

LEGEND

	PROPERTY BOUNDARY
	BLOCK / SECTION BOUNDARY
	SECTION LOCATION & ID
	GROUNDWATER MONITORING WELL
	EXTRACTION WELL
	INJECTION WELL
	RECOVERY WELL
	SOIL VAPOUR BORE
	CORED BOREHOLE

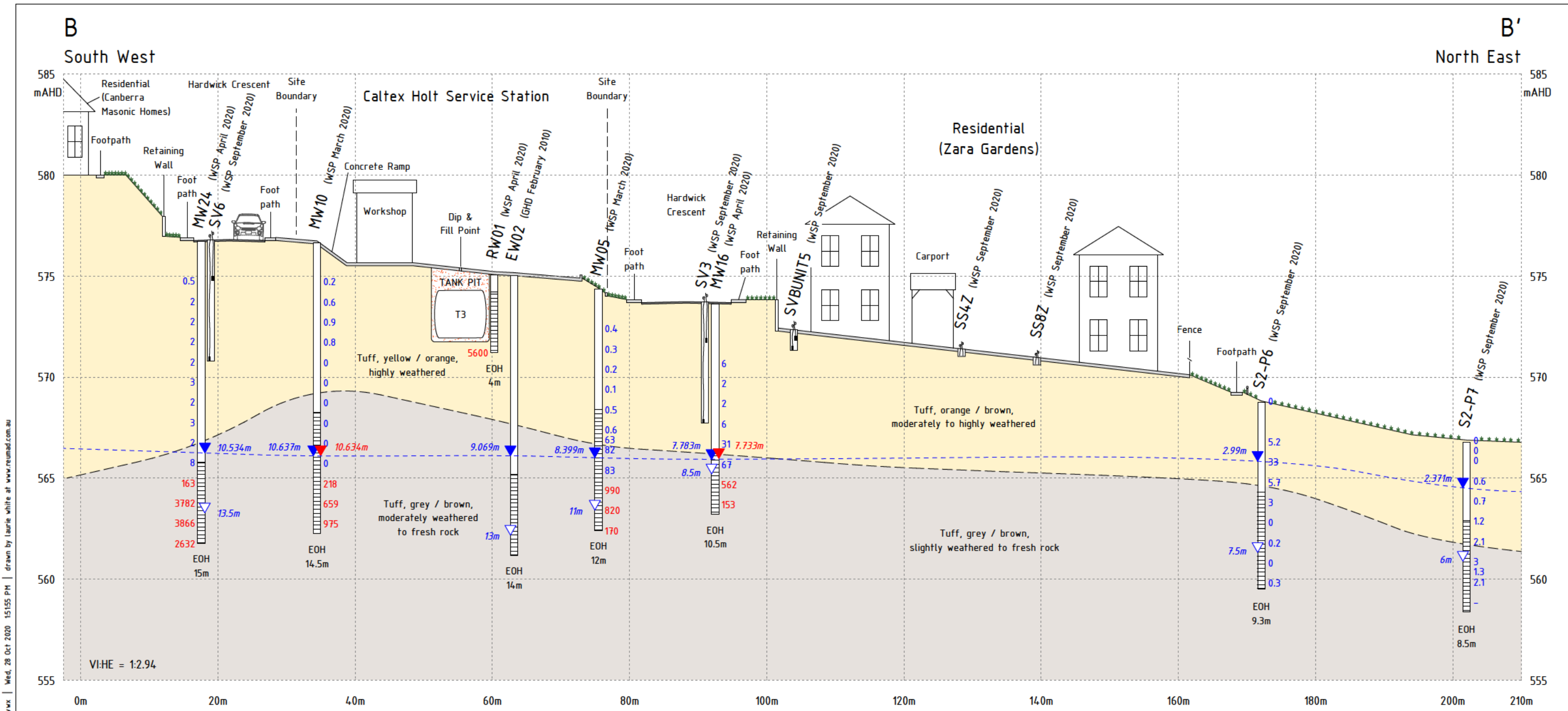
0 25m
1:950 AT A3 APPROXIMATE

REFERENCE: CALTEX 'DANGEROUS GOODS PLAN' DRAWING NO. 22546-DG
REV. B DATED 25/11/2011 AND VERIS SURVEY 217267.01 DATED
02/10/2020 SUPPLIED BY CLIENT.



CALTEX HOLT SERVICE STATION
1 HARDWICK CRESCENT
HOLT ACT

FIGURE 4b
CROSS-SECTION LOCATION PLAN



LEGEND

- MW## MONITORING WELL ID
- MONITORING WELL CASING
- SCREENED INTERVAL OF MONITORING WELL
- SV# SOIL VAPOUR BORE ID
- TEFLON TUBE
- SOIL VAPOUR IMPLANT
- TEFLON TUBE
- SOIL VAPOUR IMPLANT
- SS# SUB SLAB SOIL VAPOUR PIN ID
- SUB SLAB SOIL VAPOUR PIN
- ### PID < 100ppm
- ### PID > 100ppm
- ##m ▽ GROUNDWATER ENCOUNTERED LEVEL (mBGL)
- ##m ▽ GROUNDWATER STABILISED LEVEL (mBGL)
- ##m ▽ GAUGED LNAPL LEVEL (mBGL)
- GRASS SURFACE
- INFERRED GEOLOGICAL CONTACT
- INFERRED GROUNDWATER LEVEL
- CONCRETE
- BITUMEN
- TANK PIT
- TUFF, YELLOW / ORANGE OR ORANGE / BROWN.
- TUFF, GREY / BROWN

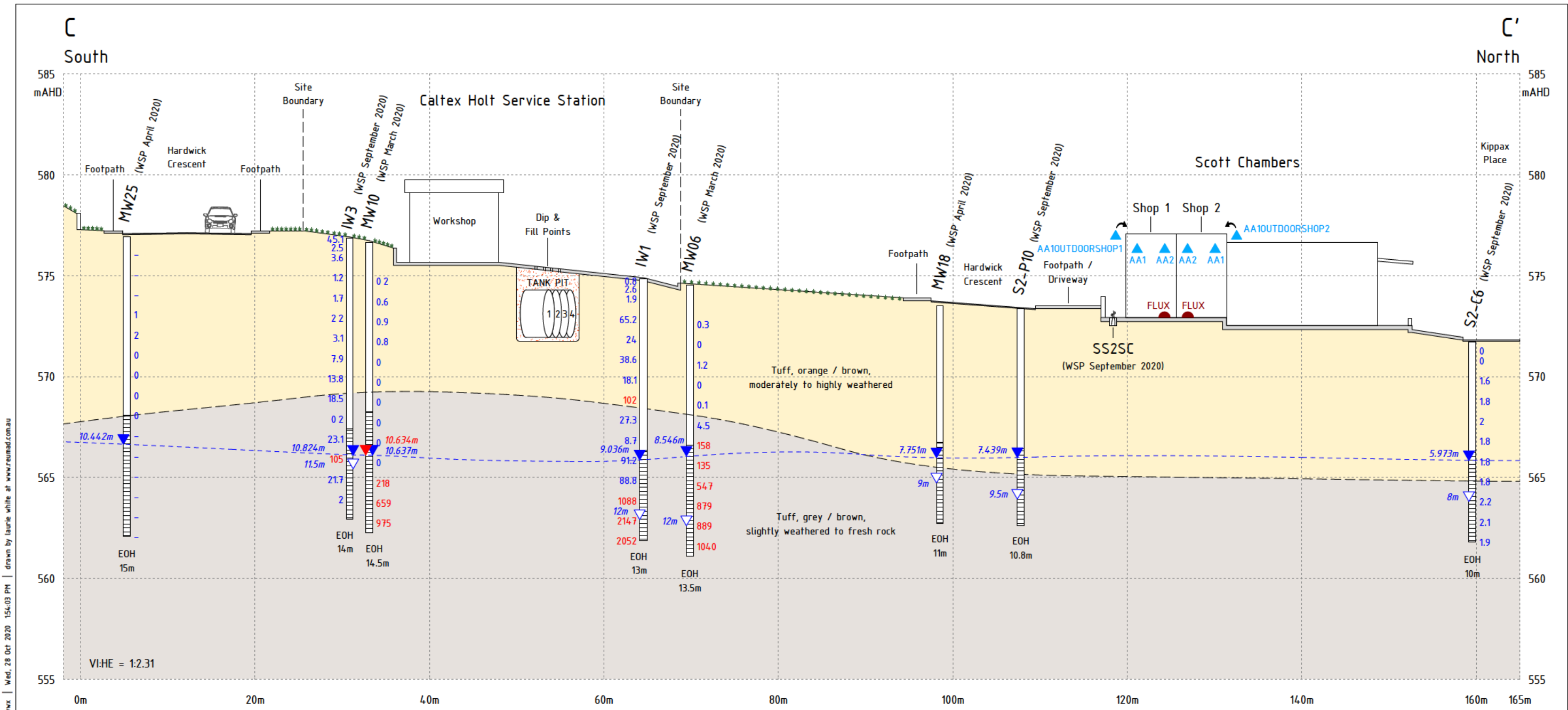
NOTE

EW02 INSTALLED BY GHD FEBRUARY 2010, MW05 & MW10 INSTALLED BY WSP MARCH 2020, RW01, MW16 & MW25 INSTALLED BY WSP APRIL 2020, SV3, SV6, SVBUNIT5, SS4Z, SS8Z, S2-P6 & S2-P7 INSTALLED BY WSP SEPTEMBER 2020.
GROUNDWATER & LNAPL LEVELS GAUGED 28 & 29 SEPTEMBER 2020.

D:\Google Drive\InSite Remediation\Holt\FIGURES\FIGURES STAGE 2 ESA\F10_V3\wvx | Wed, 28 Oct 2020 15:55 PM | drawn by laurie.white at www.numad.com.au

**CALTEX HOLT SERVICE STATION
1 HARDWICK CRESCENT
HOLT ACT**

**FIGURE 4d
CROSS SECTION B-B'**



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LEGEND

- MW## MONITORING WELL ID
- MONITORING WELL CASING
- SCREENED INTERVAL OF MONITORING WELL
- SS# SUB SLAB SOIL VAPOUR PIN ID
- SUB SLAB SOIL VAPOUR PIN
- ### PID < 100ppm
- ### PID > 100ppm
- ##m ▽ GROUNDWATER STABILISED LEVEL (mBGL)
- ##m ▾ GROUNDWATER STABILISED LEVEL (mBGL)
- ##m ▴ GAUGED LNAPL LEVEL (mBGL)
- GRASS SURFACE
- INFERRED GEOLOGICAL CONTACT
- INFERRED GROUNDWATER LEVEL
- ▲ AMBIENT AIR SAMPLE LOCATION
- FLUX SAMPLE LOCATION

- CONCRETE
- BITUMEN
- TANK PIT
- TUFF, YELLOW / ORANGE OR ORANGE / BROWN.
- TUFF, GREY / BROWN

NOTE

MW06 & MW10 INSTALLED BY WSP MARCH 2020, MW18 & MW25 INSTALLED BY WSP APRIL 2020 AND IW1, IW3, S2-C6, S2-P10 & SS2SC INSTALLED BY WSP SEPTEMBER 2020.
GROUNDWATER & LNAPL LEVELS GAUGED 28 & 29 SEPTEMBER 2020.

REUMAD technical services geotechnical & environmental drafting support

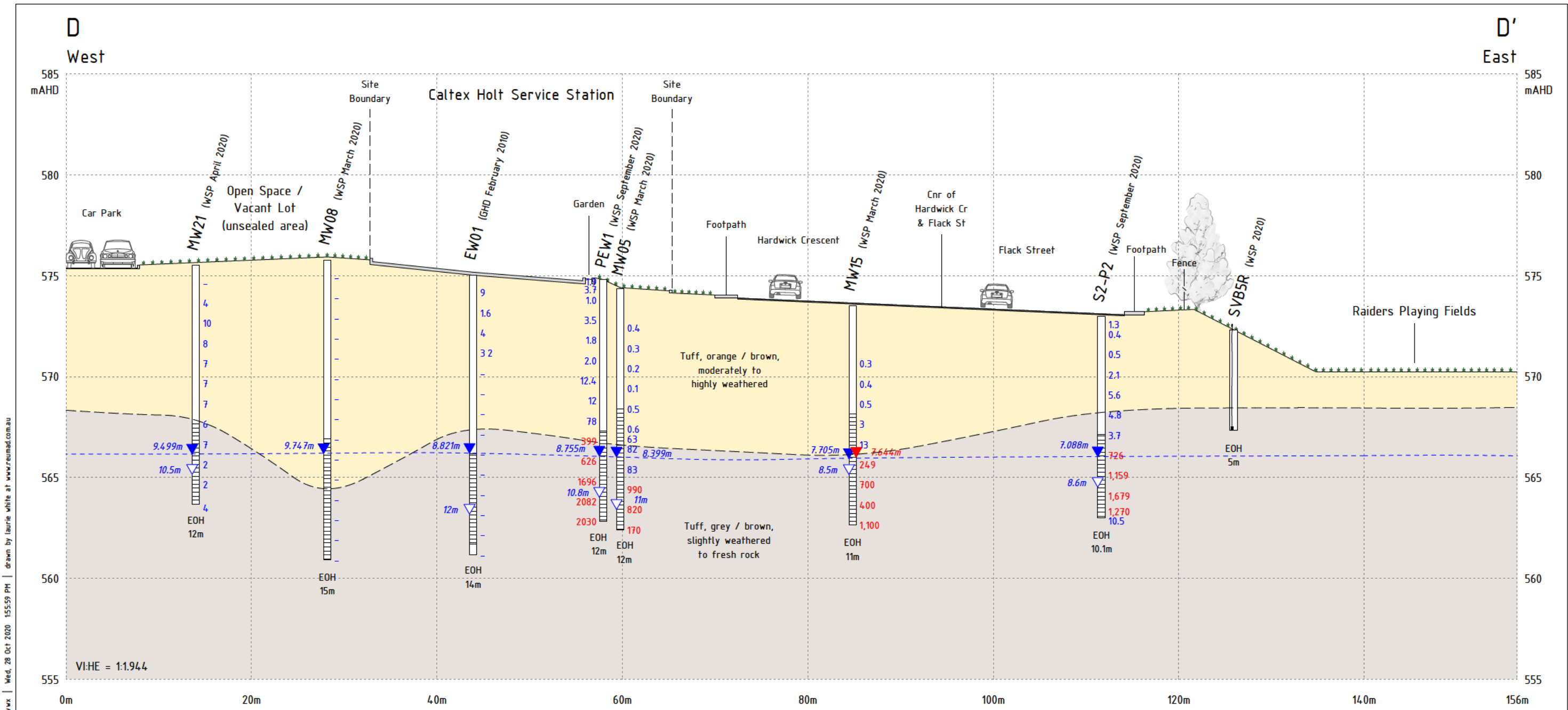
InSite REMEDIATION SERVICES

AMPOL

WSP

CALTEX HOLT SERVICE STATION
1 HARDWICK CRESCENT
HOLT ACT

FIGURE 4e
CROSS SECTION C-C'



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LEGEND

- MW## MONITORING WELL ID
- MONITORING WELL CASING
- SCREENED INTERVAL OF MONITORING WELL
- SV# SOIL VAPOUR BORE ID
- TEFLON TUBE
- SOIL VAPOUR IMPLANT
- TEFLON TUBE
- SOIL VAPOUR IMPLANT
- ### PID < 100ppm
- ### PID > 100ppm
- ##m ▽ GROUNDWATER ENCOUNTERED LEVEL (mBGL)
- ##m ▾ GROUNDWATER STABILISED LEVEL (mBGL)
- ##m ▾ GAUGED LNAPL LEVEL (mBGL)
- GRASS SURFACE
- INFERRED GEOLOGICAL CONTACT
- INFERRED GROUNDWATER LEVEL

- CONCRETE
- BITUMEN
- TUFF, YELLOW / ORANGE OR ORANGE / BROWN.
- TUFF, GREY / BROWN

NOTE

EW01 INSTALLED BY GHD FEBRUARY 2010, MW05, MW08 & MW15 INSTALLED BY WSP MARCH 2020, MW21 INSTALLED BY WSP APRIL 2020 AND S2-P2 & SVB5R INSTALLED BY WSP SEPTEMBER 2020. GROUNDWATER & LNAPL LEVELS GAUGED 28 & 29 SEPTEMBER 2020.



technical services
geotechnical & environmental
drafting support



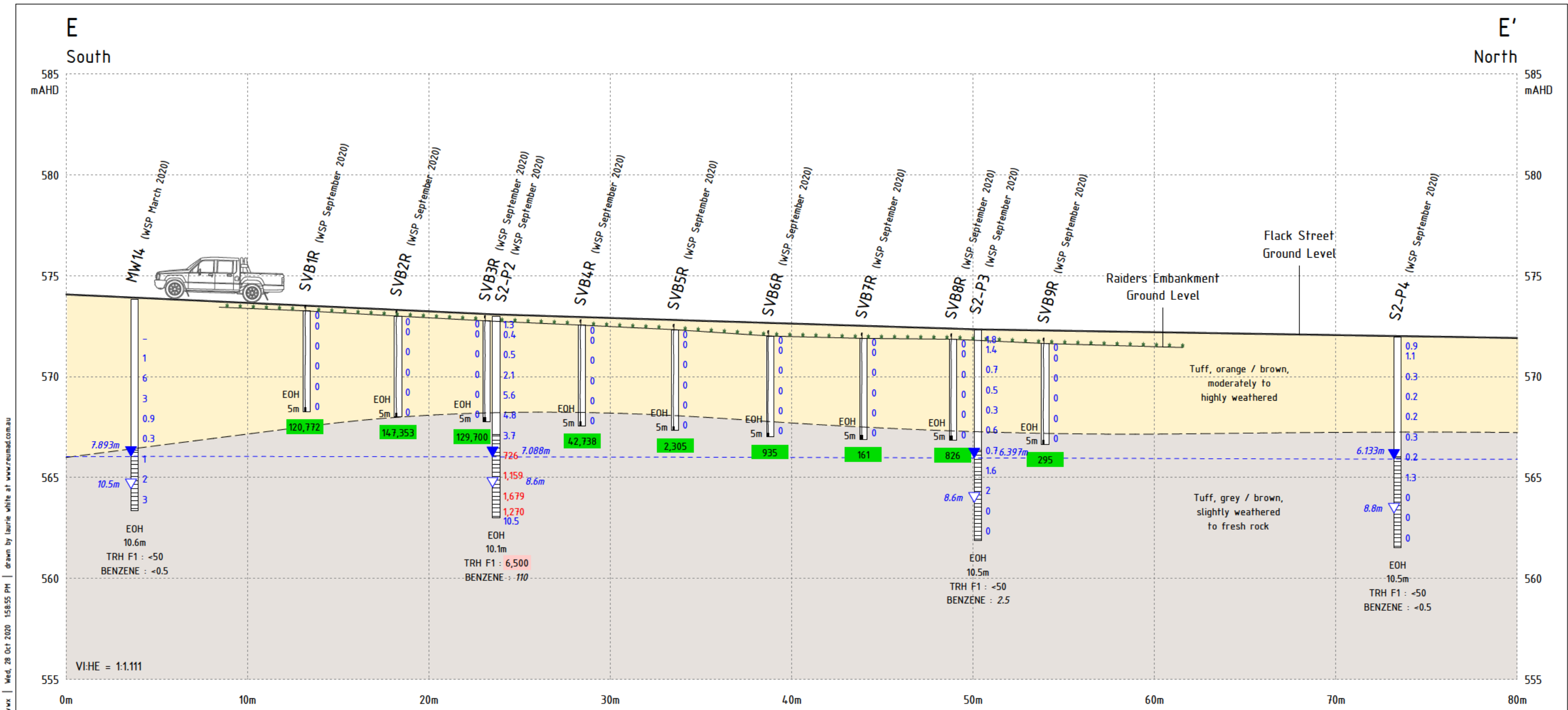
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CALTEX HOLT SERVICE STATION
1 HARDWICK CRESCENT
HOLT ACT

FIGURE 4f
CROSS SECTION D-D'



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LEGEND

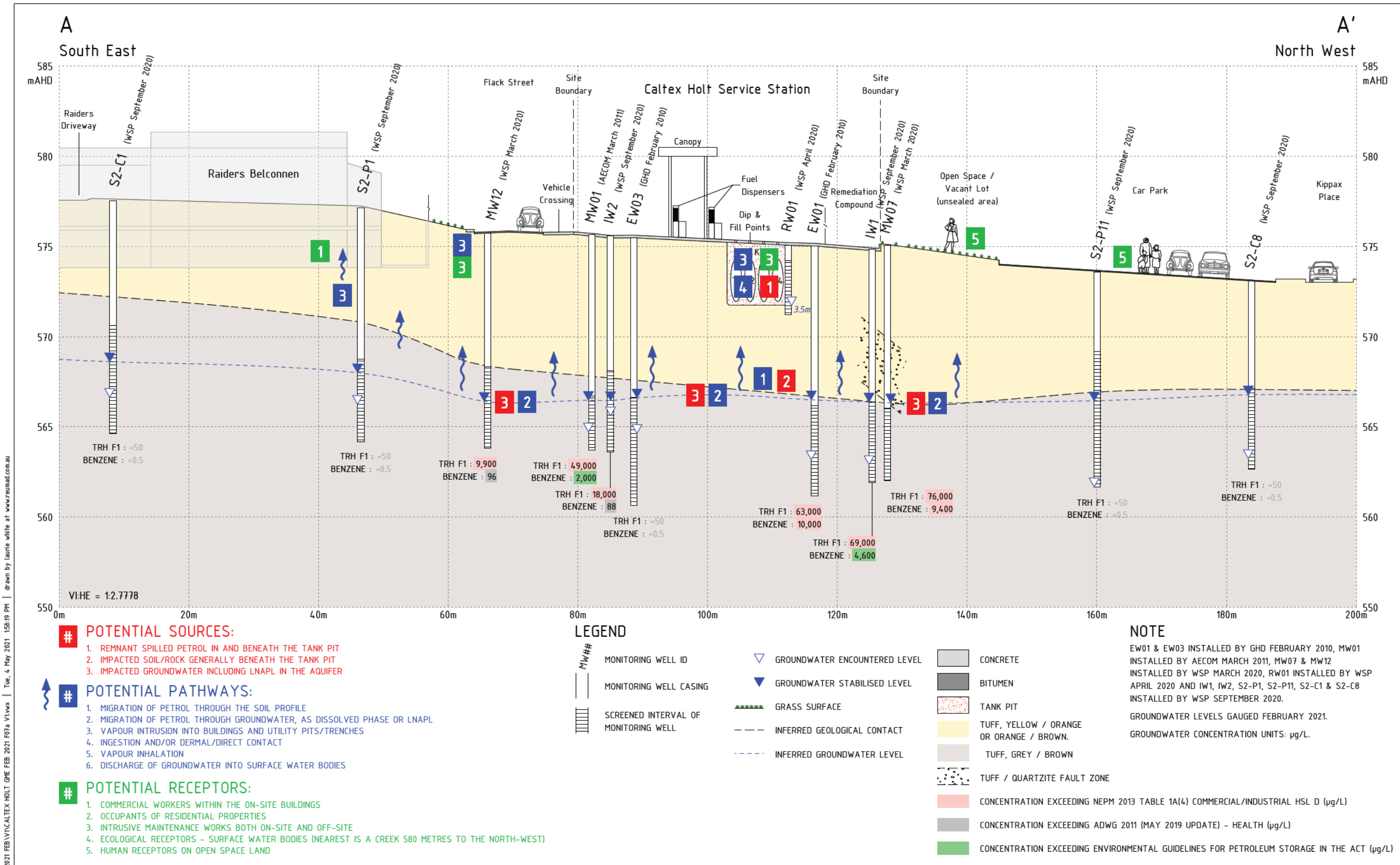
- MW## MONITORING WELL ID
- MONITORING WELL CASING
- SCREENED INTERVAL OF MONITORING WELL
- SV# SOIL VAPOUR BORE ID
- TEFLON TUBE
- SOIL VAPOUR IMPLANT
- TEFLON TUBE
- SOIL VAPOUR IMPLANT
- ### PID < 100ppm
- ### PID > 100ppm
- ##m ▽ GROUNDWATER ENCOUNTERED LEVEL (mBGL)
- ##m ▾ GROUNDWATER STABILISED LEVEL (mBGL)
- ***** GRASS SURFACE
- INFERRED GEOLOGICAL CONTACT
- - - - - INFERRED GROUNDWATER LEVEL
- CONCRETE
- BITUMEN
- TUFF, YELLOW / ORANGE OR ORANGE / BROWN.
- TUFF, GREY / BROWN
- ### ## ## ## CONCENTRATION OF THE SUM OF THE LIGHT ALKANES C5+C6 FRACTIONS IN THE RAIDERS SOIL VAPOUR BORES (µg/m³)
- CONCENTRATION EXCEEDING NEPM 2013 TABLE 1A(4) COMMERCIAL/INDUSTRIAL HSL D (µg/L)
- ITALICS CONCENTRATION EXCEEDING ANZG 2018 DRINKING WATER GUIDELINES 6 (µg/L)

NOTE

EW01 INSTALLED BY GHD FEBRUARY 2010, MW05, MW08 & MW15 INSTALLED BY WSP MARCH 2020, MW21 INSTALLED BY WSP APRIL 2020 AND S2-P2 & SVB5R INSTALLED BY WSP SEPTEMBER 2020. GROUNDWATER LEVELS GAUGED 28 & 29 SEPTEMBER 2020. CONCENTRATION OF TRH F1 IN WELL S2-P2 AT 6,500 µg/L EXCEEDS NEPM (2013) HSL FOR COMMERCIAL/INDUSTRIAL LANDUSE. GROUNDWATER CONCENTRATION UNITS: µg/L. SOIL VAPOUR CONCENTRATION UNITS: µg/m³.

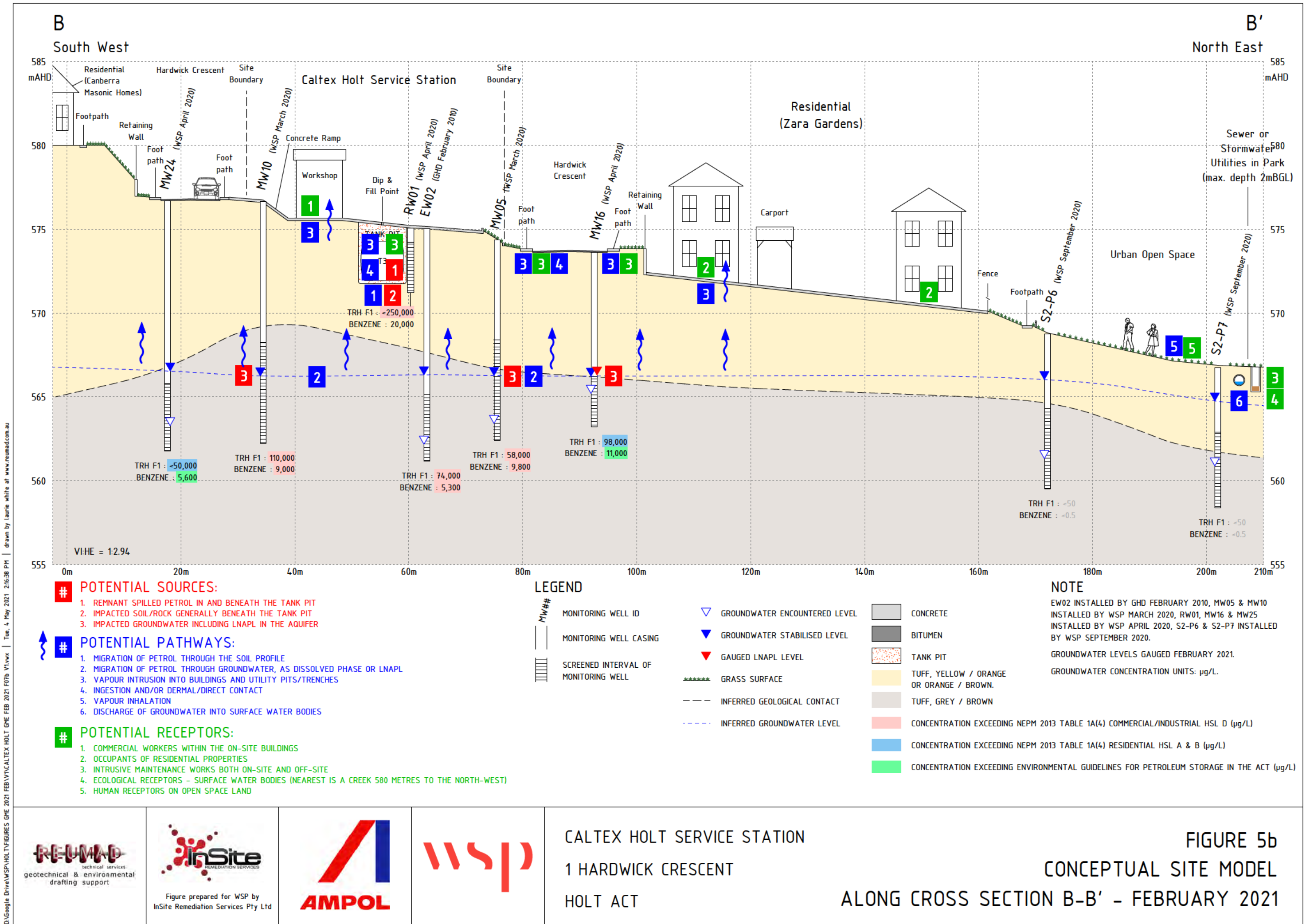
**CALTEX HOLT SERVICE STATION
1 HARDWICK CRESCENT
HOLT ACT**

**FIGURE 4g
CROSS SECTION E-E'**



D:\Google Drive\WSP\HOLT\FIGURES GHE FEB 2021\FIGURE 5a V1.rvt | Tue, 4 May 2021 15:58:19 PM | drawn by laurie white at www.reumad.com.au

<p>REUMAD technical services geotechnical & environmental drafting support</p>	<p>InSite REMEDIAL SERVICES</p> <p>Figure prepared for WSP by InSite Remediation Services Pty Ltd</p>			<p>CALTEX HOLT SERVICE STATION 1 HARDWICK CRESCENT HOLT ACT</p>	<p>FIGURE 5a CONCEPTUAL SITE MODEL ALONG CROSS SECTION A-A' - FEBRUARY 2021</p>
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POTENTIAL SOURCES:

1. REMNANT SPILLED PETROL IN AND BENEATH THE TANK PIT
2. IMPACTED SOIL/ROCK GENERALLY BENEATH THE TANK PIT
3. IMPACTED GROUNDWATER INCLUDING LNAPL IN THE AQUIFER

POTENTIAL PATHWAYS:

1. MIGRATION OF PETROL THROUGH THE SOIL PROFILE
2. MIGRATION OF PETROL THROUGH GROUNDWATER, AS DISSOLVED PHASE OR LNAPL
3. VAPOUR INTRUSION INTO BUILDINGS AND UTILITY PITS/TRENCHES
4. INGESTION AND/OR DERMAL/DIRECT CONTACT
5. VAPOUR INHALATION
6. DISCHARGE OF GROUNDWATER INTO SURFACE WATER BODIES

POTENTIAL RECEPTORS:

1. COMMERCIAL WORKERS WITHIN THE ON-SITE BUILDINGS
2. OCCUPANTS OF RESIDENTIAL PROPERTIES
3. INTRUSIVE MAINTENANCE WORKS BOTH ON-SITE AND OFF-SITE
4. ECOLOGICAL RECEPTORS - SURFACE WATER BODIES (NEAREST IS A CREEK 580 METRES TO THE NORTH-WEST)
5. HUMAN RECEPTORS ON OPEN SPACE LAND

LEGEND

- | | | | |
|-------|--------------------------------------|-------|-------------------------------|
| MW## | MONITORING WELL ID | ▽ | GROUNDWATER ENCOUNTERED LEVEL |
| --- | MONITORING WELL CASING | ▼ | GROUNDWATER STABILISED LEVEL |
| | SCREENED INTERVAL OF MONITORING WELL | ▼ | GAUGED LNAPL LEVEL |
| ----- | INFERRED GEOLOGICAL CONTACT | ----- | INFERRED GROUNDWATER LEVEL |
| ----- | INFERRED GROUNDWATER LEVEL | ----- | INFERRED GROUNDWATER LEVEL |

- | | |
|--|--|
| | CONCRETE |
| | BITUMEN |
| | TANK PIT |
| | TUFF, YELLOW / ORANGE OR ORANGE / BROWN. |
| | TUFF, GREY / BROWN |
| | CONCENTRATION EXCEEDING NEPM 2013 TABLE 1A(4) COMMERCIAL/INDUSTRIAL HSL D (µg/L) |
| | CONCENTRATION EXCEEDING NEPM 2013 TABLE 1A(4) RESIDENTIAL HSL A & B (µg/L) |
| | CONCENTRATION EXCEEDING ENVIRONMENTAL GUIDELINES FOR PETROLEUM STORAGE IN THE ACT (µg/L) |

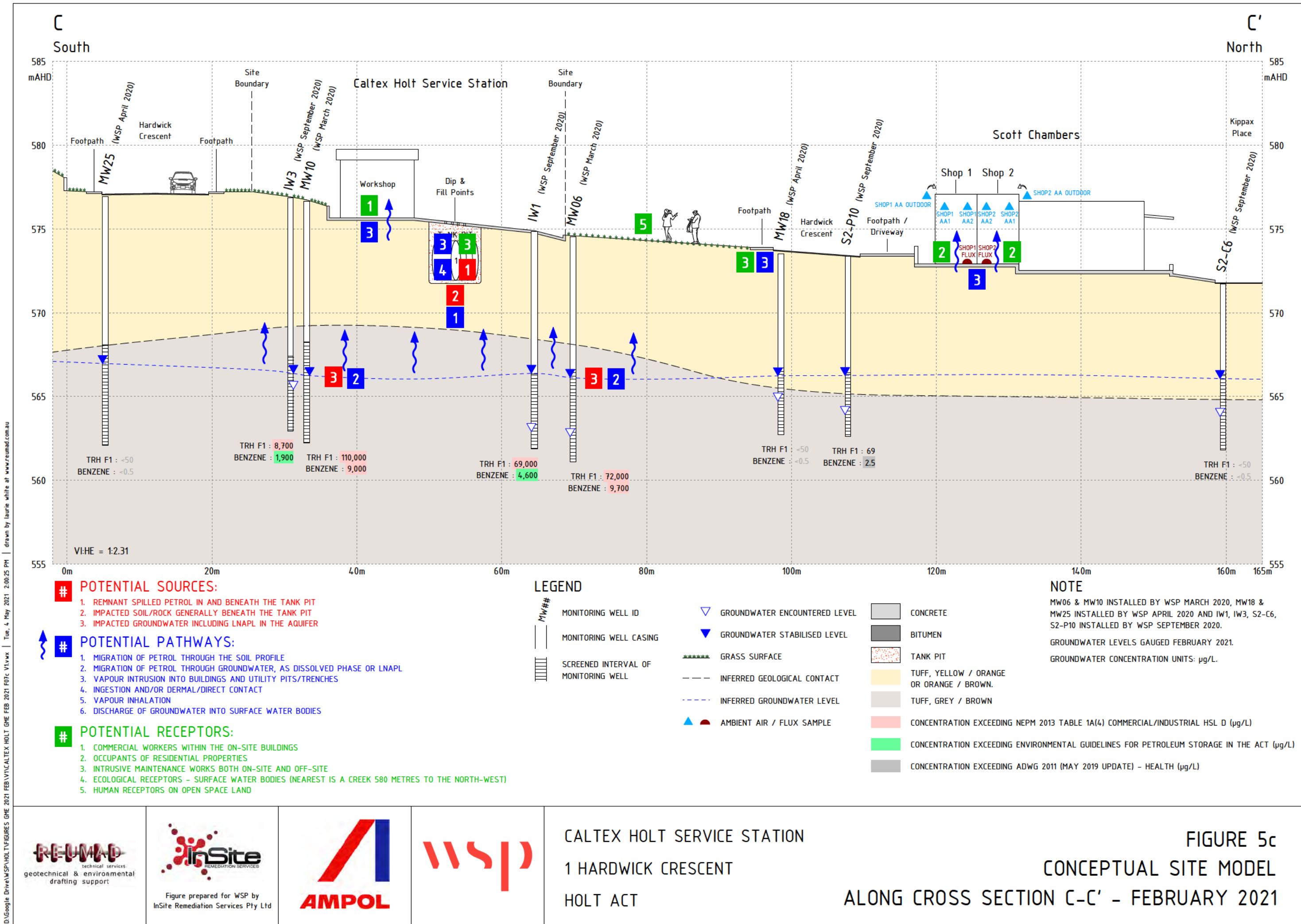
NOTE

EW02 INSTALLED BY GHD FEBRUARY 2010, MW05 & MW10 INSTALLED BY WSP MARCH 2020, RW01, MW16 & MW25 INSTALLED BY WSP APRIL 2020, S2-P6 & S2-P7 INSTALLED BY WSP SEPTEMBER 2020.
 GROUNDWATER LEVELS GAUGED FEBRUARY 2021.
 GROUNDWATER CONCENTRATION UNITS: µg/L.

 geotechnical & environmental drafting support	 Figure prepared for WSP by InSite Remediation Services Pty Ltd		
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CALTEX HOLT SERVICE STATION
 1 HARDWICK CRESCENT
 HOLT ACT

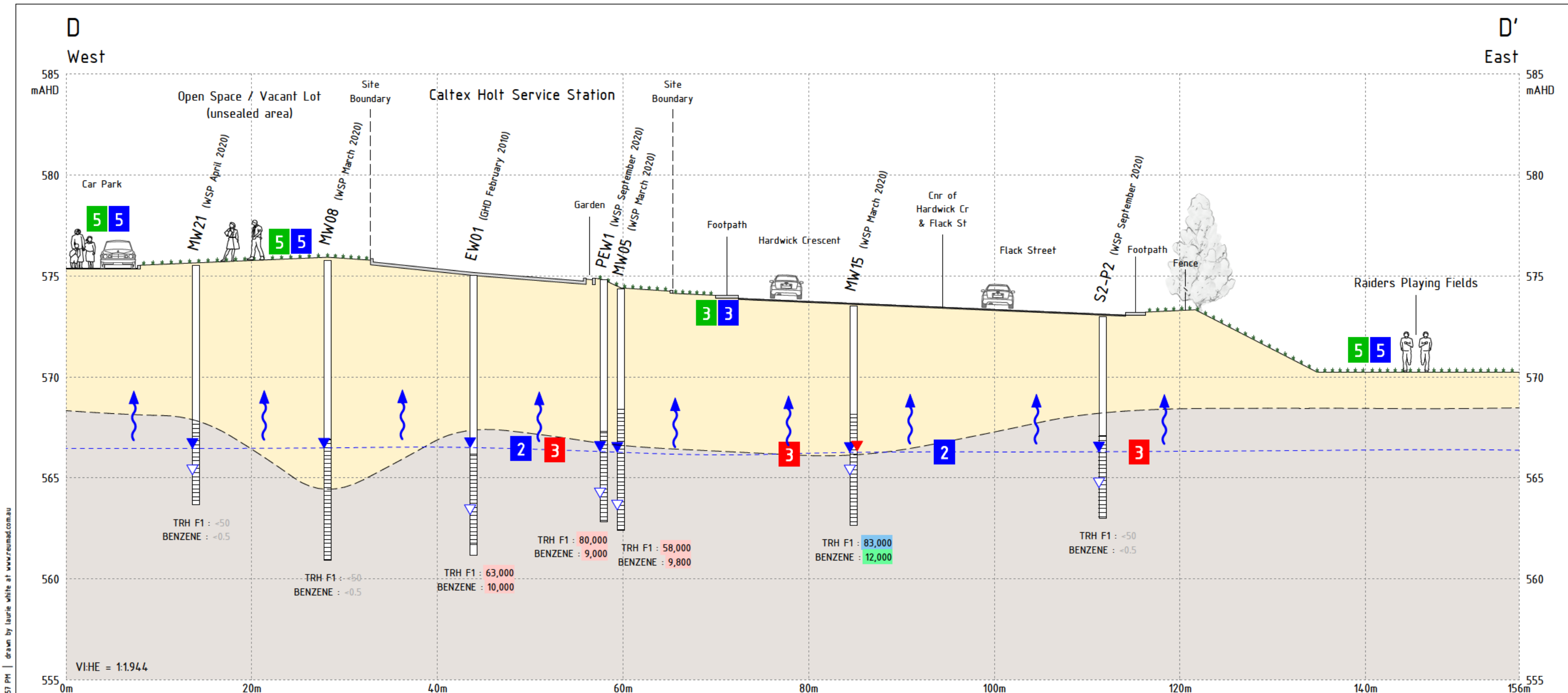
FIGURE 5b
CONCEPTUAL SITE MODEL
ALONG CROSS SECTION B-B' - FEBRUARY 2021



CALTEX HOLT SERVICE STATION
 1 HARDWICK CRESCENT
 HOLT ACT

FIGURE 5c
 CONCEPTUAL SITE MODEL
 ALONG CROSS SECTION C-C' - FEBRUARY 2021





POTENTIAL SOURCES:

1. REMNANT SPILLED PETROL IN AND BENEATH THE TANK PIT
2. IMPACTED SOIL/ROCK GENERALLY BENEATH THE TANK PIT
3. IMPACTED GROUNDWATER INCLUDING LNAPL IN THE AQUIFER

POTENTIAL PATHWAYS:

1. MIGRATION OF PETROL THROUGH THE SOIL PROFILE
2. MIGRATION OF PETROL THROUGH GROUNDWATER, AS DISSOLVED PHASE OR LNAPL
3. VAPOUR INTRUSION INTO BUILDINGS AND UTILITY PITS/TRENCHES
4. INGESTION AND/OR DERMAL/DIRECT CONTACT
5. VAPOUR INHALATION
6. DISCHARGE OF GROUNDWATER INTO SURFACE WATER BODIES

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2. OCCUPANTS OF RESIDENTIAL PROPERTIES
3. INTRUSIVE MAINTENANCE WORKS BOTH ON-SITE AND OFF-SITE
4. ECOLOGICAL RECEPTORS - SURFACE WATER BODIES (NEAREST IS A CREEK 580 METRES TO THE NORTH-WEST)
5. HUMAN RECEPTORS ON OPEN SPACE LAND

LEGEND

MW##	MONITORING WELL ID	▽	GROUNDWATER ENCOUNTERED LEVEL	■	CONCRETE
---	MONITORING WELL CASING	▼	GROUNDWATER STABILISED LEVEL	■	BITUMEN
	SCREENED INTERVAL OF MONITORING WELL	▼	GAUGED LNAPL LEVEL	■	TANK PIT
-----		-----	GRASS SURFACE	■	TUFF, YELLOW / ORANGE OR ORANGE / BROWN.
---		---	INFERRED GEOLOGICAL CONTACT	■	TUFF, GREY / BROWN
---		---	INFERRED GROUNDWATER LEVEL	■	CONCENTRATION EXCEEDING NEPM 2013 TABLE 1A(4) COMMERCIAL/INDUSTRIAL HSL D (µg/L)
				■	CONCENTRATION EXCEEDING ENVIRONMENTAL GUIDELINES FOR PETROLEUM STORAGE IN THE ACT (µg/L)
				■	CONCENTRATION EXCEEDING NEPM 2013 TABLE 1A(4) RESIDENTIAL HSL A & B (µg/L)

NOTE

EW01 INSTALLED BY GHD FEBRUARY 2010, MW05, MW08 & MW15 INSTALLED BY WSP MARCH 2020, MW21 INSTALLED BY WSP APRIL 2020 & S2-P2 INSTALLED BY WSP SEPTEMBER 2020.
 GROUNDWATER LEVELS GAUGED FEBRUARY 2021.
 GROUNDWATER CONCENTRATION UNITS: µg/L.
 SOIL VAPOUR CONCENTRATION UNITS: µg/m³.

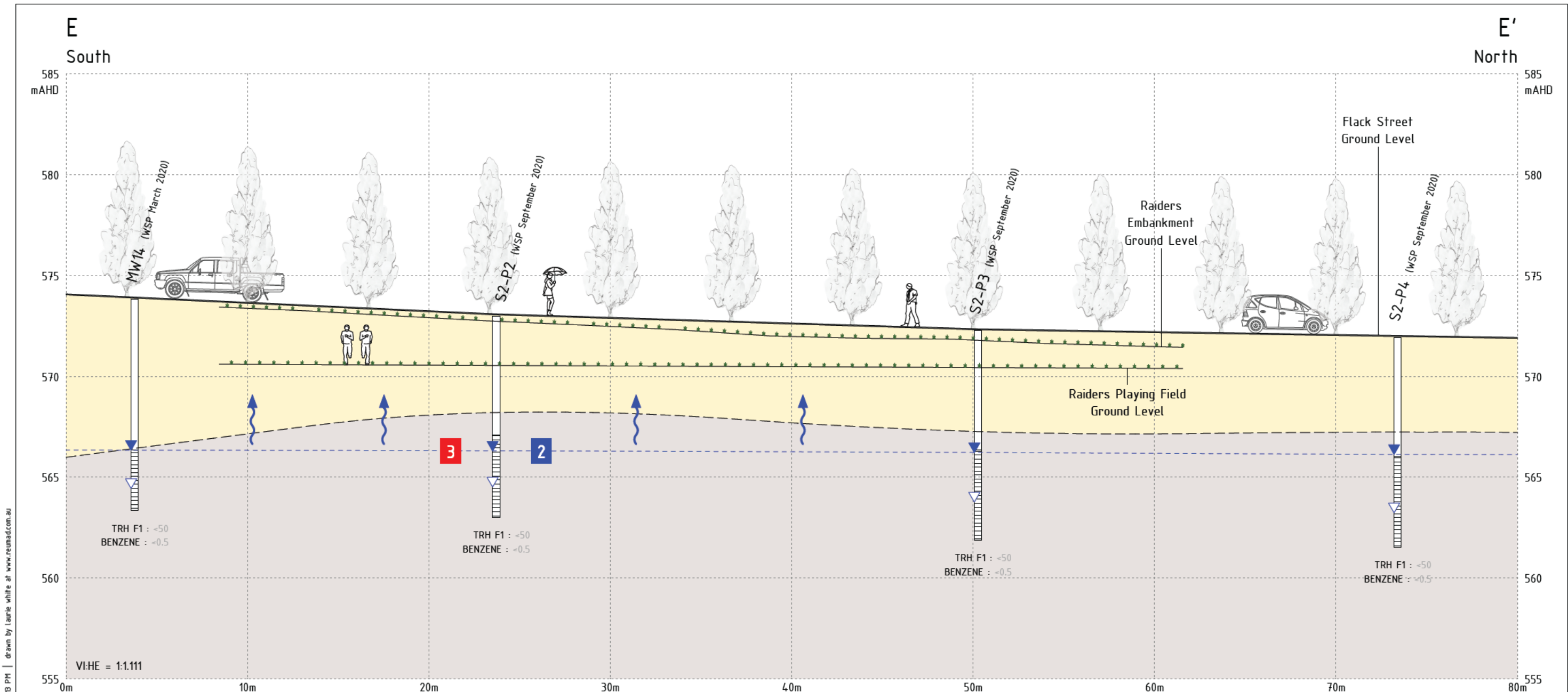
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CALTEX HOLT SERVICE STATION
 1 HARDWICK CRESCENT
 HOLT ACT

FIGURE 5d
 CONCEPTUAL SITE MODEL
 ALONG CROSS SECTION D-D' - FEBRUARY 2021

Figure prepared for WSP by
 InSite Remediation Services Pty Ltd



POTENTIAL SOURCES:

1. REMNANT SPILLED PETROL IN AND BENEATH THE TANK PIT
2. IMPACTED SOIL/ROCK GENERALLY BENEATH THE TANK PIT
3. IMPACTED GROUNDWATER INCLUDING LNAPL IN THE AQUIFER

POTENTIAL PATHWAYS:

1. MIGRATION OF PETROL THROUGH THE SOIL PROFILE
2. MIGRATION OF PETROL THROUGH GROUNDWATER, AS DISSOLVED PHASE OR LNAPL
3. VAPOUR INTRUSION INTO BUILDINGS AND UTILITY PITS/TRENCHES
4. INGESTION AND/OR DERMAL/DIRECT CONTACT
5. VAPOUR INHALATION
6. DISCHARGE OF GROUNDWATER INTO SURFACE WATER BODIES

POTENTIAL RECEPTORS:

1. COMMERCIAL WORKERS WITHIN THE ON-SITE BUILDINGS
2. OCCUPANTS OF RESIDENTIAL PROPERTIES
3. INTRUSIVE MAINTENANCE WORKS BOTH ON-SITE AND OFF-SITE
4. ECOLOGICAL RECEPTORS - SURFACE WATER BODIES (NEAREST IS A CREEK 580 METRES TO THE NORTH-WEST)
5. HUMAN RECEPTORS ON OPEN SPACE LAND

LEGEND

	MONITORING WELL ID		GROUNDWATER ENCOUNTERED LEVEL		CONCRETE
	MONITORING WELL CASING		GROUNDWATER STABILISED LEVEL		BITUMEN
	SCREENED INTERVAL OF MONITORING WELL		GRASS SURFACE		TANK PIT
			INFERRED GEOLOGICAL CONTACT		TUFF, YELLOW / ORANGE OR ORANGE / BROWN.
			INFERRED GROUNDWATER LEVEL		TUFF, GREY / BROWN

NOTE

MW14 INSTALLED BY WSP MARCH 2020, S2-P2, S2-P3 & S2-P4 INSTALLED BY WSP SEPTEMBER 2020.
 GROUNDWATER LEVELS GAUGED FEBRUARY 2021.
 GROUNDWATER CONCENTRATION UNITS: µg/L.

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 <small>technical services geotechnical & environmental drafting support</small>	 <small>REMEDIATION SERVICES</small> Figure prepared for WSP by InSite Remediation Services Pty Ltd			CALTEX HOLT SERVICE STATION 1 HARDWICK CRESCENT HOLT ACT	FIGURE 5E CONCEPTUAL SITE MODEL ALONG CROSS SECTION E-E' - FEBRUARY 2021
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aerial image nearmap august 2020
 block & section data from http://www.actmap.act.gov.au
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 D:\Google Drive\InSite Remediation\Holt\FIGURES\FIGURES 2020 SEPT\CALTEX HOLT ENTIRE WELL NETWORK V3.vwk



LEGEND

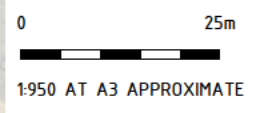
- PROPERTY BOUNDARY
- BLOCK / SECTION BOUNDARY
- Pipeline
- Existing Monitoring Well
- 15m Radius of Influence Area (SVE + Pumping)
- On-site Extraction Well
- Treatment System
- 15m Radius of Influence Area (MPVE)
- Off-site Extraction Well

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.

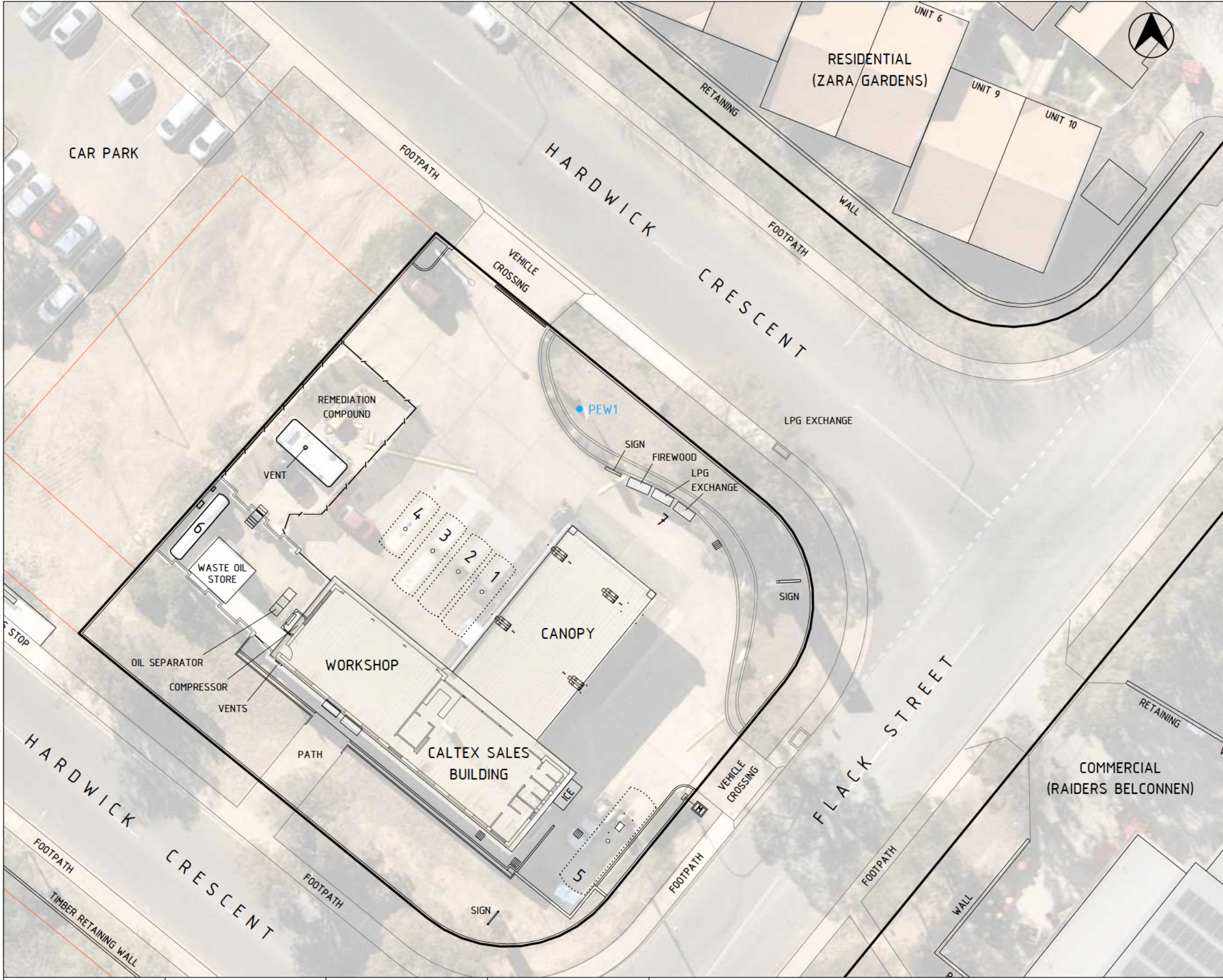


REFERENCE: CALTEX 'DANGEROUS GOODS PLAN' DRAWING NO. 22546-DG
 REV. B DATED 25/11/2011 AND VERIS SURVEY 217267.01 DATED 02/10/2020 SUPPLIED BY CLIENT.



CALTEX HOLT SERVICE STATION
 1 HARDWICK CRESCENT
 HOLT ACT

FIGURE 6a
 Proposed Extraction Well Locations



LEGEND

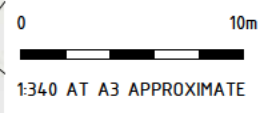
- PROPERTY BOUNDARY
- BLOCK / SECTION BOUNDARY
- Pipline
- 15m Radius of Influence Area
- Extraction Well
- Treatment System

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.



REFERENCE: CALTEX 'DANGEROUS GOODS PLAN' DRAWING NO. 22546-DG
REV. B DATED 25/11/2011 AND VERIS SURVEY 217267.01 DATED 02/10/2020 SUPPLIED BY CLIENT.



Figure prepared for WSP by
InSite Remediation Services Pty Ltd



CALTEX HOLT SERVICE STATION
1 HARDWICK CRESCENT
HOLT ACT

FIGURE 6b
Proposed On-Site Treatment Layout