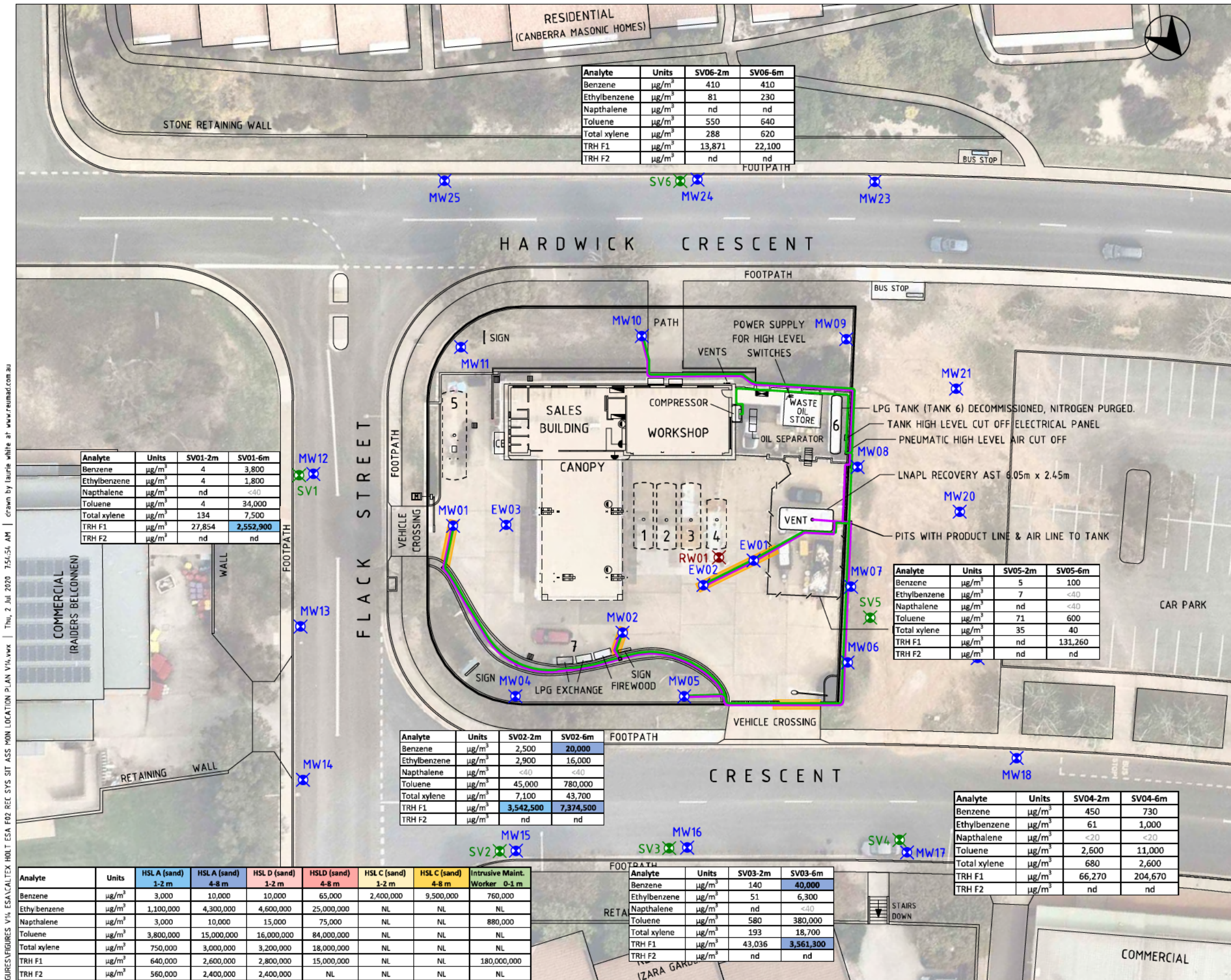


D:\Google Drive\InSite Remediation\Holt\Figures\Figures V14 ESA\CALTEX HOLT ESA F02 REC SYS SIT ASS MON LOCATION PLAN V14.vwx | Thu, 2 Jul 2020 15:54:54 AM | drawn by laurie white at www.reumad.com.au



Analyte	Units	SV06-2m	SV06-6m
Benzene	µg/m³	410	410
Ethylbenzene	µg/m³	81	230
Napthalene	µg/m³	nd	nd
Toluene	µg/m³	550	640
Total xylene	µg/m³	288	620
TRH F1	µg/m³	13,871	22,100
TRH F2	µg/m³	nd	nd

Analyte	Units	SV01-2m	SV01-6m
Benzene	µg/m³	4	3,800
Ethylbenzene	µg/m³	4	1,800
Napthalene	µg/m³	nd	<40
Toluene	µg/m³	4	34,000
Total xylene	µg/m³	134	7,500
TRH F1	µg/m³	27,854	2,552,900
TRH F2	µg/m³	nd	nd

Analyte	Units	SV02-2m	SV02-6m
Benzene	µg/m³	2,500	20,000
Ethylbenzene	µg/m³	2,900	16,000
Napthalene	µg/m³	<40	<40
Toluene	µg/m³	45,000	780,000
Total xylene	µg/m³	7,100	43,700
TRH F1	µg/m³	3,542,500	7,374,500
TRH F2	µg/m³	nd	nd

Analyte	Units	SV05-2m	SV05-6m
Benzene	µg/m³	5	100
Ethylbenzene	µg/m³	7	<40
Napthalene	µg/m³	nd	<40
Toluene	µg/m³	71	600
Total xylene	µg/m³	35	40
TRH F1	µg/m³	nd	131,260
TRH F2	µg/m³	nd	nd

Analyte	Units	SV03-2m	SV03-6m
Benzene	µg/m³	140	40,000
Ethylbenzene	µg/m³	51	6,300
Napthalene	µg/m³	nd	<40
Toluene	µg/m³	580	380,000
Total xylene	µg/m³	193	18,700
TRH F1	µg/m³	43,036	3,561,300
TRH F2	µg/m³	nd	nd

Analyte	Units	HSL A (sand)		HSL D (sand)		HSL C (sand)		Intrusive Maint. Worker 0-1 m
		1-2 m	4-8 m	1-2 m	4-8 m	1-2 m	4-8 m	
Benzene	µg/m³	3,000	10,000	10,000	65,000	2,400,000	9,500,000	760,000
Ethylbenzene	µg/m³	1,100,000	4,300,000	4,600,000	25,000,000	NL	NL	NL
Napthalene	µg/m³	3,000	10,000	15,000	75,000	NL	NL	880,000
Toluene	µg/m³	3,800,000	15,000,000	16,000,000	84,000,000	NL	NL	NL
Total xylene	µg/m³	750,000	3,000,000	3,200,000	18,000,000	NL	NL	NL
TRH F1	µg/m³	640,000	2,600,000	2,800,000	15,000,000	NL	NL	180,000,000
TRH F2	µg/m³	560,000	2,400,000	2,400,000	NL	NL	NL	NL

LEGEND

- SITE BOUNDARY
- EW## MW## GROUNDWATER MONITORING WELL
- RW## RECOVERY WELL
- SV## SOIL VAPOUR BORE
- SWITCHBOARD
- FIRE HOSE REEL
- MANIFEST BOX - CONTAINING ERP DOCUMENT
- EMERGENCY STOP BUTTON
- CO² FIRE EXTINGUISHER
- DRY CHEMICAL FIRE EXTINGUISHER
- FUEL DISPENSER
- GRATED DRAIN / GRATED PIT
- AIR PIPELINE
- PRODUCT PIPELINE
- PIT
- ROAD PLATE

TANK SCHEDULE





TANK	TYPE	PRODUCT	CLASS	CAPACITY	USAGE
1	UST	V95	3	27,400L	IN USE
2	UST	DIESEL	C1	27,400L	IN USE
3	UST	E10	3	27,400L	IN USE
4	UST	V98	3	20,000L	NOT IN USE
5	UST	ULP	3	59,400L	IN USE
6	AST	LPG	2.1	7,500L	NOT IN USE
7	LPG EXCHANGE		2.1	9x4kg, 42x9kg	IN USE

NOTE

LPG TANK (TANK 6) DECOMMISSIONED, NITROGEN PURGED.
 WELLS CONNECTED TO RECOVERY SYSTEM: MW01, MW02, MW05, MW06, MW07, MW10, EW01 & EW02.

0 15m

1:460 AT A3 APPROXIMATE
 AERIAL IMAGE NEARMAP 13 APRIL 2020.
 REFERENCE: CALTEX 'DANGEROUS GOODS PLAN' DRAWING NO. 22546-DG REV. B DATED 25/11/2011 SUPPLIED BY CLIENT.

CALTEX HOLT SERVICE STATION
1 HARDWICK CRESCENT
HOLT ACT

FIGURE 12
SOIL VAPOUR CONTAMINANT IMPACT PLAN
JUNE 2020

Figure prepared for WSP by InSite Remediation Services Pty Ltd



Source: CCBY – ACT Government | Actmap

LEGEND:

0.0 UP01 **HYD** Utility pits identified in study area, their ID number, the asset type (refer to labelling key below) and the PID measurement

SW – Stormwater
HYD – Hydrant
SEW – Sewer
SV – Sullage Valve
COM – Telecommunications/Telstra/Optus/NBN

WM – Water meter
UNK – Unknown
GAS – Gas
HV – Electricity
* - (dash) = utility pit, drain, feature etc. is not accessible for sampling (ie. there is no opening, hole, lid etc. by which to access the space for sampling).

FIGURE 13: Utility pit location in surrounding study area monitoring plan, and data collected on 15 April 2020



Source: CCBY – ACT Government | Actmap

LEGEND:

0.0 UP01 **HYD** Utility pits identified in study area, their ID number, the asset type (refer to labelling key below) and the PID measurement

SW – Stormwater
HYD – Hydrant
SEW – Sewer
SV – Sullage Valve
COM – Telecommunications/Telstra/Optus/NBN

WM – Water meter
UNK – Unknown
GAS – Gas
HV – Electricity
* - (dash) = utility pit, drain, feature etc. is not accessible for sampling (ie. there is no opening, hole, lid etc. by which to access the space for sampling).

FIGURE 14: Utility pit location in surrounding study area monitoring plan, and data collected on 21 May 2020



Source: CCBY – ACT Government | Actmap

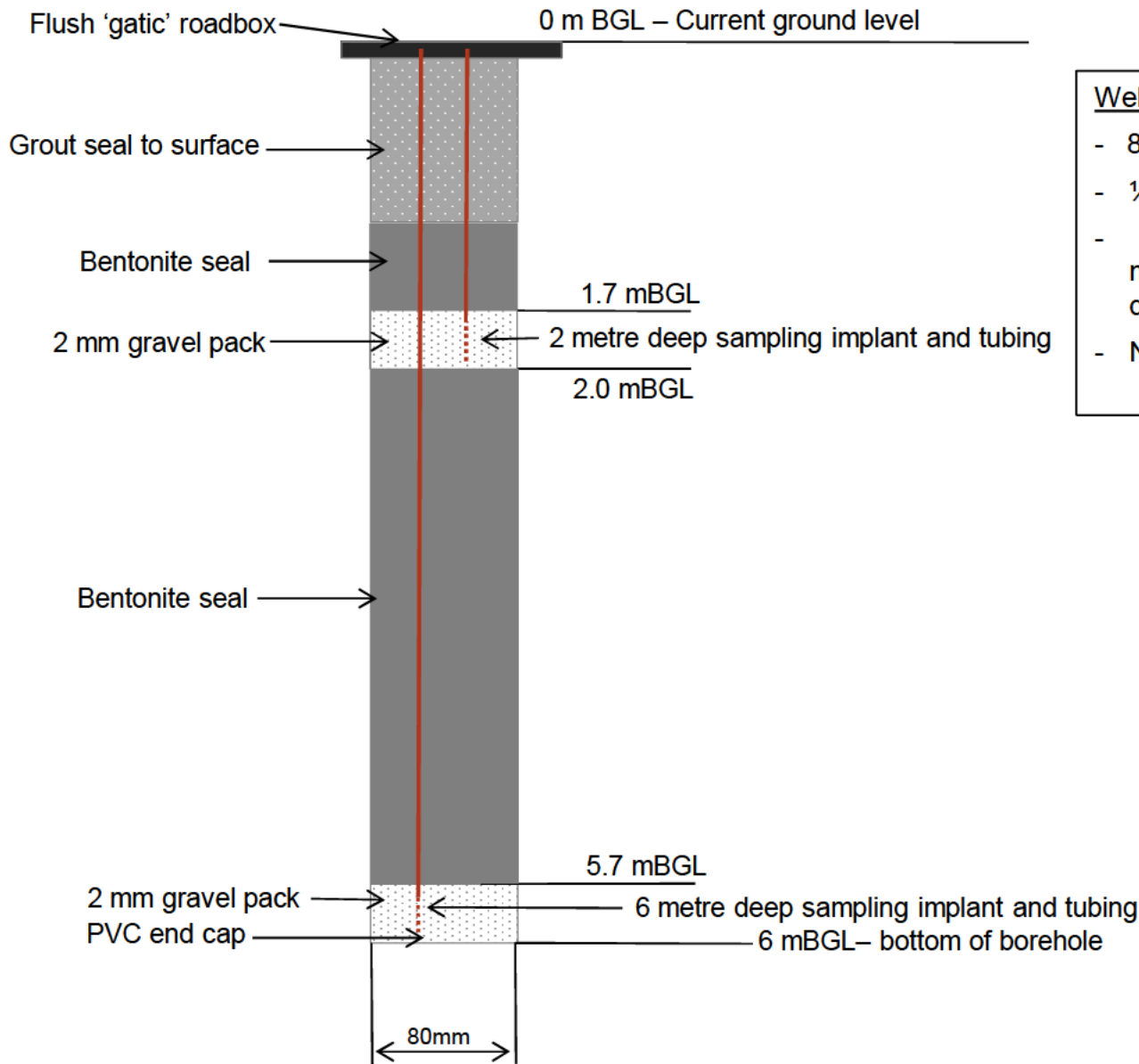
LEGEND:

0.0 UP01 **HYD** Utility pits identified in study area, their ID number, the asset type (refer to labelling key below) and the PID measurement

SW – Stormwater
HYD – Hydrant
SEW – Sewer
SV – Sullage Valve
COM – Telecommunications/Telstra/Optus/NBN

WM – Water meter
UNK – Unknown
GAS – Gas
HV – Electricity
* - (dash) = utility pit, drain, feature etc. is not accessible for sampling (ie. there is no opening, hole, lid etc. by which to access the space for sampling).

FIGURE 15: Utility pit location in surrounding study area monitoring plan, and data collected on 9 July 2020



Well construction and drilling details:

- 80 mm diameter borehole annulus
- ¼ inch OD Teflon tubing as the sampling tubing
- Drilling method: NDD with vacuum potholing to 1.5 metres below ground level, then down-hole air hammer drilling to the target depth of 6 metres
- Not to scale

FIGURE 16: Schematic showing the construction details of soil vapour bores - SV1 to SV6

ATTACHMENT B

GAUGING DATA

Well ID	Location	Installed by and year	T.O.C Elevation	Well Depth	Well Screen Depths	Gauging Date	Depth to Water	Depth to Product	Apparent LNAPL Thickness	Corrected Water Elevation	Comments
			(mAHD)	(mBTC)	(mBTC)		(mBTC)	(mBTC)	(m)	(mAHD)	
EW01	On-site	GHD, 2010	575.016	15.2	9.0 - 14.9	15/02/2020	11.830	8.842	2.988	565.43	
						27/03/2020	9.765	9.407	0.358	565.52	Gauged at 06:45 am prior to pumps being turned on, overnight recovery since 5pm
						3/04/2020	9.680	9.628	0.052	565.38	Gauged at 7 am prior to pumps being turned on, overnight recovery since 5pm
						16/04/2020	9.547	ND	-	565.47	
						20/04/2020	9.613	9.520	0.093	565.47	
						13/05/2020	9.513	9.510	0.003	565.51	To top of Road Plate 9600
						21/05/2020	-	-	-	-	
						15/06/2020	9.411	9.378	0.033	565.63	Gauged to ground level, RL 575.179 mAHD
						23/06/2020	9.358	ND	-	565.66	
						23/07/2020	9.658	9.210	0.448	565.69	
						28/07/2020	9.358	9.321	0.037	565.69	
						29/07/2020	9.343	9.302	0.041	565.70	
						6/08/2020	9.370	9.353	0.017	565.66	
						13/08/2020	9.443	9.140	0.303	565.80	
						20/08/2020	9.258	9.056	0.202	565.91	
						26/08/2020	9.347	9.305	0.042	565.70	
EW02	On-site	GHD, 2010	575.035	14.1	10.0 - 13.9	15/02/2020	11.745	9.050	2.695	565.31	
						27/03/2020	9.638	9.580	0.058	565.44	Gauged at 06:45 am prior to pumps being turned on, overnight recovery since 5pm
						3/04/2020	9.755	9.705	0.050	565.32	Gauged at 7 am prior to pumps being turned on, overnight recovery since 5pm
						16/04/2020	9.498	ND	-	565.54	
						20/04/2020	8.447	ND	-	566.59	Sheen
						13/05/2020	9.590	ND	-	565.45	Confirmed with Bailer to top of Road plate
						21/05/2020	-	-	-	-	
						15/06/2020	9.304	ND	-	565.73	
						23/06/2020	9.270	ND	-	565.77	
						23/07/2020	9.407	ND	-	565.63	
						29/07/2020	9.392	ND	-	565.64	
						6/08/2020	9.394	ND	-	565.64	
						13/08/2020	9.105	ND	-	565.93	
						20/08/2020	9.000	ND	-	566.04	
						26/08/2020	8.969	ND	-	566.07	
						EW03	On-site	GHD, 2010	575.494	12.7	9.0 - 13.4
27/03/2020	9.868	ND	-	565.63	Gauged at 06:45 am prior to pumps being turned on, overnight recovery since 5pm						
3/04/2020	10.832	ND	-	564.66	Prior existing well with no LNAPL detected						
16/04/2020	9.761	ND	-	565.73							
20/04/2020	9.744	ND	-	565.75							
13/05/2020	9.640	ND	-	565.85							
21/05/2020	-	-	-	-							
15/06/2020	9.580	ND	-	565.91							
23/06/2020	9.558	ND	-	565.94							
23/07/2020	9.508	ND	-	565.99							
29/07/2020	9.503	ND	-	565.99							
6/08/2020	9.495	ND	-	566.00							
13/08/2020	9.405	ND	-	566.09							
20/08/2020	9.304	ND	-	566.19							
26/08/2020	9.291	ND	-	566.20							
31/08/2020	9.268	ND	-	566.23							
MW01	On-site	RECOM, 201	575.656	12.0	9.0 - 12.0	15/02/2020	10.975	10.000	0.975	565.41	
						27/03/2020	10.318	10.081	0.237	565.52	Gauged at 06:45 am prior to pumps being turned on, overnight recovery since 5pm
						3/04/2020	10.295	10.045	0.250	565.55	Gauged at 7 am prior to pumps being turned on, overnight recovery since 5pm
						16/04/2020	10.011	ND	-	565.65	
						20/04/2020	10.117	9.970	0.147	565.65	
						13/05/2020	9.995	9.980	0.015	565.67	
						21/05/2020	-	-	-	-	
						15/06/2020	9.873	9.854	0.019	565.80	
						23/06/2020	9.838	9.832	0.006	565.82	
						9/07/2020	9.830	9.800	0.030	565.85	
						24/07/2020	9.818	9.814	0.004	565.84	
						28/07/2020	9.782	9.779	0.003	565.88	
						29/07/2020	9.774	9.771	0.003	565.88	
						6/08/2020	9.444	9.439	0.005	566.22	
						13/08/2020	10.070	ND	-	565.59	
						20/08/2020	9.572	ND	-	566.08	
26/08/2020	9.526	ND	-	566.13							
MW02	On-site	RECOM, 201	575.119	11.0	8.0 - 11.0	15/02/2020	10.769	9.345	1.424	565.42	
						27/03/2020	10.903	9.904	0.999	564.97	Gauged at 06:45 am prior to pumps being turned on, overnight recovery since 5pm
						3/04/2020	10.095	9.620	0.475	565.38	Gauged at 7 am prior to pumps being turned on, overnight recovery since 5pm
						16/04/2020	10.575	10.528	0.047	564.58	
						20/04/2020	9.785	9.461	0.324	565.58	
						13/05/2020	9.690	9.580	0.110	565.51	Top of Road Plate 9630
						21/05/2020	-	-	-	-	
						15/06/2020	9.617	9.322	0.295	565.72	
						23/06/2020	9.374	9.367	0.007	565.75	
						9/07/2020	9.470	9.440	0.030	565.67	
						24/07/2020	9.430	ND	-	565.69	AP2 in Well But Turned Off on 24/07
						28/07/2020	9.568	9.527	0.041	565.58	Originally recorded as EW02 gauging however was actually MW02
						29/07/2020	9.564	ND	-	565.56	
						6/08/2020	9.614	9.543	0.071	565.56	
						13/08/2020	9.345	ND	-	565.77	Sheen
						20/08/2020	9.208	9.194	0.014	565.92	
26/08/2020	9.070	ND	-	566.05							
MW04	On-site	WSP, 2020	574.340	12.0	7.5 - 12.0	27/03/2020	9.113	ND	-	565.23	Well installed on 24 March 2020, development ongoing
						3/04/2020	8.946	ND	-	565.39	Well installed on 24 March 2020, development ongoing
						16/04/2020	8.855	ND	-	565.49	
						20/04/2020	8.847	ND	-	565.49	
						13/05/2020	8.745	ND	-	565.60	
						21/05/2020	-	-	-	-	
						15/06/2020	8.693	ND	-	565.65	
						23/06/2020	8.666	ND	-	565.67	
						9/07/2020	8.655	ND	-	565.69	
						23/07/2020	8.623	ND	-	565.72	
						29/07/2020	8.604	ND	-	565.74	
						6/08/2020	8.601	ND	-	565.74	
						13/08/2020	8.497	ND	-	565.84	
						20/08/2020	8.385	ND	-	565.96	
						26/08/2020	8.357	ND	-	565.98	
						31/08/2020	8.319	ND	-	566.02	
MW05	On-site	WSP, 2020	574.364	12.0	6.0 - 12.0	27/03/2020	9.396	9.030	0.366	565.24	Well installed on 24 March 2020, development ongoing
						3/04/2020	9.548	8.816	0.732	565.37	Gauged at 7 am prior to pumps being turned on, overnight recovery since 5pm
						16/04/2020	9.107	8.832	0.275	565.46	
						20/04/2020	9.337	8.759	0.578	565.46	
						13/05/2020	9.140	8.710	0.430	565.55	
						21/05/2020	-	-	-	-	
						15/06/2020	9.133	8.634	0.499	565.61	
						23/06/2020	8.716	8.709	0.007	565.65	
						9/07/2020	8.615	8.610	0.005	565.75	
						24/07/2020	8.689	ND	-	565.68	AP2 in Well But Turned Off on 24/07
						29/07/2020	8.832	8.811	0.021	565.55	
						6/08/2020	8.801	8.785	0.016	565.58	
						13/08/2020	8.546	ND	-	565.82	
						20/08/2020	8.427	ND	-	565.94	
						26/08/2020	8.395	ND	-	565.97	
						MW06	Boundary of the site	WSP, 2020	574.541	13.5	8.0 - 13.0
3/04/2020	9.228	9.080	0.148	565.42	Gauged at 7 am prior to pumps being turned on, overnight recovery since 5pm						
16/04/2020	9.048	9.037	0.011	565.50							
20/04/2020	9.034	9.012	0.022	565.52							
13/05/2020	8.930	ND	-	565.61	Heavy sheen confirmed with bailer						
21/05/2020	-	-	-	-							
15/06/2020	8.881	ND	-	565.66							
23/06/2020	8.850	ND	-	565.69							
9/07/2020	8.825	ND	-	565.72							
23/07/2020	8.806	ND	-	565.74							
29/07/2020	8.786	ND	-	565.76							
6/08/2020	8.779	ND	-	565.76							
13/08/2020	8.657	ND	-	565.88							
20/08/2020	8.561	ND	-	565.98							
26/08/2020	8.564	ND	-	565.98	Sheen						
31/08/2020	8.526	ND	-	566.02							

Well ID	Location	Installed by and year	T.O.C Elevation	Well Depth	Well Screen Depths	Gauging Date	Depth to Water	Depth to Product	Apparent LNAPL Thickness	Corrected Water Elevation	Comments
			(mAHD)	(mBTOC)	(mBTOC)		(mBTOC)	(mBTOC)	(m)	(mAHD)	
MW07	Boundary of the site	WSP, 2020	575.065	13 0	9.1 - 13.1	27/03/2020	12.856	12.845	0.011	562.22	Well installed on 27 March 2020, development ongoing
						3/04/2020	11.435	9.645	1.790	564.97	Well installed on 27 March 2020, development ongoing
						16/04/2020	9.137	ND	-	565.93	
						20/04/2020	9.972	9.798	0.174	565.22	
						13/05/2020	9.700	9.698	0.002	565.37	Confirmed with Bailer 9750
						21/05/2020	-	-	-	-	
						15/06/2020	9.580	ND	-	565.49	
						19/06/2020	9.400	ND	-	565.67	HC odour
						23/06/2020	9.343	ND	-	565.72	
						9/07/2020	9.315	ND	-	565.75	
						23/07/2020	9.268	ND	-	565.80	
						29/07/2020	9.278	ND	-	565.79	
						6/08/2020	9.258	ND	-	565.81	
						13/08/2020	9.185	ND	-	565.88	
						20/08/2020	9.068	ND	-	566.00	
						26/08/2020	9.070	ND	-	566.00	
31/08/2020	9.000	ND	-	566.07							
MW08	Boundary of the site	WSP, 2020	575.783	15 0	9.0 - 15.0	27/03/2020	-	-	-	-	Well planned for installation on 28 March 2020
						3/04/2020	10.24	ND	-	565.54	New well, development ongoing
						16/04/2020	10.16	ND	-	565.63	
						20/04/2020	10.143	ND	-	565.64	
						13/05/2020	10.045	ND	-	565.74	
						21/05/2020	-	-	-	-	
						15/06/2020	9.913	ND	-	565.87	
						23/06/2020	9.953	ND	-	565.83	
						9/07/2020	9.940	ND	-	565.84	
						23/07/2020	9.911	ND	-	565.87	
						29/07/2020	9.869	ND	-	565.91	
						6/08/2020	9.897	ND	-	565.89	
						13/08/2020	9.787	ND	-	566.00	
						20/08/2020	9.692	ND	-	566.09	
						26/08/2020	9.705	ND	-	566.08	
						31/08/2020	8.664	ND	-	567.12	
MW09	Boundary of the site	WSP, 2020	576.630	16 5	9.5 - 16 5	27/03/2020	11.315	ND	-	565.32	Well installed on 26 March 2020, development ongoing
						3/04/2020	11.093	ND	-	565.54	Well installed on 26 March 2020, development ongoing
						16/04/2020	11.020	ND	-	565.61	
						20/04/2020	11.008	ND	-	565.62	
						13/05/2020	10.903	ND	-	565.73	
						21/05/2020	-	-	-	-	
						15/06/2020	10.829	ND	-	565.80	
						23/06/2020	10.809	ND	-	565.82	
						9/07/2020	10.795	ND	-	565.84	
						23/07/2020	10.759	ND	-	565.87	
						29/07/2020	10.747	ND	-	565.88	
						6/08/2020	10.797	ND	-	565.83	
						13/08/2020	10.659	ND	-	565.97	
						20/08/2020	10.553	ND	-	566.08	
						26/08/2020	10.555	ND	-	566.08	
						31/08/2020	10.523	ND	-	566.11	
MW10	On-site	WSP, 2020	576.660	14 5	8.5 - 14.5	27/03/2020	12.030	11.410	0.620	565.10	Well installed on 26 March 2020, development ongoing
						3/04/2020	11.284	11.198	0.086	565.44	Gauged at 7 am prior to pumps being turned on, overnight recovery since 5pm
						16/04/2020	11.412	ND	-	565.25	
						20/04/2020	11.113	ND	-	565.55	Sheen
						13/05/2020	11.019	11.015	0.004	565.64	
						21/05/2020	-	-	-	-	
						15/06/2020	10.952	10.940	0.012	565.72	
						23/06/2020	10.913	10.909	0.004	565.750	
						9/07/2020	10.910	10.890	0.020	565.77	
						24/07/2020	10.879	10.877	0.002	565.783	
						28/07/2020	10.883	10.880	0.003	565.78	
						29/07/2020	10.884	10.864	0.020	565.791	
						6/08/2020	11.045	11.043	0.002	565.62	
						13/08/2020	10.862	ND	-	565.798	
						20/08/2020	10.682	ND	-	565.98	
						26/08/2020	11.815	ND	-	564.845	
MW11	On-site	WSP, 2020	576.830	15 0	9.0 - 15 0	27/03/2020	-	-	-	-	Well installed on 27 March 2020 not gauged
						3/04/2020	11.250	ND	-	565.58	New well development ongoing
						16/04/2020	11.167	ND	-	565.66	
						20/04/2020	11.136	ND	-	565.69	
						13/05/2020	11.040	ND	-	565.79	
						21/05/2020	-	-	-	-	
						15/06/2020	10.964	ND	-	565.87	
						23/06/2020	10.937	ND	-	565.89	
						9/07/2020	10.920	ND	-	565.91	
						23/07/2020	10.897	ND	-	565.93	
						29/07/2020	10.899	ND	-	565.93	
						6/08/2020	10.790	ND	-	566.04	
						13/08/2020	10.786	ND	-	566.04	
						20/08/2020	10.678	ND	-	566.15	
						26/08/2020	10.680	ND	-	566.15	
						31/08/2020	10.624	ND	-	566.21	
MW12	Off-site	WSP, 2020	575.736	12 0	7.5 - 12 0	3/04/2020	10.270	10.205	0.065	565.51	Well installed on 30 March 2020, development ongoing
						16/04/2020	10.213	10.111	0.102	565.60	
						20/04/2020	10.199	10.100	0.099	565.61	
						13/05/2020	10.025	ND	-	565.71	
						21/05/2020	9.986	9.980	0.006	565.75	HC odour
						15/06/2020	9.973	ND	-	565.76	
						19/06/2020	10.013	ND	-	565.72	HC odour
						23/06/2020	9.951	ND	-	565.79	
						9/07/2020	9.930	ND	-	565.81	
						23/07/2020	9.902	ND	-	565.83	
						29/07/2020	9.885	ND	-	565.85	
						6/08/2020	9.978	ND	-	565.76	
						13/08/2020	9.789	ND	-	565.95	
						20/08/2020	9.680	ND	-	566.06	
						26/08/2020	9.636	ND	-	566.10	
						31/08/2020	9.602	ND	-	566.13	
MW13	Off-site	WSP, 2020	574.771	11 0	7.1 - 11.1	3/04/2020	9.312	ND	-	565.46	Well installed on 30 March 2020, development ongoing
						16/04/2020	9.223	ND	-	565.55	
						20/04/2020	9.217	ND	-	565.55	
						13/05/2020	9.118	ND	-	565.65	
						21/05/2020	-	-	-	-	
						15/06/2020	9.062	ND	-	565.71	
						23/06/2020	9.042	ND	-	565.73	
						9/07/2020	9.020	ND	-	565.75	
						23/07/2020	8.988	ND	-	565.78	
						29/07/2020	8.976	ND	-	565.80	
						6/08/2020	9.088	ND	-	565.68	
						13/08/2020	8.881	ND	-	565.89	
						20/08/2020	8.767	ND	-	566.00	
						26/08/2020	8.727	ND	-	566.04	
						31/08/2020	8.689	ND	-	566.08	
						MW14	Off-site	WSP, 2020	573.838	10 5	7.6 - 10 6
16/04/2020	8.332	ND	-	565.51							
20/04/2020	8.323	ND	-	565.52							
13/05/2020	8.225	ND	-	565.61							
21/05/2020	-	-	-	-							
15/06/2020	8.169	ND	-	565.67							
23/06/2020	8.143	ND	-	565.70							
9/07/2020	8.128	ND	-	565.71							
23/07/2020	8.101	ND	-	565.74							
29/07/2020	8.082	ND	-	565.76							
6/08/2020	8.088	ND	-	565.75							
13/08/2020	7.974	ND	-	565.86							
20/08/2020	7.866	ND	-	565.97							
26/08/2020	7.828	ND	-	566.01							
31/08/2020	7.785	ND	-	566.05							

Well ID	Location	Installed by and year	T.O.C Elevation	Well Depth	Well Screen Depths	Gauging Date	Depth to Water	Depth to Product	Apparent LNAPL Thickness	Corrected Water Elevation	Comments							
			(mAHD)	(mBTOC)	(mBTOC)		(mBTOC)	(mBTOC)	(m)	(mAHD)								
MW15	Off-site	WSP, 2020	573.518	11 0	6.5 - 11 0	3/04/2020	8.745	7.931	0.814	565.38	Well installed on 31 March 2020, development ongoing							
						16/04/2020	8.635	7.848	0.787	565.47								
						20/04/2020	8.610	7.851	0.759	565.48								
						13/05/2020	8.435	7.785	0.650	565.57								
						21/05/2020	8.399	7.736	0.663	565.62		LNAPL bail down undertaken						
						15/06/2020	8.342	7.741	0.601	565.63								
						19/06/2020	8.363	7.779	0.584	565.59		HC odour						
						23/06/2020	8.308	7.705	0.603	565.66								
						30/06/2020	8.279	7.695	0.584	565.68		Pumped out with air bottle from 10:00 - 16:40.						
						9/07/2020	7.900	7.830	0.070	565.67								
						23/07/2020	7.802	ND	-	565.72								
						28/07/2020	7.866	7.794	0.072	565.71								
						29/07/2020	7.842	7.783	0.059	565.72								
						6/08/2020	7.849	7.787	0.062	565.72								
						13/08/2020	7.722	7.662	0.060	565.84								
						20/08/2020	7.631	7.552	0.079	565.95								
						26/08/2020	7.587	7.518	0.069	565.98								
31/08/2020	7.565	7.490	0.075	566.01														
MW16	Off-site	WSP, 2020	573.610	10 5	7.5 - 10 5	3/04/2020	8.245	ND	-	565.37	Well installed on 1 April 2020, development ongoing							
						16/04/2020	8.150	ND	-	565.46								
						20/04/2020	8.157	8.155	0.002	565.45								
						13/05/2020	8.054	ND	-	565.56		Heavy Sheen						
						21/05/2020	8.017	8.008	0.009	565.60		Confirmed with bailer - 3mm of LNAPL						
						15/06/2020	8.010	8.000	0.010	565.61								
						19/06/2020	8.065	8.025	0.040	565.58								
						23/06/2020	7.998	7.953	0.045	565.65								
						30/06/2020	7.942	ND	-	565.67								
						9/07/2020	8.015	7.852	0.163	565.72								
						23/07/2020	7.925	7.925	0.000	565.69								
						28/07/2020	7.916	7.875	0.041	565.72								
						29/07/2020	7.993	7.900	0.093	565.69								
						6/08/2020	7.979	7.903	0.076	565.69								
						13/08/2020	7.843	7.765	0.078	565.83								
						20/08/2020	7.737	7.564	0.173	566.00								
						26/08/2020	7.705	7.629	0.076	565.96								
31/08/2020	7.685	7.610	0.075	565.98														
MW17	Off-site	WSP, 2020	573.581	10 0	7.0 - 10 0	3/04/2020	8.213	8.210	0.003	565.37	Well installed on 8 April 2020, development ongoing							
						16/04/2020	8.123	ND	-	565.46								
						20/04/2020	8.135	8.133	0.002	565.45								
						13/05/2020	8.030	ND	-	565.55		Odour						
						21/05/2020	7.987	ND	-	565.59		HC odour						
						15/06/2020	7.992	ND	-	565.59								
						19/06/2020	8.016	ND	-	565.57		Low HC odour						
						23/06/2020	7.937	ND	-	565.64								
						30/06/2020	7.929	ND	-	565.65								
						9/07/2020	7.965	ND	-	565.62								
						23/07/2020	7.933	ND	-	565.65								
						29/07/2020	7.894	ND	-	565.69								
						13/08/2020	7.745	ND	-	565.84								
						20/08/2020	7.644	ND	-	565.94								
						26/08/2020	7.618	ND	-	565.96								
						31/08/2020	-	-	-	-		Car over well						
						MW18	Off-site	WSP, 2020	573.520	11 0		7.0 - 11 0	3/04/2020	-	-	-	-	Well installed on 8 April 2020
16/04/2020	8.091	ND	-	565.43														
20/04/2020	8.080	ND	-	565.44														
13/05/2020	7.981	ND	-	565.54														
21/05/2020	-	-	-	-														
15/06/2020	7.918	ND	-	565.60														
23/06/2020	7.853	ND	-	565.67														
9/07/2020	7.870	ND	-	565.65														
23/07/2020	7.856	ND	-	565.66														
29/07/2020	7.836	ND	-	565.68														
6/08/2020	7.817	ND	-	565.70														
13/08/2020	7.696	ND	-	565.82														
20/08/2020	7.584	ND	-	565.94														
26/08/2020	7.606	ND	-	565.91														
31/08/2020	7.535	ND	-	565.99														
MW19	Off-site	WSP, 2020	574.102	12 0	8.0 - 12 0						3/04/2020		-	-	-	-	First attempt to install 3 April 2020, relocated and installed on 8 April 2020	
											16/04/2020		8.559	ND	-	565.54		
						20/04/2020	8.555	ND	-	565.55								
						13/05/2020	8.450	ND	-	565.65								
						21/05/2020	-	-	-	-								
						15/06/2020	8.391	ND	-	565.71								
						23/06/2020	8.359	ND	-	565.74								
						9/07/2020	8.358	ND	-	565.74								
						23/07/2020	8.329	ND	-	565.77								
						29/07/2020	8.311	ND	-	565.79								
						6/08/2020	8.314	ND	-	565.79								
						13/08/2020	8.189	ND	-	565.91								
						20/08/2020	8.088	ND	-	566.01								
						26/08/2020	8.065	ND	-	566.04								
						31/08/2020	8.065	ND	-	566.04								
						MW20	Off-site	WSP, 2020	574.919	12 0	8.0 - 12 0	3/04/2020	9.360	ND	-	565.56		Well installed on 1 April 2020, development ongoing
												16/04/2020	9.277	ND	-	565.64		
20/04/2020	9.263	ND	-	565.66														
13/05/2020	9.165	ND	-	565.75														
21/05/2020	-	-	-	-														
15/06/2020	9.094	ND	-	565.83														
23/06/2020	9.066	ND	-	565.85														
9/07/2020	9.058	ND	-	565.86														
23/07/2020	9.022	ND	-	565.90														
29/07/2020	9.018	ND	-	565.90														
6/08/2020	9.017	ND	-	565.90														
13/08/2020	8.908	ND	-	566.01														
20/08/2020	8.813	ND	-	566.11														
26/08/2020	8.814	ND	-	566.11														
31/08/2020	8.776	ND	-	566.14														
MW21	Off-site	WSP, 2020	575.515	12 0	8.0 - 12 0							3/04/2020	10.002	ND	-	565.51	Well installed on 2 April 2020 development ongoing	
												16/04/2020	9.922	ND	-	565.59		
						20/04/2020	9.913	ND	-	565.60	LNAPL but not petroleum based							
						13/05/2020	9.811	ND	-	565.70								
						21/05/2020	9.767	ND	-	565.75	Confirmed with bailer - no LNAPL							
						15/06/2020	9.703	ND	-	565.81								
						23/06/2020	9.708	ND	-	565.81								
						9/07/2020	9.701	ND	-	565.81								
						23/07/2020	9.661	ND	-	565.85								
						29/07/2020	9.662	ND	-	565.85								
						6/08/2020	9.659	ND	-	565.86								
						13/08/2020	9.565	ND	-	565.95								
						20/08/2020	9.464	ND	-	566.05								
						26/08/2020	9.483	ND	-	566.03								
						31/08/2020	9.420	ND	-	566.10								
						MW23	Off-site	WSP, 2020	576.391	12 9	7.9 - 12 9	3/04/2020	-	-	-	-		Well installed on 6 April 2020
												16/04/2020	10.768	ND	-	565.62		
20/04/2020	10.756	ND	-	565.64														
13/05/2020	10.665	ND	-	565.73														
21/05/2020	-	-	-	-														
15/06/2020	10.571	ND	-	565.82														
23/06/2020	10.545	ND	-	565.85														
9/07/2020	10.540	ND	-	565.85														
23/07/2020	10.496	ND	-	565.90														
13/08/2020	10.376	ND	-	566.02														
20/08/2020	10.263	ND	-	566.13														
26/08/2020	10.303	ND	-	566.09														
31/08/2020	10.250	ND	-	566.14														

Well ID	Location	Installed by and year	T.O.C Elevation	Well Depth	Well Screen Depths	Gauging Date	Depth to Water	Depth to Product	Apparent LNAPL Thickness	Corrected Water Elevation	Comments
			(mAHD)	(mBTOC)	(mBTOC)		(mBTOC)	(m)	(mAHD)		
MW24	Off-site	WSP, 2020	576.706	15 0	11.0 - 15.0	3/04/2020	-	-	-	-	Well installed on 7 April 2020
						16/04/2020	11.023	ND	-	565.68	
						20/04/2020	11.011	ND	-	565.70	
						13/05/2020	10.915	ND	-	565.79	
						21/05/2020	10.867	ND	-	565.84	No odour
						15/06/2020	10.830	ND	-	565.88	
						19/06/2020	10.857	ND	-	565.85	Low HC odour
						23/06/2020	10.809	ND	-	565.90	
						9/07/2020	10.795	ND	-	565.91	
						23/07/2020	10.757	ND	-	565.95	
						13/08/2020	10.668	ND	-	566.04	
						20/08/2020	10.571	ND	-	566.14	
						26/08/2020	10.544	ND	-	566.16	
						31/08/2020	10.525	ND	-	566.18	
MW25	Off-site	WSP, 2020	576.938	15 0	9.0 - 15 0	3/04/2020	-	-	-	-	Well installed on 6 April 2020
						16/04/2020	10.885	ND	-	566.05	
						20/04/2020	10.863	ND	-	566.08	
						13/05/2020	10.775	ND	-	566.16	
						21/05/2020	-	-	-	-	
						15/06/2020	10.991	ND	-	565.95	
						23/06/2020	10.656	ND	-	566.28	
						9/07/2020	10.644	ND	-	566.29	
						23/07/2020	10.602	ND	-	566.34	
						13/08/2020	10.531	ND	-	566.41	
						20/08/2020	10.427	ND	-	566.51	
						26/08/2020	10.415	ND	-	566.52	
						31/08/2020	10.350	ND	-	566.59	
						RW01	On-site: tank pit recovery well	WSP, 2020	575.060	4.0	1.0 - 4.0
16/04/2020	-	-	-	-	100 mm diameter recovery well installed into the tank pit near Depot 4 (V98 UST)						
20/04/2020	2.590	ND	-	572.47							
13/05/2020	2.600	ND	-	572.46							
21/05/2020	-	-	-	-							
15/06/2020	2.787	ND	-	572.27							
23/06/2020	-	-	-	-							
9/07/2020	3.540	3.495	0.045	571.55							
23/07/2020	3.848	ND	-	571.21							
6/08/2020	3.915	ND	-	571.15	DRY						
13/08/2020	3.915	ND	-	571.15	DRY						
20/08/2020	3.915	ND	-	571.15	DRY						
26/08/2020	3.915	ND	-	571.15	DRY						

Notes:
 ND - not detected
 Corrected groundwater elevation calculated using an LNAPL density of 0.75 kg/m³ as follows
 Corrected groundwater elevation = (T.O.C. Elevation - Depth to Water) + ((Depth to Water - Depth to Product) * 0.75)

ATTACHMENT C
GROUNDWATER ANALYTICAL
RESULTS – APRIL 2020

ATTACHMENT D
INSITE JULY 2020
REMEDIATION SUMMARY
REPORT



InSite Remediation Services Pty Ltd

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31 July 2020

WSP Australia Pty Ltd
Level 1, 121 Marcus Clarke Street
Canberra, ACT 2601 Australia

Attention: [REDACTED]

Via email: [REDACTED]

Dear [REDACTED]

Re: Caltex Holt, Monthly Summary Report (July, 2020)

1.0 Background and Objectives

InSite Remediation Services Pty Ltd (InSite) were engaged by WSP Australia Pty Ltd (WSP) on 14 February to undertake recovery works from 15 February 2020 at the Caltex Holt, located at 1 Hardwick Crescent, Holt, ACT 2615 ("the Site") (see **Figure 1** for detailed site map).

The objective of the emergency response (ER) event was to remove recoverable Light Non-Aqueous Phase Liquid (LNAPL), dissolved phase impacted groundwater and Volatile Organic Compound (VOC) vapour from the subsurface soils as a result of a recent suspected UST failure.

A total fluids extraction system has been installed and is currently operating on the site.

This report details works completed from the 1st July to the 31st July 2020 at the Site. Included are LNAPL recovery estimates.

2.0 Summary of Site Works

The system is operated from Monday to Friday. The system is shut down over the weekends and re-started on Monday mornings (or next working day). A brief summary of works undertaken during site visits is outlined in **Table 2.1**.

Table 2.1 – Key Details of Works

Date	Description of Works
9 July 2020	<ul style="list-style-type: none"> Performed system checks. Removed 3846L of J100 from storage tank for disposal. Gauged wells. LNAPL detected in tank pit well RW01.
23 July 2020	<ul style="list-style-type: none"> Performed system checks. Removed 4000L of oily water from storage tank for disposal. Gauged wells. Large amount of fuel detected in EW01, proved with bailer. Re-installed EW01. Turned off MW02 and MW05 at manifold.
28 July 2020	<ul style="list-style-type: none"> Performed system checks. Removed 5,600 L of oily water from storage tank for disposal. Gauged wells. Installed shade cloth around site compound fence.

3.0 Extraction Summary

3.1 Extraction Recovery Results

Table 3.1 represents the estimated recovery volumes for each month of extraction.

Table 3.1 – Monthly Extraction Volumes

Extraction Period	PSH Recovered* (L)	Water Recovered (L)	Total Liquids Recovered (L)	PSH % Recovery
February (15/02 - 20/02)	8,341	8,211	16,552	50.4
February (21/02 – 28/02)	5,938	14,124	20,062	29.6
March (1/03 – 31/03)	4,553	35,459	40,012	11.4
April (1/04 – 30/04)	3,055	31,635	34,690	8.8
May (1/05 – 31/05)	928	**26,243	27,171	3.4
June (1/06 – 30/06)	694	10,541	11,235	6.2
July (1/07 – 31/07)	42	17,780	17822	0.3
Totals	23,551	143,993	167,544	14.1

- * PSH Recovered includes liquid phase and dissolved phase volume of TPH recovered.
- ** Additional disposal data previously not included for extraction 5/05 (1 Load) and 6/05 (3 Loads) – 8000L J120 Total

3.2 Waste Disposal Summary

Table 3.2 represents the volume of extracted waste disposed as of the 31st March 2020.

Table 3.2 – Waste Disposal Summary

Date Off Site	Sequence	Volume (L)	Waste	Waste Tracking Certificate Number
16 February 2020	1	1900	Flammable	2T01060713
20 February 2020	2	10,527	Flammable	2T01060837
21 February 2020	3	4162	Flammable	2T01061978
24 February 2020	4	6276	Flammable	2T01061980
28 February 2020	5	7896	Flammable	2T01063316
03 March 2020	6	5907	Flammable	2T01063669
09 March 2020	7	5531	Flammable	2T01065146
16 March 2020	8	9365	Flammable	2T01065152
19 March 2020	9	5991	Oily water	2T01068804 (final TC Dated 23)
24 March 2020	10	3500	Oily water	2T01069351
27 March 2020	11	4000	Oily water	2T01069314
30 March 2020	12	3550	Oily water	2T01053462
03 April 2020	13	2000	Oily water	2T01053459
06 April 2020	14	2000	Oily water	2T01053458
07 April 2020	15	15 Drums	Drill Cuttings	2T01100039
09 April 2020	16	2000	Oily water	2T01070942 (incorrectly dated 9/03)
09 April 2020	17	2000	Oily water	2T01070943
14 April 2020	18	10150	Oily water	2T01073322
22 April 2020	19	8.44 tonne	GSW	N/A
27 April 2020	20	700	Oily water	2T01070931
27 April 2020	21	2000	Oily water	2T01070933
27 April 2020	22	2000	Oily water	2T01070935
28 April 2020	23	1950	Oily water	2T01053441
29 April 2020	24	2000	Oily water	2T01053444
29 April 2020	25	2000	Oily water	2T01053442
30 April 2020	26	1950	Oily water	2T01053443
30 April 2020	27	1950	Oily water	2T01077128
05 May 2020	28	2000	Oily water	2T01077129
06 May 2020	29	2000	Oily water	2T01077131
06 May 2020	30	2000	Oily water	2T01077130
06 May 2020	31	2000	Oily water	2T01077126
12 May 2020	32	1800	Oily water	2T01077123
12 May 2020	33	1800	Oily water	2T01077124
12 May 2020	34	1800	Oily water	2T01077125
13 May 2020	35	1800	Oily water	2T01077122
13 May 2020	36	1800	Oily water	2T01077117
14 May 2020	37	2000	J100	2T01080829
19 May 2020	38	1400	Oily water	2T01077119
26 May 2020	39	1800	Oily water	2T01077118
26 May 2020	40	1800	Oily water	2T01084081
26 May 2020	41	5.04 tonne	GSW	N/A
02 June 2020	42	1400	Oily water	2T01084080
16 June 2020	43	2000	Oily water	2T01084073

Date Off Site	Sequence	Volume (L)	Waste	Waste Tracking Certificate Number
23 June 2020	44	5500	Oily Water	2T01090677
29 June 2020	45	4400	J100	2T01091770
10 July 2020	46	3846	J100	2T01095256
23 July 2020	47	2000	Oily Water	2T01099475
24 July 2020	48	2000	Oily Water	2T01099474
29 July 2020	49	1900	Oily Water	2T01099473
29 July 2020	50	1900	Oily Water	2T01100256
29 July 2020	51	1800	Oily Water	2T01100255
Totals		152,051		

4.0 Conclusions

Based on the works undertaken at the Site from 1st July to 31st July 2020 InSite concludes the following:

- The estimated total of LNAPL volume recovered over the extraction period was 42L.
- The estimated total product volume based on TPH results was 5.4L.
- The estimated total of hydrocarbon-contaminated water recovered from the extraction period was 17,780L;
- The estimated volume of liquid waste disposed during the extraction period was 13,446L.
- For a detailed breakdown of groundwater and LNAPL removal refer to **Attachment A**.

If you have any further questions, please don't hesitate to contact us on (02) 9525 7543.

List of Attachments

Figure 1	Site Map
Attachment A	Total Fluids Extraction Data and Recovery Trend
Attachment B	Groundwater Trends and Gauging Data



Figure 1 - Site Map

Monthly Summary Report