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Ref: 10-806-R1-1
Date: 10 June 2021

Gary Calderbank
Hargreaves Contracting
Unit 5, Rising Bridge Business Village,
Blackburn Road
Accrington
BB5 2AL

BY Email

Dear Gary

UNDERGROUND STORAGE TANK ENVIRONMENTAL RISK ASSESSMENT SALFORD VAN HIRE

E3P has been instructed to complete an environmental risk assessment associated with the installation of underground storage tanks and associated refuelling infrastructure at the Salford Van Hire maintenance facility located in Blakely, Greater Manchester.

The assessment is based on guidance Environment Agency guidance “*Prevent groundwater pollution from underground fuel storage tanks*”.

1. ENVIRONMENTAL SETTING

Environmental Setting	Drift Geology	Alluvium
	Bedrock Geology	Chester Formation
	Hydrogeology	The Alluvium is classified as a secondary A aquifer and the Chester Formation is classified as a principal aquifer. There are no groundwater abstractions within the immediate vicinity of the site and the site does not lie within a currently defined groundwater source protection zone or Drinking Water Safeguard Zones (Groundwater). Groundwater beneath the site is likely to flow in a south-east direction towards the River Irk.
	Hydrology	The closest surfaced watercourse is the River Irk with lies 125 m from the refuelling point at its closest point. The River Irk flows in a southerly direction past the SVH site. No surface water abstractions have been identified and the site is not located within a Drinking Water Safeguarding Zone (Surface Water).



2. RECORDED GROUND CONDITIONS

Ground Investigation Works	A detailed ground investigation has been completed at the subject site and this is summarised in the following report: - Integra Consulting Environmental Land off Waterloo Street, Blackley, Manchester Factual Geotechnical Ground Investigation Report. Dated December 2016 and Reference 2881-01. The investigation covered a wider area of the site than just the refuelling area, but the relevant locations within this investigation are: - BH01, BH04, BH05 – Cable percussion boreholes - TP08, TP10, TP11, TP12, TP13 – Mechanically excavated trial pits These locations include positions adjacent to the refuelling area and down-gradient towards the River Irk.
Ground Conditions	MADE GROUND Made Ground has been recorded in all of the relevant exploration locations between 0.0 m bgl and 2.7 m bgl (TP10). The average thickness recorded in the area of the proposed building has been calculated at 1.9 m. The Made Ground locally comprises predominantly sand and gravel with occasional reference to boulder and cobbles sized fragments. The granular fractions in the Made Ground are described as being of brick, concrete, glass, ceramic, timber, rare metals pipe and mixed lithologies. DRIFT The drift deposits are beneath the site comprise three main strata: Alluvium; Glaciofluvial Sheet Deposits; and Glacial Till. These are discussed in turn. <i>Alluvium</i> Alluvium has been recorded in BH1, TP08, TP11 and TP12 between 0.8 m bgl and a maximum proven depth of 5.0 m bgl (BH1). The Alluvium comprises predominantly very soft to soft SILT and soft to firm CLAY horizons. <i>Glaciofluvial Sheet Deposits</i> Glaciofluvial Sheet Deposits have been recorded in all of the exploration locations with the exception of TP11, which terminated in the Alluvium. The Glaciofluvial deposits were recorded between 2.3 m bgl and a maximum proven depth of 10m (BH4), though in the cable and percussion boreholes the upper horizons are described as 'possible' deposits. The Glaciofluvial predominantly comprise an upper horizon of very loose to medium dense SAND and lower horizon medium dense to dense GRAVEL, though in BH1 a band of soft SILT is recorded between 2.3 m–6.0 bgl and 'soft to firm' CLAY 6.45 m–7.5 m. In BH5 (7.0 m bgl), TP8 (3.2 m bgl) and TP10 (2.7 m bgl) running sand is recorded in the Glaciofluvial deposits.



	<i>Glacial Till</i> Glacial Till has only been recorded in BH5 between 8.8 m bgl and 10.0 m bgl. The Glacial Till is described as stiff to very stiff dark brown slightly gravelly CLAY with sand lenses. SOLID Solid geology was not encountered during the Integra site investigation in the area of the proposed maintenance building. A review of BGS records, located in proximity to the proposed building, indicates that SANDSTONE bedrock is at 25 m bgl. GROUNDWATER Groundwater monitoring data is not presented within Integra report but the following observations during drilling are provided. These observations indicate the following: ✿ Made Ground - 1.70 m–3.40 m ✿ Alluvium (SILT) - 1.30 m–3.40 m ✿ Possible Glaciofluvial Sheet Deposits (SAND) - 2.00 m–4.40 m ✿ Glaciofluvial Sheet Deposits (SAND and GRAVEL) - 3.40 m–4.00 m ✿ Glaciofluvial Sheet Deposits (GRAVEL) - 9.50 m In addition to the above, a previous report completed by URS as part of validation works provides the following comments with respect to groundwater conditions: ✿ Shallow groundwater was present in the drift deposits at depths ranging between 1.80m and 3.20m bgl and flows towards the River Irk indicating hydraulic continuity with the river. ✿ Artesian conditions within the deep groundwater were recorded in the underlying sandstone. Groundwater encountered in excavations had to be controlled by pumping.
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FUEL STORAGE AREA DESIGN

UST	The USTs has been designed by specialist company Vectec and is reported to conform with all relevant standards and guidelines. The development includes two off-set fill 10,000 litre USTs that will be utilised for the storage of diesel and adblue. Both USTs are of a double skinned steel construction with an SGB over pressure leakage detection. The leakage detections system is automated and will be monitored 24 hours a day by Salford Van Hire staff. Including the inspection chamber, the base of USTs will be at ca.3.0 m bgl, where it will sit on a gravel base that is further encased within a reinforced concrete cradle. The cradle ensures that that USTs are not in direct contact with groundwater which may be present within Made Ground and Alluvium strata as indicated by the previous site investigation works.
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Pipework	All suction and fill lines will run below the surface between the off-set fill point and the USTs and the USTs and the dispensing pumps. The pipework will be constructed of Durapipe PLX which is a reinforced double skinned plastic pipe. The pipework will be set at 100 mm below the surface within a gravel filled duct.
Forecourt	The forecourt area (including fill points) will be surfaced with reinforced concrete that will drain via aco drains and road gullies to the foul sewer via a full retention oil/water separator. The fuel islands will be covered by a canopy with rainwater kept separate and discharging via the storm water system. This will limit the potential for any accidental spillages being washed from the forecourt.

ENVIRONMENTAL ASSESSMENT

Source	Diesel and adblue will be stored at the subject site. However, given that that fuel lines are constructed with double skinned reinforced pipework and that the USTs are double skinned steel tanks set within a concrete cradle and provided within leakage detection, there is considered to be a significant degree of control over the storage of these compounds that suggest that spillages will be mitigated and therefore minimises the potential source. Furthermore, the placement of the tanks underground will minimise the risk of vehicle strikes and/or vandalism which further reduces the potential for these features to be a source.
Pathway	Alluvium strata are granular and although classified as a secondary A aquifer they are not considered a receptor in this instance but could act as a vertical and lateral pathway. There are no preferential pathways to the River Irk, with the refuelling area drainage discharging to the foul sewer via a full retention separator.
Receptor	There are no groundwater abstractions within the immediate area and given the site's location within 125 m of the River Irk, it is considered that the river is the critical receptor.
Summary	Given the extensive control measures that are in place with respect to the design of the refuelling area, the risk of significant contamination to the River Irk or principal aquifer is considered to be low.

I trust that the above information is sufficient at this time and if you require anything further please do not hesitate to contact me.

Attached are the design and construction drawings in relation to the proposed fuel islands.

Yours sincerely,
For and on behalf of E3P Ltd



Andrew Edgar
Director



General Notes

Do not scale from this drawing. Only work to written dimensions.
All site dimensions shall be verified by the Contractor on site prior to commencing any works.

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CONSTRUCTION

Site Plan Legend

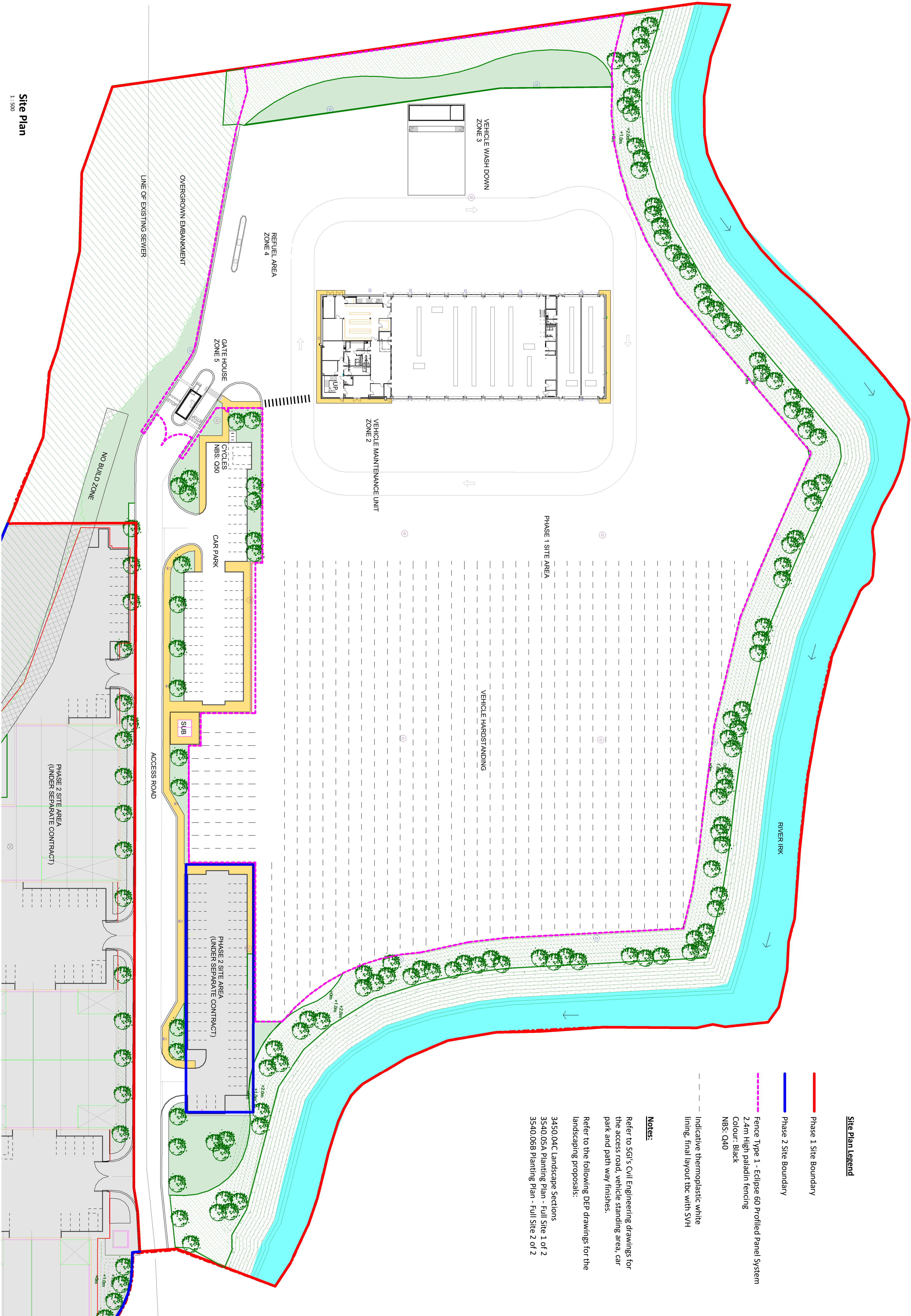
- Phase 1 Site Boundary
- Phase 2 Site Boundary
- Fence Type 1 - Eclipse 60 Profiled Panel System
2.4m High paladin fencing
Colour: Black
NBS: Q40
- Indicative thermoplastic white lining, final layout tbc with SVH

Notes:

Refer to SGI's Civil Engineering drawings for the access road, vehicle standing area, car park and path way finishes.

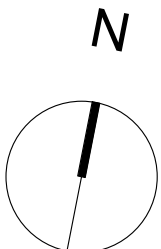
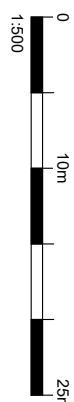
Refer to the following DEP drawings for the landscaping proposals:

- 3450.04C Landscape Sections
- 3540.05A Planting Plan - Full Site 1 of 2
- 3540.06B Planting Plan - Full Site 2 of 2



Site Plan

1 : 500



Proposed Phase 1 Site Plan

Project No. 14043-FRA-01 -ZZ-DR-A-1003 -C3
14043-FRA-01 -ZZ-DR-A-1003 -C3
Architects Master Planners Designers
Hill Quays, 5 Jordan Street, Manchester, M15 4PY
T +44 (0) 161 242 1140
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W www.fletcher-rae.com
E info@fletcher-rae.com

Salford Van Hire Limited

North Manchester Business Park
Brighside Road, Crumpsall

Sheet Name:

Date: 02.10.19

Checked By: AT

Status: Construction

Scale: 1 : 500 @ A1

Drawn By: CN

Director: AT

Client: Construction

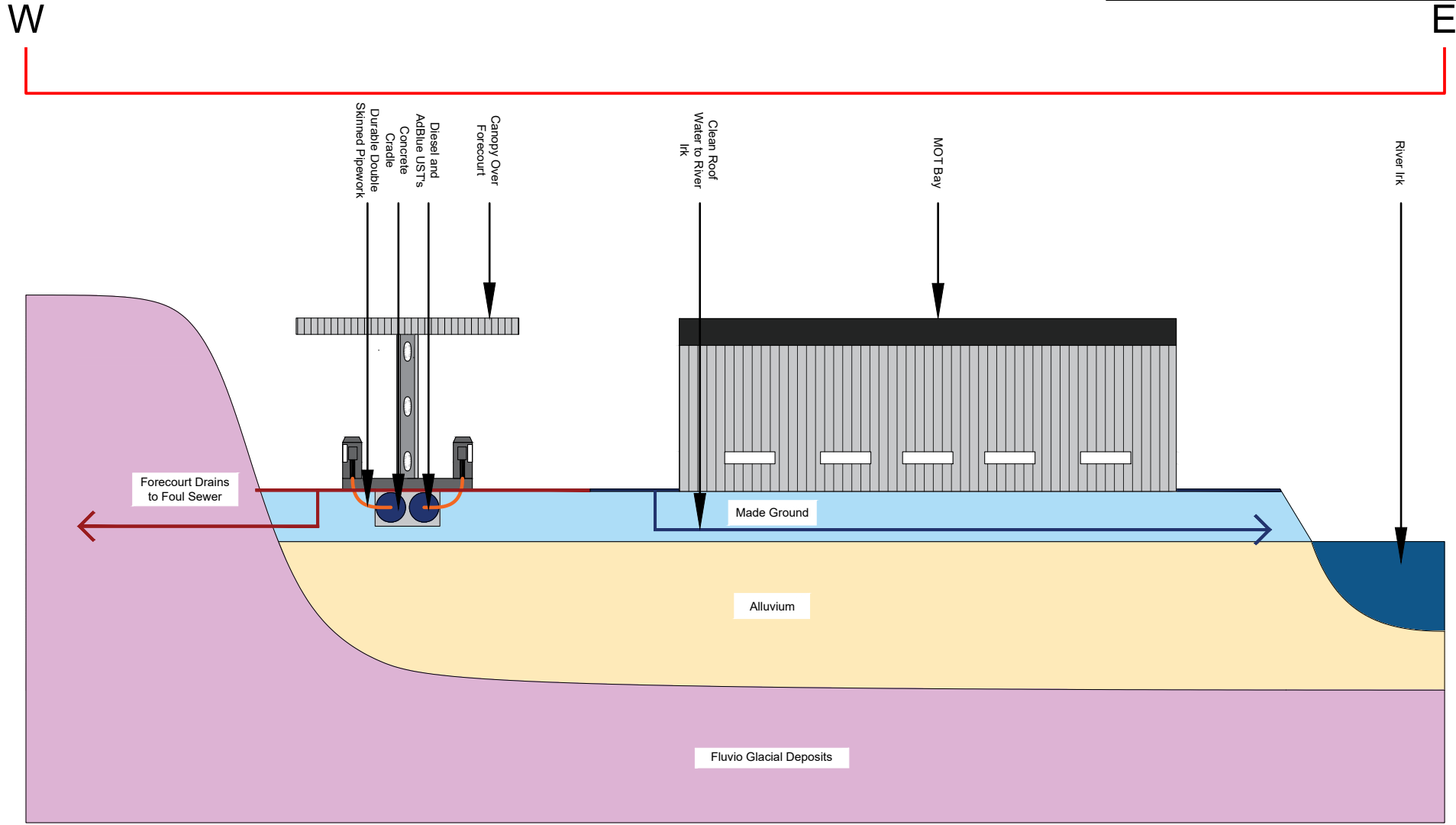
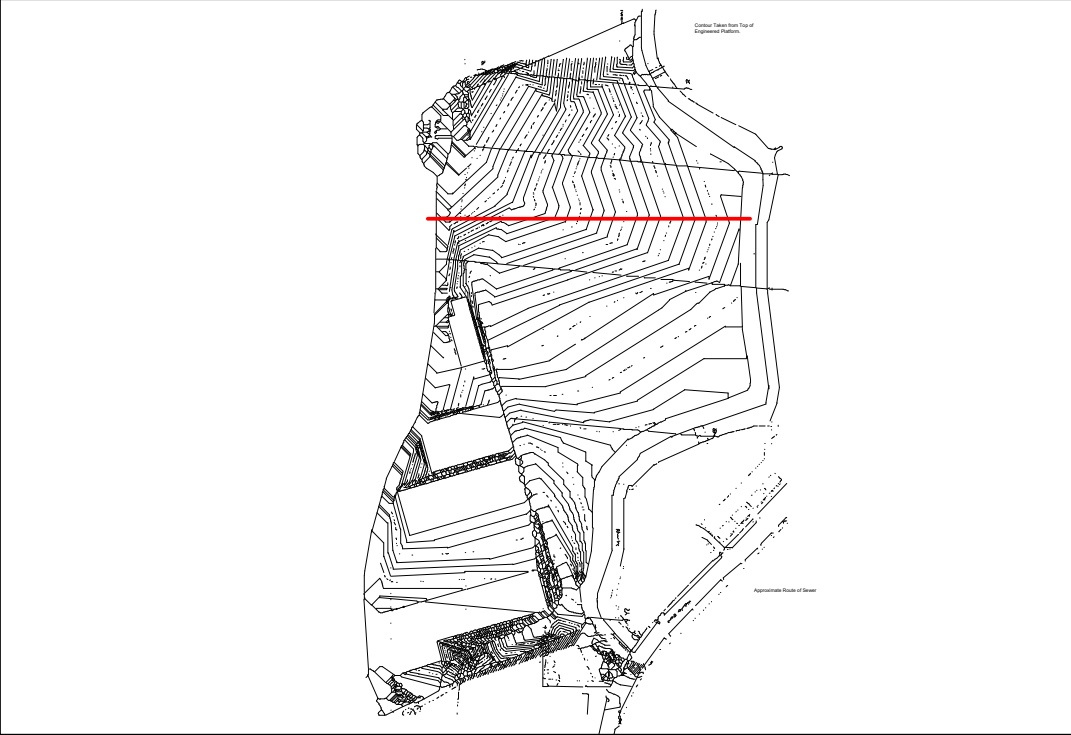
Project: North Manchester Business Park

Brighside Road, Crumpsall

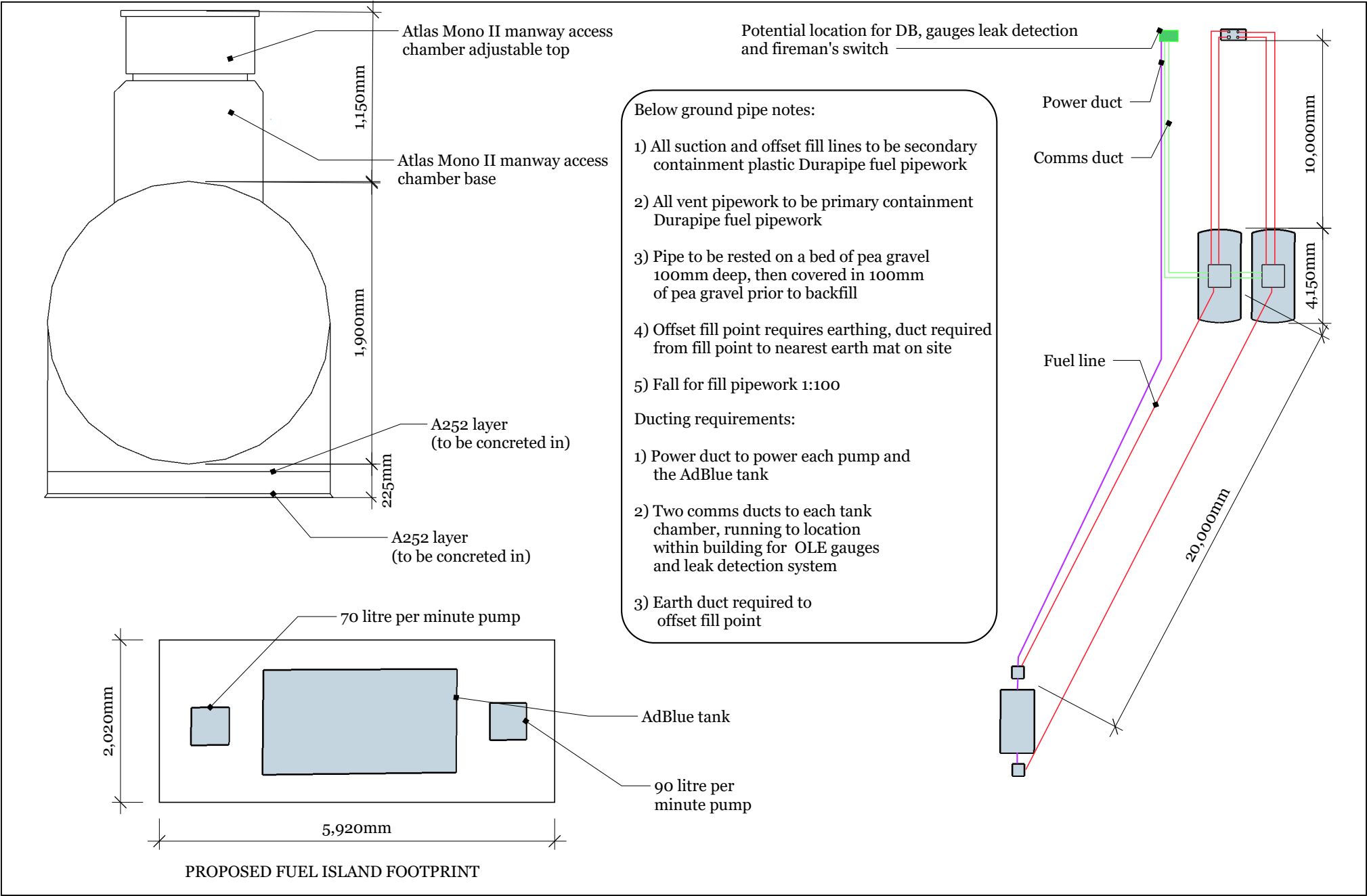
Proposed Phase 1 Site Plan

Project No. 14043-FRA-01 -ZZ-DR-A-1003 -C3

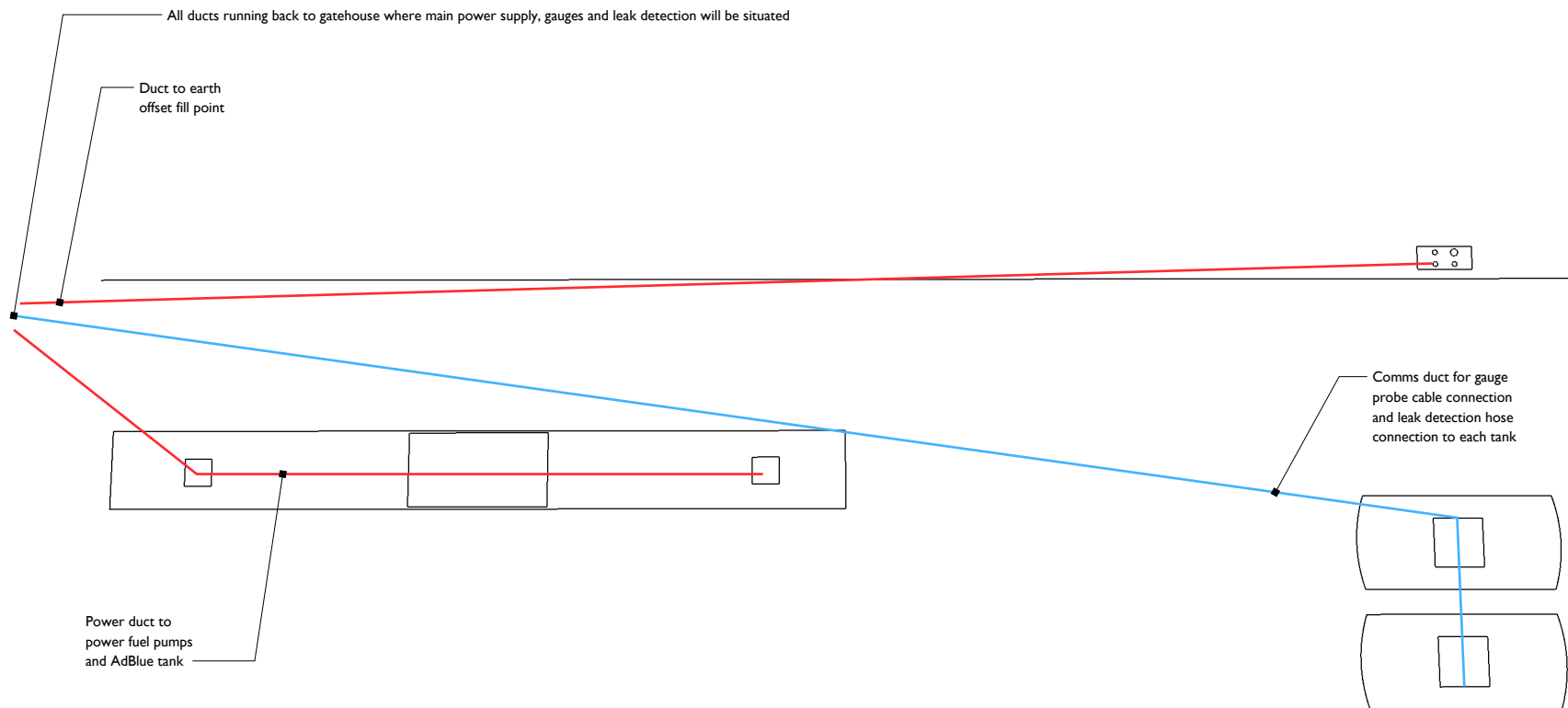
UST	The USTs has been designed by specialist company Vectec and is reported to conform with all relevant standards and guidelines. The development includes two off-set fill 10,000 litre USTs that will be utilised for the storage of diesel and adblue. Both USTs are of a double skinned steel construction with an SGB over pressure leakage detection. The leakage detections system is automated and will be monitored 24 hours a day by Salford Van Hire staff. Including the inspection chamber, the base of USTs will be at ca.3.0 m bgl, where it will sit on a gravel base that is further encased within a reinforced concrete cradle. The cradle ensures that that USTs are not in direct contact with groundwater which may be present within Made Ground and Alluvium strata as indicated by the previous site investigation works.
Pipework	All suction and fill lines will run below the surface between the off-set fill point and the USTs and the USTs and the dispensing pumps. The pipework will be constructed of Durapipe PLX which is a reinforced double skinned plastic pipe. The pipework will be set at 100 mm below the surface within a gravel filled duct.
Forecourt	The forecourt area (including fill points) will be surfaced with reinforced concrete that will drain via aco drains and road gullies to the foul sewer via a full retention oil/water separator. The fuel islands will be covered by a canopy with rainwater kept separate and discharging via the storm water system. This will limit the potential for any accidental spillages being washed from the forecourt.



Geology Key Alluvium Made Ground River Irk Fluvio Glacial Deposits Forecourt Drains to Foul Sewer Clean Roof Water to River Irk	Notes:					Client: How Planning		Job No: 10-806	Date: 11.06.2021	e3p Environmental Engineering Partnership Ltd Taylor Road, Trafford Park Urmston, Manchester, M41 7JQ Tel: 0161 707 9612 E-mail: info@e3p.co.uk Website: www.e3p.co.uk	
								Drawing No: 009	Scale: NTS		
						Job Title: Salford Van Hire, Blackley		Drawing Title: Conceptual Site Model			The client must not amend any drawing, design or other intellectual property produced by E3P Ltd without permission in writing from E3P Ltd in advance of any amendments being made. In the event that such written permission is not obtained in advance of the amendments being made, E3P Ltd shall not be liable for any damage and/or losses occurring as a result of the amended drawing, design or intellectual property.
	P1	REVA	11.06.2021	HM	AE						
	Phase	Issue	Date	Drawn	Checked						



Client: Hargreaves Contracting	 TOTAL FUEL MANAGEMENT	REVISIONS		A 02
			MM/DD/YY	
		1	12/08/20	
		2	25/11/20	
		3	--/--/--	
		4	--/--/--	
Salford Van Hire fuel facility layout		5	--/--/--	
			REMARKS	
			B Fowler	
			B Fowler	
			...	
			...	



Client: Hargreaves Contracting



Vectec Limited
 Tel: 01296 624548
 Email: sales@vectec.co.uk
 www.vectec.co.uk

Salford Van Hire Fuel Island - Duct layout

REVISIONS

	MM/DD/YY	REMARKS
1	28/04/21	B Fowler
2	--/--/--	...
3	--/--/--	...
4	--/--/--	...
5	--/--/--	...

01

A



CZ JOB No.

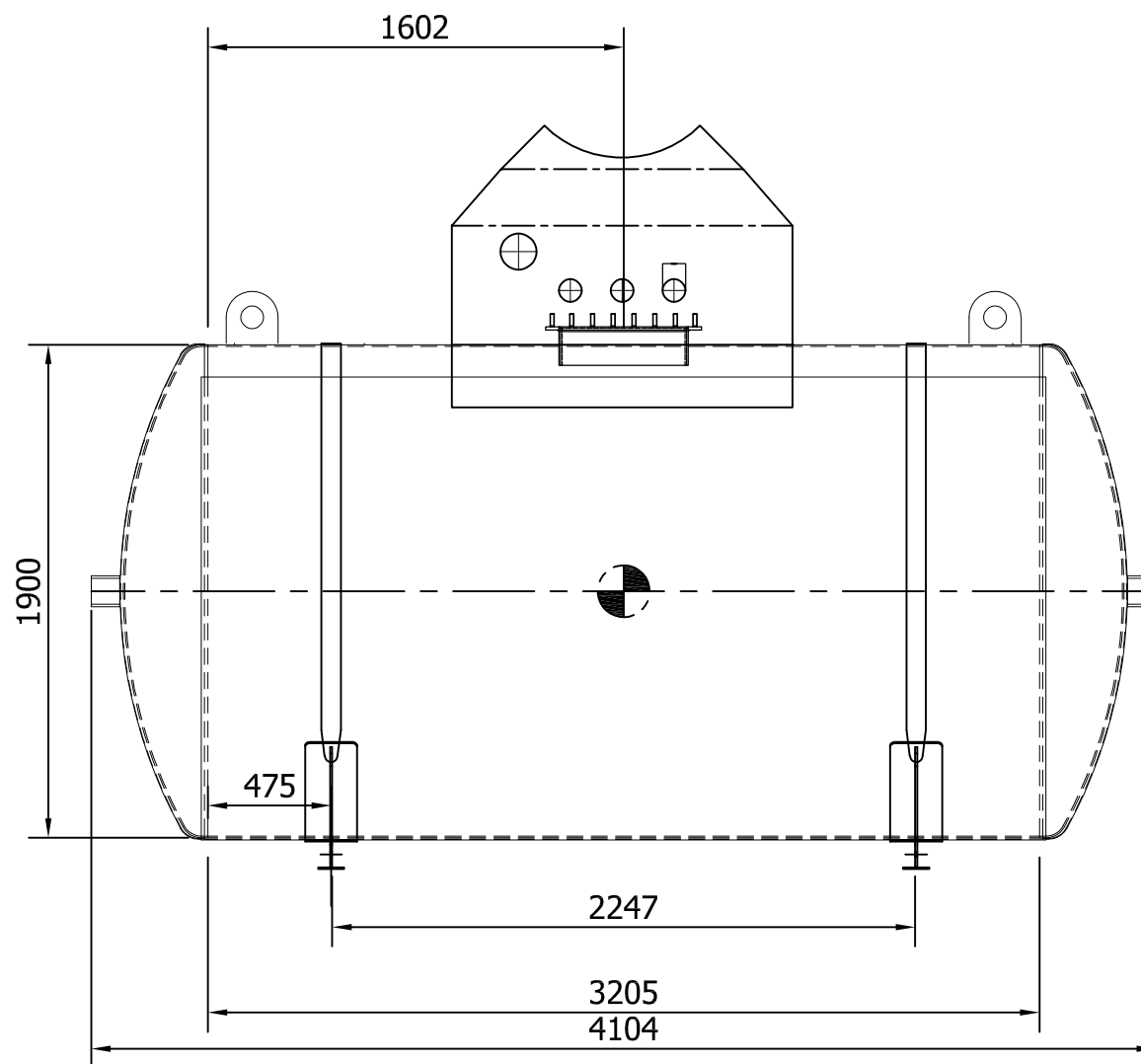
11278

CUSTOMER

Vectec

1. INNER LUGS, 3rd FROM END, WHERE POSSIBLE.
2. LUG DOUBLERS FITTED TO INNER LUGS 40K LITRES AND OVER
3. LUGS NO CLOSER THAN 950mm (CTRS.) TO MANWAY.
4. FILL BOXES ON 'A' COVER UNLESS OTHERWISE SPECIFIED.
5. SPIGOT DOUBLER FITTED UNDER 40K LITRES.
6. SPIGOTS DOUBLERS & GUSSET FITTED 40K LITRES AND OVER

NomInal Capacity	10000			
Compartment Split	^a 10	^b -	^c -	^d -
Dry Weight	-			



				Manway / Standoff		Paint & Construction		Optional Items	
				Atlas Manway	Yes	External Finish	Endoprene 800micron	Access Chamber	-
				Atlas Mono	Yes	Internal Finish	-	Leak Detection	yes
				Access Shaft / Standoff		Skin Type	Double	Baseframe	yes
				970mm Square	-	Skin Thickness	6 / 4	Offloading Slings	-
				1026mm Round	-	Head Thickness	6 / 5	Overfill Valve	-
				1200mm Square	--	Double Baffles	-	Suction Pipe	-
				1205mm Round	Yes	Stiffening Ring	-		
				1390mm Round	-	Spiggot Offset	-	Details By	Les King
Cover 'A'	Cover 'B'	Cover 'C'	Cover 'D'	Atlas Mono	-	Striker Plate	-	Revision	0
CZ Document No. M355									

Drainage Notes

This drawing is to be read in conjunction with all relevant architects, engineers drawings and specifications.

Do not scale this drawing. Any ambiguities, omissions and errors on the drawings shall be brought to the engineers attention immediately. All dimensions must be checked and verified on site.

All drainage works to be in accordance with the civil engineering specification for the water industry (CESW) as included in sewers for adoption 7th edition, the requirements of approved document H (2015 edition), building regulations 2000 and the details provided on the contract drawings.

The contractor must survey the retained drainage and report the line, level and condition of the existing drainage to the engineer. We would recommend that the existing drainage to be surveyed is cleared before undertaking these works.

Any redundant manholes are to be broken out and backfilled with a approved compacted granular material. Redundant pipes are to be filled with a 10:1 PFA/CEMENT MIX OR BROKEN OUT AND BACKFILLED WITH A APPROVED COMPACTED GRANULAR MATERIAL.

All foul and surface water drains up to and including 300mm diameter are to be vitrified clay such as LEPCORTH SUPERSLEVE/SUPERSEAL OR SIMILAR APPROVED (BS EN 295-1). All pipes greater than 300mm diameter are to be concrete class 120 (BS EN 1916:2002). All concrete manholes to be in accordance with BS EN 1917.

As an alternative (subject to the clients approval) the contractor may use structural wall pipes (MISA 4-35-01 & BS EN 13476) such as;

- POLYSEWER - POLYPIPE BUILDING PRODUCTS - SIZE 150mm to 300mm
- QUANTUM - MARLEY - SIZE 150mm to 300mm
- ULTRARIB - UPONOR - SIZE 150mm to 300mm
- ULTRARIB - WAIN - SIZE 150mm to 300mm
- RODSEWER - POLYPIPE CIVILS LTD - SIZE 400mm to 900mm
- MEHLITE - ASSET INTERNATIONAL - SIZE 450mm to 3000mm

Pipes laid within vehicle trafficked areas with less than 900mm of cover shall be surrounded in class 2 bedding. Pipes less than 300mm below the underside of a ground floor slab shall be surrounded in class 2 bedding. Where class 2 bedding is used as a surround a compressible material must be placed at every pipe joint. All other pipes are to be laid in a class 3 bedding.

All drainage must be protected during construction where intermediate cover is less than 900mm.

Where foul and surface drains/sewers cross within 100mm of each other concrete protection (class 2 bedding) many be required to prevent any potential contamination.

All cover levels are approximate only. All manhole covers to be set at the proposed finished pavement or floor level. Refer to the architects proposed levels drawing for level confirmation.

For typical manhole construction details, pipe bedding/trench details and other associated drainage details. Refer to SGI typical details drawing.

All foul and surface water connections to be 100mm diameter unless stated. All external gully connections and channel drain sump/gully connections to be 150mm diameter unless stated. All gully and channel drain outlets to be trapped and roadable. All internal gullies and channel drains to be specified by others.

Channels drains to be fitted with a HEALGUARD CAST IRON GRATING. GRATINGS to be to load class D400 specification unless otherwise agreed. Linear channels to have a 200mm minimum concrete bed and haunch.

All foul stacks and RWP's to have low level rodding access plates unless an alternative means of access is agreed. Access point size to be in accordance with document H and STED above any connected ground floor appliance spill level.

All connections passing through foundation bases and/or edge beams to be within sealed sleeves. Alternatively connections may be cast-in with flexible joints not greater than 150mm from face of the concrete.

All manhole covers located within the road and car parking areas to be D400 class. Covers within hard and soft landscaped areas with pedestrian traffic only to be B125 class. Covers located within block/slab paving areas to be recessed to suit the proposed paving and of the appropriate grade. All internal covers to be recessed with double sealed bolt down covers such as HOME GREEN 5000 series or similar approved.

Channels within type 1 & 2 manholes must use pre-formed clayware sections for pipes up to and including 300mm diameter. Channels to be set at the appropriate incoming and outgoing pipe gradients.

All manholes connections to be formed at soffit to soffit unless otherwise stated. All branch connections to be made with swept bends in the direction of flow in the main sewer. Internal drainage connections are provided to the penetration positions shown on and coordinated by the architect/M&E consultant.

External linear channel drains shall be designed and constructed in accordance with the manufacturers requirements and shall discharge via trapped roadable gully units unless advised otherwise. Linear channels and HEALGUARD CAST IRON GRATINGS to be to load class D400 specification. All channels shall have a 200mm minimum concrete bed and haunch.

The type and size of the separator is specified on this drawing and shall be a class 1 type. It shall be installed in complete accordance with the manufacturers instructions and vented via 75mm pipe work. The interceptor requires power for the high level oil alarm and the arrangement shall be intrinsically safe and explosion proof. The contractor shall provide the required ducting & cabling to internal monitoring position together with audio and visual monitoring unit all in accordance with BS7671:2008 1+1:2011

SW NODE S1000 INFORMATION
FLOW CONTROL = VORTEX
MODELED TYPE = GRADE
DESIGN FLOW = 45.00m³/s
DESIGN COVER = 47.52m
DESIGN INVERT = 44.92m

SW NODE S1000 INFORMATION
FULL RETENTION SEPARATOR
TYPE = CONCRETE CHS305/11
SIZE = 3.870m x 1.510m
INLET = 44.19m (225)
OUTLET = 44.19m (225)

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 2
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.35m
TANK DEPTH = 1.075m
TOP OF TANK LEVEL = 45.425m
MINIMUM GROUND LEVEL = 46.81m (PROPOSED)
ESTIMATED TANK COVER = 1.407m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 11m x 10.5m = 115.5m²
DESIGN TANK VOLUME = 124.2m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 3
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 5
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 6
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 7
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 8
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 9
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 10
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 11
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 12
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 13
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 14
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 15
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 16
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 17
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 18
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 19
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 20
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 21
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 22
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 23
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

SW NODE S1000 INFORMATION
SURFACE WATER UNDERGROUND ATTENUATION 24
MANUFACTURER = YES
BASE OF TANK LEVEL = 44.31m
TANK DEPTH = 1.050m
TOP OF TANK LEVEL = 45.36m
MINIMUM GROUND LEVEL = 46.75m (PROPOSED)
ESTIMATED TANK COVER = 1.075m
THRU PIPE GRADIENT = 95%
APPROX VOD RATIO = 95%
APPROX TANK PLAN AREA = 8m x 8m = 64m²
DESIGN TANK VOLUME = 37m³

C9	Flow Control changes to ACO B broke type	17.11.2020
C8	Highway drainage amended to suit latest levels	05.11.2020
C7	Gully within washdown pit updated.	28.10.2020
C6	Grade downstream changed to 1:115	
C5	Drainage at wash area adjusted	22.10.2020
C4	SW1003 removed as discussed	16.10.2020
C3	Pop-ups corrected. RWP from Filling station amended	15.10.2020
C2	S106 inverted	20.08.2020
C1	Wash area amended. Foul amended as requested	04.08.2020

Revisions

Project

Salford Van Hire

Client

Innov8 Development Solutions

Scale

1/500

Date

21.07.2020

Drawn by

DOR

Drawing

Surface Water Drainage Review

Client

Innov8 Development Solutions

Scale

1/500

Date

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