661-61
Your Reference		JKE134	JKE134	JKE134	JKE135	JKE135
Depth		0-0.2	0.5-0.95	1.5-1.7	0.05-0.25	0.4-0.6
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Moisture	%	5.1	2.7	12	3.6	13

Moisture						
Our Reference	UNITS	223661-62	223661-63	223661-64	223661-65	223661-66
Your Reference		JKE135	JKE136	JKE136	JKE136	JKE137
Depth		1.5-1.7	0-0.2	0.4-0.8	1.5-1.7	0.04-0.2
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Moisture	%	11	11	15	19	10

Moisture				
Our Reference	UNITS	223661-67	223661-69	223661-71
Your Reference		JKE137	DUPAM104	DUPAM108
Depth		0.5-0.7	-	-
Date Sampled		08/08/2019	05/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019
Moisture	%	13	12	2.6

Asbestos ID - soils NEPM - ASB-001

Our Reference		223661-1	223661-3	223661-6	223661-7	223661-9
Your Reference	UNITS	JKE109	JKE109	JKE112	JKE112	JKE113
Depth		0.045-0.2	0.6-0.95	0-0.02	0.5-0.95	0-0.2
Date Sampled		05/08/2019	05/08/2019	05/08/2019	05/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Sample mass tested	g	663.65	499.34	641.55	545.44	378.57
Sample Description	-	Grey sandy soil & rocks	Brown clayey soil & rocks	Brown coarse-grained soil & rocks	Brown clayey soil & rocks	Brown fine-grained soil & debris
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected Synthetic mineral fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001

Our Reference		223661-11	223661-12	223661-13	223661-15	223661-17
Your Reference	UNITS	JKE114	JKE115	JKE115	JKE116	JKE117
Depth		0-0.2	0-0.2	0.2-0.4	0-0.2	0-0.2
Date Sampled		06/08/2019	05/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Sample mass tested	g	652.62	537.09	444.62	791	754.22
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001

Our Reference		223661-19	223661-21	223661-22	223661-23	223661-24
Your Reference	UNITS	JKE118	JKE119	JKE122	JKE122	JKE122
Depth		0-0.2	0-0.2	0.04-0.2	0.5-0.8	0.8-1.0
Date Sampled		06/08/2019	06/08/2019	06/08/2019	06/08/2019	06/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Sample mass tested	g	863.27	997.04	643.06	798.25	551.57
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001

Our Reference		223661-26	223661-27	223661-29	223661-30	223661-33
Your Reference	UNITS	JKE123	JKE123	JKE124	JKE124	JKE125
Depth		0.03-0.2	0.5-0.8	0.05-0.2	0.2-0.3	0.05-0.2
Date Sampled		06/08/2019	06/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Sample mass tested	g	812.47	536.28	1,001.34	743.82	861.11
Sample Description	-	Brown sandy soil & rocks	Brown clayey soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001

Our Reference		223661-35	223661-37	223661-40	223661-41	223661-43
Your Reference	UNITS	JKE125	JKE126	JKE127	JKE127	JKE128
Depth		0.4-0.7	0.08-0.2	0.06-0.3	0.3-0.5	0.08-0.2
Date Sampled		07/08/2019	07/08/2019	07/08/2019	07/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Sample mass tested	g	473.83	1,072.09	967.78	645.31	908.55
Sample Description	-	Brown clayey soil & rocks	Grey coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Peach sandy soil & rocks	Grey coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001

Our Reference		223661-44	223661-46	223661-48	223661-50	223661-51
Your Reference	UNITS	JKE128	JKE129	JKE130	JKE131	JKE131
Depth		0.3-0.4	0.09-0.25	0.07-0.2	0.07-0.2	0.2-0.3
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Sample mass tested	g	710.84	920.55	921.86	891.89	699.37
Sample Description	-	Brown coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001

Our Reference		223661-52	223661-54	223661-56	223661-57	223661-59
Your Reference	UNITS	JKE132	JKE133	JKE134	JKE134	JKE135
Depth		0.08-0.15	0.08-0.2	0-0.2	0.5-0.95	0.05-0.25
Date Sampled		09/08/2019	09/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Sample mass tested	g	1,158.41	1,088.38	788.35	942.46	1,022.15
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown sandy soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001

Our Reference		223661-61	223661-63	223661-64	223661-66
Your Reference	UNITS	JKE135	JKE136	JKE136	JKE137
Depth		0.4-0.6	0-0.2	0.4-0.8	0.04-0.2
Date Sampled		08/08/2019	08/08/2019	08/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Sample mass tested	g	704.78	599.06	437.68	739.61
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	Chrysotile asbestos detected Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	0.3727	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	See Above	No visible asbestos detected	Chrysotile
ACM >7mm Estimation*	g	—	—	—	—
FA and AF Estimation*	g	—	0.2233	—	0.0632
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	0.0373	<0.001	0.0085

Misc Inorg - Soil				
Our Reference		223661-1	223661-12	223661-56
Your Reference	UNITS	JKE109	JKE115	JKE134
Depth		0.045-0.2	0-0.2	0-0.2
Date Sampled		05/08/2019	05/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil
Date prepared	-	15/08/2019	15/08/2019	15/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019
pH 1:5 soil:water	pH Units	10.5	7.5	7.3

CEC				
Our Reference		223661-1	223661-12	223661-56
Your Reference	UNITS	JKE109	JKE115	JKE134
Depth		0.045-0.2	0-0.2	0-0.2
Date Sampled		05/08/2019	05/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil
Date prepared	-	15/08/2019	15/08/2019	15/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019
Exchangeable Ca	meq/100g	87	31	5.8
Exchangeable K	meq/100g	0.7	0.5	0.3
Exchangeable Mg	meq/100g	0.49	2.0	1.8
Exchangeable Na	meq/100g	0.15	<0.1	<0.1
Cation Exchange Capacity	meq/100g	88	33	8.0

Clay 50-120g				
Our Reference		223661-1	223661-12	223661-56
Your Reference	UNITS	JKE109	JKE115	JKE134
Depth		0.045-0.2	0-0.2	0-0.2
Date Sampled		05/08/2019	05/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil
Date prepared	-	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019
Clay in soils <2µm	% (w/w)	3	10	8

Asbestos ID - materials		
Our Reference	UNITS	223661-76
Your Reference		AMF1
Depth		-
Date Sampled		08/08/2019
Type of sample		Material
Date analysed	-	14/08/2019
Mass / Dimension of Sample	-	45x30x5mm
Sample Description	-	White fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected

BTEX in Water			
Our Reference		223661-74	223661-75
Your Reference	UNITS	FRAM101	FRRK1
Depth		-	-
Date Sampled		06/08/2019	09/08/2019
Type of sample		Water	Water
Date extracted	-	14/08/2019	14/08/2019
Date analysed	-	15/08/2019	15/08/2019
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	104	114
Surrogate toluene-d8	%	98	100
Surrogate 4-BFB	%	99	99

Method ID	Methodology Summary
AS1289.3.6.3	Determination Particle Size Analysis using AS1289.3.6.3 and AS1289.3.6.1 and in house method INORG-107. Clay fraction at <2µm reported.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) NOTE #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

Method ID	Methodology Summary
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	223661-3
Date extracted	-			14/08/2019	1	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			16/08/2019	1	16/08/2019	16/08/2019		16/08/2019	16/08/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	1	<25	<25	0	104	115
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	1	<25	<25	0	104	115
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	98	110
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	103	113
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	107	117
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	107	117
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	107	121
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	108	1	94	109	15	100	105

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	223661-29
Date extracted	-			[NT]	17	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	17	16/08/2019	16/08/2019		17/08/2019	16/08/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	17	<25	<25	0	115	116
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	17	<25	<25	0	115	116
Benzene	mg/kg	0.2	Org-016	[NT]	17	<0.2	<0.2	0	111	107
Toluene	mg/kg	0.5	Org-016	[NT]	17	<0.5	<0.5	0	112	111
Ethylbenzene	mg/kg	1	Org-016	[NT]	17	<1	<1	0	117	121
m+p-xylene	mg/kg	2	Org-016	[NT]	17	<2	<2	0	117	122
o-Xylene	mg/kg	1	Org-016	[NT]	17	<1	<1	0	120	121
naphthalene	mg/kg	1	Org-014	[NT]	17	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	17	103	65	45	104	108

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	223661-52
Date extracted	-			[NT]	28	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	28	16/08/2019	16/08/2019		17/08/2019	17/08/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	28	<25	<25	0	114	90
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	28	<25	<25	0	114	90
Benzene	mg/kg	0.2	Org-016	[NT]	28	<0.2	<0.2	0	112	85
Toluene	mg/kg	0.5	Org-016	[NT]	28	<0.5	<0.5	0	114	88
Ethylbenzene	mg/kg	1	Org-016	[NT]	28	<1	<1	0	115	90
m+p-xylene	mg/kg	2	Org-016	[NT]	28	<2	<2	0	114	93
o-Xylene	mg/kg	1	Org-016	[NT]	28	<1	<1	0	118	92
naphthalene	mg/kg	1	Org-014	[NT]	28	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	28	104	92	12	99	83

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	41	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	41	17/08/2019	17/08/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	41	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	41	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	41	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	41	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	41	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	41	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	41	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	41	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	41	101	100	1	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	17/08/2019	17/08/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	51	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	51	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	51	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	51	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	51	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	51	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	51	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	51	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	51	99	96	3	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	62	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	62	17/08/2019	17/08/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	62	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	62	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	62	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	62	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	62	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	62	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	62	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	62	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	62	97	98	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	223661-3
Date extracted	-			14/08/2019	1	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			14/08/2019	1	15/08/2019	15/08/2019		14/08/2019	14/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	1	<50	<50	0	97	84
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	1	<100	<100	0	101	94
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	1	130	110	17	100	96
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	1	<50	<50	0	97	84
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	1	140	130	7	101	94
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	1	170	150	12	100	96
Surrogate o-Terphenyl	%		Org-003	89	1	88	89	1	98	91

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	223661-29
Date extracted	-			[NT]	17	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	17	15/08/2019	15/08/2019		15/08/2019	15/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	17	68	<50	31	95	120
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	17	420	170	85	101	119
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	17	310	220	34	100	93
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	17	50	<50	0	95	120
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	17	630	320	65	101	119
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	17	170	150	12	100	93
Surrogate o-Terphenyl	%		Org-003	[NT]	17	97	93	4	94	104

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	223661-52
Date extracted	-			[NT]	28	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	28	15/08/2019	15/08/2019		15/08/2019	15/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	28	<50	<50	0	109	91
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	28	<100	<100	0	97	97
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	28	<100	<100	0	113	96
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	28	<50	<50	0	109	91
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	28	<100	<100	0	97	97
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	28	<100	<100	0	113	96
Surrogate o-Terphenyl	%		Org-003	[NT]	28	86	95	10	97	95

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	41	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	41	15/08/2019	15/08/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	41	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	41	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	41	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	41	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	41	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	41	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	41	85	85	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	15/08/2019	15/08/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	51	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	51	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	51	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	51	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	51	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	51	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	51	91	91	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	62	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	62	15/08/2019	15/08/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	62	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	62	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	62	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	62	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	62	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	62	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	62	96	90	6	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	223661-3
Date extracted	-			14/08/2019	1	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			14/08/2019	1	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	104	102
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	116	96
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	0.1	0.1	0	98	100
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	0.5	0.5	0	88	102
Pyrene	mg/kg	0.1	Org-012	<0.1	1	0.7	0.7	0	96	106
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	0.3	0.3	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	0.4	0.4	0	118	129
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	0.4	0.5	22	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	0.4	0.3	29	124	110
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	0.1	0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	0.2	0.2	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	91	1	84	90	7	78	77

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	223661-29
Date extracted	-			[NT]	17	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	17	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Naphthalene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	108	105
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	116	107
Phenanthrene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	106	99
Anthracene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	90	87
Pyrene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	96	89
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	124	119
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	[NT]	17	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	17	<0.05	<0.05	0	80	85
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	17	87	87	0	78	72

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	223661-52
Date extracted	-			[NT]	28	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	28	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Naphthalene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	100	101
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	126	114
Phenanthrene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	92	90
Anthracene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	96	92
Pyrene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	96	92
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	122	125
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	28	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	28	<0.05	<0.05	0	118	119
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	28	91	90	1	78	74

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	41	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	41	14/08/2019	14/08/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	41	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	41	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	41	88	92	4	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	14/08/2019	14/08/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	51	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	51	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d14	%		Org-012	[NT]	51	89	88	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	62	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	62	14/08/2019	14/08/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	62	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	62	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	62	92	88	4	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	223661-3
Date extracted	-			14/08/2019	1	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			14/08/2019	1	14/08/2019	14/08/2019		14/08/2019	14/08/2019
HCB	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	88	87
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	86	92
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	88	90
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	112	100
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	116	95
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	108	105
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	114	108
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	108	102
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	104	100
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	72	93
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	96	1	85	92	8	82	88

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	223661-29
Date extracted	-			[NT]	17	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	17	14/08/2019	14/08/2019		14/08/2019	14/08/2019
HCB	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	92	97
gamma-BHC	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	99	101
Heptachlor	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	96	96
delta-BHC	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	99	96
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	100	101
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	108	103
Dieldrin	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	118	114
Endrin	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	105	101
pp-DDD	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	94	106
Endosulfan II	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	90	99
Methoxychlor	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	17	88	95	8	91	93

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	223661-52
Date extracted	-			[NT]	28	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	28	14/08/2019	14/08/2019		14/08/2019	14/08/2019
HCB	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	88	88
gamma-BHC	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	94	90
Heptachlor	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	76	69
delta-BHC	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	114	95
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	116	107
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	108	97
Dieldrin	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	128	116
Endrin	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	94	88
pp-DDD	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	104	93
Endosulfan II	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	95	71
Methoxychlor	mg/kg	0.1	Org-005	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	28	91	92	1	82	78

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	41	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	41	14/08/2019	14/08/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	41	89	92	3	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	14/08/2019	14/08/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	51	91	91	0	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	62	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	62	14/08/2019	14/08/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	62	94	90	4	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	223661-3
Date extracted	-			14/08/2019	1	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			14/08/2019	1	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	104	102
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	92	100
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	98	92
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	92	80
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	112	98
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	114	116
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	100	110
Surrogate TCMX	%		Org-008	96	1	85	92	8	82	79

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	223661-29
Date extracted	-			[NT]	17	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	17	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	108	99
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	88	79
Dimethoate	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	92	93
Fenitrothion	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	90	83
Malathion	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	100	101
Parathion	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	136	123
Ronnel	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	108	101
Surrogate TCMX	%		Org-008	[NT]	17	88	95	8	82	79

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	223661-52
Date extracted	-			[NT]	28	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	28	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	28	<0.1	<0.1	0	116	99
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	28	<0.1	<0.1	0	96	120
Dimethoate	mg/kg	0.1	Org-008	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	28	<0.1	<0.1	0	108	95
Fenitrothion	mg/kg	0.1	Org-008	[NT]	28	<0.1	<0.1	0	114	95
Malathion	mg/kg	0.1	Org-008	[NT]	28	<0.1	<0.1	0	96	112
Parathion	mg/kg	0.1	Org-008	[NT]	28	<0.1	<0.1	0	126	118
Ronnel	mg/kg	0.1	Org-008	[NT]	28	<0.1	<0.1	0	106	97
Surrogate TCMX	%		Org-008	[NT]	28	91	92	1	82	78

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	41	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	41	14/08/2019	14/08/2019		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	41	89	92	3	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	14/08/2019	14/08/2019		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	51	91	91	0	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	62	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	62	14/08/2019	14/08/2019		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	62	94	90	4	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	223661-3
Date extracted	-			14/08/2019	1	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			14/08/2019	1	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	70	80
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	96	1	85	92	8	82	79

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	223661-29
Date extracted	-			[NT]	17	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	17	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	17	<0.1	<0.1	0	120	100
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	17	88	95	8	82	79

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	223661-52
Date extracted	-			[NT]	28	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	28	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	28	<0.1	<0.1	0	110	90
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	28	91	92	1	82	78

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	41	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	41	14/08/2019	14/08/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	41	89	92	3	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	51	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	14/08/2019	14/08/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	51	91	91	0	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	62	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	62	14/08/2019	14/08/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	[NT]	62	94	90	4	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	223661-3
Date prepared	-			14/08/2019	1	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			14/08/2019	1	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	100	84
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	95	81
Chromium	mg/kg	1	Metals-020	<1	1	13	13	0	102	84
Copper	mg/kg	1	Metals-020	<1	1	34	26	27	97	110
Lead	mg/kg	1	Metals-020	<1	1	16	21	27	99	85
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	101	100
Nickel	mg/kg	1	Metals-020	<1	1	8	8	0	93	85
Zinc	mg/kg	1	Metals-020	<1	1	47	47	0	99	102

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	223661-29
Date prepared	-			[NT]	17	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	17	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Arsenic	mg/kg	4	Metals-020	[NT]	17	8	5	46	102	71
Cadmium	mg/kg	0.4	Metals-020	[NT]	17	<0.4	<0.4	0	96	71
Chromium	mg/kg	1	Metals-020	[NT]	17	25	11	78	106	76
Copper	mg/kg	1	Metals-020	[NT]	17	43	48	11	100	91
Lead	mg/kg	1	Metals-020	[NT]	17	22	18	20	102	70
Mercury	mg/kg	0.1	Metals-021	[NT]	17	<0.1	<0.1	0	110	116
Nickel	mg/kg	1	Metals-020	[NT]	17	6	5	18	96	85
Zinc	mg/kg	1	Metals-020	[NT]	17	70	53	28	105	70

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	223661-52
Date prepared	-			[NT]	28	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Date analysed	-			[NT]	28	14/08/2019	14/08/2019		14/08/2019	14/08/2019
Arsenic	mg/kg	4	Metals-020	[NT]	28	<4	<4	0	98	78
Cadmium	mg/kg	0.4	Metals-020	[NT]	28	<0.4	<0.4	0	92	74
Chromium	mg/kg	1	Metals-020	[NT]	28	9	6	40	100	80
Copper	mg/kg	1	Metals-020	[NT]	28	3	3	0	95	76
Lead	mg/kg	1	Metals-020	[NT]	28	11	3	114	100	72
Mercury	mg/kg	0.1	Metals-021	[NT]	28	<0.1	<0.1	0	96	#
Nickel	mg/kg	1	Metals-020	[NT]	28	4	2	67	92	#
Zinc	mg/kg	1	Metals-020	[NT]	28	5	3	50	96	#

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	41	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	41	14/08/2019	14/08/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	41	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	41	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	41	10	9	11	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	41	17	8	72	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	41	7	9	25	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	41	24	12	67	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	41	23	21	9	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	51	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	51	14/08/2019	14/08/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	51	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	51	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	51	9	10	11	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	51	28	26	7	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	51	2	2	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	51	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	51	35	40	13	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	51	16	18	12	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	62	14/08/2019	14/08/2019		[NT]	[NT]
Date analysed	-			[NT]	62	14/08/2019	14/08/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	62	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	62	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	62	8	9	12	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	62	5	6	18	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	62	10	11	10	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	62	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	62	1	1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	62	5	4	22	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			15/08/2019	[NT]	[NT]	[NT]	[NT]	15/08/2019	[NT]
Date analysed	-			15/08/2019	[NT]	[NT]	[NT]	[NT]	15/08/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: CEC					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			15/08/2019	12	15/08/2019	15/08/2019		15/08/2019	[NT]
Date analysed	-			15/08/2019	12	15/08/2019	15/08/2019		15/08/2019	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	12	31	29	7	101	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	12	0.5	0.5	0	90	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	12	2.0	1.9	5	96	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	12	<0.1	<0.1	0	88	[NT]

QUALITY CONTROL: BTEX in Water						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			14/08/2019	[NT]	[NT]	[NT]	[NT]	14/08/2019	[NT]
Date analysed	-			15/08/2019	[NT]	[NT]	[NT]	[NT]	15/08/2019	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	102	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate Dibromofluoromethane	%		Org-016	106	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate toluene-d8	%		Org-016	98	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate 4-BFB	%		Org-016	102	[NT]	[NT]	[NT]	[NT]	98	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Report Comments

Asbestos-ID in soil: NEPM

This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Note: All samples analysed as received. However, samples 223661-35,64 are below the minimum 500mL sample volume as per National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.

Acid Extractable Metals in Soil:

The laboratory RPD acceptance criteria has been exceeded for 223661-17 for Cr. Therefore a triplicate result has been issued as laboratory sample number 223661-77.

The laboratory RPD acceptance criteria has been exceeded for 223661-28 for Pb. Therefore a triplicate result has been issued as laboratory sample number 223661-78.

The laboratory RPD acceptance criteria has been exceeded for 223661-41 for Cu and Ni. Therefore a triplicate result has been issued as laboratory sample number 223661-79.

Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

TRH Soil C10-C40 NEPM - The RPD for duplicate results is accepted due to the non homogenous nature of sample 223661-17.

BTEX in Water - Only 1 vial supplied for analysis. Envirolab recommends that two 40mL VOA vials preserved with Hydrochloric Acid (HCl) or similar is supplied for the analysis of VOC/BTEX.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32465BD, Liverpool
Envirolab Reference	223661
Date Sample Received	11/02/2019
Date Instructions Received	12/08/2019
Date Results Expected to be Reported	19/08/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	73 Soil, 2 Water, 1 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	18.1
Cooling Method	None
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	Clay 50-120g	Asbestos ID - materials	BTEX in Water	On Hold
JKE109-0.045-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
JKE109-0.4-0.6														✓
JKE109-0.6-0.95	✓	✓	✓	✓	✓	✓	✓	✓						
JKE109-1.6-1.95														✓
JKE109-3.0-3.2														✓
JKE112-0-0.02	✓	✓	✓	✓	✓	✓	✓	✓						
JKE112-0.5-0.95	✓	✓	✓	✓	✓	✓	✓	✓						
JKE112-1.3-1.5	✓	✓	✓	✓	✓	✓	✓							
JKE113-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE113-0.2-0.3														✓
JKE114-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE115-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
JKE115-0.2-0.4	✓	✓	✓	✓	✓	✓	✓	✓						
JKE115-0.9-1.1														✓
JKE116-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE116-0.6-0.8														✓
JKE117-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE117-0.4-0.6	✓	✓	✓	✓	✓	✓	✓							
JKE118-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE118-1.0-1.5														✓
JKE119-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE122-0.04-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE122-0.5-0.8	✓	✓	✓	✓	✓	✓	✓	✓						
JKE122-0.8-1.0	✓	✓	✓	✓	✓	✓	✓	✓						
JKE122-1.5-1.95	✓	✓	✓	✓	✓	✓	✓							
JKE123-0.03-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE123-0.5-0.8	✓	✓	✓	✓	✓	✓	✓	✓						
JKE123-0.8-0.95	✓	✓	✓	✓	✓	✓	✓							
JKE124-0.05-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE124-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓						
JKE124-0.3-0.5														✓
JKE124-0.6-0.95	✓	✓	✓	✓	✓	✓	✓							

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	Clay 50-120g	Asbestos ID - materials	BTEX in Water	On Hold
JKE125-0.05-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE125-0.2-0.4														✓
JKE125-0.4-0.7	✓	✓	✓	✓	✓	✓	✓	✓						
JKE125-0.7-0.95	✓	✓	✓	✓	✓	✓	✓							
JKE126-0.08-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE126-0.3-0.5														✓
JKE126-0.5-0.95	✓	✓	✓	✓	✓	✓	✓							
JKE127-0.06-0.3	✓	✓	✓	✓	✓	✓	✓	✓						
JKE127-0.3-0.5	✓	✓	✓	✓	✓	✓	✓	✓						
JKE127-0.6-0.95	✓	✓	✓	✓	✓	✓	✓							
JKE128-0.08-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE128-0.3-0.4	✓	✓	✓	✓	✓	✓	✓	✓						
JKE128-0.4-0.6	✓	✓	✓	✓	✓	✓	✓							
JKE129-0.09-0.25	✓	✓	✓	✓	✓	✓	✓	✓						
JKE129-0.25-0.3	✓	✓	✓	✓	✓	✓	✓							
JKE130-0.07-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE130-0.2-0.25	✓	✓	✓	✓	✓	✓	✓							
JKE131-0.07-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE131-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓						
JKE132-0.08-0.15	✓	✓	✓	✓	✓	✓	✓	✓						
JKE132-0.15-0.3	✓	✓	✓	✓	✓	✓	✓							
JKE133-0.08-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE133-0.2-0.3	✓	✓	✓	✓	✓	✓	✓							
JKE134-0.0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
JKE134-0.5-0.95	✓	✓	✓	✓	✓	✓	✓	✓						
JKE134-1.5-1.7	✓	✓	✓	✓	✓	✓	✓							
JKE135-0.05-0.25	✓	✓	✓	✓	✓	✓	✓	✓						
JKE135-0.25-0.4														✓
JKE135-0.4-0.6	✓	✓	✓	✓	✓	✓	✓	✓						
JKE135-1.5-1.7	✓	✓	✓	✓	✓	✓	✓							
JKE136-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE136-0.4-0.8	✓	✓	✓	✓	✓	✓	✓	✓						

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	Clay 50-120g	Asbestos ID - materials	BTEX in Water	On Hold
JKE136-1.5-1.7	✓	✓	✓	✓	✓	✓	✓							
JKE137-0.04-0.2	✓	✓	✓	✓	✓	✓	✓	✓						
JKE137-0.5-0.7	✓	✓	✓	✓	✓	✓	✓							
JKE137-0.7-0.95														✓
DUPAM104	✓	✓	✓	✓	✓	✓	✓							
DUPAM105														✓
DUPAM108	✓	✓	✓	✓	✓	✓	✓							
TB4	✓													
TS2	✓													
FRAM101													✓	
FRRK1													✓	
AMF1												✓		

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job <u>E32465BD</u> Number: Date Results <u>STANDARD</u> Required: Page: <u>1</u>	FROM: JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: <u>Mitchell Delaney</u>

Location:	Liverpool						Sample Preserved In Esky on Ice												
Sampler:	AM						Tests Required												
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	Asbestos (500ml Sample) pH, CEC and clay content	BTEX										
5.8.19	1	JKE109	0.045-0.2	G, A	0	Fill: Gravelly Sand	X	X	X										
5.8.19	2	JKE109	0.4-0.6	G, A	0	Fill: Gravelly Sand													
5.8.19	3	JKE109	0.6-0.95	G, A	0	Fill: Silty Clay	X	X											
5.8.19	4	JKE109	1.6-1.95	G, A	0	Fill: Silty Clay													
5.8.19	5	JKE109	3.0-3.2	G, A	0	Silty Clay													
5.8.19	6	JKE112	0-0.2	G, A	0	Fill: Silty Clay	X	X											
5.8.19	7	JKE112	0.5-0.95	G, A	0	Fill: Silty Clay	X	X											
5.8.19	8	JKE112	1.3-1.5	G, A	0	Silty Clay	X												
7.8.19	9	JKE113	0-0.2	G, A	0	Fill: Silty Sand	X	X											
7.8.19	10	JKE113	0.2-0.3	G, A	0	Fill: Silty Clay													
6.8.19	11	JKE114	0-0.2	G, A	0	Fill: Silty Clay	X	X											
5.8.19	12	JKE115	0-0.2	G, A	0	Fill: Sandy Gravel	X	X	X										
5.8.19	13	JKE115	0.2-0.4	G, A	0	Fill: Silty Clay	X	X											
5.8.19	14	JKE115	0.9-1.1	G, A	0	Silty Clay													
5.8.19	15	JKE116	0-0.2	G, A	0	Fill: Sandy Gravel	X	X											
5.8.19	16	JKE116	0.6-0.8	G, A	0	Silty Clay													
5.8.19	17	JKE117	0-0.2	G, A	0	Fill: Sandy Gravel	X	X											
5.8.19	18	JKE117	0.4-0.6	G, A	0	Silty Clay	X												
6.8.19	19	JKE118	0-0.2	G, A	0	Fill: Silty Clay	X	X											
6.8.19	20	JKE118	1.0-1.5	G, A	0	Fill: Silty Clay													
6.8.19	21	JKE119	0-0.2	G, A	0	Fill: Silty Clay	X	X											
6.8.19	22	JKE122	0.04-0.2	G, A	1	Fill: Gravelly Sand	X	X											
6.8.19	23	JKE122	0.5-0.8	G, A	0	Fill: Silty Clay	X	X											
6.8.19	24	JKE122	0.8-1.0	G, A	0	Fill: Silty Clay	X	X											
6.8.19	25	JKE122	1.5-1.95	G, A	0	Silty Clay	X												
Remarks (comments/detection limits required):							Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag												
Relinquished By: <u>MD</u>					Date: <u>12/8/19</u>		Time: <u>15:06</u>		Received By: <u>ELC</u> <u>Mumma</u> <u>QALCC</u>					Date: <u>12-08-19</u>					

EnviroLab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200

Job No: 223661

Date Received: 12/08/19

Time Received: 15:06

Received by: TE

Temp: Cool/Ambient

Cooling: Ice/Coolpack

Security: Intact/Broken/None

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E32465BD Date Results Required: STANDARD Page: 2	FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitchell Delaney

Location: Liverpool							Sample Preserved In Esky on Ice									
Sampler: AM							Tests Required									
Date Sampled	Lab Ref	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	Asbestos (500ml Sample)	pH, CEC and clay content	BTEX						
6.8.19	26	JKE123	0.03-0.2	G, A	0	Fill: Gravelly Sand	X	X								
6.8.19	27	JKE123	0.5-0.38	G, A	0	Fill: Silty Clay	X	X								
6.8.19	28	JKE123	0.8-0.95	G, A	3	Silty Clay	X									
7.8.19	29	JKE124	0.05-0.2	G, A	0	Fill: Silty Sand	X	X								
7.8.19	30	JKE124	0.2-0.3	G, A	0	Fill: Silty Clay	X	X								
7.8.19	31	JKE124	0.3-0.5	G, A	0	Fill: Silty Clay										
7.8.19	32	JKE124	0.6-0.95	G, A	0	Silty Clay	X									
7.8.19	33	JKE125	0.05-0.2	G, A	0	Fill: Gravelly Sand	X	X								
7.8.19	34	JKE125	0.2-0.4	G, A	0	Fill: Sandy Gravel										
7.8.19	35	JKE125	0.4-0.7	G, A	0	Fill: Silty Clay	X	X								
7.8.19	36	JKE125	0.7-0.95	G, A	0	Silty Clay	X									
7.8.19	37	JKE126	0.08-0.2	G, A	0	Fill: Silty Sand	X	X								
7.8.19	38	JKE126	0.3-0.5	G, A	0	Fill: Silty Clay										
7.8.19	39	JKE126	0.5-0.95	G, A	0	Silty Clay	X									
7.8.19	40	JKE127	0.06-0.3	G, A	0	Fill: Gravelly Sand	X	X								
7.8.19	41	JKE127	0.3-0.5	G, A	0	Fill: Silty Clay	X	X								
7.8.19	42	JKE127	0.6-0.95	G, A	0	Silty Clay	X									
9.8.19	43	JKE128	0.08-0.2	G, A	0	Fill: Gravelly Sand	X	X								
9.8.19	44	JKE128	0.3-0.4	G, A	0	Fill: Silty Clay	X	X								
9.8.19	45	JKE128	0.4-0.6	G, A	0	Silty Clay	X									
9.8.19	46	JKE129	0.09-0.25	G, A	0	Fill: Gravelly Sand	X	X								
9.8.19	47	JKE129	0.25-0.13	G, A	0	Fill: Silty Clay	X									
9.8.19	48	JKE130	0.07-0.2	G, A	0	Fill: Gravelly Sand	X	X								
9.8.19	49	JKE130	0.2-0.25	G, A	0	Fill: Silty Clay	X									
9.8.19	50	JKE131	0.07-0.2	G, A	0	Fill: Gravelly Sand	X	X								

Remarks (comments/detection limits required): 		Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	
Relinquished By: MD	Date: 12/8/19	Time: 15:06	Received By: EUS Trinidad C. <i>Stuec</i> Date: 12-08-19

JOB ID: 223861

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E32465BD Date Results Required: STANDARD Page: 3	FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitchell Delaney

Location: Liverpool		Sample Preserved in Esky on Ice																	
Sampler: AM		Tests Required																	
Date Sampled	Lab Ref	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	Asbestos (500ml Sample) pH, CEC and clay content	BTEX										
9.8.19	51	JKE131	0.2-0.3	G, A	0	Fill: Silty Clay	X	X											
9.8.19	52	JKE132	0.08-0.15	G, A	0	Fill: Gravelly	X	X											
9.8.19	53	JKE132	0.15-0.3	G, A	0	Fill: Silty Clay	X												
9.8.19	54	JKE133	0.08-0.2	G, A	0	Fill: Gravelly Sand	X	X											
9.8.19	55	JKE133	0.2-0.3	G, A	0	Fill: Silty Clay	X												
8.8.19	56	JKE134	0-0.2	G, A	0	Fill: Silty Sand	X	X	X										
8.8.19	57	JKE134	0.5-0.95	G, A	0	Fill: Silty Clayey Sand	X	X											
8.8.19	58	JKE134	1.5-1.7	G, A	0	Silty Clay	X												
8.8.19	59	JKE135	0.05-0.25	G, A	0	Fill: Gravelly Sand	X	X											
8.8.19	60	JKE135	0.25-0.4	G, A	0	Fill: Sandy Gravel													
8.8.19	61	JKE135	0.4-0.6	G, A	0	Fill: Silty Clay	X	X											
8.8.19	62	JKE135	1.5-1.7	G, A	0	Silty Clay	X												
8.8.19	63	JKE136	0-0.2	G, A	0	Fill: Silty Clay	X	X											
8.8.19	64	JKE136	0.4-0.8	G, A	0	Fill: Silty Clay	X	X											
8.8.19	65	JKE136	1.5-1.7	G, A	0	Silty Clay	X												
8.8.19	66	JKE137	0.04-0.2	G, A	0	Fill: Silty Clay	X	X											
8.8.19	67	JKE137	0.5-0.7	G, A	0	Fill: Silty Clay	X												
8.8.19	68	JKE137	0.7-0.95	G, A	0	Silty Clay													
5.8.19	69	DUPAM104	-	G	-	DUP Soil	X												
6.8.19	70	DUPAM105	-	G	-	DUP Soil													
7.8.19	-	DUPAM106	-	G	-	DUP Soil	X												
8.8.19	-	DUPAM107	-	G	-	DUP Soil	X												
9.8.19	71	DUPAM108	-	G	-	DUP Soil	X												
9.8.19	72	TB4	-	G	-	Trip Blank Soil													
✓	73	TS2	-	V	-	Trip Spike Soil													
Remarks (comments/detection limits required):							Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag												
Relinquished By: AN				Date: 12/8/19			Time:		Received By: ELS Mitchell C. O'Neill				Date:						

JOBID: 223661

[illegible]

108/D-223661

CERTIFICATE OF ANALYSIS 223661-A

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32465BD, Liverpool</u>
Number of Samples	73 Soil, 2 Water, 1 Material
Date samples received	11/02/2019
Date completed instructions received	21/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

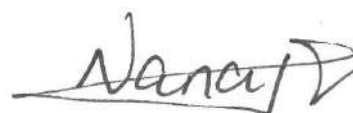
Report Details

Date results requested by	28/08/2019
Date of Issue	27/08/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Loren Bardwell, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

Metals in TCLP USEPA1311

Our Reference		223661-A-6	223661-A-29	223661-A-33	223661-A-37	223661-A-40
Your Reference	UNITS	JKE112	JKE124	JKE125	JKE126	JKE127
Depth		0-0.02	0.05-0.2	0.05-0.2	0.08-0.2	0.06-0.3
Date Sampled		05/08/2019	07/08/2019	07/08/2019	07/08/2019	07/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/08/2019	23/08/2019	23/08/2019	23/08/2019	23/08/2019
Date analysed	-	23/08/2019	23/08/2019	23/08/2019	23/08/2019	23/08/2019
pH of soil for fluid# determ.	pH units	8.1	9.6	9.5	9.7	9.7
pH of soil TCLP (after HCl)	pH units	2.2	2.0	2.0	1.9	2.0
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	5.9	5.2	5.2	5.2	5.2
Lead in TCLP	mg/L	<0.03	[NA]	[NA]	[NA]	[NA]
Nickel in TCLP	mg/L	[NA]	0.06	0.08	0.1	0.08

Metals in TCLP USEPA1311

Our Reference		223661-A-43	223661-A-44	223661-A-46	223661-A-48	223661-A-49
Your Reference	UNITS	JKE128	JKE128	JKE129	JKE130	JKE130
Depth		0.08-0.2	0.3-0.4	0.09-0.25	0.07-0.2	0.2-0.25
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	09/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/08/2019	23/08/2019	23/08/2019	23/08/2019	23/08/2019
Date analysed	-	23/08/2019	23/08/2019	23/08/2019	23/08/2019	23/08/2019
pH of soil for fluid# determ.	pH units	9.8	9.2	9.8	9.8	9.4
pH of soil TCLP (after HCl)	pH units	2.0	1.7	1.9	1.9	1.8
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	5.2	5.1	5.2	5.2	5.1
Nickel in TCLP	mg/L	0.1	0.05	0.1	0.1	0.1

Metals in TCLP USEPA1311

Our Reference		223661-A-50	223661-A-52	223661-A-54	223661-A-55	223661-A-59
Your Reference	UNITS	JKE131	JKE132	JKE133	JKE133	JKE135
Depth		0.07-0.2	0.08-0.15	0.08-0.2	0.2-0.3	0.05-0.25
Date Sampled		09/08/2019	09/08/2019	09/08/2019	09/08/2019	08/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/08/2019	23/08/2019	23/08/2019	23/08/2019	23/08/2019
Date analysed	-	23/08/2019	23/08/2019	23/08/2019	23/08/2019	23/08/2019
pH of soil for fluid# determ.	pH units	9.7	9.7	9.6	9.3	9.7
pH of soil TCLP (after HCl)	pH units	1.9	1.9	1.9	1.7	1.8
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	5.3	5.1	5.1	5.1	5.2
Nickel in TCLP	mg/L	0.1	0.09	0.09	0.08	0.1

Metals in TCLP USEPA1311		
Our Reference		223661-A-71
Your Reference	UNITS	DUPAM108
Depth		-
Date Sampled		09/08/2019
Type of sample		Soil
Date extracted	-	23/08/2019
Date analysed	-	23/08/2019
pH of soil for fluid# determ.	pH units	9.7
pH of soil TCLP (after HCl)	pH units	1.8
Extraction fluid used	-	1
pH of final Leachate	pH units	5.2
Nickel in TCLP	mg/L	0.1

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP) using Zero Headspace Extraction (zHE) using AS4439 and USEPA 1311.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using in house method INORG-004. Please note that the mass used may be scaled down from the default based on sample mass available.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

QUALITY CONTROL: Metals in TCLP USEPA1311					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	223661-A-29
Date extracted	-			23/08/2019	6	23/08/2019	23/08/2019		23/08/2019	23/08/2019
Date analysed	-			23/08/2019	6	23/08/2019	23/08/2019		23/08/2019	23/08/2019
Lead in TCLP	mg/L	0.03	Metals-020 ICP-AES	<0.03	6	<0.03	<0.03	0	89	91
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	50	0.1	0.1	0	92	92

QUALITY CONTROL: Metals in TCLP USEPA1311					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	50	23/08/2019	23/08/2019		[NT]	[NT]
Date analysed	-			[NT]	50	23/08/2019	23/08/2019		[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32465BD, Liverpool
Envirolab Reference	223661-A
Date Sample Received	11/02/2019
Date Instructions Received	21/08/2019
Date Results Expected to be Reported	28/08/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	73 Soil, 2 Water, 1 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	18.1
Cooling Method	None
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	On Hold
JKE109-0.045-0.2							✓
JKE109-0.4-0.6							✓
JKE109-0.6-0.95							✓
JKE109-1.6-1.95							✓
JKE109-3.0-3.2							✓
JKE112-0-0.02	✓	✓	✓	✓	✓		
JKE112-0.5-0.95							✓
JKE112-1.3-1.5							✓
JKE113-0-0.2							✓
JKE113-0.2-0.3							✓
JKE114-0-0.2							✓
JKE115-0-0.2							✓
JKE115-0.2-0.4							✓
JKE115-0.9-1.1							✓
JKE116-0-0.2							✓
JKE116-0.6-0.8							✓
JKE117-0-0.2							✓
JKE117-0.4-0.6							✓
JKE118-0-0.2							✓
JKE118-1.0-1.5							✓
JKE119-0-0.2							✓
JKE122-0.04-0.2							✓
JKE122-0.5-0.8							✓
JKE122-0.8-1.0							✓
JKE122-1.5-1.95							✓
JKE123-0.03-0.2							✓
JKE123-0.5-0.8							✓
JKE123-0.8-0.95							✓
JKE124-0.05-0.2	✓	✓	✓	✓		✓	
JKE124-0.2-0.3							✓
JKE124-0.3-0.5							✓
JKE124-0.6-0.95							✓

Sample ID	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	On Hold
JKE125-0.05-0.2	✓	✓	✓	✓		✓	
JKE125-0.2-0.4							✓
JKE125-0.4-0.7							✓
JKE125-0.7-0.95							✓
JKE126-0.08-0.2	✓	✓	✓	✓		✓	
JKE126-0.3-0.5							✓
JKE126-0.5-0.95							✓
JKE127-0.06-0.3	✓	✓	✓	✓		✓	
JKE127-0.3-0.5							✓
JKE127-0.6-0.95							✓
JKE128-0.08-0.2	✓	✓	✓	✓		✓	
JKE128-0.3-0.4	✓	✓	✓	✓		✓	
JKE128-0.4-0.6							✓
JKE129-0.09-0.25	✓	✓	✓	✓		✓	
JKE129-0.25-0.3							✓
JKE130-0.07-0.2	✓	✓	✓	✓		✓	
JKE130-0.2-0.25	✓	✓	✓	✓		✓	
JKE131-0.07-0.2	✓	✓	✓	✓		✓	
JKE131-0.2-0.3							✓
JKE132-0.08-0.15	✓	✓	✓	✓		✓	
JKE132-0.15-0.3							✓
JKE133-0.08-0.2	✓	✓	✓	✓		✓	
JKE133-0.2-0.3	✓	✓	✓	✓		✓	
JKE134-0-0.2							✓
JKE134-0.5-0.95							✓
JKE134-1.5-1.7							✓
JKE135-0.05-0.25	✓	✓	✓	✓		✓	
JKE135-0.25-0.4							✓
JKE135-0.4-0.6							✓
JKE135-1.5-1.7							✓
JKE136-0-0.2							✓
JKE136-0.4-0.8							✓

Sample ID	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	On Hold
JKE136-1.5-1.7							✓
JKE137-0.04-0.2							✓
JKE137-0.5-0.7							✓
JKE137-0.7-0.95							✓
DUPAM104							✓
DUPAM105							✓
DUPAM108	✓	✓	✓	✓		✓	
TB4							✓
TS2							✓
FRAM101							✓
FRRK1							✓
AMF1							✓
JKE117 - [TRIPLICATE]-0-0.2							✓
JKE123 - [TRIPLICATE]-0.8-0.95							✓
JKE127 - [TRIPLICATE]-0.3-0.5							✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Andrew Fitzsimons

From: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Sent: Wednesday, 21 August 2019 5:50 PM
To: Samplereceipt
Subject: Additional Analysis Request 223661 Liverpool

Follow Up Flag: Follow up
Flag Status: Flagged

Hi,

Can I please schedule TCLP on the samples as per below:

Ref: 223661-A
TAT: Std
Due: 28/8/19

Sample Ref	Sample Depth	Analyte
JKE112	0-0.02 6	Lead
JKE124	0.05-0.2 29	Nickel
JKE125	0.05-0.2 33	Nickel
JKE126	0.08-0.2 37	Nickel
JKE127	0.06-0.3 40	Nickel
JKE128	0.08-0.2 43	Nickel
JKE128	0.3-0.4 44	Nickel
JKE129	0.09-0.25 46	Nickel
JKE130	0.07-0.2 48	Nickel
JKE130	0.2-0.25 49	Nickel
JKE131	0.07-0.2 50	Nickel
JKE132	0.08-0.15 52	Nickel
JKE133	0.08-0.2 54	Nickel
JKE133	0.2-0.3 55	Nickel
JKE135	0.05-0.25 59	Nickel
DUPAM108	- 71	Nickel

Standard TA is fine.

Many thanks.

Regards
Mitchell Delaney
Senior Associate | Environmental Scientist



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MACQUARIE PARK NSW 2113

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CERTIFICATE OF ANALYSIS 225210

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	E32465BD, Liverpool
Number of Samples	14 Soil, 1 Water, 1 Material
Date samples received	02/09/2019
Date completed instructions received	02/09/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	09/09/2019
Date of Issue	09/09/2019
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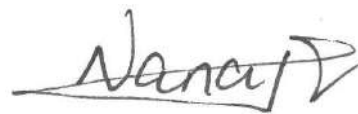
Asbestos Approved By

Analysed by Asbestos Approved Identifier: Aida Marner
 Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Jeremy Faircloth, Operations Manager, Sydney
 Josh Williams, Chemist
 Ken Nguyen, Reporting Supervisor
 Lucy Zhu, Senior Asbestos Analyst
 Nick Sarlamis, Inorganics Supervisor
 Steven Luong, Organics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		225210-1	225210-2	225210-3	225210-5	225210-6
Your Reference	UNITS	JKE138	JKE138	JKE139	JKE139	JKE140
Depth		0-0.05	0.05-0.2	0-0.2	0.3-0.5	0-0.2
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	04/09/2019	04/09/2019	04/09/2019	04/09/2019	04/09/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	78	91	96	83	92

vTRH(C6-C10)/BTEXN in Soil

Our Reference		225210-7	225210-9	225210-11	225210-16
Your Reference	UNITS	JKE140	JKE140	DUPAM201	TS201
Depth		0.2-0.4	0.9-1.1	-	-
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	04/09/2019	04/09/2019	04/09/2019	04/09/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	[NA]
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	[NA]
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	86%
Toluene	mg/kg	<0.5	<0.5	<0.5	84%
Ethylbenzene	mg/kg	<1	<1	<1	86%
m+p-xylene	mg/kg	<2	<2	<2	79%
o-Xylene	mg/kg	<1	<1	<1	100%
naphthalene	mg/kg	<1	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<3	<3	<3	[NA]
Surrogate aaa-Trifluorotoluene	%	113	98	100	97

svTRH (C10-C40) in Soil

Our Reference		225210-1	225210-2	225210-3	225210-5	225210-6
Your Reference	UNITS	JKE138	JKE138	JKE139	JKE139	JKE140
Depth		0-0.05	0.05-0.2	0-0.2	0.3-0.5	0-0.2
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	280	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	240	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	260	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	510	<50	<50	<50	<50
Surrogate o-Terphenyl	%	89	87	87	78	92

svTRH (C10-C40) in Soil

Our Reference		225210-7	225210-9	225210-11
Your Reference	UNITS	JKE140	JKE140	DUPAM201
Depth		0.2-0.4	0.9-1.1	-
Date Sampled		30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	03/09/2019	03/09/2019	03/09/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	88	77	83

PAHs in Soil						
Our Reference		225210-1	225210-2	225210-3	225210-5	225210-6
Your Reference	UNITS	JKE138	JKE138	JKE139	JKE139	JKE140
Depth		0-0.05	0.05-0.2	0-0.2	0.3-0.5	0-0.2
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.4
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.7
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.6
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.4
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	3.3
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	128	114	111	110	119

PAHs in Soil				
Our Reference		225210-7	225210-9	225210-11
Your Reference	UNITS	JKE140	JKE140	DUPAM201
Depth		0.2-0.4	0.9-1.1	-
Date Sampled		30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	03/09/2019	03/09/2019	03/09/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	104	115	111

Organochlorine Pesticides in soil						
Our Reference		225210-1	225210-2	225210-3	225210-5	225210-6
Your Reference	UNITS	JKE138	JKE138	JKE139	JKE139	JKE140
Depth		0-0.05	0.05-0.2	0-0.2	0.3-0.5	0-0.2
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	101	98	95	98	107

Organochlorine Pesticides in soil				
Our Reference		225210-7	225210-9	225210-11
Your Reference	UNITS	JKE140	JKE140	DUPAM201
Depth		0.2-0.4	0.9-1.1	-
Date Sampled		30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	03/09/2019	03/09/2019	03/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	98	94

Organophosphorus Pesticides						
Our Reference		225210-1	225210-2	225210-3	225210-5	225210-6
Your Reference	UNITS	JKE138	JKE138	JKE139	JKE139	JKE140
Depth		0-0.05	0.05-0.2	0-0.2	0.3-0.5	0-0.2
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	101	98	95	98	107

Organophosphorus Pesticides				
Our Reference		225210-7	225210-9	225210-11
Your Reference	UNITS	JKE140	JKE140	DUPAM201
Depth		0.2-0.4	0.9-1.1	-
Date Sampled		30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	03/09/2019	03/09/2019	03/09/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	98	94

PCBs in Soil						
Our Reference		225210-1	225210-2	225210-3	225210-5	225210-6
Your Reference	UNITS	JKE138	JKE138	JKE139	JKE139	JKE140
Depth		0-0.05	0.05-0.2	0-0.2	0.3-0.5	0-0.2
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	101	98	95	98	107

PCBs in Soil				
Our Reference		225210-7	225210-9	225210-11
Your Reference	UNITS	JKE140	JKE140	DUPAM201
Depth		0.2-0.4	0.9-1.1	-
Date Sampled		30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	03/09/2019	03/09/2019	03/09/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	98	94

Acid Extractable metals in soil

Our Reference		225210-1	225210-2	225210-3	225210-5	225210-6
Your Reference	UNITS	JKE138	JKE138	JKE139	JKE139	JKE140
Depth		0-0.05	0.05-0.2	0-0.2	0.3-0.5	0-0.2
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Arsenic	mg/kg	<4	<4	<4	<4	13
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	14	3	18	25
Copper	mg/kg	24	10	4	8	63
Lead	mg/kg	39	21	9	23	64
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	5	2	8	6
Zinc	mg/kg	590	38	27	15	160

Acid Extractable metals in soil

Our Reference		225210-7	225210-9	225210-11	225210-13
Your Reference	UNITS	JKE140	JKE140	DUPAM201	TB201
Depth		0.2-0.4	0.9-1.1	-	-
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Arsenic	mg/kg	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	12	5	2
Copper	mg/kg	4	6	5	<1
Lead	mg/kg	19	13	6	<1
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	3	3	<1
Zinc	mg/kg	14	8	24	1

Moisture						
Our Reference	UNITS	225210-1	225210-2	225210-3	225210-5	225210-6
Your Reference		JKE138	JKE138	JKE139	JKE139	JKE140
Depth		0-0.05	0.05-0.2	0-0.2	0.3-0.5	0-0.2
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	04/09/2019	04/09/2019	04/09/2019	04/09/2019	04/09/2019
Moisture	%	28	13	9.6	20	32

Moisture					
Our Reference	UNITS	225210-7	225210-9	225210-11	225210-13
Your Reference		JKE140	JKE140	DUPAM201	TB201
Depth		0.2-0.4	0.9-1.1	-	-
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	03/09/2019	03/09/2019	03/09/2019	03/09/2019
Date analysed	-	04/09/2019	04/09/2019	04/09/2019	04/09/2019
Moisture	%	19	18	9.5	0.4

Asbestos ID - soils NEPM - ASB-001

Our Reference		225210-1	225210-2	225210-3	225210-5	225210-6
Your Reference	UNITS	JKE138	JKE138	JKE139	JKE139	JKE140
Depth		0-0.05	0.05-0.2	0-0.2	0.3-0.5	0-0.2
Date Sampled		30/08/2019	30/08/2019	30/08/2019	30/08/2019	30/08/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	05/09/2019	05/09/2019	05/09/2019	05/09/2019	05/09/2019
Sample mass tested	g	384.73	649.72	738.71	492.65	473.54
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown sandy soil & rocks	Brown clayey soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001		
Our Reference		225210-7
Your Reference	UNITS	JKE140
Depth		0.2-0.4
Date Sampled		30/08/2019
Type of sample		Soil
Date analysed	-	05/09/2019
Sample mass tested	g	536.2
Sample Description	-	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected
ACM >7mm Estimation*	g	—
FA and AF Estimation*	g	—
ACM >7mm Estimation*	%(w/w)	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001

Asbestos ID - materials		
Our Reference	UNITS	225210-15
Your Reference		AMF101
Depth		-
Date Sampled		30/08/2019
Type of sample		Material
Date analysed	-	03/09/2019
Mass / Dimension of Sample	-	45x36x7mm
Sample Description	-	Brown layered fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Organic fibres detected

sPOCAS + %S w/w			
Our Reference		225210-9	225210-10
Your Reference	UNITS	JKE140	JKE140
Depth		0.9-1.1	1.1-1.3
Date Sampled		30/08/2019	30/08/2019
Type of sample		Soil	Soil
Date prepared	-	06/09/2019	06/09/2019
Date analysed	-	06/09/2019	06/09/2019
pH _{KCl}	pH units	5.7	3.8
TAA pH 6.5	moles H ⁺ /t	5	49
s-TAA pH 6.5	%w/w S	<0.01	0.08
pH _{ox}	pH units	4.6	4.0
TPA pH 6.5	moles H ⁺ /t	<5	76
s-TPA pH 6.5	%w/w S	<0.01	0.12
TSA pH 6.5	moles H ⁺ /t	<5	28
s-TSA pH 6.5	%w/w S	<0.01	0.04
ANC _E	% CaCO ₃	<0.05	<0.05
a-ANC _E	moles H ⁺ /t	<5	<5
s-ANC _E	%w/w S	<0.05	<0.05
S _{KCl}	%w/w S	0.02	0.04
S _P	%w/w	0.03	0.04
S _{POS}	%w/w	0.009	<0.005
a-S _{POS}	moles H ⁺ /t	6	<5
Ca _{KCl}	%w/w	0.16	0.06
Ca _P	%w/w	0.16	0.06
Ca _A	%w/w	<0.005	<0.005
Mg _{KCl}	%w/w	0.086	0.098
Mg _P	%w/w	0.094	0.096
Mg _A	%w/w	0.008	<0.005
S _{HCl}	%w/w S	<0.005	0.045
S _{NAS}	%w/w S	<0.005	0.006
a-S _{NAS}	moles H ⁺ /t	<5	<5
s-S _{NAS}	%w/w S	<0.01	<0.01
Fineness Factor	-	1.5	1.5
a-Net Acidity	moles H ⁺ /t	11	53
s-Net Acidity	%w/w S	0.02	0.09
Liming rate	kg CaCO ₃ /t	0.80	4.0
s-Net Acidity without -ANCE	%w/w S	0.017	0.086
a-Net Acidity without ANCE	moles H ⁺ /t	11	53
Liming rate without ANCE	kg CaCO ₃ /t	0.80	4.0

vTRH(C6-C10)/BTEXN in Water		
Our Reference		225210-14
Your Reference	UNITS	FRAM201
Depth		-
Date Sampled		30/08/2019
Type of sample		Water
Date extracted	-	03/09/2019
Date analysed	-	04/09/2019
TRH C ₆ - C ₉	µg/L	<10
TRH C ₆ - C ₁₀	µg/L	<10
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	102
Surrogate toluene-d8	%	99
Surrogate 4-BFB	%	103

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) NOTE #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-064	sPOCAS determined using titrimetric and ICP-AES techniques. Based on Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).

Method ID	Methodology Summary
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	225210-2
Date extracted	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
Date analysed	-			04/09/2019	1	04/09/2019	04/09/2019		04/09/2019	04/09/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	1	<25	<25	0	93	93
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	1	<25	<25	0	93	93
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	94	90
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	88	93
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	98	96
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	95	93
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	92	92
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	99	1	78	73	7	92	91

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	225210-2
Date extracted	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
Date analysed	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	1	<50	<50	0	88	77
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	1	<100	140	33	86	78
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	1	280	420	40	77	96
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	1	<50	<50	0	88	77
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	1	240	420	55	86	78
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	1	260	420	47	77	96
Surrogate o-Terphenyl	%		Org-003	85	1	89	97	9	97	87

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	225210-2
Date extracted	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
Date analysed	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	105	116
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	110	112
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	105	104
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	0.1	0	107	104
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	0.1	0	110	107
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	0.2	67	124	120
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	<0.05	0.05	0	113	116
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	120	1	128	118	8	110	105

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	225210-2
Date extracted	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
Date analysed	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
HCB	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	88	89
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	93	86
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	87	81
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	96	91
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	99	92
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	96	91
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	115	107
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	94	89
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	89	84
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	82	92
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	101	1	101	97	4	95	90

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	225210-2
Date extracted	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
Date analysed	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	99	93
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	102	99
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	94	90
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	104	102
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	102	103
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	108	108
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	96	95
Surrogate TCMX	%		Org-008	101	1	101	97	4	95	90

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	225210-2
Date extracted	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
Date analysed	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	117	115
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	101	1	101	97	4	95	90

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	225210-2
Date prepared	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
Date analysed	-			03/09/2019	1	03/09/2019	03/09/2019		03/09/2019	03/09/2019
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	103	90
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	100	88
Chromium	mg/kg	1	Metals-020	<1	1	13	14	7	107	94
Copper	mg/kg	1	Metals-020	<1	1	24	20	18	104	102
Lead	mg/kg	1	Metals-020	<1	1	39	40	3	107	93
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	111	100
Nickel	mg/kg	1	Metals-020	<1	1	7	6	15	100	89
Zinc	mg/kg	1	Metals-020	<1	1	590	400	38	104	87

QUALITY CONTROL: sPOCAS + %S w/w					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			06/09/2019	[NT]	[NT]	[NT]	[NT]	06/09/2019	[NT]
Date analysed	-			06/09/2019	[NT]	[NT]	[NT]	[NT]	06/09/2019	[NT]
pH _{KCl}	pH units		Inorg-064	[NT]	[NT]	[NT]	[NT]	[NT]	88	[NT]
TAA pH 6.5	moles H ⁺ /t	5	Inorg-064	<5	[NT]	[NT]	[NT]	[NT]	85	[NT]
s-TAA pH 6.5	%w/w S	0.01	Inorg-064	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pH _{Ox}	pH units		Inorg-064	[NT]	[NT]	[NT]	[NT]	[NT]	93	[NT]
TPA pH 6.5	moles H ⁺ /t	5	Inorg-064	<5	[NT]	[NT]	[NT]	[NT]	110	[NT]
s-TPA pH 6.5	%w/w S	0.01	Inorg-064	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
TSA pH 6.5	moles H ⁺ /t	5	Inorg-064	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
s-TSA pH 6.5	%w/w S	0.01	Inorg-064	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
ANC _E	% CaCO ₃	0.05	Inorg-064	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
a-ANC _E	moles H ⁺ /t	5	Inorg-064	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
s-ANC _E	%w/w S	0.05	Inorg-064	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
S _{KCl}	%w/w S	0.005	Inorg-064	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
S _P	%w/w	0.005	Inorg-064	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
S _{POS}	%w/w	0.005	Inorg-064	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
a-S _{POS}	moles H ⁺ /t	5	Inorg-064	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ca _{KCl}	%w/w	0.005	Inorg-064	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ca _P	%w/w	0.005	Inorg-064	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ca _A	%w/w	0.005	Inorg-064	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mg _{KCl}	%w/w	0.005	Inorg-064	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mg _P	%w/w	0.005	Inorg-064	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mg _A	%w/w	0.005	Inorg-064	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
S _{HCl}	%w/w S	0.005	Inorg-064	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
S _{NAS}	%w/w S	0.005	Inorg-064	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
a-S _{NAS}	moles H ⁺ /t	5	Inorg-064	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
s-S _{NAS}	%w/w S	0.01	Inorg-064	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fineness Factor	-	1.5	Inorg-064	<1.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
a-Net Acidity	moles H ⁺ /t	5	Inorg-064	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
s-Net Acidity	%w/w S	0.01	Inorg-064	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Liming rate	kg CaCO ₃ /t	0.75	Inorg-064	<0.75	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
s-Net Acidity without -ANCE	%w/w S	0.01	Inorg-064	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: sPOCAS + %S w/w					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
a-Net Acidity without ANCE	moles H ⁺ /t	5	Inorg-064	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Liming rate without ANCE	kg CaCO ₃ /t	0.75	Inorg-064	<0.75	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			03/09/2019	[NT]	[NT]	[NT]	[NT]	03/09/2019	[NT]
Date analysed	-			04/09/2019	[NT]	[NT]	[NT]	[NT]	04/09/2019	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	85	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	85	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	87	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	83	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	84	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	102	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate toluene-d8	%		Org-016	106	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-BFB	%		Org-016	95	[NT]	[NT]	[NT]	[NT]	99	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Report Comments

vTRH & BTEXN in Water NEPM - Only 1 vial supplied for analysis. Envirolab recommends that two 40mL VOA vials preserved with Hydrochloric Acid (HCl) or similar is supplied for the analysis of VOC/BTEX.

Asbestos-ID in soil: NEPM

This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Note: All samples analysed as received. However, sample 225210-1 was below the minimum 500mL sample volume as per National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32465BD, Liverpool
Envirolab Reference	225210
Date Sample Received	02/09/2019
Date Instructions Received	02/09/2019
Date Results Expected to be Reported	09/09/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	14 Soil, 1 Water, 1 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	15.5
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	sPOCAS + %S w/w	vTRH(C6-C10)/BTEXN in Water	On Hold
JKE138-0-0.05	✓	✓	✓	✓	✓	✓	✓	✓				
JKE138-0.05-0.2	✓	✓	✓	✓	✓	✓	✓	✓				
JKE139-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓				
JKE139-0.25-0.3												✓
JKE139-0.3-0.5	✓	✓	✓	✓	✓	✓	✓	✓				
JKE140-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓				
JKE140-0.2-0.4	✓	✓	✓	✓	✓	✓	✓	✓				
JKE140-0.6-0.9												✓
JKE140-0.9-1.1	✓	✓	✓	✓	✓	✓	✓			✓		
JKE140-1.1-1.3										✓		
DUPAM201	✓	✓	✓	✓	✓	✓	✓					
DUPAM202												✓
TB201							✓					
FRAM201											✓	
AMF101									✓			
TS201	✓											

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E32465BD Date Results Required: STANDARD Page: 1/1	FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitchell Delaney

Location: Liverpool		Sample Preserved in Esky on Ice																
Sampler: AM		Tests Required																
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	Asbestos (WA 500ml method)	SPOCAS	BTEX	TRH/BTEX	Heavy Metals	Asbestos					
30.8.19	1	JKE138	0-0.05	G, A	1.6	Fill: Silty Clay	X	X										
30.8.19	2	JKE138	0.05-0.2	G, A	0.1	Fill: Silty Clay	X	X										
30.8.19	3	JKE139	0-0.2	G, A	0.3	Fill: Silty Clayey Sand	X	X										
30.8.19	4	JKE139	0.25-0.3	G, A	0.2	Fill: Silty Clay												
30.8.19	5	JKE139	0.3-0.5	G, A	0.3	Fill: Silty Clay	X	X										
30.8.19	6	JKE140	0-0.2	G, A, P	0.2	Fill: Silty Clayey Sand	X	X										
30.8.19	7	JKE140	0.2-0.4	G, A, P	0.1	Fill: Silty Clay	X	X										
30.8.19	8	JKE140	0.6-0.9	G, A, P	0.3	Fill: Silty Clay												
30.8.19	9	JKE140	0.9-1.1	G, A, P	0.3	Silty Clay	X		X									
30.8.19	10	JKE140	1.1-1.3	P	-	Silty Clay			X									
30.8.19	11	DUPAM201	-	G	-	DUP Soil	X											
30.8.19	12	DUPAM202	-	G	-	DUP Soil												
30.8.19	13	TB201	-	G	-	Trip Blank						X						
30.8.19	14	FRAM201	-	V	-	Field Rinsate				X								
30.8.19	15	AMF101	Surface	A	-	Fragment							X					
30.8.19	16	TS 201	Surface	V	-	Sand				X								
Remarks (comments/detection limits required):							Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag											
							Relinquished By: MD Date: 2/9/19 Time: 12:37 Received By: S. Bolton Date: 02/09/19											
							Date Received: 02/09/19 Time Received: 12:37 Received by: STB Temp: Ambient Cooling: Ice/Perk Security: Intact/Broken/None											

CERTIFICATE OF ANALYSIS 17672

Client Details

Client	Environmental Investigation Services
Attention	Mitch Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32465BD</u>
Number of Samples	1 Soil
Date samples received	08/08/2019
Date completed instructions received	08/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	13/08/2019
Date of Issue	13/08/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Chris De Luca, Operations Manager

Authorised By



Pamela Adams, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		17672-1
Your Reference	UNITS	DUPAM103
Date Sampled		01/08/2019
Type of sample		Soil
Date extracted	-	09/08/2019
Date analysed	-	09/08/2019
vTRH C ₆ - C ₉	mg/kg	<25
vTRH C ₆ - C ₁₀	mg/kg	<25
TRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	100

TRH Soil C10-C40 NEPM		
Our Reference		17672-1
Your Reference	UNITS	DUPAM103
Date Sampled		01/08/2019
Type of sample		Soil
Date extracted	-	09/08/2019
Date analysed	-	09/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100
TRH C ₂₉ - C ₃₆	mg/kg	190
Total +ve TRH (C10-C36)	mg/kg	190
TRH >C ₁₀ -C ₁₆	mg/kg	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50
TRH >C ₁₆ -C ₃₄	mg/kg	220
TRH >C ₃₄ -C ₄₀	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	220
Surrogate o-Terphenyl	%	82

PAHs in Soil		
Our Reference		17672-1
Your Reference	UNITS	DUPAM103
Date Sampled		01/08/2019
Type of sample		Soil
Date extracted	-	08/08/2019
Date analysed	-	10/08/2019
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	0.5
Pyrene	mg/kg	0.5
Benzo(a)anthracene	mg/kg	0.2
Chrysene	mg/kg	0.3
Benzo(b,j&k)fluoranthene	mg/kg	0.7
Benzo(a)pyrene	mg/kg	0.48
Indeno(1,2,3-c,d)pyrene	mg/kg	0.3
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	0.4
Total +ve PAH's	mg/kg	3.5
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.6
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.7
Benzo(a)pyrene TEQ calc (PQL)	mg/kg	0.7
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	98

OCP in Soil		
Our Reference		17672-1
Your Reference	UNITS	DUPAM103
Date Sampled		01/08/2019
Type of sample		Soil
Date extracted	-	08/08/2019
Date analysed	-	10/08/2019
alpha-BHC	mg/kg	<0.1
Hexachlorobenzene	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve reported DDT+DDD+DDE	mg/kg	<0.1
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	98

OP in Soil		
Our Reference		17672-1
Your Reference	UNITS	DUPAM103
Date Sampled		01/08/2019
Type of sample		Soil
Date extracted	-	08/08/2019
Date analysed	-	10/08/2019
Azinphos-methyl	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyrifos	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorovos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	98

PCBs in Soil		
Our Reference		17672-1
Your Reference	UNITS	DUPAM103
Date Sampled		01/08/2019
Type of sample		Soil
Date extracted	-	08/08/2019
Date analysed	-	10/08/2019
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	98

Acid Extractable metals in soil		
Our Reference		17672-1
Your Reference	UNITS	DUPAM103
Date Sampled		01/08/2019
Type of sample		Soil
Date digested	-	12/08/2019
Date analysed	-	12/08/2019
Arsenic	mg/kg	4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	42
Copper	mg/kg	34
Lead	mg/kg	41
Mercury	mg/kg	<0.1
Nickel	mg/kg	8
Zinc	mg/kg	90

Moisture		
Our Reference	UNITS	17672-1
Your Reference		DUPAM103
Date Sampled		01/08/2019
Type of sample		Soil
Date prepared	-	09/08/2019
Date analysed	-	12/08/2019
Moisture	%	12

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 12 hours.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Note, For OCs the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD or GC-MS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			09/08/2019	[NT]	[NT]	[NT]	[NT]	09/08/2019	[NT]
Date analysed	-			09/08/2019	[NT]	[NT]	[NT]	[NT]	09/08/2019	[NT]
vTRH C ₆ - C ₉	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	94	[NT]
vTRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	94	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	97	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	95	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	93	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	98	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: TRH Soil C10-C40 NEPM						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			09/08/2019	[NT]	[NT]	[NT]	[NT]	09/08/2019	[NT]
Date analysed	-			09/08/2019	[NT]	[NT]	[NT]	[NT]	09/08/2019	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
Surrogate o-Terphenyl	%		Org-003	88	[NT]	[NT]	[NT]	[NT]	84	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			08/08/2019	[NT]	[NT]	[NT]	[NT]	08/08/2019	[NT]
Date analysed	-			10/08/2019	[NT]	[NT]	[NT]	[NT]	10/08/2019	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Benzo(b,j&k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	[NT]	[NT]	96	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d ₁₄	%		Org-012	92	[NT]	[NT]	[NT]	[NT]	90	[NT]

QUALITY CONTROL: OCP in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			08/08/2019	[NT]	[NT]	[NT]	[NT]	08/08/2019	[NT]
Date analysed	-			10/08/2019	[NT]	[NT]	[NT]	[NT]	10/08/2019	[NT]
alpha-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Hexachlorobenzene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
gamma-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
delta-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
gamma-Chlordane	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
alpha-chlordane	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Dieldrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Endrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	114	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Methoxychlor	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d ₁₄	%		Org-012	92	[NT]	[NT]	[NT]	[NT]	90	[NT]

QUALITY CONTROL: OP in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			08/08/2019	1	08/08/2019	08/08/2019		08/08/2019	[NT]
Date analysed	-			10/08/2019	1	10/08/2019	10/08/2019		10/08/2019	[NT]
Azinphos-methyl	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	100	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorovos	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	94	[NT]
Fenitrothion	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	88	[NT]
Malathion	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d ₁₄	%		Org-012	92	1	98	96	2	90	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			08/08/2019	[NT]	[NT]	[NT]	[NT]	08/08/2019	[NT]
Date analysed	-			10/08/2019	[NT]	[NT]	[NT]	[NT]	10/08/2019	[NT]
Aroclor 1016	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Aroclor 1260	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d ₁₄	%		Org-012	92	[NT]	[NT]	[NT]	[NT]	90	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			12/08/2019	[NT]	[NT]	[NT]	[NT]	12/08/2019	[NT]
Date analysed	-			12/08/2019	[NT]	[NT]	[NT]	[NT]	12/08/2019	[NT]
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	[NT]	[NT]	106	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	[NT]	[NT]	107	[NT]
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	[NT]	[NT]	119	[NT]
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitch Delaney

Sample Login Details

Your reference	E32465BD
Envirolab Reference	17672
Date Sample Received	08/08/2019
Date Instructions Received	08/08/2019
Date Results Expected to be Reported	14/08/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10.1
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Pamela Adams

Phone: 03 9763 2500

Fax: 03 9763 2633

Email: padams@envirolab.com.au

Analisa Mathrick

Phone: 03 9763 2500

Fax: 03 9763 2633

Email: amathrick@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	VTRH(C6-C10)/BTEXN in Soil	TRH Soil C10-C40 NEPM	PAHs in Soil	OCP in Soil	OP in Soil	PCBs in Soil	Acid Extractable metals in soil
DUPAM103	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen		EIS Job Number: E32465BD Date Results Required: STANDARD Page: 3 of 3		FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitch Delaney mdelaney@jkenvironments.com.au	

Location: Liverpool							Sample Preserved in Esky on Ice											
Sampler: AM							Tests Required											
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 3a	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos (WA Method)	Asbestos (Detection)		
2/8/19	S1	JKE121	0.4-0.85	G/A	U	F: Sandy gravel			X						X			
↓	S2		1.0-1.2	↓	↓	F: Silty clay												
↓	S3		1.5-1.7	↓	↓	Silt CLAY			X									
31/7/19	S4	DUPAM101	-	G	-	Soil			X									
1/8/19	S5	DUPAM102	-	↓	-	↓			X									
↓	S6	DUPAM103	-	↓	-	↓			X									
31/7/19	S7	TB2	56-	↓	-	Sand/Water								X				
1/8/19	S8	TB3	57-	↓	-	↓								X				
2/8/19	S9	TB4	58-	↓	-	↓								X				
3/7/19	S10	TS1	59-	Val	-	Sand								X				
3/7/19	S11	FA1	60-	Val	-	Water								X				

(Please See DUPAM103 to Environments use)


 Envirolab Services
 25 Research Drive
 Croydon South VIC 3136
 Ph: (03) 9753 2500
 Job No: 17672
 Date Received: 8/8/19
 Time Received: 13:00
 Received By: GS 10.1
 Temp: Cool Ambient
 Cooling: Ice/Icepack
 Security: Intact/Broken/None

Remarks (comments/detection limits required):		Sample Containers: G - 250mg Glass Jar P - Plastic Bag A - 500mL Ziplock Asbestos Bag A1 - 40g Ziplock Asbestos Bag	
Relinquished By: MD	Date: 6/8/19	Time:	Received By:
		Date:	

May 31/8/19

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job E32465BD Number: Date Results STANDARD Required: Page: 2 of 3	FROM: JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitch Delaney mdelaney@jkenvironments.com.au

Location: Liverpool							Sample Preserved in Esky on Ice									
Sampler: AM							Tests Required									
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 2	Combo 3a	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos (WA Method)	Asbestos (Detection)
	26	JKE107	1.5-1.95	G.A	0	↓			X						X	
	27		2.5-3.0			↓										
	28		3.1-3.4			Silt CLAY										
	29	JKE108	0.22-0.4			F: silty clayey sand			X						X	
	30		0.5-0.95			f: silty clay			X						X	
	31		1.5-1.95			↓										
	32		2.5-2.9			↓										
↓	33	↓	3.0-3.45			Silty clay	X		X							
2/8/19	34	JKE110	0.09-0.2			F: silty sand			X						X	
	35		0.4-0.6			↓										
	36		0.6-0.95			F: silty clay										
	37		1.5-1.95			F: silty clay			X						X	
↓	38	↓	3.0-3.2			Silty CLAY			X							
	39	JKE111	0-0.2			F: sandy gravel			X						X	
	40		0.5-0.7			F: clayey sand										
	41		0.7-0.95			F: silty clay										
	42		1.4-1.7			↓			X						X	
	43		1.8-2.0			F: silty clay sand			X							
	44		2.0-2.3			F: silty clay										
	45	↓	3.0-3.2			Silt CLAY			X							
2/8/19	46	JKE120	0-0.2			F: silty sand			X						X	
	47		0.5-0.95			F: sandy sand										
	48		0.85-1.1			F: silty clay			X						X	
	49	↓	1.5-1.7			Silt CLAY			X							
↓	50	JKE121	0-0.2			F: gravelly sand			X						X	

Remarks (comments/detection limits required):		Sample Containers: G - 250mg Glass Jar P - Plastic Bag A - 500mL Ziplock Asbestos Bag A1 - 40g Ziplock Asbestos Bag	
Relinquished By: <i>MD</i>	Date: <i>6/8/19</i>	Time:	Received By:
			Date:

Play

7/8/2019

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E32465BD Date Results Required: STANDARD Page: 1 of 3	FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitch Delaney mdelaney@jkenvironments.com.au

Location: Liverpool							Sample Preserved in Esky on Ice											
Sampler: AM							Tests Required											
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 3a	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos (WA Method)	Asbestos (Detection)		
31/7/19	1	JKE101	0.04-0.2	G/A	0	F: Gravelly Sand			X						X			
	2		0.5-1.1	G	0	F: Silty clay												
	3		1.4-1.7	V	0	Silty CLAY			X									
	4	V	1.7-1.9	G	0	X: Silty sand												
	5	JKE102	0.1-0.3	G, A	3	F: Gravelly Sand			X						X			
	6		0.3-0.5		57	F: Silty clay	X											
	7		1.2-1.6		120	F: Silty clay	X											
	8	V	1.6-2.0		41	Silty CLAY	X											
	9	JKE103	0-0.1		0	F: Silty sand			X						X			
	10		0.1-0.4		0	F: Silty gravel			X						X			
	11	JKE104	0-0.1		0	F: Silty clay			X						X			
	12		0.1-0.3		0	F: Silty gravel			X						X			
	13		0.7-1.0		1	F: Silty clay			X						X			
	14	V	1.5-1.7		0	Silty CLAY			X									
1/8/19	15	JKE105	0-0.1		0	F: Silty sand			X						X			
	16	V	0.5-0.95		14	F: Silty clay	X								X			
	17	JKE106	0.08-0.2		0	F: Silty clay sand			X						X			
	18		0.5-0.9		1	F: Silty clay			X						X			
	19		1.0-1.2		0													
	20		1.5-1.95		1				X						X			
	21		2.5-2.9		0													
	22		3.5-4.0		0													
	23	V	4.5-4.7		3	Silty CLAY	X											
	24	JKE107	0-0.2		0	F: Silty sand			X						X			
V	25	V	0.5-0.95	V	0	F: Silty clay												

Remarks (comments/detection limits required):

Sample Containers:

G - 250mg Glass Jar

P - Plastic Bag

A - 500mL Ziplock Asbestos Bag

A1 - 40g Ziplock Asbestos Bag

Relinquished By:

MD

Date:

6/8/19

Time:

Received By:

Ming Yan To

Date:

6/8/19

Job No:

228302

Date Received:

Time Received:

Received by:

Temp: Cool/Ambient

Cooling: Ice/Icepack

Security: Intact/Broken/None

173

None

CERTIFICATE OF ANALYSIS 17738

Client Details

Client	Environmental Investigation Services
Attention	Mitch Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32465BD - Liverpool</u>
Number of Samples	2 Soil
Date samples received	14/08/2019
Date completed instructions received	14/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	20/08/2019
Date of Issue	20/08/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Chris De Luca, Operations Manager

Authorised By



Pamela Adams, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		17738-1	17738-2
Your Reference	UNITS	DUPAM106	DUPAM107
Date Sampled		07/08/2019	08/08/2019
Type of sample		Soil	Soil
Date extracted	-	15/08/2019	15/08/2019
Date analysed	-	15/08/2019	15/08/2019
vTRH C ₆ - C ₉	mg/kg	<25	<25
vTRH C ₆ - C ₁₀	mg/kg	<25	<25
TRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	104	101

TRH Soil C10-C40 NEPM			
Our Reference		17738-1	17738-2
Your Reference	UNITS	DUPAM106	DUPAM107
Date Sampled		07/08/2019	08/08/2019
Type of sample		Soil	Soil
Date extracted	-	15/08/2019	15/08/2019
Date analysed	-	16/08/2019	16/08/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	84	85

PAHs in Soil			
Our Reference		17738-1	17738-2
Your Reference	UNITS	DUPAM106	DUPAM107
Date Sampled		07/08/2019	08/08/2019
Type of sample		Soil	Soil
Date extracted	-	15/08/2019	15/08/2019
Date analysed	-	17/08/2019	17/08/2019
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j&k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc (Half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc (PQL)	mg/kg	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	100	98

OCP in Soil			
Our Reference		17738-1	17738-2
Your Reference	UNITS	DUPAM106	DUPAM107
Date Sampled		07/08/2019	08/08/2019
Type of sample		Soil	Soil
Date extracted	-	15/08/2019	15/08/2019
Date analysed	-	17/08/2019	17/08/2019
alpha-BHC	mg/kg	<0.1	<0.1
Hexachlorobenzene	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve reported DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate p-Terphenyl-d ₁₄	%	100	98

OP in Soil			
Our Reference		17738-1	17738-2
Your Reference	UNITS	DUPAM106	DUPAM107
Date Sampled		07/08/2019	08/08/2019
Type of sample		Soil	Soil
Date extracted	-	15/08/2019	15/08/2019
Date analysed	-	17/08/2019	17/08/2019
Azinphos-methyl	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Dichlorovos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	100	98

PCBs in Soil			
Our Reference		17738-1	17738-2
Your Reference	UNITS	DUPAM106	DUPAM107
Date Sampled		07/08/2019	08/08/2019
Type of sample		Soil	Soil
Date extracted	-	15/08/2019	15/08/2019
Date analysed	-	17/08/2019	17/08/2019
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	100	98

Acid Extractable metals in soil			
Our Reference		17738-1	17738-2
Your Reference	UNITS	DUPAM106	DUPAM107
Date Sampled		07/08/2019	08/08/2019
Type of sample		Soil	Soil
Date digested	-	16/08/2019	16/08/2019
Date analysed	-	16/08/2019	16/08/2019
Arsenic	mg/kg	<4	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	11	9
Copper	mg/kg	68	19
Lead	mg/kg	6	23
Mercury	mg/kg	<0.1	0.1
Nickel	mg/kg	61	8
Zinc	mg/kg	27	58

Moisture			
Our Reference		17738-1	17738-2
Your Reference	UNITS	DUPAM106	DUPAM107
Date Sampled		07/08/2019	08/08/2019
Type of sample		Soil	Soil
Date prepared	-	15/08/2019	15/08/2019
Date analysed	-	16/08/2019	16/08/2019
Moisture	%	6.7	11

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 12 hours.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Note, For OCs the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD or GC-MS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			15/08/2019	[NT]	[NT]	[NT]	[NT]	15/08/2019	[NT]
Date analysed	-			15/08/2019	[NT]	[NT]	[NT]	[NT]	15/08/2019	[NT]
vTRH C ₆ - C ₉	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	96	[NT]
vTRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	96	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	99	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	98	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	95	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	110	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: TRH Soil C10-C40 NEPM						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			15/08/2019	[NT]	[NT]	[NT]	[NT]	15/08/2019	[NT]
Date analysed	-			16/08/2019	[NT]	[NT]	[NT]	[NT]	16/08/2019	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	96	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	96	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
Surrogate o-Terphenyl	%		Org-003	85	[NT]	[NT]	[NT]	[NT]	83	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			15/08/2019	[NT]	[NT]	[NT]	[NT]	15/08/2019	[NT]
Date analysed	-			17/08/2019	[NT]	[NT]	[NT]	[NT]	17/08/2019	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Benzo(b,j&k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	[NT]	[NT]	104	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d ₁₄	%		Org-012	90	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: OCP in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			15/08/2019	[NT]	[NT]	[NT]	[NT]	15/08/2019	[NT]
Date analysed	-			17/08/2019	[NT]	[NT]	[NT]	[NT]	17/08/2019	[NT]
alpha-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Hexachlorobenzene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
gamma-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
delta-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
gamma-Chlordane	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
alpha-chlordane	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Dieldrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Endrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Methoxychlor	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d ₁₄	%		Org-012	90	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: OP in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			15/08/2019	[NT]	[NT]	[NT]	[NT]	15/08/2019	[NT]
Date analysed	-			17/08/2019	[NT]	[NT]	[NT]	[NT]	17/08/2019	[NT]
Azinphos-methyl	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorovos	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Fenitrothion	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Malathion	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d ₁₄	%		Org-012	90	[NT]	[NT]	[NT]	[NT]	92	[NT]

Client Reference: E32465BD - Liverpool

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			15/08/2019	[NT]	[NT]	[NT]	[NT]	15/08/2019	[NT]
Date analysed	-			17/08/2019	[NT]	[NT]	[NT]	[NT]	17/08/2019	[NT]
Aroclor 1016	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Aroclor 1260	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d ₁₄	%		Org-012	90	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			16/08/2019	[NT]	[NT]	[NT]	[NT]	16/08/2019	[NT]
Date analysed	-			16/08/2019	[NT]	[NT]	[NT]	[NT]	16/08/2019	[NT]
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	[NT]	[NT]	97	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	[NT]	[NT]	100	[NT]
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitch Delaney

Sample Login Details

Your reference	E32465BD - Liverpool
Envirolab Reference	17738
Date Sample Received	14/08/2019
Date Instructions Received	14/08/2019
Date Results Expected to be Reported	20/08/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	2 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	8.6C
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Pamela Adams

Phone: 03 9763 2500

Fax: 03 9763 2633

Email: padams@envirolab.com.au

Analisa Mathrick

Phone: 03 9763 2500

Fax: 03 9763 2633

Email: amathrick@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	VTRH(C6-C10)/BTEXN in Soil	TRH Soil C10-C40 NEPM	PAHs in Soil	OCP in Soil	OP in Soil	PCBs in Soil	Acid Extractable metals in soil
DUPAM106	✓	✓	✓	✓	✓	✓	✓
DUPAM107	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E32465BD Date Results Required: STANDARD Page: 3	FROM: REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitchell Delaney

Location:		Liverpool					Sample Preserved in Esky on Ice												
Sampler:		AM					Tests Required												
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	Asbestos (500ml Sample)	pH, CEC and clay content	BTEX									
9.8.19	51	JKE131	0.2-0.3	G, A	0	Fill: Silty Clay	X	X											
9.8.19	52	JKE132	0.08-0.15	G, A	0	Fill: Gravelly	X	X											
9.8.19	53	JKE132	0.15-0.3	G, A	0	Fill: Silty Clay	X												
9.8.19	54	JKE133	0.08-0.2	G, A	0	Fill: Gravelly Sand	X	X											
9.8.19	55	JKE133	0.2-0.3	G, A	0	Fill: Silty Clay	X												
8.8.19	56	JKE134	0-0.2	G, A	0	Fill: Silty Sand	X	X	X										
8.8.19	57	JKE134	0.5-0.95	G, A	0	Fill: Silty Clayey Sand	X	X											
8.8.19	58	JKE134	1.5-1.7	G, A	0	Silty Clay	X												
8.8.19	59	JKE135	0.05-0.25	G, A	0	Fill: Gravelly Sand	X	X											
8.8.19	60	JKE135	0.25-0.4	G, A	0	Fill: Sandy Gravel													
8.8.19	61	JKE135	0.4-0.6	G, A	0	Fill: Silty Clay	X	X											
8.8.19	62	JKE135	1.5-1.7	G, A	0	Silty Clay	X												
8.8.19	63	JKE136	0-0.2	G, A	0	Fill: Silty Clay	X	X											
8.8.19	64	JKE136	0.4-0.8	G, A	0	Fill: Silty Clay	X	X											
8.8.19	65	JKE136	1.5-1.7	G, A	0	Silty Clay	X												
8.8.19	66	JKE137	0.04-0.2	G, A	0	Fill: Silty Clay	X	X											
8.8.19	67	JKE137	0.5-0.7	G, A	0	Fill: Silty Clay	X												
8.8.19	68	JKE137	0.7-0.95	G, A	0	Silty Clay													
5.8.19	69	DUPAM104	-	G	-	DUP Soil	X												
6.8.19	70	DUPAM105	-	G	-	DUP Soil													
7.8.19	-	DUPAM106	-	G	-	DUP Soil	X												
8.8.19	-	DUPAM107	-	G	-	DUP Soil	X												
9.8.19	71	DUPAM108	-	G	-	DUP Soil	X												
9.8.19	72	TB4	-	G	-	Trip Blank Soil													
✓	73	TS2	-	V	-	Trip Spike Soil													

ENVIROLAB

EnviroLab Serv
25 Research Dr
Croydon South VIC 3
Ph (03) 9763 2

Job No: 17738

Date Received: 14/8/19

Time Received: 11

Received By: GS 8

Temp: Cool/Ambient

Coding: Ice/Icepack

Security: Intact/Broken/None

(please Send to EnviroLab VIC)

(please Send to EnviroLab VIC)

Remarks (comments/detection limits required):		Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	
		Relinquished By: <i>MD</i>	Date: 12/8/19
		Time:	Received By: <i>ELS Mitchell c. O'Brien</i>
			Date:

63
64
65
66
67
68

1
2

Envirolab Services
 25 Research Drive
 Craydon South VIC 3136
 Ph: (03) 9763 2500
 Job No: 17738
 Date Received: 14/8/19
 Time Received: 11:11
 Received By: *GS*
 Temp: Cool/Ambient
 Cooling: Ice/Icepack
 Security: Intact/Broken/None

(please Send to Envirolab VIC)
 (please Send to Envirolab VIC)

ELS Syd K. Gore 13.08.2019 JOBID: 223661

CERTIFICATE OF ANALYSIS 17738-A

Client Details

Client	Environmental Investigation Services
Attention	Mitch Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32465BD - Liverpool</u>
Number of Samples	2 Soil
Date samples received	14/08/2019
Date completed instructions received	21/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	27/08/2019
Date of Issue	22/08/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Chris De Luca, Operations Manager

Authorised By



Pamela Adams, Laboratory Manager

Metals in TCLP USEPA1311		
Our Reference		17738-A-1
Your Reference	UNITS	DUPAM106
Date Sampled		07/08/2019
Type of sample		Soil
Date extracted	-	21/08/2019
Date analysed	-	22/08/2019
pH of soil for ASLP	pH units	9.5
pH of soil ASLP (after HCl)	pH units	1.7
Extraction fluid used	-	1
pH of final Leachate	pH units	5.1
Nickel in TCLP	mg/L	0.1

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only as analysis outside of the APHA storage times.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311. Please note that the sample mass used may be scaled down from the default based on the sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

Client Reference: E32465BD - Liverpool

QUALITY CONTROL: Metals in TCLP USEPA1311						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			21/08/2019	[NT]	[NT]	[NT]	[NT]	21/08/2019	[NT]
Date analysed	-			22/08/2019	[NT]	[NT]	[NT]	[NT]	22/08/2019	[NT]
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	[NT]	[NT]	94	[NT]

Result Definitions

NT	Not tested
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INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
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RPD	Relative Percent Difference
LCS	Laboratory Control Sample
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17738-A

Chris De Luca

From: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Sent: Wednesday, 21 August 2019 4:29 PM
To: Chris De Luca
Subject: Additional Analysis 17738 - Liverpool

Hi Chris,

#1

Can I please schedule TCLP analysis for nickel on the sample DUPAM106.

Many thanks.

Regards
Mitchell Delaney
Senior Associate | Environmental Scientist



T: +612 9888 5000
E: MDelaney@jkenvironments.com.au
www.jkenvironments.com.au

PO Box 976
NORTH RYDE BC NSW 1670
115 Wicks Road
MACQUARIE PARK NSW 2113

JKEnvironments

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CERTIFICATE OF ANALYSIS 224207

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32465BD, Liverpool</u>
Number of Samples	6 WATER
Date samples received	19/08/2019
Date completed instructions received	19/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

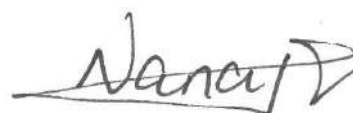
Report Details

Date results requested by	26/08/2019
Date of Issue	26/08/2019
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Results Approved By

Josh Williams, Chemist
 Loren Bardwell, Senior Chemist
 Nancy Zhang, Laboratory Manager, Sydney

Authorised By



Nancy Zhang, Laboratory Manager

VOCs in water				
Our Reference		224207-1	224207-2	224207-3
Your Reference	UNITS	MWJKE102	MWJKE122	MWJKE135
Date Sampled		16/08/2019	16/08/2019	16/08/2019
Type of sample		WATER	WATER	WATER
Date extracted	-	21/08/2019	21/08/2019	21/08/2019
Date analysed	-	22/08/2019	22/08/2019	22/08/2019
Dichlorodifluoromethane	µg/L	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1
Chloroform	µg/L	<1	2	<1
2,2-dichloropropane	µg/L	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1
Benzene	µg/L	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1
Toluene	µg/L	<1	1	<1
1,3-dichloropropane	µg/L	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1

VOCs in water				
Our Reference		224207-1	224207-2	224207-3
Your Reference	UNITS	MWJKE102	MWJKE122	MWJKE135
Date Sampled		16/08/2019	16/08/2019	16/08/2019
Type of sample		WATER	WATER	WATER
Bromoform	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
Styrene	µg/L	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1
o-xylene	µg/L	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	83	83	81
Surrogate toluene-d8	%	81	79	80
Surrogate 4-BFB	%	101	104	103

vTRH(C6-C10)/BTEXN in Water						
Our Reference		224207-1	224207-2	224207-3	224207-4	224207-5
Your Reference	UNITS	MWJKE102	MWJKE122	MWJKE135	DUPMP1	TSW1
Date Sampled		16/08/2019	16/08/2019	16/08/2019	16/08/2019	16/08/2019
Type of sample		WATER	WATER	WATER	WATER	WATER
Date extracted	-	21/08/2019	21/08/2019	21/08/2019	21/08/2019	21/08/2019
Date analysed	-	22/08/2019	22/08/2019	22/08/2019	22/08/2019	22/08/2019
TRH C ₆ - C ₉	µg/L	<10	<10	<10	<10	[NA]
TRH C ₆ - C ₁₀	µg/L	<10	<10	<10	<10	[NA]
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10	<10	<10	<10	[NA]
Benzene	µg/L	<1	<1	<1	<1	123%
Toluene	µg/L	<1	1	<1	1	109%
Ethylbenzene	µg/L	<1	<1	<1	<1	106%
m+p-xylene	µg/L	<2	<2	<2	<2	104%
o-xylene	µg/L	<1	<1	<1	<1	109%
Naphthalene	µg/L	<1	<1	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	83	83	81	99	79
Surrogate toluene-d8	%	81	79	80	108	100
Surrogate 4-BFB	%	101	104	103	105	101

vTRH(C6-C10)/BTEXN in Water		
Our Reference		224207-6
Your Reference	UNITS	TBW1
Date Sampled		16/08/2019
Type of sample		WATER
Date extracted	-	21/08/2019
Date analysed	-	22/08/2019
Benzene	µg/L	<1
Toluene	µg/L	3
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate toluene-d8	%	134
Surrogate 4-BFB	%	96

svTRH (C10-C40) in Water					
Our Reference		224207-1	224207-2	224207-3	224207-4
Your Reference	UNITS	MWJKE102	MWJKE122	MWJKE135	DUPMP1
Date Sampled		16/08/2019	16/08/2019	16/08/2019	16/08/2019
Type of sample		WATER	WATER	WATER	WATER
Date extracted	-	20/08/2019	20/08/2019	20/08/2019	20/08/2019
Date analysed	-	20/08/2019	21/08/2019	21/08/2019	21/08/2019
TRH C ₁₀ - C ₁₄	µg/L	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	µg/L	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	µg/L	<100	<100	<100	<100
TRH >C ₁₀ - C ₁₆	µg/L	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100	<100	<100	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100	<100	<100	<100
Surrogate o-Terphenyl	%	88	82	77	76

PAHs in Water - Low Level					
Our Reference		224207-1	224207-2	224207-3	224207-4
Your Reference	UNITS	MWJKE102	MWJKE122	MWJKE135	DUPMP1
Date Sampled		16/08/2019	16/08/2019	16/08/2019	16/08/2019
Type of sample		WATER	WATER	WATER	WATER
Date extracted	-	20/08/2019	20/08/2019	20/08/2019	20/08/2019
Date analysed	-	21/08/2019	21/08/2019	21/08/2019	21/08/2019
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate <i>p</i> -Terphenyl-d14	%	87	102	86	77

HM in water - dissolved					
Our Reference		224207-1	224207-2	224207-3	224207-4
Your Reference	UNITS	MWJKE102	MWJKE122	MWJKE135	DUPMP1
Date Sampled		16/08/2019	16/08/2019	16/08/2019	16/08/2019
Type of sample		WATER	WATER	WATER	WATER
Date prepared	-	20/08/2019	20/08/2019	20/08/2019	20/08/2019
Date analysed	-	20/08/2019	20/08/2019	20/08/2019	20/08/2019
Arsenic-Dissolved	µg/L	<1	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1
Copper-Dissolved	µg/L	47	7	30	7
Lead-Dissolved	µg/L	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	1	2	3	2
Zinc-Dissolved	µg/L	16	25	48	24

Miscellaneous Inorganics				
Our Reference		224207-1	224207-2	224207-3
Your Reference	UNITS	MWJKE102	MWJKE122	MWJKE135
Date Sampled		16/08/2019	16/08/2019	16/08/2019
Type of sample		WATER	WATER	WATER
Date prepared	-	19/08/2019	19/08/2019	19/08/2019
Date analysed	-	19/08/2019	19/08/2019	19/08/2019
pH	pH Units	8.1	7.7	8.0
Electrical Conductivity	µS/cm	14,000	14,000	14,000
Chloride, Cl	mg/L	3,400	3,200	3,400
Sulphate, SO ₄	mg/L	480	420	490

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			21/08/2019	2	21/08/2019	23/08/2019		21/08/2019	[NT]
Date analysed	-			22/08/2019	2	22/08/2019	24/08/2019		22/08/2019	[NT]
Dichlorodifluoromethane	µg/L	10	Org-013	<10	2	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-013	<10	2	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-013	<10	2	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-013	<10	2	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-013	<10	2	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-013	<10	2	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-013	<1	2	<1	<1	0	88	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-013	<1	2	2	2	0	89	[NT]
2,2-dichloropropane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-013	<1	2	<1	<1	0	82	[NT]
1,1,1-trichloroethane	µg/L	1	Org-013	<1	2	<1	<1	0	84	[NT]
1,1-dichloropropene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Dibromomethane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-013	<1	2	<1	<1	0	87	[NT]
Bromodichloromethane	µg/L	1	Org-013	<1	2	<1	<1	0	85	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-013	<1	2	1	1	0	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-013	<1	2	<1	<1	0	77	[NT]
1,2-dibromoethane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-013	<1	2	<1	<1	0	83	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Bromoform	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-013	<2	2	<2	<2	0	[NT]	[NT]
Styrene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
o-xylene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-013	84	2	83	99	18	98	[NT]
Surrogate toluene-d8	%		Org-013	75	2	79	94	17	98	[NT]
Surrogate 4-BFB	%		Org-013	102	2	104	105	1	98	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			21/08/2019	2	21/08/2019	23/08/2019		21/08/2019	[NT]
Date analysed	-			22/08/2019	2	22/08/2019	24/08/2019		22/08/2019	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-016	<10	2	<10	<10	0	118	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-016	<10	2	<10	<10	0	118	[NT]
Benzene	µg/L	1	Org-016	<1	2	<1	<1	0	122	[NT]
Toluene	µg/L	1	Org-016	<1	2	1	1	0	121	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	2	<1	<1	0	113	[NT]
m+p-xylene	µg/L	2	Org-016	<2	2	<2	<2	0	116	[NT]
o-xylene	µg/L	1	Org-016	<1	2	<1	<1	0	114	[NT]
Naphthalene	µg/L	1	Org-013	<1	2	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	84	2	83	99	18	97	[NT]
Surrogate toluene-d8	%		Org-016	75	2	79	94	17	100	[NT]
Surrogate 4-BFB	%		Org-016	102	2	104	105	1	119	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	224207-1
Date extracted	-			21/08/2019	[NT]	[NT]	[NT]	[NT]	20/08/2019	20/08/2019
Date analysed	-			21/08/2019	[NT]	[NT]	[NT]	[NT]	20/08/2019	20/08/2019
TRH C ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	86	97
TRH C ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	78	87
TRH C ₂₉ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	99
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	86	97
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	78	87
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	99
Surrogate o-Terphenyl	%		Org-003	90	[NT]	[NT]	[NT]	[NT]	105	92

QUALITY CONTROL: PAHs in Water - Low Level					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	224207-1
Date extracted	-			20/08/2019	[NT]	[NT]	[NT]	[NT]	20/08/2019	20/08/2019
Date analysed	-			21/08/2019	[NT]	[NT]	[NT]	[NT]	21/08/2019	21/08/2019
Naphthalene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	128	124
Acenaphthylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	108	102
Phenanthrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	96	92
Anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	104	102
Pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	94	94
Benzo(a)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	84	80
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	104	88
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	108	[NT]	[NT]	[NT]	[NT]	100	100

QUALITY CONTROL: HM in water - dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			20/08/2019	1	20/08/2019	20/08/2019		20/08/2019	[NT]
Date analysed	-			20/08/2019	1	20/08/2019	20/08/2019		20/08/2019	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	98	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	101	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	99	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	47	48	2	103	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	100	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	103	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	96	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	16	17	6	98	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			19/08/2019	[NT]	[NT]	[NT]	[NT]	19/08/2019	[NT]
Date analysed	-			19/08/2019	[NT]	[NT]	[NT]	[NT]	19/08/2019	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Report Comments

Tests/Analytes PH have exceeded the recommended technical holding times, Envirolab Group form 347 "Recommended Preservation and Holding Times" can be provided on request (available on the Envirolab website)

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32465BD, Liverpool
Envirolab Reference	224207
Date Sample Received	19/08/2019
Date Instructions Received	19/08/2019
Date Results Expected to be Reported	26/08/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	6 WATER
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	11.2
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	VOCs in water	VTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water - Low Level	HM in water - dissolved	pH	Electrical Conductivity	Chloride, Cl	Sulphate, SO4
MWJKE102	✓	✓	✓	✓	✓	✓	✓	✓	✓
MWJKE122	✓	✓	✓	✓	✓	✓	✓	✓	✓
MWJKE135	✓	✓	✓	✓	✓	✓	✓	✓	✓
DUPMP1		✓	✓	✓	✓				
TSW1		✓							
TBW1		✓							

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

TO:
Envirolab Services Pty Ltd
12 Ashley St, Chatswood 2067

Phone: (02) 9910 6200
Fax: (02) 9910 6201

Attention: Aileen

Date Results Required: **Standard**

SAMPLE AND CHAIN OF CUSTODY FORM

FROM:
JK Environments

Rear 115 Wicks Road
Macquarie Park NSW 2113

Phone: (02) 9888 5000
Fax: (02) 9888 5004

Contact: Mitch Delaney

EIS Job Number: E32465BD

Sheet 1 / 1

Location: Liverpool
Sampler: MP

Tests Required

Sample Preservation:
In esky on ice

Date Sampled	Time Sampled	Location/ Sample Number	Sample Container	PID (ppm/ Odour)	Sample Description	Combo 3L	Phenols	TPH/BTEX	VOCs	PAHs	pH/EC/ sulfate & chloride	BTEX	Comments/Detection Limits Required
16-8-19	Pm	MWJKE102	2x 0.5L Amber Bottle 4x BTEX Vials 2x HDPE Plastic Bottle 1x Metals wash bottle	0	Water	X			X		X		 Envirolab Services 12 Ashley St Chatswood NSW 2067 Ph: (02) 9910 6200 Job No: 224207 Date Received: 19/8/19 Time Received: 16:05 Received by: PZ Temp: Cool/Ambient Cooling: Ice/icepack Security: Intact/Broken/None Please send Duplicate to Envirolab Vic
16-8-19	Am	MWJKE122	2x 0.5L Amber Bottle 4x BTEX Vials 4x HDPE Plastic Bottle 1x Metals wash bottle	2.7	Water	X			X		X		
16-8-19	Am	MWJKE135	2x 0.5L Amber Bottle 4x BTEX Vials 4x HDPE Plastic Bottle 1x Metals wash bottle	1.8	Water	X			X		X		
16-8-19	NA	DUPMP1	2x 0.5L Amber Bottle 4x BTEX Vials 4x HDPE Plastic Bottle 1x Metals wash bottle	NA	Water	X							
16-8-19	NA	DUPMP2	2x 0.5L Amber Bottle 4x BTEX Vials 4x HDPE Plastic Bottle 1x Metals wash bottle	NA	Water	X							
16-8-19	NA	TSW1	1x BTEX vial	NA	Water							X	
16-8-19	NA	TBW1	1x BTEX vial	NA	Water							X	

Relinquished By: MD

Date:

Time:

Received By: Kevin Wj

Remarks:

All analysis PQLs to ANZECC (2000) Detection Limits Please

Relinquished By:

Date:

Time:

Received By:

CERTIFICATE OF ANALYSIS 17823

Client Details

Client	JK Environments
Attention	Mitch Delaney
Address	Rear of 115 Wicks rd, Macquarie Park, NSW, 2113

Sample Details

Your Reference	<u>E32465BD</u>
Number of Samples	1 Water
Date samples received	21/08/2019
Date completed instructions received	21/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	27/08/2019
Date of Issue	27/08/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Chris De Luca, Operations Manager

Authorised By



Pamela Adams, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		17823-1
Your Reference	UNITS	DUPMP1
Date Sampled		16/08/2019
Type of sample		Water
Date extracted	-	22/08/2019
Date analysed	-	22/08/2019
TRH C ₆ - C ₉	µg/L	<10
TRH C ₆ - C ₁₀	µg/L	<10
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Total +ve Xylenes	µg/L	<1
Surrogate Dibromofluoromethane	%	113
Surrogate toluene-d8	%	103
Surrogate 4-BFB	%	99

TRH Water(C10-C40) NEPM		
Our Reference		17823-1
Your Reference	UNITS	DUPMP1
Date Sampled		16/08/2019
Type of sample		Water
Date extracted	-	23/08/2019
Date analysed	-	23/08/2019
TRH C ₁₀ - C ₁₄	µg/L	<50
TRH C ₁₅ - C ₂₈	µg/L	<100
TRH C ₂₉ - C ₃₆	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
TRH >C ₁₀ - C ₁₆	µg/L	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	88

PAHs in Water - Low Level		
Our Reference		17823-1
Your Reference	UNITS	DUPMP1
Date Sampled		16/08/2019
Type of sample		Water
Date extracted	-	23/08/2019
Date analysed	-	24/08/2019
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j&k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Total +ve PAH's	µg/L	NIL (+)VE PAH
Benzo(a)pyrene TEQ	µg/L	<0.5
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	94

HM in water - dissolved		
Our Reference		17823-1
Your Reference	UNITS	DUPMP1
Date Sampled		16/08/2019
Type of sample		Water
Date prepared	-	23/08/2019
Date analysed	-	23/08/2019
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	33
Lead-Dissolved	µg/L	<1
Nickel-Dissolved	µg/L	1
Zinc-Dissolved	µg/L	52
Mercury-Dissolved	µg/L	<0.05

Method ID	Methodology Summary
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater 2013.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			22/08/2019	1	22/08/2019	22/08/2019		22/08/2019	[NT]
Date analysed	-			22/08/2019	1	22/08/2019	22/08/2019		22/08/2019	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-016	<10	1	<10	<10	0	96	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-016	<10	1	<10	<10	0	97	[NT]
Benzene	µg/L	1	Org-016	<1	1	<1	<1	0	90	[NT]
Toluene	µg/L	1	Org-016	<1	1	<1	<1	0	97	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	1	<1	<1	0	98	[NT]
m+p-xylene	µg/L	2	Org-016	<2	1	<2	<2	0	97	[NT]
o-xylene	µg/L	1	Org-016	<1	1	<1	<1	0	101	[NT]
Naphthalene	µg/L	1	Org-013	<1	1	<1	<1	0	85	[NT]
Surrogate Dibromofluoromethane	%		Org-016	109	1	113	116	3	101	[NT]
Surrogate toluene-d8	%		Org-016	104	1	103	104	1	100	[NT]
Surrogate 4-BFB	%		Org-016	100	1	99	100	1	97	[NT]

QUALITY CONTROL: TRH Water(C10-C40) NEPM					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			23/08/2019	[NT]	[NT]	[NT]	[NT]	23/08/2019	[NT]
Date analysed	-			23/08/2019	[NT]	[NT]	[NT]	[NT]	23/08/2019	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	107	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate o-Terphenyl	%		Org-003	82	[NT]	[NT]	[NT]	[NT]	84	[NT]

QUALITY CONTROL: PAHs in Water - Low Level					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			23/08/2019	[NT]	[NT]	[NT]	[NT]	23/08/2019	[NT]
Date analysed	-			24/08/2019	[NT]	[NT]	[NT]	[NT]	24/08/2019	[NT]
Naphthalene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Acenaphthylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Acenaphthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Phenanthrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Benzo(b,j&k)fluoranthene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d ₁₄	%		Org-012	94	[NT]	[NT]	[NT]	[NT]	96	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			23/08/2019	[NT]	[NT]	[NT]	[NT]	23/08/2019	[NT]
Date analysed	-			23/08/2019	[NT]	[NT]	[NT]	[NT]	23/08/2019	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	114	[NT]
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	[NT]	[NT]	104	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Mitch Delaney

Sample Login Details

Your reference	E32465BD
Envirolab Reference	17823
Date Sample Received	21/08/2019
Date Instructions Received	21/08/2019
Date Results Expected to be Reported	27/08/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	8.7
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Pamela Adams

Phone: 03 9763 2500
Fax: 03 9763 2633
Email: padams@envirolab.com.au

Analisa Mathrick

Phone: 03 9763 2500
Fax: 03 9763 2633
Email: amathrick@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	VTRH(C6-C10)/BTEXN in Water	TRH Water(C10-C40) NEPM	PAHs in Water - Low Level	HM in water - dissolved
DUPMP1	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TO:
EnviroLab Services Pty Ltd
 12 Ashley St, Chatswood 2067

Phone: (02) 9910 6200
 Fax: (02) 9910 6201

Attention: Aileen

Date Results Required: **Standard**

SAMPLE AND CHAIN OF CUSTODY FORM

EIS Job Number: E32465BD

Sheet 1 / 1

FROM:
 JK Environments
 Reser 115 Wickes Road
 Macquarie Park NSW 2113
 Phone: (02) 9888 5000
 Fax: (02) 9888 5004
 Contact: Mitch Delaney

Location: Liverpool
 Sampler: MP

Tests Required

Sample Preservation:
 In-situ of EnviroLab Services
 25 Research Drive
 ENHOLDS
 Chippendale NSW 1500
 Ph: (02) 9700 4500

JCL No: 17823

Comments/Detection Limits
 Date Received: 19/8/19
 Date Required: 21/8
 Received By: 19/8/19
 Date Received: 19/8/19

Date Sampled	Time Sampled	Location/ Sample Number	Sample Container	PID (ppm/ Odour)	Sample Description	Combo 3L	Phenols	TPH/BTEX	VOCs	PAHs	pH / EC / sulfate & chloride	BTEX	Job No: 17813	Comments/Detection Limits Required 21/8	
16-8-19	Pm	MMWKE102	2x 0.5L Amber Bottle 4x BTEX Vials 5x HDPE Plastic Bottle 1x Metals wash bottle	0	Water	X			X		X		Job No: 224207 Date Received: 19/8/19 Time Received: 16:05 Received by: RL Temp: 20.0/Ambient Coding: local/pack Security: Official/Token/None		
16-8-19	Am	MMWKE122	2x 0.5L Amber Bottle 4x BTEX Vials 5x HDPE Plastic Bottle 1x Metals wash bottle	2.7	Water	X			X		X				
16-8-19	Am	MMWKE135	2x 0.5L Amber Bottle 4x BTEX Vials 5x HDPE Plastic Bottle 1x Metals wash bottle	1.8	Water	X			X		X				
16-8-19	NA	DUPMP1	2x 0.5L Amber Bottle 4x BTEX Vials 5x HDPE Plastic Bottle 1x Metals wash bottle	NA	Water	X									
16-8-19	NA	DUPMP2	2x 0.5L Amber Bottle 4x BTEX Vials 5x HDPE Plastic Bottle 1x Metals wash bottle	NA	Water	X									
16-8-19	NA	TSW1	1x BTEX vial	NA	Water							X			
16-8-19	NA	TBW1	1x BTEX vial	NA	Water							X			
Relinquished By: MD		Date: 19/8/19	Time: 1:30 pm	Received By: RL	Date: 19/8/19	Remarks:								All analysis PQLs to ANZECC (2000) Detection Limits Please	
Relinquished By: ELS Syd		Date: 20.8.19	Time: 12:00	Received By:											
K. Cuere															

Please send deposit
 to EnviroLab VIC

CERTIFICATE OF ANALYSIS 223303

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32465BD, Liverpool</u>
Number of Samples	28 SOIL
Date samples received	06/08/2019
Date completed instructions received	06/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

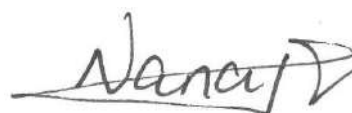
Report Details

Date results requested by	14/08/2019
Date of Issue	14/08/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Nick Sarlamis, Inorganics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

sPOCAS + %S w/w						
Our Reference		223303-3	223303-9	223303-10	223303-18	223303-23
Your Reference	UNITS	JKE102	JKE102	JKE102	JKE102	JKE108
Depth		1.2-1.6	4.7-4.95	5.0-5.4	9.8-10.0	6.0-6.45
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	01/08/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
pH _{KCl}	pH units	7.8	5.0	5.3	7.4	4.8
TAA pH 6.5	moles H ⁺ /t	<5	5	<5	<5	6
s-TAA pH 6.5	%w/w S	<0.01	<0.01	<0.01	<0.01	0.01
pH _{Ox}	pH units	5.8	5.5	5.8	7.3	5.7
TPA pH 6.5	moles H ⁺ /t	<5	16	16	<5	16
s-TPA pH 6.5	%w/w S	<0.01	0.03	0.03	<0.01	0.03
TSA pH 6.5	moles H ⁺ /t	<5	11	14	<5	10
s-TSA pH 6.5	%w/w S	<0.01	0.02	0.02	<0.01	0.02
ANC _E	% CaCO ₃	<0.05	<0.05	<0.05	0.25	<0.05
a-ANC _E	moles H ⁺ /t	<5	<5	<5	50	<5
s-ANC _E	%w/w S	<0.05	<0.05	<0.05	0.08	<0.05
S _{KCl}	%w/w S	0.006	0.01	0.008	0.008	0.007
S _P	%w/w	0.04	0.02	0.009	0.01	0.007
S _{POS}	%w/w	0.03	<0.005	<0.005	<0.005	<0.005
a-S _{POS}	moles H ⁺ /t	19	<5	<5	<5	<5
Ca _{KCl}	%w/w	0.36	<0.005	<0.005	0.04	<0.005
Ca _P	%w/w	0.33	<0.005	<0.005	0.09	<0.005
Ca _A	%w/w	<0.005	<0.005	<0.005	0.046	<0.005
Mg _{KCl}	%w/w	0.076	0.073	0.032	0.059	0.054
Mg _P	%w/w	0.076	0.075	0.033	0.071	0.057
Mg _A	%w/w	<0.005	<0.005	<0.005	0.012	<0.005
S _{HCl}	%w/w S	<0.005	<0.005	<0.005	<0.005	<0.005
S _{NAS}	%w/w S	<0.005	<0.005	<0.005	<0.005	<0.005
a-S _{NAS}	moles H ⁺ /t	<5	<5	<5	<5	<5
s-S _{NAS}	%w/w S	<0.01	<0.01	<0.01	<0.01	<0.01
Fineness Factor	-	1.5	1.5	1.5	1.5	1.5
a-Net Acidity	moles H ⁺ /t	19	6	<5	<5	7
s-Net Acidity	%w/w S	0.03	0.01	<0.01	<0.01	0.01
Liming rate	kg CaCO ₃ /t	1.5	<0.75	<0.75	<0.75	<0.75
s-Net Acidity without -ANCE	%w/w S	0.031	0.01	<0.01	<0.01	0.01
a-Net Acidity without ANCE	moles H ⁺ /t	19	5.9	<5	<5	6.5
Liming rate without ANCE	kg CaCO ₃ /t	1.5	<0.75	<0.75	<0.75	<0.75

sPOCAS + %S w/w					
Our Reference		223303-24	223303-25	223303-27	223303-28
Your Reference	UNITS	JKE108	JKE108	JKE108	JKE102
Depth		7.5-7.95	8.4-8.8	9.2-9.45	9.0-9.45
Date Sampled		01/08/2019	01/08/2019	01/08/2019	31/07/2019
Type of sample		SOIL	SOIL	SOIL	SOIL
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019
pH _{KCl}	pH units	5.9	7.1	6.4	7.2
TAA pH 6.5	moles H ⁺ /t	<5	<5	<5	<5
s-TAA pH 6.5	%w/w S	<0.01	<0.01	<0.01	<0.01
pH _{Ox}	pH units	6.6	6.7	5.0	6.5
TPA pH 6.5	moles H ⁺ /t	<5	<5	<5	<5
s-TPA pH 6.5	%w/w S	<0.01	<0.01	<0.01	<0.01
TSA pH 6.5	moles H ⁺ /t	<5	<5	<5	<5
s-TSA pH 6.5	%w/w S	<0.01	<0.01	<0.01	<0.01
ANC _E	% CaCO ₃	0.06	0.12	<0.05	<0.05
a-ANC _E	moles H ⁺ /t	12	25	<5	<5
s-ANC _E	%w/w S	<0.05	<0.05	<0.05	<0.05
S _{KCl}	%w/w S	<0.005	0.008	<0.005	0.007
S _P	%w/w	<0.005	0.009	<0.005	0.006
S _{POS}	%w/w	<0.005	<0.005	<0.005	<0.005
a-S _{POS}	moles H ⁺ /t	<5	<5	<5	<5
Ca _{KCl}	%w/w	<0.005	0.04	<0.005	0.03
Ca _P	%w/w	<0.005	0.04	0.005	0.03
Ca _A	%w/w	<0.005	0.005	<0.005	<0.005
Mg _{KCl}	%w/w	0.009	0.032	0.013	0.055
Mg _P	%w/w	0.012	0.037	0.015	0.059
Mg _A	%w/w	<0.005	0.005	<0.005	<0.005
S _{HCl}	%w/w S	<0.005	<0.005	<0.005	<0.005
S _{NAS}	%w/w S	<0.005	<0.005	<0.005	<0.005
a-S _{NAS}	moles H ⁺ /t	<5	<5	<5	<5
s-S _{NAS}	%w/w S	<0.01	<0.01	<0.01	<0.01
Fineness Factor	-	1.5	1.5	1.5	1.5
a-Net Acidity	moles H ⁺ /t	<5	<5	<5	<5
s-Net Acidity	%w/w S	<0.01	<0.01	<0.01	<0.01
Liming rate	kg CaCO ₃ /t	<0.75	<0.75	<0.75	<0.75
s-Net Acidity without -ANCE	%w/w S	<0.01	<0.01	<0.01	<0.01
a-Net Acidity without ANCE	moles H ⁺ /t	<5	<5	<5	<5
Liming rate without ANCE	kg CaCO ₃ /t	<0.75	<0.75	<0.75	<0.75

Method ID	Methodology Summary
Inorg-064	sPOCAS determined using titrimetric and ICP-AES techniques. Based on Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004.

QUALITY CONTROL: sPOCAS + %S w/w						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			14/08/2019	3	14/08/2019	14/08/2019		14/08/2019	[NT]
Date analysed	-			14/08/2019	3	14/08/2019	14/08/2019		14/08/2019	[NT]
pH _{KCl}	pH units		Inorg-064	[NT]	3	7.8	7.8	0	90	[NT]
TAA pH 6.5	moles H ⁺ /t	5	Inorg-064	<5	3	<5	<5	0	80	[NT]
s-TAA pH 6.5	%w/w S	0.01	Inorg-064	<0.01	3	<0.01	<0.01	0	[NT]	[NT]
pH _{OX}	pH units		Inorg-064	[NT]	3	5.8	6.1	5	95	[NT]
TPA pH 6.5	moles H ⁺ /t	5	Inorg-064	<5	3	<5	<5	0	104	[NT]
s-TPA pH 6.5	%w/w S	0.01	Inorg-064	<0.01	3	<0.01	<0.01	0	[NT]	[NT]
TSA pH 6.5	moles H ⁺ /t	5	Inorg-064	<5	3	<5	<5	0	[NT]	[NT]
s-TSA pH 6.5	%w/w S	0.01	Inorg-064	<0.01	3	<0.01	<0.01	0	[NT]	[NT]
ANC _E	% CaCO ₃	0.05	Inorg-064	<0.05	3	<0.05	<0.05	0	[NT]	[NT]
a-ANC _E	moles H ⁺ /t	5	Inorg-064	<5	3	<5	<5	0	[NT]	[NT]
s-ANC _E	%w/w S	0.05	Inorg-064	<0.05	3	<0.05	<0.05	0	[NT]	[NT]
S _{KCl}	%w/w S	0.005	Inorg-064	<0.005	3	0.006	0.007	15	[NT]	[NT]
S _P	%w/w	0.005	Inorg-064	<0.005	3	0.04	0.04	0	[NT]	[NT]
S _{POS}	%w/w	0.005	Inorg-064	<0.005	3	0.03	0.03	0	[NT]	[NT]
a-S _{POS}	moles H ⁺ /t	5	Inorg-064	<5	3	19	20	5	[NT]	[NT]
Ca _{KCl}	%w/w	0.005	Inorg-064	<0.005	3	0.36	0.36	0	[NT]	[NT]
Ca _P	%w/w	0.005	Inorg-064	<0.005	3	0.33	0.33	0	[NT]	[NT]
Ca _A	%w/w	0.005	Inorg-064	<0.005	3	<0.005	<0.005	0	[NT]	[NT]
Mg _{KCl}	%w/w	0.005	Inorg-064	<0.005	3	0.076	0.074	3	[NT]	[NT]
Mg _P	%w/w	0.005	Inorg-064	<0.005	3	0.076	0.078	3	[NT]	[NT]
Mg _A	%w/w	0.005	Inorg-064	<0.005	3	<0.005	<0.005	0	[NT]	[NT]
S _{HCl}	%w/w S	0.005	Inorg-064	<0.005	3	<0.005	<0.005	0	[NT]	[NT]
S _{NAS}	%w/w S	0.005	Inorg-064	<0.005	3	<0.005	<0.005	0	[NT]	[NT]
a-S _{NAS}	moles H ⁺ /t	5	Inorg-064	<5	3	<5	<5	0	[NT]	[NT]
s-S _{NAS}	%w/w S	0.01	Inorg-064	<0.01	3	<0.01	<0.01	0	[NT]	[NT]
Fineness Factor	-	1.5	Inorg-064	<1.5	3	1.5	1.5	0	[NT]	[NT]
a-Net Acidity	moles H ⁺ /t	5	Inorg-064	<5	3	19	20	5	[NT]	[NT]
s-Net Acidity	%w/w S	0.01	Inorg-064	<0.01	3	0.03	0.03	0	[NT]	[NT]
Liming rate	kg CaCO ₃ /t	0.75	Inorg-064	<0.75	3	1.5	1.5	0	[NT]	[NT]
s-Net Acidity without -ANCE	%w/w S	0.01	Inorg-064	<0.01	3	0.031	0.032	3	[NT]	[NT]

QUALITY CONTROL: sPOCAS + %S w/w						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
a-Net Acidity without ANCE	moles H ⁺ /t	5	Inorg-064	<5	3	19	20	5	[NT]	[NT]
Liming rate without ANCE	kg CaCO ₃ /t	0.75	Inorg-064	<0.75	3	1.5	1.5	0	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
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Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

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Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32465BD, Liverpool
Envirolab Reference	223303
Date Sample Received	06/08/2019
Date Instructions Received	06/08/2019
Date Results Expected to be Reported	14/08/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	28 SOIL
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	8.0
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolab.com.au	Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	sPOCAS + %S w/w	On Hold
JKE102-0.1-0.3		✓
JKE102-0.3-0.5		✓
JKE102-1.2-1.6	✓	
JKE102-1.6-2.0		✓
JKE102-2.8-3.0		✓
JKE102-3.25-3.45		✓
JKE102-4.0-4.2		✓
JKE102-4.4-4.5		✓
JKE102-4.7-4.95	✓	
JKE102-5.0-5.4	✓	
JKE102-5.8-6.0		✓
JKE102-6.2-6.4		✓
JKE102-6.4-6.45		✓
JKE102-6.7-7.0		✓
JKE102-7.3-7.5		✓
JKE102-7.75-7.95		✓
JKE102-8.4-8.6		✓
JKE102-9.8-10.0	✓	
JKE108-0.5-0.95		✓
JKE108-3.0-3.45		✓
JKE108-4.0-4.2		✓
JKE108-4.8-4.95		✓
JKE108-6.0-6.45	✓	
JKE108-7.5-7.95	✓	
JKE108-8.4-8.8	✓	
JKE108-9.0-9.2		✓
JKE108-9.2-9.45	✓	
JKE102-9.0-9.45	✓	

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E32465BD Date Results Required: STANDARD Page: 1 of 2	FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitch Delaney mdelaney@jkenvironments.com.au

Location: Liverpool						Sample Preserved in Esky on Ice									
Sampler: AM						Tests Required									
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	Sample Description	sPOCAS	pH (1:5 water)								
31/7/19	1	JKE102	0.1-0.3	P	FISHY SAND										
	2		0.3-0.5		FISHY CLAY										
	3		1.2-1.6		FISHY CLAY	X									
	4		1.6-2.0		SILTY CLAY										
	5		2.8-3.0		SILTY CLAY										
	6		3.25-3.45												
	7		4.0-4.2												
	8		4.4-4.5												
	9		4.7-4.95			X									
	10		5.0-5.4			X									
	11		5.8-6.0		SAND										
	12		6.2-6.4		SILTY SAND										
	13		6.4-6.45		SILTY CLAY										
	14		6.7-7.0												
	15		7.3-7.5												
	16		7.75-7.95												
	17		8.4-8.6												
	20		9.0-9.45			X									
	18		9.8-10.0			X									
11/8/19	19	JKE108	0.5-0.95		FISHY CLAY										
	20		3.0-3.45		SILTY CLAY										
	21		4.0-4.2												
	22		4.8-4.95												
	23		6.0-6.45			X									
	24		7.5-7.95			X									

EnviroLab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200
 Job No: 223303
 Date Received: 6/8/19
 Time Received: 18:00
 Received by: AMO
 Temp: Cool Ambient 18.0°C
 Cooling: Ice/Refrigerator
 Security: Intact/Broken/None

Remarks (comments/detection limits required):		Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	
Relinquished By: NO	Date: 6/8/19	Time:	Received By:
			Date:

SAMPLE AND CHAIN OF CUSTODY FORM

[illegible]

CERTIFICATE OF ANALYSIS 223772

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32465BD, Liverpool</u>
Number of Samples	54 soil
Date samples received	13/08/2019
Date completed instructions received	13/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

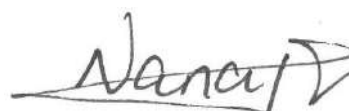
Report Details

Date results requested by	20/08/2019
Date of Issue	20/08/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Nick Sarlamis, Inorganics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

sPOCAS + %S w/w						
Our Reference		223772-9	223772-10	223772-15	223772-25	223772-26
Your Reference	UNITS	JKE116	JKE116	JKE116	JKE122	JKE122
Depth		7.6-7.95	8.3-8.6	15.4-15.6	8.5-8.8	9.0-9.45
Date Sampled		05/08/2019	05/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	16/08/2019	16/08/2019	16/08/2019	16/08/2019	16/08/2019
Date analysed	-	16/08/2019	16/08/2019	16/08/2019	16/08/2019	16/08/2019
pH _{KCl}	pH units	6.7	6.9	6.7	6.6	4.9
TAA pH 6.5	moles H ⁺ /t	<5	<5	<5	<5	5
s-TAA pH 6.5	%w/w S	<0.01	<0.01	<0.01	<0.01	<0.01
pH _{Ox}	pH units	6.4	6.4	3.5	6.5	5.5
TPA pH 6.5	moles H ⁺ /t	<5	<5	60	<5	<5
s-TPA pH 6.5	%w/w S	<0.01	<0.01	0.1	<0.01	<0.01
TSA pH 6.5	moles H ⁺ /t	<5	<5	60	<5	<5
s-TSA pH 6.5	%w/w S	<0.01	<0.01	0.1	<0.01	<0.01
ANC _E	% CaCO ₃	[NT]	[NT]	[NT]	0.12	[NT]
a-ANC _E	moles H ⁺ /t	[NT]	[NT]	[NT]	25	[NT]
s-ANC _E	%w/w S	[NT]	[NT]	[NT]	<0.05	[NT]
S _{KCl}	%w/w S	<0.005	0.005	0.01	0.006	0.009
S _P	%w/w	<0.005	0.005	0.18	0.007	0.007
S _{POS}	%w/w	<0.005	<0.005	0.17	<0.005	<0.005
a-S _{POS}	moles H ⁺ /t	<5	<5	100	<5	<5
Ca _{KCl}	%w/w	0.009	0.02	0.02	0.01	<0.005
Ca _P	%w/w	0.01	0.02	0.02	0.02	<0.005
Ca _A	%w/w	<0.005	<0.005	0.007	0.006	<0.005
Mg _{KCl}	%w/w	0.051	0.041	0.041	0.052	0.038
Mg _P	%w/w	0.055	0.040	0.060	0.057	0.040
Mg _A	%w/w	<0.005	<0.005	0.020	0.005	<0.005
S _{HCl}	%w/w S	[NT]	[NT]	[NT]	[NT]	[NT]
S _{NAS}	%w/w S	[NT]	[NT]	[NT]	[NT]	[NT]
a-S _{NAS}	moles H ⁺ /t	[NT]	[NT]	[NT]	[NT]	[NT]
s-S _{NAS}	%w/w S	[NT]	[NT]	[NT]	[NT]	[NT]
Fineness Factor	-	1.5	1.5	1.5	1.5	1.5
a-Net Acidity	moles H ⁺ /t	<5	<5	75	<5	5
s-Net Acidity	%w/w S	<0.01	<0.01	0.12	<0.01	<0.01
Liming rate	kg CaCO ₃ /t	<0.75	<0.75	5.6	<0.75	<0.75
s-Net Acidity without -ANCE	%w/w S	[NT]	[NT]	[NT]	<0.01	[NT]
a-Net Acidity without ANCE	moles H ⁺ /t	[NT]	[NT]	[NT]	<5	[NT]
Liming rate without ANCE	kg CaCO ₃ /t	[NT]	[NT]	[NT]	<0.75	[NT]

sPOCAS + %S w/w					
Our Reference		223772-41	223772-42	223772-44	223772-54
Your Reference	UNITS	JKE126	JKE126	JKE135	JKE135
Depth		12.5-13.0	13.5-13.75	1.7-1.95	9.1-9.45
Date Sampled		05/08/2019	05/08/2019	05/08/2019	05/08/2019
Type of sample		soil	soil	soil	soil
Date prepared	-	16/08/2019	16/08/2019	16/08/2019	16/08/2019
Date analysed	-	16/08/2019	16/08/2019	16/08/2019	16/08/2019
pH _{KCl}	pH units	7.5	7.4	4.8	7.1
TAA pH 6.5	moles H ⁺ /t	<5	<5	<5	<5
s-TAA pH 6.5	%w/w S	<0.01	<0.01	<0.01	<0.01
pH _{Ox}	pH units	6.8	7.2	4.3	7.4
TPA pH 6.5	moles H ⁺ /t	<5	<5	5	<5
s-TPA pH 6.5	%w/w S	<0.01	<0.01	<0.01	<0.01
TSA pH 6.5	moles H ⁺ /t	<5	<5	<5	<5
s-TSA pH 6.5	%w/w S	<0.01	<0.01	<0.01	<0.01
ANC _E	% CaCO ₃	0.19	0.19	[NT]	0.25
a-ANC _E	moles H ⁺ /t	38	38	[NT]	50
s-ANC _E	%w/w S	0.06	0.06	[NT]	0.08
S _{KCl}	%w/w S	0.02	<0.005	<0.005	<0.005
S _P	%w/w	0.02	0.01	0.02	0.008
S _{POS}	%w/w	<0.005	0.01	0.02	0.008
a-S _{POS}	moles H ⁺ /t	<5	8	12	<5
Ca _{KCl}	%w/w	0.02	<0.005	<0.005	<0.005
Ca _P	%w/w	0.03	0.03	0.06	0.02
Ca _A	%w/w	0.008	0.027	0.061	0.016
Mg _{KCl}	%w/w	0.079	<0.005	<0.005	<0.005
Mg _P	%w/w	0.098	0.090	0.074	0.050
Mg _A	%w/w	0.019	0.090	0.074	0.050
S _{HCl}	%w/w S	[NT]	[NT]	[NT]	[NT]
S _{NAS}	%w/w S	[NT]	[NT]	[NT]	[NT]
a-S _{NAS}	moles H ⁺ /t	[NT]	[NT]	[NT]	[NT]
s-S _{NAS}	%w/w S	[NT]	[NT]	[NT]	[NT]
Fineness Factor	-	1.5	1.5	1.5	1.5
a-Net Acidity	moles H ⁺ /t	<5	<5	16	<5
s-Net Acidity	%w/w S	<0.01	<0.01	0.03	<0.01
Liming rate	kg CaCO ₃ /t	<0.75	<0.75	1.2	<0.75
s-Net Acidity without -ANCE	%w/w S	<0.01	0.013	[NT]	<0.01
a-Net Acidity without ANCE	moles H ⁺ /t	<5	8.0	[NT]	<5
Liming rate without ANCE	kg CaCO ₃ /t	<0.75	<0.75	[NT]	<0.75

Method ID	Methodology Summary
Inorg-064	sPOCAS determined using titrimetric and ICP-AES techniques. Based on Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004.

QUALITY CONTROL: sPOCAS + %S w/w						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			16/08/2019	9	16/08/2019	16/08/2019		16/08/2019	[NT]
Date analysed	-			16/08/2019	9	16/08/2019	16/08/2019		16/08/2019	[NT]
pH _{KCl}	pH units		Inorg-064	[NT]	9	6.7	6.6	2	89	[NT]
TAA pH 6.5	moles H ⁺ /t	5	Inorg-064	<5	9	<5	<5	0	95	[NT]
s-TAA pH 6.5	%w/w S	0.01	Inorg-064	<0.01	9	<0.01	<0.01	0	[NT]	[NT]
pH _{OX}	pH units		Inorg-064	[NT]	9	6.4	6.3	2	86	[NT]
TPA pH 6.5	moles H ⁺ /t	5	Inorg-064	<5	9	<5	<5	0	110	[NT]
s-TPA pH 6.5	%w/w S	0.01	Inorg-064	<0.01	9	<0.01	<0.01	0	[NT]	[NT]
TSA pH 6.5	moles H ⁺ /t	5	Inorg-064	<5	9	<5	<5	0	[NT]	[NT]
s-TSA pH 6.5	%w/w S	0.01	Inorg-064	<0.01	9	<0.01	<0.01	0	[NT]	[NT]
ANC _E	% CaCO ₃	0.05	Inorg-064	<0.05	9	[NT]	[NT]		[NT]	[NT]
a-ANC _E	moles H ⁺ /t	5	Inorg-064	<5	9	[NT]	[NT]		[NT]	[NT]
s-ANC _E	%w/w S	0.05	Inorg-064	<0.05	9	[NT]	[NT]		[NT]	[NT]
S _{KCl}	%w/w S	0.005	Inorg-064	<0.005	9	<0.005	<0.005	0	[NT]	[NT]
S _P	%w/w	0.005	Inorg-064	<0.005	9	<0.005	<0.005	0	[NT]	[NT]
S _{POS}	%w/w	0.005	Inorg-064	<0.005	9	<0.005	<0.005	0	[NT]	[NT]
a-S _{POS}	moles H ⁺ /t	5	Inorg-064	<5	9	<5	<5	0	[NT]	[NT]
Ca _{KCl}	%w/w	0.005	Inorg-064	<0.005	9	0.009	0.01	11	[NT]	[NT]
Ca _P	%w/w	0.005	Inorg-064	<0.005	9	0.01	0.01	0	[NT]	[NT]
Ca _A	%w/w	0.005	Inorg-064	<0.005	9	<0.005	<0.005	0	[NT]	[NT]
Mg _{KCl}	%w/w	0.005	Inorg-064	<0.005	9	0.051	0.052	2	[NT]	[NT]
Mg _P	%w/w	0.005	Inorg-064	<0.005	9	0.055	0.053	4	[NT]	[NT]
Mg _A	%w/w	0.005	Inorg-064	<0.005	9	<0.005	<0.005	0	[NT]	[NT]
S _{HCl}	%w/w S	0.005	Inorg-064	<0.005	9	[NT]	[NT]		[NT]	[NT]
S _{NAS}	%w/w S	0.005	Inorg-064	<0.005	9	[NT]	[NT]		[NT]	[NT]
a-S _{NAS}	moles H ⁺ /t	5	Inorg-064	<5	9	[NT]	[NT]		[NT]	[NT]
s-S _{NAS}	%w/w S	0.01	Inorg-064	<0.01	9	[NT]	[NT]		[NT]	[NT]
Fineness Factor	-	1.5	Inorg-064	<1.5	9	1.5	1.5	0	[NT]	[NT]
a-Net Acidity	moles H ⁺ /t	5	Inorg-064	<5	9	<5	<5	0	[NT]	[NT]
s-Net Acidity	%w/w S	0.01	Inorg-064	<0.01	9	<0.01	<0.01	0	[NT]	[NT]
Liming rate	kg CaCO ₃ /t	0.75	Inorg-064	<0.75	9	<0.75	<0.75	0	[NT]	[NT]
s-Net Acidity without -ANCE	%w/w S	0.01	Inorg-064	<0.01	9	[NT]	[NT]		[NT]	[NT]

QUALITY CONTROL: sPOCAS + %S w/w						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
a-Net Acidity without ANCE	moles H ⁺ /t	5	Inorg-064	<5	9	[NT]	[NT]		[NT]	[NT]
Liming rate without ANCE	kg CaCO ₃ /t	0.75	Inorg-064	<0.75	9	[NT]	[NT]		[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32465BD, Liverpool
Envirolab Reference	223772
Date Sample Received	13/08/2019
Date Instructions Received	13/08/2019
Date Results Expected to be Reported	20/08/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	54 soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	13.1
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	sPOCAS + %S w/w	On Hold
JKE116-0.6-0.8		✓
JKE116-1.5-1.95		✓
JKE116-3.1-3.3		✓
JKE116-3.3-3.7		✓
JKE116-4.5-4.95		✓
JKE116-5.3-5.6		✓
JKE116-6.1-6.35		✓
JKE116-7.2-7.4		✓
JKE116-7.6-7.95	✓	
JKE116-8.3-8.6	✓	
JKE116-90-9.45		✓
JKE116-10.5-10.95		✓
JKE116-12.9-13.4		✓
JKE116-13.5-13.95		✓
JKE116-15.4-15.6	✓	
JKE122-1.5-1.95		✓
JKE122-2.3-2.6		✓
JKE122-3.0-3.45		✓
JKE122-3.9-4.1		✓
JKE122-4.5-4.95		✓
JKE122-5.3-5.6		✓
JKE122-6.0-6.45		✓
JKE122-6.6-7.0		✓
JKE122-7.5-7.95		✓
JKE122-8.5-8.8	✓	
JKE122-9.0-9.45	✓	
JKE126-0.5-0.95		✓
JKE126-1.5-1.95		✓
JKE126-2.0-2.4		✓
JKE126-3.0-3.45		✓
JKE126-3.8-4.2		✓
JKE126-4.5-4.95		✓

Sample ID	sPOCAS + %S w/w	On Hold
JKE126-5.0-5.4		✓
JKE126-6.0-6.45		✓
JKE126-6.8-7.2		✓
JKE126-7.5-7.95		✓
JKE126-8.3-8.6		✓
JKE126-9.0-9.4		✓
JKE126-9.4-9.45		✓
JKE126-10.5-10.95		✓
JKE126-12.5-13.0	✓	
JKE126-13.5-13.75	✓	
JKE135-0.6-0.8		✓
JKE135-1.7-1.95	✓	
JKE135-2.3-2.6		✓
JKE135-3.0-3.45		✓
JKE135-3.8-4.2		✓
JKE135-4.5-4.95		✓
JKE135-5.3-5.6		✓
JKE135-6.0-6.45		✓
JKE135-6.8-7.2		✓
JKE135-7.5-7.95		✓
JKE135-8.4-8.6		✓
JKE135-9.1-9.45	✓	

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen				EIS Job Number: E32465BD Date Results Required: STANDARD Page: 1/3				FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitchell Delaney									
Location:		Liverpool				Sample Preserved in Esky on Ice											
Sampler:		AM				Tests Required											
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	Sample Description	sPOCAs	pH (1:5 water)	CEC									
5.8.19	1	JKE116	0.6-0.8	P	Silty Clay												
5.8.19	2	JKE116	1.5-1.95	P	Silty Clay												
5.8.19	3	JKE116	3.1-3.3	P	Sand												
5.8.19	4	JKE116	3.3-3.7	P	Sandy Clay												
5.8.19	5	JKE116	4.5-4.45	P	Sandy Clay												
5.8.19	6	JKE116	5.3-5.6	P	Sandy Clay												
5.8.19	7	JKE116	6.1-6.35	P	Silty Clay												
5.8.19	8	JKE116	7.2-7.4	P	Silty Clay												
5.8.19	9	JKE116	7.6-7.95	P	Silty Clay	X											
5.8.19	10	JKE116	8.3-8.6	P	Sandy Clay	X											
5.8.19	11	JKE116	9.0-9.45	P	Silty Clay												
5.8.19	12	JKE116	10.5-10.95	P	Sandy Clay												
5.8.19	13	JKE116	12.9-13.4	P	Sandy Clay												
5.8.19	14	JKE116	13.5-13.95	P	Sandy Clay												
5.8.19	15	JKE116	15.4-15.6	P	Siltstone	X											
6.8.19	16	JKE122	1.5-1.95	P	Silty Clay												
6.8.19	17	JKE122	2.3-2.6	P	Silty Clay												
6.8.19	18	JKE122	3.0-3.45	P	Silty Clay												
6.8.19	19	JKE122	3.9-4.1	P	Silty Clay												
6.8.19	20	JKE122	4.5-4.95	P	Silty Clay												
6.8.19	21	JKE122	5.3-5.6	P	Silty Clay												
6.8.19	22	JKE122	6.0-6.45	P	Clayey Sand												
6.8.19	23	JKE122	6.6-7.0	P	Silty Clay												
6.8.19	24	JKE122	7.5-7.95	P	Silty Clay												
6.8.19	25	JKE122	8.5-8.8	P	Silty Clay	X											
Remarks (comments/detection limits required):						Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag											
Relinquished By: MD				Date: 13/8/19		Time:		Received By: WP		Date: 12/8/19							

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Alleen	EIS Job Number: E32465BD Date Results Required: STANDARD Page: 2/3	FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitchell Delaney

Location: Liverpool		Sample Preserved in Esky on Ice															
Sampler: AM		Tests Required															
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	Sample Description	sPOCAS	pH (1:5 water)	CEC									
6.8.19	26	JKE122	9.0-9.45	P	Silty Clayey Sand	X											
7.8.19	27	JKE126	0.5-0.95	P	Silty Clay												
7.8.19	28	JKE126	1.5-1.95	P	Silty Clay												
7.8.19	29	JKE126	2.0-2.4	P	Silty Sandy Clay												
7.8.19	30	JKE126	3.0-3.45	P	Silty Sandy Clay												
7.8.19	31	JKE126	3.8-4.2	P	Silty Clay												
7.8.19	32	JKE126	4.5-4.95	P	Sandy Clay												
7.8.19	33	JKE126	5.0-5.4	P	Silty Sand												
7.8.19	34	JKE126	6.0-6.45	P	Silty Sand												
7.8.19	35	JKE126	6.8-7.2	P	Silty Clayey Sand												
7.8.19	36	JKE126	7.5-7.95	P	Silty Clayey Sand												
7.8.19	37	JKE126	8.3-8.6	P	Silty Sand												
7.8.19	38	JKE126	9.0-9.4	P	Silty Sand												
7.8.19	39	JKE126	9.4-9.45	P	Silty Clay												
7.8.19	40	JKE126	10.5-10.95	P	Silty Clay												
7.8.19	41	JKE126	12.5-13.0	P	Silty Clay	X											
7.8.19	42	JKE126	13.5-13.75	P	Siltstone	X											
8.8.19	43	JKE135	0.6-0.8	P	Fill: Silty Clay												
8.8.19	44	JKE135	1.7-1.95	P	Silty Clay	X											
8.8.19	45	JKE135	2.3-2.6	P	Silty Clay												
8.8.19	46	JKE135	3.0-3.45	P	Silty Clay												
8.8.19	47	JKE135	3.8-4.2	P	Silty Clay												
8.8.19	48	JKE135	4.5-4.95	P	Silty Clay												
8.8.19	49	JKE135	5.3-5.6	P	Silty Clay												
8.8.19	50	JKE135	6.0-6.45	P	Silty Clay												
Remarks (comments/detection limits required):						Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag											
Relinquished By: MD				Date: 13/8/19		Time:		Received By: WP				Date: 12/8/19					

SAMPLE AND CHAIN OF CUSTODY FORM

[illegible]

CERTIFICATE OF ANALYSIS 223772-A

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32465BD, Liverpool</u>
Number of Samples	54 soil
Date samples received	13/08/2019
Date completed instructions received	21/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

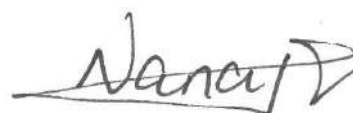
Report Details

Date results requested by	28/08/2019
Date of Issue	23/08/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Priya Samarawickrama, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

SCr		
Our Reference		223772-A-15
Your Reference	UNITS	JKE116
Depth		15.4-15.6
Date Sampled		05/08/2019
Type of sample		soil
Date prepared	-	22/08/2019
Date analysed	-	22/08/2019
Chromium Reducible Sulfur	%w/w	0.17
a-Chromium Reducible Sulfur	moles H ⁺ /t	100

Method ID	Methodology Summary
Inorg-068	Chromium Reducible Sulfur - Hydrogen Sulfide is quantified by iodometric titration after distillation to determine potential acidity. Based on Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004.

QUALITY CONTROL: SCr						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			22/08/2019	[NT]	[NT]	[NT]	[NT]	22/08/2019	[NT]
Date analysed	-			22/08/2019	[NT]	[NT]	[NT]	[NT]	22/08/2019	[NT]
Chromium Reducible Sulfur	%w/w	0.005	Inorg-068	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
a-Chromium Reducible Sulfur	moles H ⁺ /t	3	Inorg-068	<3	[NT]	[NT]	[NT]	[NT]	98	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32465BD, Liverpool
Envirolab Reference	223772-A
Date Sample Received	13/08/2019
Date Instructions Received	21/08/2019
Date Results Expected to be Reported	28/08/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	54 soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	13.1
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	SCr	On Hold
JKE116-0.6-0.8		✓
JKE116-1.5-1.95		✓
JKE116-3.1-3.3		✓
JKE116-3.3-3.7		✓
JKE116-4.5-4.95		✓
JKE116-5.3-5.6		✓
JKE116-6.1-6.35		✓
JKE116-7.2-7.4		✓
JKE116-7.6-7.95		✓
JKE116-8.3-8.6		✓
JKE116-90-9.45		✓
JKE116-10.5-10.95		✓
JKE116-12.9-13.4		✓
JKE116-13.5-13.95		✓
JKE116-15.4-15.6	✓	
JKE122-1.5-1.95		✓
JKE122-2.3-2.6		✓
JKE122-3.0-3.45		✓
JKE122-3.9-4.1		✓
JKE122-4.5-4.95		✓
JKE122-5.3-5.6		✓
JKE122-6.0-6.45		✓
JKE122-6.6-7.0		✓
JKE122-7.5-7.95		✓
JKE122-8.5-8.8		✓
JKE122-9.0-9.45		✓
JKE126-0.5-0.95		✓
JKE126-1.5-1.95		✓
JKE126-2.0-2.4		✓
JKE126-3.0-3.45		✓
JKE126-3.8-4.2		✓
JKE126-4.5-4.95		✓

Sample ID	SCr	On Hold
JKE126-5.0-5.4		✓
JKE126-6.0-6.45		✓
JKE126-6.8-7.2		✓
JKE126-7.5-7.95		✓
JKE126-8.3-8.6		✓
JKE126-9.0-9.4		✓
JKE126-9.4-9.45		✓
JKE126-10.5-10.95		✓
JKE126-12.5-13.0		✓
JKE126-13.5-13.75		✓
JKE135-0.6-0.8		✓
JKE135-1.7-1.95		✓
JKE135-2.3-2.6		✓
JKE135-3.0-3.45		✓
JKE135-3.8-4.2		✓
JKE135-4.5-4.95		✓
JKE135-5.3-5.6		✓
JKE135-6.0-6.45		✓
JKE135-6.8-7.2		✓
JKE135-7.5-7.95		✓
JKE135-8.4-8.6		✓
JKE135-9.1-9.45		✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Andrew Fitzsimons

From: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Sent: Wednesday, 21 August 2019 4:58 PM
To: Samplereceipt
Subject: Additional Analysis Request 223772

Follow Up Flag: Follow up
Flag Status: Flagged

Ref: 223772-A
TAT: std
Due: 28/8/19
FAZ

Hi,

#15

Can I please schedule SCr analysis on the sample JKE116 (15.4-15.6).

Standard TA please.

Many thanks.

Regards
Mitchell Delaney
Senior Associate | Environmental Scientist



T: +612 9888 5000
E: MDelaney@jkenvironments.com.au
www.jkenvironments.com.au

PO Box 976
NORTH RYDE BC NSW 1670
115 Wicks Road
MACQUARIE PARK NSW 2113

JKEnvironments

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CERTIFICATE OF ANALYSIS 223298

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32465BD, Liverpool</u>
Number of Samples	26 soil
Date samples received	06/08/2019
Date completed instructions received	06/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

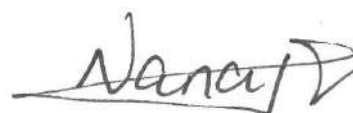
Report Details

Date results requested by	14/08/2019
Date of Issue	14/08/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Diego Bigolin, Team Leader, Inorganics
 Loren Bardwell, Senior Chemist
 Nick Sarlamis, Inorganics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

CEC			
Our Reference		223298-5	223298-18
Your Reference	UNITS	JKE102	JKE108
Depth		3.25-3.45	3.0-3.45
Date Sampled		31/07/2019	31/07/2019
Type of sample		soil	soil
Date prepared	-	13/08/2019	13/08/2019
Date analysed	-	13/08/2019	13/08/2019
Exchangeable Ca	meq/100g	1.1	7.6
Exchangeable K	meq/100g	<0.1	0.2
Exchangeable Mg	meq/100g	2.8	3.8
Exchangeable Na	meq/100g	1.2	1.2
Cation Exchange Capacity	meq/100g	5.2	13

Texture and Salinity*						
Our Reference		223298-5	223298-16	223298-18	223298-22	223298-24
Your Reference	UNITS	JKE102	JKE102	JKE108	JKE108	JKE108
Depth		3.25-3.45	9.8-10.0	3.0-3.45	7.5-7.95	9.2-9.45
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Electrical Conductivity 1:5 soil:water	µS/cm	260	460	340	250	230
Texture Value	-	7.0	8.0	7.0	14	9.0
Texture		MEDIUM CLAY	LIGHT MEDIUM CLAY	MEDIUM CLAY	SANDY LOAM	CLAY LOAM
ECe	dS/m	<2	3.7	2.4	3.5	2.1
Class		NON SALINE	SLIGHTLY SALINE	SLIGHTLY SALINE	SLIGHTLY SALINE	SLIGHTLY SALINE

Misc Inorg - Soil						
Our Reference		223298-5	223298-16	223298-18	223298-22	223298-24
Your Reference	UNITS	JKE102	JKE102	JKE108	JKE108	JKE108
Depth		3.25-3.45	9.8-10.0	3.0-3.45	7.5-7.95	9.2-9.45
Date Sampled		31/07/2019	31/07/2019	31/07/2019	31/07/2019	31/07/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
Date analysed	-	08/08/2019	08/08/2019	08/08/2019	08/08/2019	08/08/2019
pH 1:5 soil:water	pH Units	7.7	8.9	7.6	6.7	7.8
Chloride, Cl 1:5 soil:water	mg/kg	230	490	230	300	280
Sulphate, SO4 1:5 soil:water	mg/kg	200	86	310	68	30
Resistivity in soil*	ohm m	39	22	29	40	44

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons. Resistivity is calculated from Conductivity (non NATA). Resistivity (calculated) may not correlate with results otherwise obtained using Resistivity-Current method, depending on the nature of the soil being analysed.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-123	Determined using a "Texture by Feel" method.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.

QUALITY CONTROL: CEC					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			13/08/2019	[NT]	[NT]	[NT]	[NT]	13/08/2019	[NT]
Date analysed	-			13/08/2019	[NT]	[NT]	[NT]	[NT]	13/08/2019	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: Texture and Salinity*						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			08/08/2019	[NT]	[NT]	[NT]	[NT]	08/08/2019	[NT]
Date analysed	-			08/08/2019	[NT]	[NT]	[NT]	[NT]	08/08/2019	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	223298-16
Date prepared	-			08/08/2019	5	08/08/2019	08/08/2019		08/08/2019	08/08/2019
Date analysed	-			08/08/2019	5	08/08/2019	08/08/2019		08/08/2019	08/08/2019
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	5	7.7	7.8	1	102	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	5	230	[NT]		91	#
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	5	200	[NT]		96	114
Resistivity in soil*	ohm m	1	Inorg-002	<1	5	39	31	23	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Report Comments

MISC_INORG_DRY: CHLORIDE # Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32465BD, Liverpool
Envirolab Reference	223298
Date Sample Received	06/08/2019
Date Instructions Received	06/08/2019
Date Results Expected to be Reported	14/08/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	26 soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	14.1
Cooling Method	Ice
Sampling Date Provided	YES

Comments

MISSING JKE102 0.3-0.5

EXTRA
 JKE102 4.0-4.2
 JKE102 4.7-4.95

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	CEC	Texture and Salinity*	Misc Inorg - Soil	On Hold
JKE102-0.1-0.3				✓
JKE102-1.2-1.6				✓
JKE102-1.6-2.0				✓
JKE102-2.8-3.0				✓
JKE102-3.25-3.45	✓	✓	✓	
JKE102-4.4-4.5				✓
JKE102-5.0-5.4				✓
JKE102-5.8-6.0				✓
JKE102-6.2-6.4				✓
JKE102-6.4-6.45				✓
JKE102-6.7-7.0				✓
JKE102-7.3-7.5				✓
JKE102-7.75-7.95				✓
JKE102-8.4-8.6				✓
JKE102-9.0-9.45				✓
JKE102-9.8-10.0		✓	✓	
JKE108-0.5-0.95				✓
JKE108-3.0-3.45	✓	✓	✓	
JKE108-4.0-4.3				✓
JKE108-4.8-4.95				✓
JKE108-6.0-6.45				✓
JKE108-7.5-7.95		✓	✓	
JKE108-8.4-8.8				✓
JKE108-9.2-9.45		✓	✓	
JKE102-4.0-4.2				✓
JKE102-4.7-4.95				✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen		EIS Job Number: E32465BD Date Results Required: STANDARD Page: 1 of 1		FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitch Delaney mdelaney@jkenvironments.com.au	

Location: Liverpool		Sample Preserved in Esky on Ice													
Sampler: AM		Tests Required													
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	Sample Description	pH	EC	ECe (texture)	Sulphate	Chloride	Resistivity				
31/7/19	1	JKE102	0.1-0.3	P	F: Gravelly sand										
	NR 2	NR	0.3-0.5		F: Silty clay										
	2 3		1.2-1.6		↓										
	3 4		1.6-2.0		Silty CLAY										
	4 5		2.8-3.0												
	5 6		3.25-3.45			X	X	X	X	X	X	X	X	X	
	6 7		4.4-4.5		↓										
	7 8		5.0-5.4		Silty clay sand										
	8 9		5.8-6.0		SAND										
	9 10		6.2-6.4		Silty SAND										
	10 11		6.4-6.95		Silty CLAY										
	11 12	12/8/19	6.7-7.0												
	12 13	6/8/19	7.3-7.5												
	13 14		7.75-7.95												
	14 15		8.4-8.6												
	15 16	2x	9.0-9.95												
	↓ 16 17	↓	9.8-10.0		↓	X	X	X	X	X	X	X	X	X	
17	11/8/19	18	JKE108	0.5-0.95	F: Silty clay										
	18 19		3.0-3.45		Silty CLAY	X	X	X	X	X	X	X	X	X	
	19 20	(JKE102)	4.0-4.3												
	20 21		4.8-4.95												
	21 22		6.0-6.45												
	22 23		7.5-7.95			X	X	X	X	X	X	X	X	X	
	23 24		8.4-8.8												
	↓ 24 25	↓	9.2-9.45	↓	↓	X	X	X	X	X	X	X	X	X	
Remarks (comments/detection limits required): 25 26 extra - JKE 102 4.0 - 4.2 26 27 - JKE 102 4.7 - 4.95						Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag									
Relinquished By: MWD				Date: 6/8/19		Time: 1530		Received By: MWD		Date: 6/8/2019					

CERTIFICATE OF ANALYSIS 223787

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E32465BD, Liverpool</u>
Number of Samples	52 soil
Date samples received	13/08/2019
Date completed instructions received	13/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

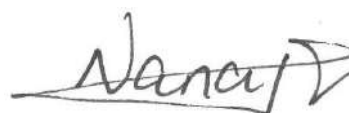
Report Details

Date results requested by	20/08/2019
Date of Issue	20/08/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Diego Bigolin, Team Leader, Inorganics
 Jaimie Loa-Kum-Cheung, Metals Supervisor
 Nick Sarlamis, Inorganics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

CEC						
Our Reference		223787-1	223787-14	223787-16	223787-22	223787-26
Your Reference	UNITS	JKE116	JKE116	JKE122	JKE122	JKE126
Depth		0.6-0.8	15.4-15.6	2.3-2.6	6.6-7.0	0.5-0.95
Date Sampled		05/08/2019	05/08/2019	06/08/2019	06/08/2019	07/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	16/08/2019	16/08/2019	16/08/2019	16/08/2019	16/08/2019
Date analysed	-	16/08/2019	16/08/2019	16/08/2019	16/08/2019	16/08/2019
Exchangeable Ca	meq/100g	7.3	0.7	2.1	1.6	5.8
Exchangeable K	meq/100g	0.1	0.3	<0.1	<0.1	0.4
Exchangeable Mg	meq/100g	9.9	2.3	4.5	2.2	6.3
Exchangeable Na	meq/100g	1.9	0.57	1.3	0.83	0.60
Cation Exchange Capacity	meq/100g	19	3.8	8.1	4.7	13

CEC		
Our Reference		223787-44
Your Reference	UNITS	JKE135
Depth		3.0-3.45
Date Sampled		08/08/2019
Type of sample		soil
Date prepared	-	16/08/2019
Date analysed	-	16/08/2019
Exchangeable Ca	meq/100g	<0.1
Exchangeable K	meq/100g	<0.1
Exchangeable Mg	meq/100g	1.6
Exchangeable Na	meq/100g	1.1
Cation Exchange Capacity	meq/100g	2.7

Texture and Salinity*						
Our Reference	UNITS	223787-1	223787-8	223787-14	223787-16	223787-22
Your Reference		JKE116	JKE116	JKE116	JKE122	JKE122
Depth		0.6-0.8	7.6-7.95	15.4-15.6	2.3-2.6	6.6-7.0
Date Sampled		05/08/2019	05/08/2019	05/08/2019	06/08/2019	06/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Electrical Conductivity 1:5 soil:water	µS/cm	460	520	540	390	470
Texture Value	-	7.0	8.0	8.5	8.0	8.0
Texture		MEDIUM CLAY	LIGHT MEDIUM CLAY	LIGHT CLAY	LIGHT MEDIUM CLAY	LIGHT MEDIUM CLAY
ECe	dS/m	3.2	4.1	4.6	3.1	3.7
Class		SLIGHTLY SALINE	MODERATELY SALINE	MODERATELY SALINE	SLIGHTLY SALINE	SLIGHTLY SALINE

Texture and Salinity*					
Our Reference	UNITS	223787-26	223787-40	223787-44	223787-52
Your Reference		JKE126	JKE126	JKE135	JKE135
Depth		0.5-0.95	13.5-13.75	3.0-3.45	9.1-9.45
Date Sampled		07/08/2019	07/08/2019	08/08/2019	08/08/2019
Type of sample		soil	soil	soil	soil
Date prepared	-	15/08/2019	16/08/2019	16/08/2019	16/08/2019
Date analysed	-	15/08/2019	16/08/2019	16/08/2019	16/08/2019
Electrical Conductivity 1:5 soil:water	µS/cm	190	710	210	780
Texture Value	-	7.0	9.0	7.0	8.5
Texture		MEDIUM CLAY	CLAY LOAM	MEDIUM CLAY	LIGHT CLAY
ECe	dS/m	<2	6.4	<2	6.7
Class		NON SALINE	MODERATELY SALINE	NON SALINE	MODERATELY SALINE

Misc Inorg - Soil						
Our Reference		223787-1	223787-8	223787-14	223787-16	223787-22
Your Reference	UNITS	JKE116	JKE116	JKE116	JKE122	JKE122
Depth		0.6-0.8	7.6-7.95	15.4-15.6	2.3-2.6	6.6-7.0
Date Sampled		05/08/2019	05/08/2019	05/08/2019	06/08/2019	06/08/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019	15/08/2019
pH 1:5 soil:water	pH Units	7.9	8.2	8.0	6.3	7.8
Chloride, Cl 1:5 soil:water	mg/kg	390	790	690	140	420
Sulphate, SO4 1:5 soil:water	mg/kg	300	50	160	530	300
Resistivity in soil*	ohm m	22	19	19	26	21

Misc Inorg - Soil					
Our Reference		223787-26	223787-40	223787-44	223787-52
Your Reference	UNITS	JKE126	JKE126	JKE135	JKE135
Depth		0.5-0.95	13.5-13.75	3.0-3.45	9.1-9.45
Date Sampled		07/08/2019	07/08/2019	08/08/2019	08/08/2019
Type of sample		soil	soil	soil	soil
Date prepared	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019
Date analysed	-	15/08/2019	15/08/2019	15/08/2019	15/08/2019
pH 1:5 soil:water	pH Units	8.2	8.6	5.5	8.6
Chloride, Cl 1:5 soil:water	mg/kg	62	840	200	970
Sulphate, SO4 1:5 soil:water	mg/kg	210	110	110	140
Resistivity in soil*	ohm m	54	14	49	13

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons. Resistivity is calculated from Conductivity (non NATA). Resistivity (calculated) may not correlate with results otherwise obtained using Resistivity-Current method, depending on the nature of the soil being analysed.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-123	Determined using a "Texture by Feel" method.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			16/08/2019	14	16/08/2019	16/08/2019		16/08/2019	[NT]
Date analysed	-			16/08/2019	14	16/08/2019	16/08/2019		16/08/2019	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	14	0.7	0.7	0	107	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	14	0.3	0.3	0	103	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	14	2.3	2.4	4	104	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	14	0.57	0.56	2	107	[NT]

QUALITY CONTROL: Texture and Salinity*						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			15/08/2019	[NT]	[NT]	[NT]	[NT]	15/08/2019	[NT]
Date analysed	-			15/08/2019	[NT]	[NT]	[NT]	[NT]	15/08/2019	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	223787-26
Date prepared	-			15/08/2019	8	15/08/2019	15/08/2019		15/08/2019	15/08/2019
Date analysed	-			15/08/2019	8	15/08/2019	15/08/2019		15/08/2019	15/08/2019
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	8	8.2	8.3	1	102	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	8	790	700	12	95	74
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	8	50	48	4	99	70
Resistivity in soil*	ohm m	1	Inorg-002	<1	8	19	20	5	[NT]	[NT]

Result Definitions

NT	Not tested
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INS	Insufficient sample for this test
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>	Greater than
RPD	Relative Percent Difference
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Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
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Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

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Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

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When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Report Comments

MISC_INORG_DRY:SULPHATE # Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Mitchell Delaney

Sample Login Details

Your reference	E32465BD, Liverpool
Envirolab Reference	223787
Date Sample Received	13/08/2019
Date Instructions Received	13/08/2019
Date Results Expected to be Reported	20/08/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	52 soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	16.4
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	CEC	Texture and Salinity*	Misc Inorg - Soil	On Hold
JKE116-0.6-0.8	✓	✓	✓	
JKE116-1.5-1.95				✓
JKE116-3.3-3.7				✓
JKE116-4.5-4.95				✓
JKE116-5.3-5.6				✓
JKE116-6.1-6.35				✓
JKE116-7.2-7.4				✓
JKE116-7.6-7.95		✓	✓	
JKE116-8.3-8.6				✓
JKE116-9.0-9.45				✓
JKE116-10.5-10.95				✓
JKE116-12.9-13.4				✓
JKE116-13.5-13.95				✓
JKE116-15.4-15.6	✓	✓	✓	
JKE122-1.5-1.95				✓
JKE122-2.3-2.6	✓	✓	✓	
JKE122-3.0-3.45				✓
JKE122-3.9-4.1				✓
JKE122-4.5-4.95				✓
JKE122-5.3-5.6				✓
JKE122-6.0-6.45				✓
JKE122-6.6-7.0	✓	✓	✓	
JKE122-7.5-7.95				✓
JKE122-8.5-8.8				✓
JKE122-9.0-9.45				✓
JKE126-0.5-0.95	✓	✓	✓	
JKE126-1.5-1.95				✓
JKE126-2.0-2.4				✓
JKE126-3.0-3.45				✓
JKE126-3.8-4.2				✓
JKE126-4.5-4.95				✓
JKE126-5.0-5.4				✓

Sample ID	CEC	Texture and Salinity*	Misc Inorg - Soil	On Hold
JKE126-6.0-6.45				✓
JKE126-6.8-7.2				✓
JKE126-7.5-7.95				✓
JKE126-8.3-8.6				✓
JKE126-9.0-9.4				✓
JKE126-105-10.95				✓
JKE126-12.5-13.0				✓
JKE126-13.5-13.75		✓	✓	
JKE135-0.6-0.8				✓
JKE135-1.7-1.95				✓
JKE135-2.3-2.6				✓
JKE135-3.0-3.45	✓	✓	✓	
JKE135-3.8-4.2				✓
JKE135-4.5-4.95				✓
JKE135-5.3-5.6				✓
JKE135-6.0-6.45				✓
JKE135-6.8-7.2				✓
JKE135-7.5-7.95				✓
JKE135-8.4-8.6				✓
JKE135-9.1-9.45		✓	✓	

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E32465BD Date Results Required: STANDARD Page: 1/3	FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitchell Delaney

Location:		Liverpool				Sample Preserved in Esky on Ice													
Sampler:		AM				Tests Required													
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	Sample Description	pH	EC	ECe (texture)	Sulphate	Chloride	Resistivity	CEC							
5.8.19	1	JKE116	0.6-0.8	P	Silty Clay	X	X	X	X	X	X	X							
5.8.19	2	JKE116	1.5-1.95	P	Silty Clay														
5.8.19	3	JKE116	3.3-3.7	P	Sandy Clay														
5.8.19	4	JKE116	4.5-4.45	P	Sandy Clay														
5.8.19	5	JKE116	5.3-5.6	P	Sandy Clay														
5.8.19	6	JKE116	6.1-6.35	P	Silty Clay														
5.8.19	7	JKE116	7.2-7.4	P	Silty Clay														
5.8.19	8	JKE116	7.6-7.95	P	Silty Clay	X	X	X	X	X	X	X							
5.8.19	9	JKE116	8.3-8.6	P	Sandy Clay														
5.8.19	10	JKE116	9.0-9.45	P	Silty Clay														
5.8.19	11	JKE116	10.5-10.95	P	Sandy Clay														
5.8.19	12	JKE116	12.9-13.4	P	Sandy Clay														
5.8.19	13	JKE116	13.5-13.95	P	Sandy Clay														
5.8.19	14	JKE116	15.4-15.6	P	Siltstone	X	X	X	X	X	X	X							
6.8.19	15	JKE122	1.5-1.95	P	Silty Clay														
6.8.19	16	JKE122	2.3-2.6	P	Silty Clay	X	X	X	X	X	X	X							
6.8.19	17	JKE122	3.0-3.45	P	Silty Clay														
6.8.19	18	JKE122	3.9-4.1	P	Silty Clay														
6.8.19	19	JKE122	4.5-4.95	P	Silty Clay														
6.8.19	20	JKE122	5.3-5.6	P	Silty Clay														
6.8.19	21	JKE122	6.0-6.45	P	Clayey Sand														
6.8.19	22	JKE122	6.6-7.0	P	Silty Clay	X	X	X	X	X	X	X							
6.8.19	23	JKE122	7.5-7.95	P	Silty Clay														
6.8.19	24	JKE122	8.5-8.8	P	Silty Clay														
6.8.19	25	JKE122	9.0-9.45	P	Silty Clayey Sand														

EnviroLab
12 A
Chatswood NSW
Ph: (02) 9550 1234

Job No: 223787

Date Received: 13.08.19

Time Received: 1400

Received by: KE

Temp: 20°C / Ambient

Cooling: Ice / Ice pack

Security: intact Broken/No

Remarks (comments/detection limits required):				Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag			
Relinquished By: <i>MD</i>	Date: 13/8/19	Time: 4:20	Received By: <i>BM</i>	Date: 13/8			


 Envirolab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200
 Job No: 223787
 Date Received: 13.08.19
 Time Received: 1400
 Received by: *KE*
 Temp: 21°C Ambient
 Cooling: ice/icepack
 Security: intact Broken/None

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E32465BD Date Results Required: STANDARD Page: 2/3	FROM: JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitchell Delaney

Location: Liverpool						Sample Preserved in Esky on Ice											
Sampler: AM						Tests Required											
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	Sample Description	pH	EC	ECa (texture)	Sulphate	Chloride	Resistivity	CEC					
7.8.19	26	JKE126	0.5-0.95	P	Silty Clay	X	X	X	X	X	X	X					
7.8.19	27	JKE126	1.5-1.95	P	Silty Clay												
7.8.19	28	JKE126	2.0-2.4	P	Silty Sandy Clay												
7.8.19	29	JKE126	3.0-3.45	P	Silty Sandy Clay												
7.8.19	30	JKE126	3.8-4.2	P	Silty Clay												
7.8.19	31	JKE126	4.5-4.95	P	Sandy Clay												
7.8.19	32	JKE126	5.0-5.4	P	Silty Sand												
7.8.19	33	JKE126	6.0-6.45	P	Silty Sand												
7.8.19	34	JKE126	6.8-7.2	P	Silty Clayey Sand												
7.8.19	35	JKE126	7.5-7.95	P	Silty Clayey Sand												
7.8.19	36	JKE126	8.3-8.6	P	Silty Sand												
7.8.19	37	JKE126	9.0-9.4	P	Silty Sand												
7.8.19	38	JKE126	10.5-10.95	P	Silty Clay												
7.8.19	39	JKE126	12.5-13.0	P	Silty Clay												
7.8.19	40	JKE126	13.5-13.75	P	Siltstone	X	X	X	X	X	X	X					
8.8.19	41	JKE135	0.6-0.8	P	Fill: Silty Clay												
8.8.19	42	JKE135	1.7-1.95	P	Silty Clay												
8.8.19	43	JKE135	2.3-2.6	P	Silty Clay												
8.8.19	44	JKE135	3.0-3.45	P	Silty Clay	X	X	X	X	X	X	X					
8.8.19	45	JKE135	3.8-4.2	P	Silty Clay												
8.8.19	46	JKE135	4.5-4.95	P	Silty Clay												
8.8.19	47	JKE135	5.3-5.6	P	Silty Clay												
8.8.19	48	JKE135	6.0-6.45	P	Silty Clay												
8.8.19	49	JKE135	6.8-7.2	P	Silty Clay												
8.8.19	50	JKE135	7.5-7.95	P	Silty Clay												
Remarks (comments/detection limits required):						Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag											
Relinquished By: MD				Date: 13/8/19		Time: 4:20		Received By: Alex BM				Date: 13/8					

223787

[illegible]

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Appendix F: Report Explanatory Notes

Standard Sampling Procedure

These protocols specify the basic procedures to be used when sampling soils or groundwater for environmental site assessments undertaken by JKE. The purpose of these protocols is to provide standard methods for: sampling, decontamination procedures for sampling equipment, sample preservation, sample storage and sample handling. Deviations from these procedures must be recorded.

A. Soil Sampling

- Prepare a borehole/test pit log or made a note of the sample description for stockpiles.
- Layout sampling equipment on clean plastic sheeting to prevent direct contact with ground surface. The work area should be at a distance from the drill rig/excavator such that the machine can operate in a safe manner.
- Ensure all sampling equipment has been decontaminated prior to use.
- Remove any surface debris from the immediate area of the sampling location.
- Collect samples and place in glass jar with a Teflon seal. This should be undertaken as quickly as possible to prevent the loss of any volatiles. If possible, fill the glass jars completely.
- Collect samples for asbestos analysis and place in a zip-lock plastic bag.
- Label the sampling containers with the JKE job number, sample location (eg. BH1), sampling depth interval and date. If more than one sample container is used, this should also be indicated (eg. 2 = Sample jar 1 of 2 jars).
- Photoionisation detector (PID) screening of volatile organic compounds (VOCs) should be undertaken on samples using the soil sample headspace method. Headspace measurements are taken following equilibration of the headspace gasses in partly filled zip-lock plastic bags. PID headspace data is recorded on the borehole/test pit log and the chain of custody forms.
- Record the lithology of the sample and sample depth on the borehole/test pit log generally in accordance with AS1726-2017³¹.
- Store the sample in a sample container cooled with ice or chill packs. On completion of the sampling the sample container should be delivered to the lab immediately or stored in the refrigerator prior to delivery to the lab. All samples are preserved in accordance with the standards outlined in the report.
- Check for the presence of groundwater after completion of each borehole using an electronic dip metre or water whistle. Boreholes should be left open until the end of fieldwork where it is safe to do so. All groundwater levels in the boreholes should be rechecked on the completion of the fieldwork.
- Backfill the boreholes/test pits with the excavation cuttings or clean sand prior to leaving the site.

B. Decontamination Procedures for Soil Sampling Equipment

- All sampling equipment should be decontaminated between every sampling location. This excludes single use PVC tubing used for push tubes etc. Equipment and materials required for the decontamination include:
 - Phosphate free detergent (Decon 90);
 - Potable water;
 - Stiff brushes; and
 - Plastic sheets.
- Ensure the decontamination materials are clean prior to proceeding with the decontamination.
- Fill both buckets with clean potable water and add phosphate free detergent to one bucket.
- In the bucket containing the detergent, scrub the sampling equipment until all the material attached to the equipment has been removed.
- Rinse sampling equipment in the bucket containing potable water.
- Place cleaned equipment on clean plastic sheets.

³¹ Standards Australia, (2017), *Geotechnical Site Investigations*. (AS1726-2017)



If all materials are not removed by this procedure, high-pressure water cleaning is recommended. If any equipment is not completely decontaminated by both these processes, then the equipment should not be used until it has been thoroughly cleaned.

C. Groundwater Sampling

Groundwater samples are more sensitive to contamination than soil samples and therefore adherence to this protocol is particularly important to obtain reliable, reproducible results. The recommendations detailed in AS/NZS 5667.1:1998 are considered to form a minimum standard.

The basis of this protocol is to maintain the security of the borehole and obtain accurate and representative groundwater samples. The following procedure should be used for collection of groundwater samples from previously installed groundwater monitoring wells.

- After monitoring well installation, at least three bore volumes should be pumped from the monitoring wells (well development) to remove any water introduced during the drilling process and/or the water that is disturbed during installation of the monitoring well. This should be completed prior to purging and sampling.
- Groundwater monitoring wells should then be left to recharge for at least three days before purging and sampling. Prior to purging or sampling, the condition of each well should be observed and any anomalies recorded on the field data sheets. The following information should be noted: the condition of the well, noting any signs of damage, tampering or complete destruction; the condition and operation of the well lock; the condition of the protective casing and the cement footing (raised or cracked); and, the presence of water between protective casing and well.
- Measure the groundwater level from the collar of the piezometer/monitoring well using an electronic dip meter. The collar level should be taken (if required) during the site visit using a dumpy level and staff.
- Purging and sampling of piezometers/monitoring wells is done on the same site visit when using micro-purge (or other low flow) techniques.
- Layout and organize all equipment associated with groundwater sampling in a location where they will not interfere with the sampling procedure and will not pose a risk of contaminating samples. Equipment generally required includes:
 - Stericup single-use filters (for heavy metals samples);
 - Bucket with volume increments;
 - Sample containers: teflon bottles with 1 ml nitric acid, 75mL glass vials with 1 mL hydrochloric acid, 1 L amber glass bottles;
 - Bucket with volume increments;
 - Flow cell;
 - pH/EC/Eh/Temperature meters;
 - Plastic drums used for transportation of purged water;
 - Esky and ice;
 - Nitrile gloves;
 - Distilled water (for cleaning);
 - Electronic dip meter;
 - Low flow peristaltic pump and associated tubing; and
 - Groundwater sampling forms.
- Ensure all non-disposable sampling equipment is decontaminated or that new disposable equipment is available prior to any work commencing at a new location. The procedure for decontamination of groundwater equipment is outlined at the end of this section.
- Disposable gloves should be used whenever samples are taken to protect the sampler and to assist in avoidance of contamination.
- Groundwater samples are obtained from the monitoring wells using low flow sampling equipment to reduce the disturbance of the water column and loss of volatiles.

- During pumping to purge the well, the pH, temperature, conductivity, dissolved oxygen, redox potential and groundwater levels are monitored (where possible) using calibrated field instruments to assess the development of steady state conditions. Steady state conditions are generally considered to have been achieved when the difference in the pH measurements is less than 0.2 units, the difference in conductivity is less than 10% and whilst the well is no longer in draw-down.
- All measurements are recorded on specific data sheets.
- Once steady state conditions are considered to have been achieved, groundwater samples are obtained directly from the pump tubing and placed in appropriate glass bottles, BTEX vials or plastic bottles.
- All samples are preserved in accordance with water sampling requirements specified by the laboratory and placed in an insulated container with ice. Groundwater samples are preserved by immediate storage in an insulated sample container with ice.
- At the end of each water sampling complete a chain of custody form for samples being sent to the laboratory.

D. Decontamination Procedures for Groundwater Sampling Equipment

- All equipment associated with the groundwater sampling procedure (other than single-use items) are decontaminated between every sampling location.
- The following equipment and materials are required for the decontamination procedure:
 - Phosphate free detergent;
 - Potable water;
 - Distilled water; and
 - Plastic Sheets or bulk bags (plastic bags).
- Fill one bucket with clean potable water and phosphate free detergent, and one bucket with distilled water.
- Flush potable water and detergent through pump head. Wash sampling equipment and pump head using brushes in the bucket containing detergent until all materials attached to the equipment are removed.
- Flush pump head with distilled water.
- Change water and detergent solution after each sampling location.
- Rinse sampling equipment in the bucket containing distilled water.
- Place cleaned equipment on clean plastic sheets.
- If all materials are not removed by this procedure that equipment should not be used until it has been thoroughly cleaned

QA/QC Definitions

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994)³² methods and those described in *Environmental Sampling and Analysis, A Practical Guide*, (1991)³³. The NEPM (2013) is consistent with these documents.

A. Practical Quantitation Limit (PQL), Limit of Reporting (LOR) & Estimated Quantitation Limit (EQL)

These terms all refer to the concentration above which results can be expressed with a minimum 95% confidence level. The laboratory reporting limits are generally set at ten times the standard deviation for the Method Detection Limit for each specific analyte. For the purposes of this report the LOR, PQL, and EQL are considered to be equivalent.

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations: *"The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit"* (Keith, 1991).

B. Precision

The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD).

C. Accuracy

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured (i.e. the proximity of an averaged result to the true value, where all random errors have been statistically removed). The assessment of accuracy for an analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes. Accuracy is typically reported as percent recovery.

D. Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handling and analysis protocols and use of proper chain-of-custody and documentation procedures.

E. Completeness

Completeness is a measure of the number of valid measurements in a data set compared to the total number of measurements made and overall performance against DQIs. The following information is assessed for completeness:

- Chain-of-custody forms;
- Sample receipt form;
- All sample results reported;
- All blank data reported;
- All laboratory duplicate and RPDs calculated;

³² US EPA, (1994). *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*. (US EPA SW-846)

³³ Keith, H, (1991). *Environmental Sampling and Analysis, A Practical Guide*

- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

F. Comparability

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity) under which separate sets of data are produced. Data comparability checks include a bias assessment that may arise from the following sources:

- Collection and analysis of samples by different personnel; Use of different techniques;
- Collection and analysis by the same personnel using the same methods but at different times; and
- Spatial and temporal changes (due to environmental dynamics).

G. Blanks

The purpose of laboratory and field blanks is to check for artefacts and interferences that may arise during sampling, transport and analysis.

H. Matrix Spikes

Samples are spiked with laboratory grade standards to detect interactive effects between the sample matrix and the analytes being measured. Matrix Spikes are reported as a percent recovery and are prepared for 1 in every 20 samples. Sample batches that contain less than 20 samples may be reported with a Matrix Spike from another batch. The percent recovery is calculated using the formula below. Acceptable recovery limits are 70% to 130%.

$$\frac{(\text{Spike Sample Result} - \text{Sample Result}) \times 100}{\text{Concentration of Spike Added}}$$

I. Surrogate Spikes

Samples are spiked with a known concentration of compounds that are chemically related to the analyte being investigated but unlikely to be detected in the environment. The purpose of the Surrogate Spikes is to check the accuracy of the analytical technique. Surrogate Spikes are reported as percent recovery.

J. Duplicates

Laboratory duplicates measure precision, expressed as Relative Percent Difference. Duplicates are prepared from a single field sample and analysed as two separate extraction procedures in the laboratory. The RPD is calculated using the formula where D1 is the sample concentration and D2 is the duplicate sample concentration:

$$\frac{(D1 - D2) \times 100}{\{(D1 + D2)/2\}}$$

Appendix G: Data (QA/QC) Evaluation

Data (QA/QC) Evaluation

A. INTRODUCTION

This Data (QA/QC) Evaluation forms part of the validation process for the DQOs documented in Section 6.1 of this report. Checks were made to assess the data in terms of precision, accuracy, representativeness, comparability and completeness. These 'PARCC' parameters are referred to collectively as DQIs and are defined in the Report Explanatory Notes attached in the report appendices.

1. Field and Laboratory Considerations

The quality of the analytical data produced for this project has been considered in relation to the following:

- Sample collection, storage, transport and analysis;
- Laboratory PQLs;
- Field QA/QC results; and
- Laboratory QA/QC results.

2. Field QA/QC Samples and Analysis

A summary of the field QA/QC samples collected and analysed for this assessment is provided in the following table:

Sample Type	Sample Identification	Frequency (of Sample Type)	Analysis Performed
Intra-laboratory duplicate (soil)	DUPMP102 (primary sample MW14 0-0.2m)	Approximately 10% of primary samples	Heavy metals, TRH/BTEX, PAHs, OCPs, OPPs and PCBs
Intra-laboratory duplicate (soil)	DUPMP107 (primary sample MW9 0-0.15m)	As above	Heavy metals, TRH/BTEX and PAHs
Intra-laboratory duplicate (soil)	DUPMP106 (primary sample MW4 (0.2-0.4m)	At corresponding Sampling location due to detection of Chromium in the primary sample	Total chromium and hexavalent chromium (Cr ⁶⁺)
Inter-laboratory duplicate (soil)	DUPMP103 (primary sample MW3 0-0.2m)	Approximately 10% of primary samples	Heavy metals, TRH/BTEX, PAHs OCPs, OPPs and PCBs
Inter-laboratory duplicate (soil)	DUPMP109 (primary sample MW2 0.05-0.3m)	As above	Heavy metals, TRH/BTEX and PAHs
Intra-laboratory duplicate (water)	DUPW1 (primary sample MW1)	Approximately 20% of primary samples	Heavy metals, TRH/BTEX, PAHs OCPs, OPPs and PCBs
Inter-laboratory duplicate (water)	DUPW2 (primary sample MW135)	Approximately 20% of primary samples	Heavy metals, TRH/BTEX and PAHs
Trip spike (soil)	TS-S1 (26.11.19)	One for the assessment to demonstrate adequacy of preservation, storage and transport methods	BTEX

Sample Type	Sample Identification	Frequency (of Sample Type)	Analysis Performed
Trip blank (soil)	TB-S1 (26.11.19)	One for the assessment to demonstrate adequacy of storage and transport methods	BTEX
Rinsate (soil HA)	FRMW1 (26.11.19)	One for the assessment to demonstrate adequacy of decontamination methods	BTEX
Trip spike (water)	TS-W1 (3.12.19)	One for the assessment to demonstrate adequacy of preservation, storage and transport methods	BTEX
Trip blank (water)	TB-W1 (3.12.19)	One for the assessment to demonstrate adequacy of storage and transport methods	BTEX

The results for the field QA/QC samples are detailed in the laboratory summary tables (Table M to Table T inclusive) attached to the assessment report and are discussed in the subsequent sections of this Data (QA/QC) Evaluation report.

3. Data Assessment Criteria

JKE adopted the following criteria for assessing the field and laboratory QA/QC analytical results:

Field Duplicates

Acceptable targets for precision of field duplicates in this report will be 30% or less, consistent with NEPM (2013). RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the concentrations used to calculate the RPD (i.e. RPD exceedance where concentrations are close to the PQL are typically not as significant as those where concentrations are reported at least five or 10 times the PQL), sample type, collection methods and the specific analyte where the RPD exceedance was reported.

Field Blanks and Rinsates

Acceptable targets for field blank and rinsate samples in this report will be less than the PQL for organic analytes. Metals will be considered on a case-by-case basis with regards to typical background concentrations in soils and published drinking water guidelines for waters.

Trip Spikes

Acceptable targets for trip spike samples in this report will be 70% to 130%. This is in line with spike recovery limits adopted by the laboratory for organic analysis.

Laboratory QA/QC

The suitability of the laboratory data is assessed against the laboratory QA/QC criteria which is outlined in the laboratory reports. These criteria were developed and implemented in accordance with the laboratory's

NATA accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

A summary of the acceptable limits adopted by the primary laboratory (Envirolab) is provided below:

RPDs

- Results that are <5 times the PQL, any RPD is acceptable; and
- Results >5 times the PQL, RPDs between 0-50% are acceptable.

Laboratory Control Samples (LCS) and Matrix Spikes

- 70-130% recovery acceptable for metals and inorganics;
- 60-140% recovery acceptable for organics; and
- 10-140% recovery acceptable for VOCs.

Surrogate Spikes

- 60-140% recovery acceptable for general organics; and
- 10-140% recovery acceptable for VOCs.

Method Blanks

- All results less than PQL.

B. DATA EVALUATION

1. Sample Collection, Storage, Transport and Analysis

Samples were collected by trained field staff in accordance with the JKE SSP. The SSP was developed to be consistent with relevant guidelines, including NEPM (2013) and other guidelines made under the CLM Act 1997.

Appropriate sample preservation, handling and storage procedures were adopted. Laboratory analysis was undertaken within specified holding times in accordance with Schedule B(3) of NEPM (2013) and the laboratory NATA accredited methodologies.

JKE note that the temperature on receipt of soil and groundwater samples was reported to be up to 12.3°C. JKE understand that the temperature is measured at the laboratory using an infrared temperature probe by scanning the outside of the sample container (i.e. one sample jar/container at the time of registering the samples). This procedure is not considered to be robust as there is a potential for the outside of the jar to warm to ambient temperature, or at least to increase from that of the internal contents, relatively quickly. On this basis, JKE are of the opinion that the temperatures reported on the Sample Receipts are unlikely to be reliable or representative of the overall batch. This is further supported by the trip spike recovery results (discussed further below) which reported adequate recovery in the range of 85% to 123%.

Envirolab noted that the asbestos results were reported to be consistent with the recommendations in NEPM (2013), however this level of reporting is outside the scope of their NATA accreditation. In the absence of other available analytical methods for asbestos, this was found to be acceptable for the purpose of this assessment.

Due to the high silt content in the groundwater sample MW3, the laboratory was unable to analyse this groundwater sample for TRH and VOCs (including BTEX), as the high silt content had the potential to damage the highly expensive laboratory equipment. JKE have recommended that groundwater monitoring well MW3 be redeveloped, sampled and the additional groundwater sample to be analysed for PAHs, TRH and VOCs (including BTEX).

Review of the project data also indicated that:

- COC documentation was adequately maintained;
- Sample receipt advice documentation was provided for all sample batches;
- All analytical results were reported; and
- Consistent units were used to report the analysis results.

2. Laboratory PQLs

Appropriate PQLs were adopted for the analysis. Some of the PQLs were above the groundwater SAC and have been highlighted on the appropriate report tables attached in the appendices. In light of the concentrations reported for soil and groundwater, JKE are of the opinion that this is not significant, and it does not affect the quality of the dataset as a whole or the outcome of the assessment.

3. Field QA/QC Sample Results

Field Duplicates

The results indicated that field precision was acceptable. RPD non-conformances were reported for some analytes as discussed below:

- Elevated RPDs were reported for arsenic, chromium, TRH >C16-C34 (F3) and TRH >C34-C40 (F4) in DUPMP102/MW14 (0-0.2m);
- Elevated RPDs were reported for Benzo(a)pyrene in DUPMP107/MW9 (0-0.15m);
- Elevated RPDs were reported for chromium in DUPMP106/MW4 (0.2-0.4m);
- Elevated RPDs were reported for lead, mercury, PAHs compounds, TRH (F3) and TRH (F4) in DUPMP103/MW3 (0-0.2m);
- Elevated RPDs were reported for a number of heavy metals, PAH compounds, TRH (F3) and TRH (F4) in DUPMP109/MW2 (0-0.3m);
- Elevated RPDs were reported for zinc in DUPW1/MW1; and
- Elevated RPDs were reported for copper, nickel and zinc in DUPW2/MW135.

Values outside the acceptable limits have been attributed to sample heterogeneity and the difficulties associated with obtaining homogenous duplicate samples of heterogeneous matrices. Where applicable, the higher duplicate value has been adopted as a conservative measure (see attached report tables).

Field Blanks

During the investigation, a soil and groundwater trip blank was placed in the esky during sampling and transported back to the laboratory. The results were all less than the PQLs, therefore cross contamination between samples that may have significance for data validity did not occur.

Rinsates

All results were below the PQL. This indicated that cross-contamination artefacts associated with sampling equipment were not present and the potential for cross-contamination to have occurred was low.

Trip Spikes

The results ranged from 88% to 123% and indicated that field preservation methods were appropriate.

4. Laboratory QA/QC

The analytical methods implemented by the laboratory were performed in accordance with their NATA accreditation and were consistent with Schedule B(3) of NEPM (2013). The frequency of data reported for the laboratory QA/QC (i.e. duplicates, spikes, blanks, LCS) was considered to be acceptable for the purpose of this assessment. JKE note that due to the limited number of samples submitted for analysis, duplicates and matrix spikes were not reported for some of the batch analysis. This is not considered to have an impact on the data quality for this assessment.

A review of the laboratory QA/QC data identified the following minor non-conformances:

- Lab Report – 232077:
 - Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria exceeded for 232077-21 for lead. Therefore, a triplicate result was issued as laboratory sample number 232077-48.
- Lab Report – 232077-A:
 - The Hexavalent Chromium PQL was raised due to matrix interference, samples were diluted and reanalysed however the same results were achieved; and
 - Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria exceeded for 232077-A-38 for Chromium. Therefore, a triplicate result was issued as laboratory sample number 232077-A-49.
- Lab Report – 233029:
 - TRH Water C10-C40 NEPM - # Percent recovery for the surrogate was not possible to report as the high concentration of analytes in sample 233029-3 caused interference;
 - PAHs in water (Low Level) - # Percent recovery for the surrogate was not possible to report as the high concentration of analytes in sample 233029-3 caused interference;
 - PAHs in water (Low Level) - The PQL was raised due to interferences from analytes (other than those being tested) in sample 233029-3; and
 - VOCs in water – Analysis of the sample 233029-3 was not undertaken as the supplied vial contained high sediment load. JKE also note that the sample was not analysed for BTEX and NEPM TRH (F1 and F2), also due to the high sediment load.

C. DATA QUALITY SUMMARY

JKE are of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives.

Non-conformances were reported for some field QA/QC samples and laboratory QA/QC analysis. These non-conformances were considered to be sporadic and minor, and were not considered to be indicative of



systematic sampling or analytical errors. On this basis, these non-conformances are not considered to materially impact the report findings.

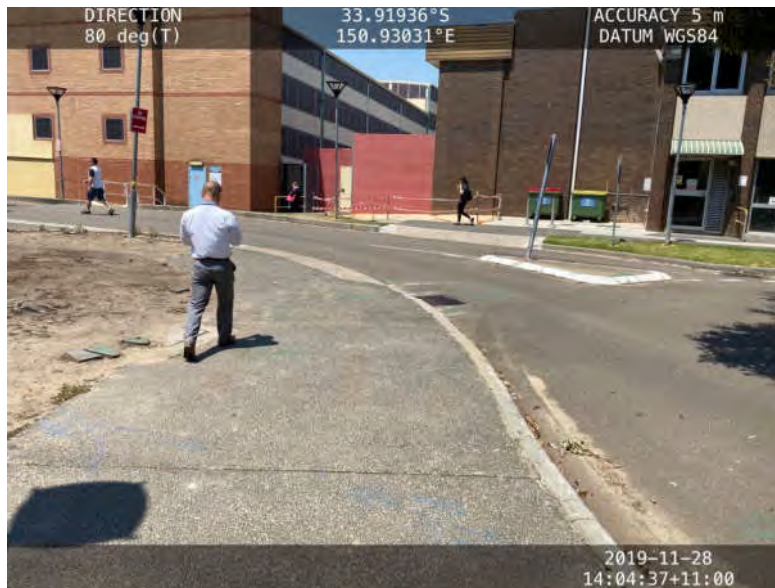
There was only one groundwater monitoring event undertaken for the assessment. On this basis there is some uncertainty around the representativeness of the groundwater data, particularly during different climatic conditions and after wet/dry periods. However, given the low contaminant concentrations reported, the site history and the surrounding land uses, this is not considered to alter the conclusions of the assessment. Further groundwater sampling has been recommended for groundwater monitoring well MW3, due to the high silt content of the groundwater.



Appendix H: Field Work Documents



Site Photographs



Photograph taken 28 November 2019 showing the north east section of the site. Note the barricaded landscaped area in the background where SWSLHD have installed a temporary cap covering the surface at Sampling location JKE136, where friable asbestos was identified in the surface soils.



Photograph taken 28 November 2019 showing underground services and the site surface, between the Cancer/pathology Building and the Alex Grimson Building.



Photograph taken 28 November 2019 showing the landscaped area, between the Cancer/pathology Building and the Alex Grimson Building.