

Technical Note

Project Name : Oldham Services Station, Manchester
Job No. : C2454
Note Title : Surface Water Drainage Statement
Author : TZ
Approved : CS
Date : 19.01.2023

Revision	Date of Issue	Comments	Prepared By	Checked By
P	19.01.2023	Initial Issue	TZ	CS

1 Introduction

- 1.1.1 CGS Civils Ltd have been appointed by **Gladstone Place** to undertake a drainage strategy report for a proposed development at **571 Oldham Road, Manchester**.
- 1.1.2 The purpose of this drainage strategy is to demonstrate how the development area can be satisfactorily drained without increasing flood risk onsite and elsewhere.
- 1.1.3 The existing site consists of a petrol station, car wash and 2 EV charging points. The proposed development will consist of a new charging zone with EV chargers, three new wash bays and sub-station with LV Panel.
- 1.1.4 The proposed development is located at OS Grid Reference **SD 86450 00121** and has the post code **M40 5AF**.
- 1.1.5 The post-development and pre-development contributing area (hard paved) will remain the same: **0.029 Ha**.
- 1.1.6 The proposed site will make use of an existing access located to the south from Oldham Road.
- 1.1.7 The proposed site plan can be found in **Appendix A**.

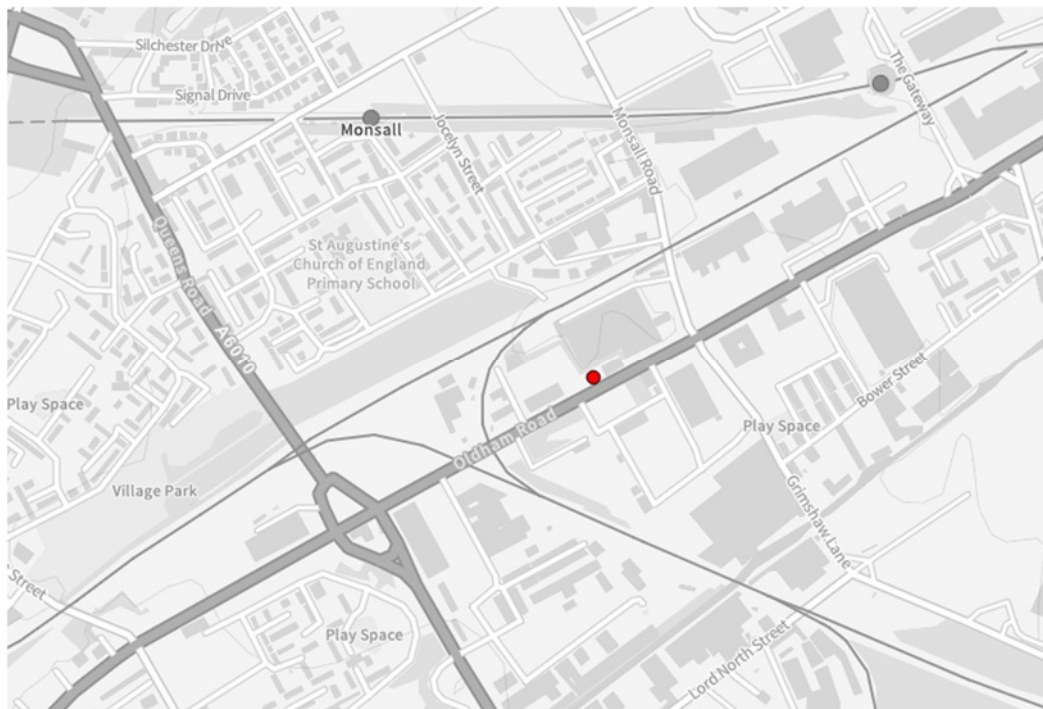


Fig 1. Site Location

Snippet from MagicMaps – Outline of site <https://magic.defra.gov.uk/magicmap.aspx>

2 Site Geology

2.1 British Geological Survey information

- 2.1.1 The British Geological Survey confirms the bedrock geology to be made up Pennine Middle Coal Measures Formation- Mudstone, siltstone and sandstone. The BGS website confirms the superficial deposits on site to be made up of the Devensian- Diamicton.
- 2.1.2 The British Geological survey also holds records of historical boreholes near the site which give some insight into the ground geology.
- Borehole SD80SE81(Located approx. 200m North of the site) – Ground geology (Clay with stones, gravel)
 - Borehole SD80SE773(Located approx. 380m North of the site) – Ground geology (Brown clay, clay with medium gravel)
 - Borehole SJ89NE51(Located approx. 300m South-East of the site) – Ground geology (Clay and Gravel)
- 2.1.3 The Historical Borehole Logs can be found in **Appendix B**.

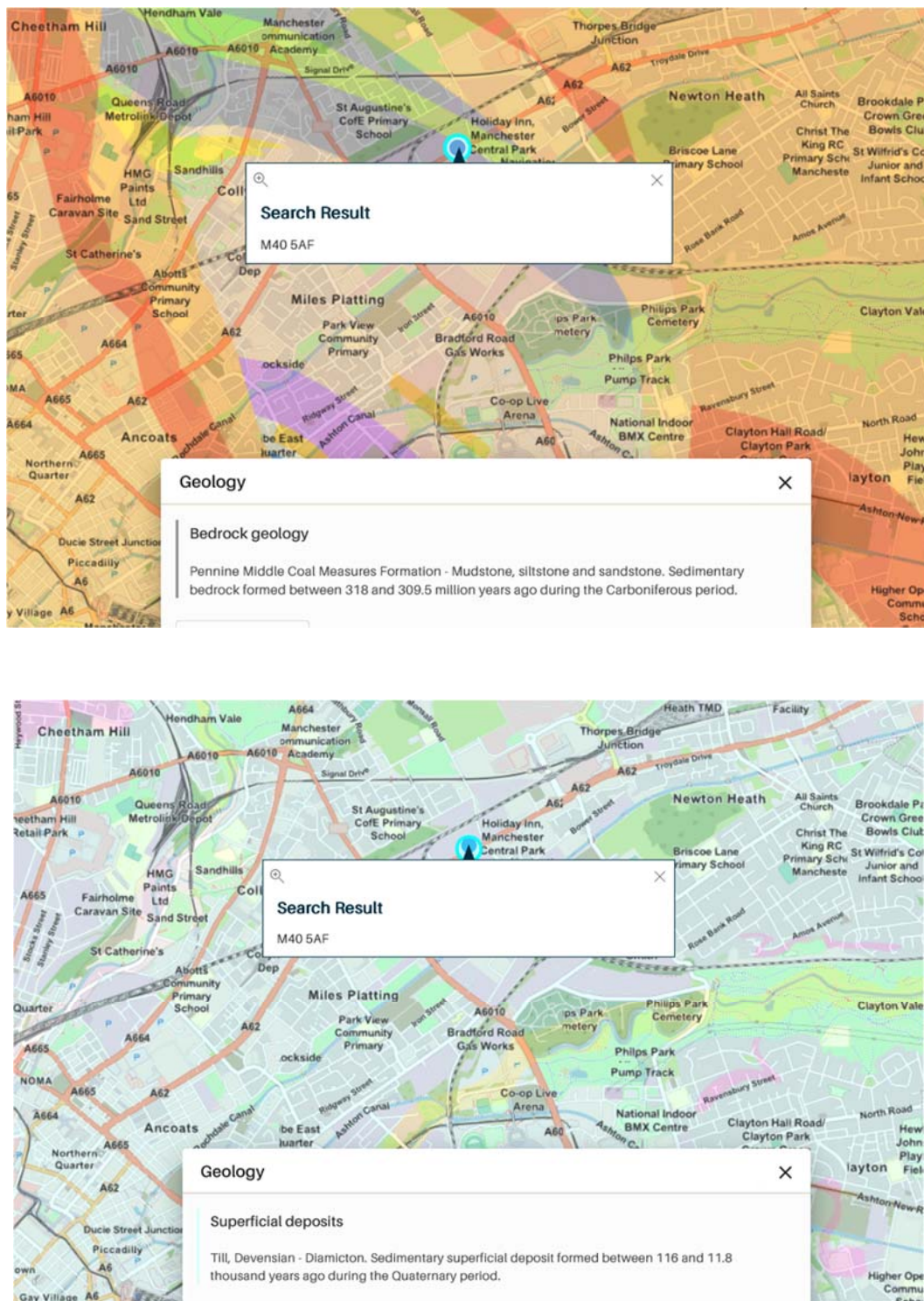


Fig 2. British Geological Survey

Snippet from BGS Website showing Bedrock geology/superficial deposits <http://mapapps.bgs.ac.uk/geologyofbritain/home.html?>



3 Existing Drainage

- #### 4 Proposed Drainage Strategy

4.1 SuDS Hierarchy

- | Discharge Destination | |
|----------------------------------|--|
| Discharge to Ground | N/A |
| Discharge to Watercourse | N/A |
| Discharge to Surface Water Sewer | N/A |
| Discharge to Other Sewer | Discharge into existing combined sewer |

4.2 Surface Water Drainage

- 4.2.1 The proposed development is for the demolition of the existing car parking area and wash down building and construction of a new charging zone with EV chargers, three new wash bays and sub-station with LV Panel.
- 4.2.2 The proposed post-development and pre-development hard paved contributing areas will remain the same therefore it is proposed that surface water runoff from washdown and EV charging parking areas is collected and discharged into the existing combined public sewer located beneath Oldham Road.
- 4.2.3 The proposed new connection will need to be agreed with United Utilities under a S106 application.
- 4.2.4 Proposed SW Drainage Strategy can be found at **Appendix D**.

4.3 Water Quality

- 4.3.1 A key requirement of any SuDS system is that it protects the receiving water body from the risk of pollution.
- 4.3.2 Frequent and short duration rainfall events are those that are most loaded with potential contaminants (silts, fines, heavy metals, and various organic and inorganic contaminants) Therefore the first 5-10mm of rainfall should be adequately treated with SuDS.
- 4.3.3 The new SuDS Manual (Ciria C753, November 2015) introduces slightly different approach compared to the previous version for the water quality management of surface water. The Manual describes risks posed by the surface water runoff to the receiving environment as a function of:
- The pollution hazard at a particular site (i.e., the pollution source)
 - The effectiveness of SuDS treatment components in reducing levels of pollutants to environmentally acceptable levels
 - The sensitivity of the receiving environment
- 4.3.4 The EA website indicates that the site does not lie within a Source Protection Zone.
- 4.3.5 The recommended approaches for water quality risk management are given in the SuDS Manual Table 26.1.

Fig 5. Approaches to Water Quality Risk Management

Table 26.1 Approaches to Water Quality Risk Management			
Design method	Hazard Characterisation	Risk Reduction	
		For Surface Water	For Groundwater
Simple Index Approach	Simple pollution hazard indices based on land use (Table 26.2)	Simple SuDS hazard mitigation indices (Table 26.3)	Simple SuDS hazard mitigation indices (Table 26.4)
Risk Screening	Factors characterising traffic density and extent of infiltration likely to occur (Table 26.5)	N/A	Factors characterising unsaturated soil depth and type, and predominant flow type through the soils (Table 26.5)
Detailed Risk Assessment	Site specific information used to define likely pollutants and their significance	More detailed, component specific performance information used to demonstrate that the proposed SuDS components reduce the hazard to acceptable levels	
Process-based treatment modelling	Time series rainfall used with generic pollution characteristics to determine statistical distributions of likely concentrations and loadings in the runoff	Models that represent the treatment processes in the proposed SuDS components give estimates of reductions in even mean discharge concentrations and total annual load reductions delivered by the system	

- 4.3.6 As per Table 26.1 Simple Index approach will be used as a design method for this site.

4.3.7 Table 26.2 will provide hazard classification of different land uses. The land uses for the surface water drainage for this site are.

- Car Parking Area
- Washdown Area

4.3.8 To deliver adequate treatment, the selected SuDS components should have a total pollution mitigation index for each contaminant type that equals or exceeds the pollution hazard index for each contaminant type. Therefore, the following must be achieved for the surface running off the site.

Total SuDS mitigation index $\geq$ pollution hazard index

4.3.9 Pollution Hazard Indices are given for different land uses in Table 26.2 of the SuDS manual;

Fig 6. Pollution Hazard Indices for Different Land Use Classifications

Land Use	Pollution Hazard Level	Total Suspended solids (TSS)	Metals	Hydro-Carbons
Residential roofs	Very Low	0.2	0.2	0.05
Other roofs (Typically commercial/industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (e.g., cul-de-sacs, homezones and general access roads) and non-residential car parking with infrequent change (e.g., schools, offices) i.e., < 300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (e.g., hospitals, retail), all roads except low traffic roads and trunk roads/motorways	Medium	0.7	0.6	0.7
Sites with heavy pollution (e.g., haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways	High	0.8	0.8	0.9

4.3.10 From Table 26.2 the following information is tabulated in Table 1

Table 1: Pollution hazard index and destination of runoff for the proposed site

Table 1: Pollution Hazard Index and Destination of runoff for the proposed Site					
Land Use	Destination of Runoff	Pollution Hazard Level	Total Suspended Solids	Metals	Hydrocarbons
EV car parking and low traffic roads	Ground water	Low	0.5	0.4	0.4

4.3.11 The SuDS mitigation index will be obtained from Table 26.4 (for groundwater) of the SuDS manual.

Figure 7 Indicative SuDS Mitigation Indices for discharges to ground waters.

4.3.12 SuDS mitigation index are tabulated in table as followed.

Table 26.4 Indicative SuDS mitigation indices for discharges to surface waters			
Type of SuDS Components	Mitigation Indices		
	TSS	Metals	Hydrocarbons
Filter Strip	0.4	0.4	0.5
Filter Drain	0.4	0.4	0.4
Swale	0.5	0.6	0.6
Bioretention System	0.8	0.8	0.8
Permeable Pavement	0.7	0.6	0.7
Detention Basin	0.5	0.5	0.6
Pond	0.7	0.7	0.5
Wetland	0.8	0.8	0.8
Proprietary treatment systems	These must demonstrate that they can address each of the contaminant types to acceptable levels for inflow concentrations relevant to the contributing drainage area		

It is proposed that surface water runoff from car wash bays is collected via Kingspan Silt Trap and discharged into Washdown & Silt Separator from where surface water will be discharged into combined public sewers.

5 Maintenance

5.1 Introduction

- 5.1.1 During construction, the Contractor will be responsible for maintaining the drainage and SuDS (Sustainable Drainage Systems). Upon handover, the occupier will take on the responsibility of these duties as laid out in this report.
- 5.1.2 The maintenance schedule for the proposed development will be split down into two separate categories; SuDS features and regular private drainage.

5.2 General Drainage Maintenance Specification

- 5.2.1 Inlet Structures and Inspection Chambers
- Inlet structures such as rainwater downpipes, road gullies and channel drains should be free from obstruction at all times to all free flow through the SuDS
 - Inspection Chambers and Rodding Eyes are used on bends or where pipes come together. They allow access and cleaning to the system if necessary.

Inlet Structures and Inspection Chambers	
Regular Maintenance	Frequency
Inlet Structures Inspect rainwater downpipes, channel drains and road gullies, removing obstructions and silt as necessary. Check that there is no physical damage. Strim vegetation 1m min surround to structures and keep area free from silt and debris	Monthly
Inspections Chambers and below ground control chambers. Remove cover and inspect, ensuring that the water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt. Undertake inspection after leaf fall in Autumn	Annually
Occasional Maintenance Check topsoil levels are 20mm above edges of chambers to avoid mower damage.	As necessary
Remedial Work Repair physical damage if necessary	As required

5.2.2 Below ground drainage pipes

- Below ground drainage pipes convey water to the SuDS system. They should always be free from obstruction to allow free flow.

Below Ground Drainage Pipes	
Regular Maintenance	Frequency
Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months then annually
Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
Remove sediment from pre-treatment inlet structures and inspection chambers.	Annually or as required
Maintain vegetation to designed limits within the vicinity of below ground drainage pipes and tanks.	Monthly or as required
Remedial Work	
Repair physical damage if necessary	As required
Monitoring	
Inspect all inlets, outlets and vents to ensure that they are in good conditions and operating as designed.	Annually
Survey inside of pipe runs for sediment build up and remove if necessary.	Every 5 years or as required

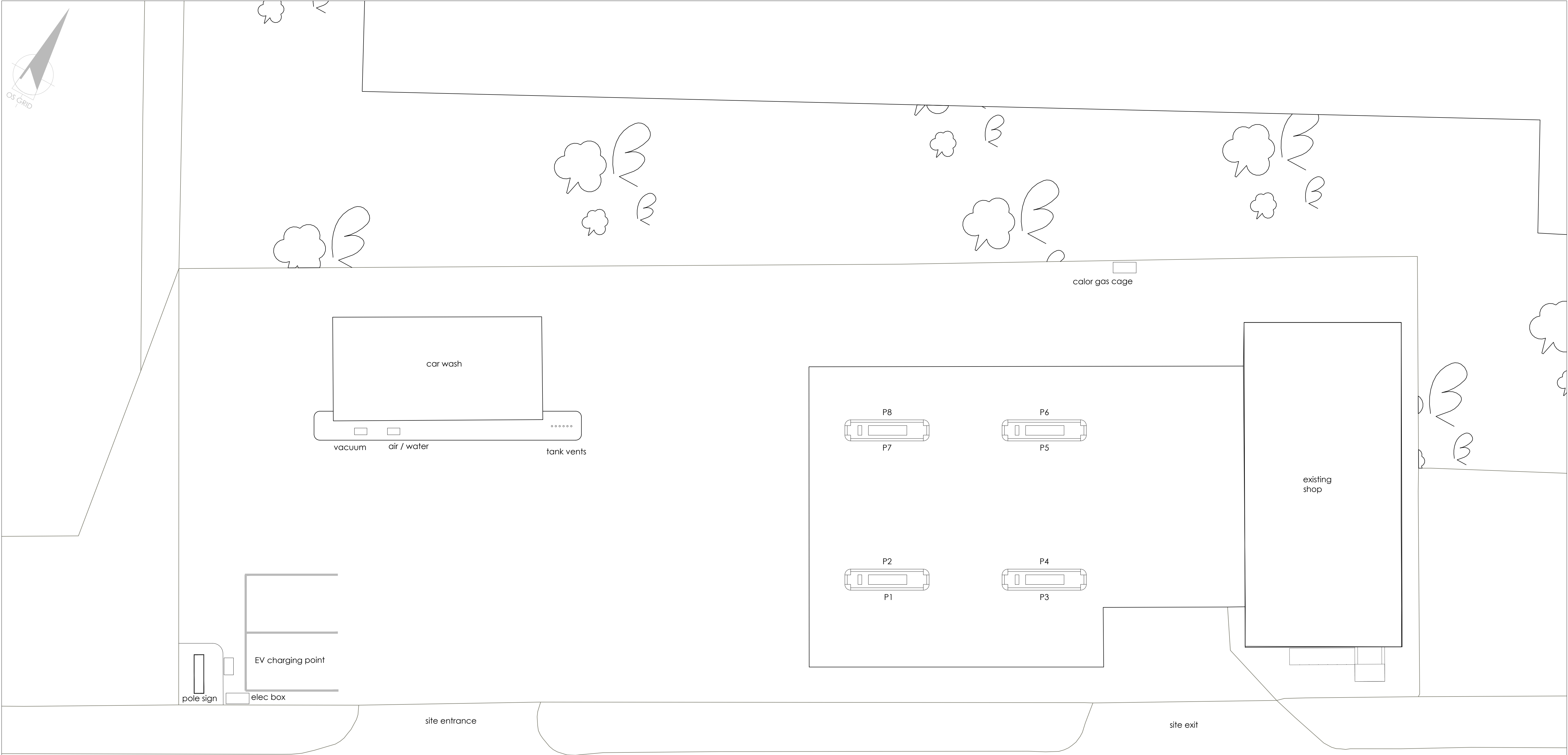
5.2.3 Klargester Washdown and Silt Traps Maintenance and Typical Details can be found in **Appendix E**.

6 Summary and Conclusions

- 6.1.1 CGS Civils has been instructed by Gladstone Place to produce a Drainage statement under National Planning Policy Framework (NPPF) to support the Planning Application for the erection of new EV chargers and a jet wash bay area.
- 6.1.2 The Surface Water will discharge to the combined water public sewer located within Oldham Road.
- 6.1.3 The report has demonstrated that the proposed drainage measures ensure that suitable means of surface water drainage can be achieved for the proposed development.

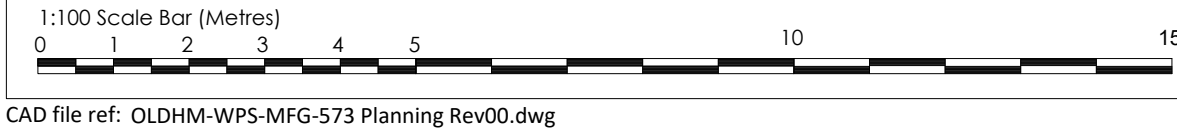
7 Appendices

7.1 Appendix A – Site Plan



A62 - Oldham Road

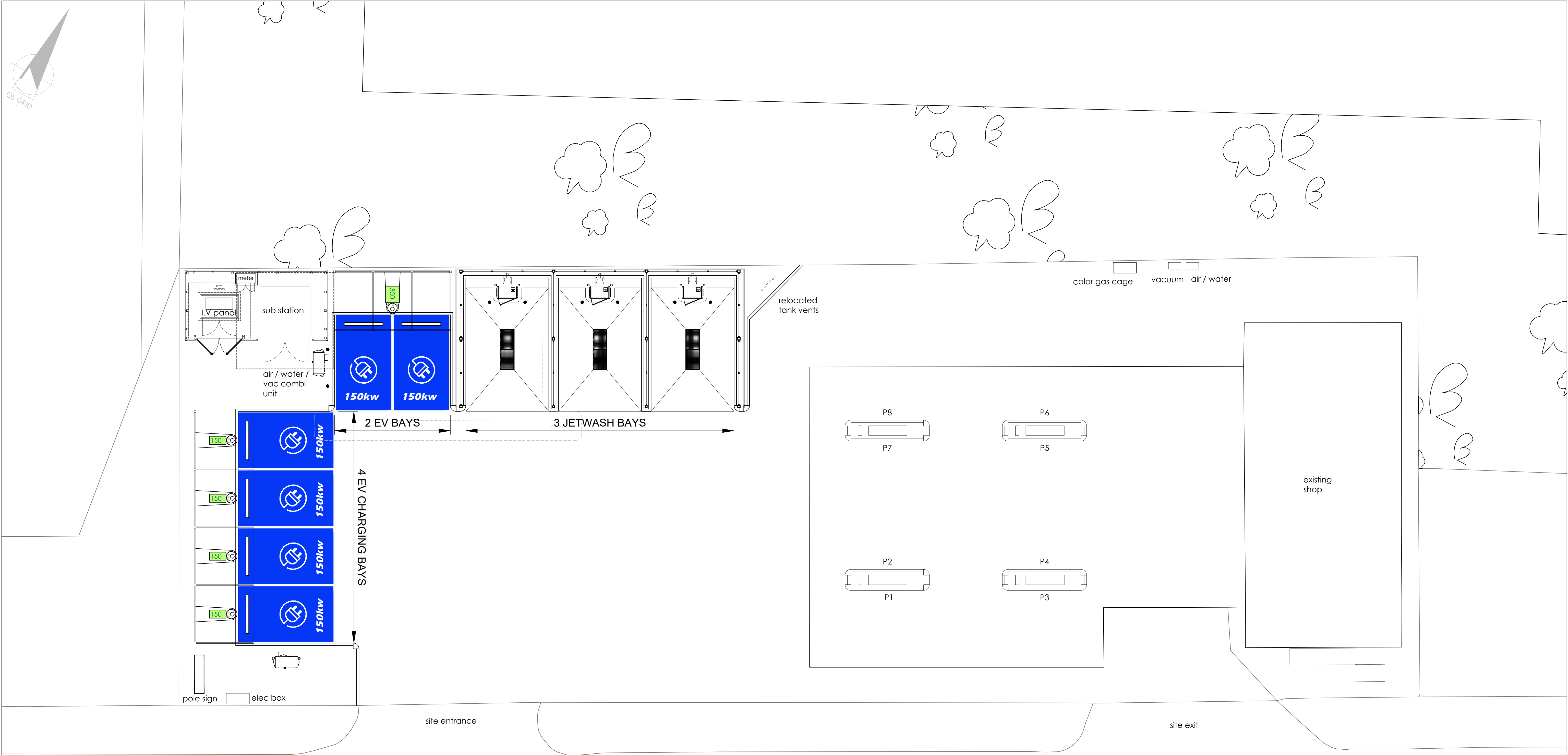
Existing Site Plan
Scale 1:100



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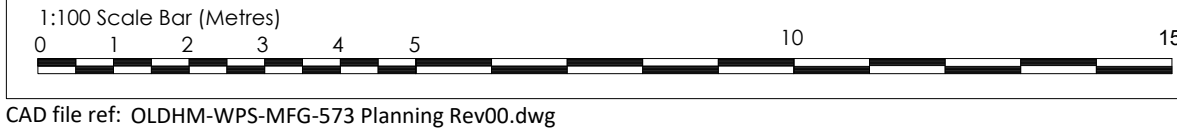
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date		by	description
CLIENT  Gladstone Place 36-38 Upper Marlborough Road St Albans, AL1 3UU			
PROJECT LOCATION Oldham Service Station 571 Oldham Road Manchester, M40 5AF			
DRAWING Existing Site Plan			
 The Cart Shed, Amberley Court, Amberley Lane, Millford, Surrey, GU8 5EB, United Kingdom Tel: +44 (0)1483 424704 Email: enquires@wyethprojects.com © This drawing is the copyright of WYETH PROJECTS SERVICES Ltd.			
Date: September 2022		Draw By: AF	
Scale: 1:100		Dwg No: WPS-MFG-573-P-03	
		A1 original plot size	
		Rev: ~	

PLANNING



A62 - Oldham Road

Proposed Site Layout Plan
Scale 1:100



CAD file ref: OLDHM-WPS-MFG-573 Planning Rev00.dwg

rev	29/09/22	AF	Drawing created
rev	date	by	description
CLIENT			
mfg Gladstone Place 36-38 Upper Marlborough Road St Albans, AL1 3UU			
PROJECT LOCATION			
Oldham Service Station 571 Oldham Road Manchester, M40 5AF			
DRAWING			
Proposed Site Plan			
Wyeth Projects Services			
The Cart Shed, Amberley Court, Amberley Lane, Millford, Surrey, GU8 5EB, United Kingdom			
Tel: +44 (0)1483 424704 Email: enquires@wyethprojects.com			
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Date:	September 2022	Draw By:	AF
Scale:	1:100	Dwg No:	WPS-MFG-573-P-03
			A1 original plot size
			Rev: ~

PLANNING

7.2 **Appendix B – Historical Borehole Logs**

(021) 27666—S.33 2000 6/22 Gp. 147 M.R.Co.Ltd.

SECTION OF

Borehole No. 2/14854

at Messrs H.C. Wilson's
Newton Heath Brewery Manchester

Maps: One-inch 85

Six-inch 104 N.E.W

County Lancashire

Height above O.D. 220 ft.

Latitude

Longitude

Communicated by Professor George Hickling

Date of sinking Dec. 1884

Made by

Hickling's No. 34

Dip of Strata

Trans. Inst. Min. Eng. Vol. LIV. 1918.

85/104 N.E.W

Water rises to 68 ft. from surface.

Clay with stones.
Gravel
Clay with stones
Black shale

Thickness.

Depth from Surface.

		metres	
45	—	13.71	45 —
1	—	14.02	46 —
34	—	24.38	80 —
16	—	29.26	96 —

Hickling notes: App. I.

"This B.H. was abandoned, but is important as having proved the extension of the Coal Measures to this point."

Synopsis: App. III

Places Blackshale in Coal Measures.

McAlister & Co. Manchester

SECTION OF Manholes in at M. Sewer, Miles Platting.
COUNTY Lancashire. MANCHESTER.

Communicated by Manchester Corporation City Engineer Date of sinking —

One-inch Map (N.S.) 85

Six-inch Map 104. N.E.W

HEIGHT ABOVE O.D. —

DIP OF STRATA Not stated

No. 82

No. 3.

Grimshaw Lane.

Made Ground.

Boulder Clay.

No. 83

No. 4.

Corner of Grimshaw Lane & Lord Street.

Made Ground.

Boulder Clay.

No. 84

No. 5.

Junction of Lord St. & Clifton St.

Made ground.

Boulder clay.

No. 85

No. 6.

Opposite junction of Helston St. & Clifton St.

Made ground

Boulder Clay.

No. 86

No. 7.

Corner of Clifton St. & Hulme Hall Lane.

Made ground.

Boulder clay.

No. 87

No. 8.

15 yds. South of Railway Bridge, Hulme Hall Lane

Made ground

Boulder clay.

No. 88

No. 9.

Cross Roads:- Hulme Hall Lane & Cemetery Road.

Made ground

Boulder Clay.

No. 89

No. 10.

Mill Street, Hulme Hall Lane.

Made Ground

Boulder clay

No. 90

No. 11.

Mill Street, Hulme Hall Lane

Made ground.

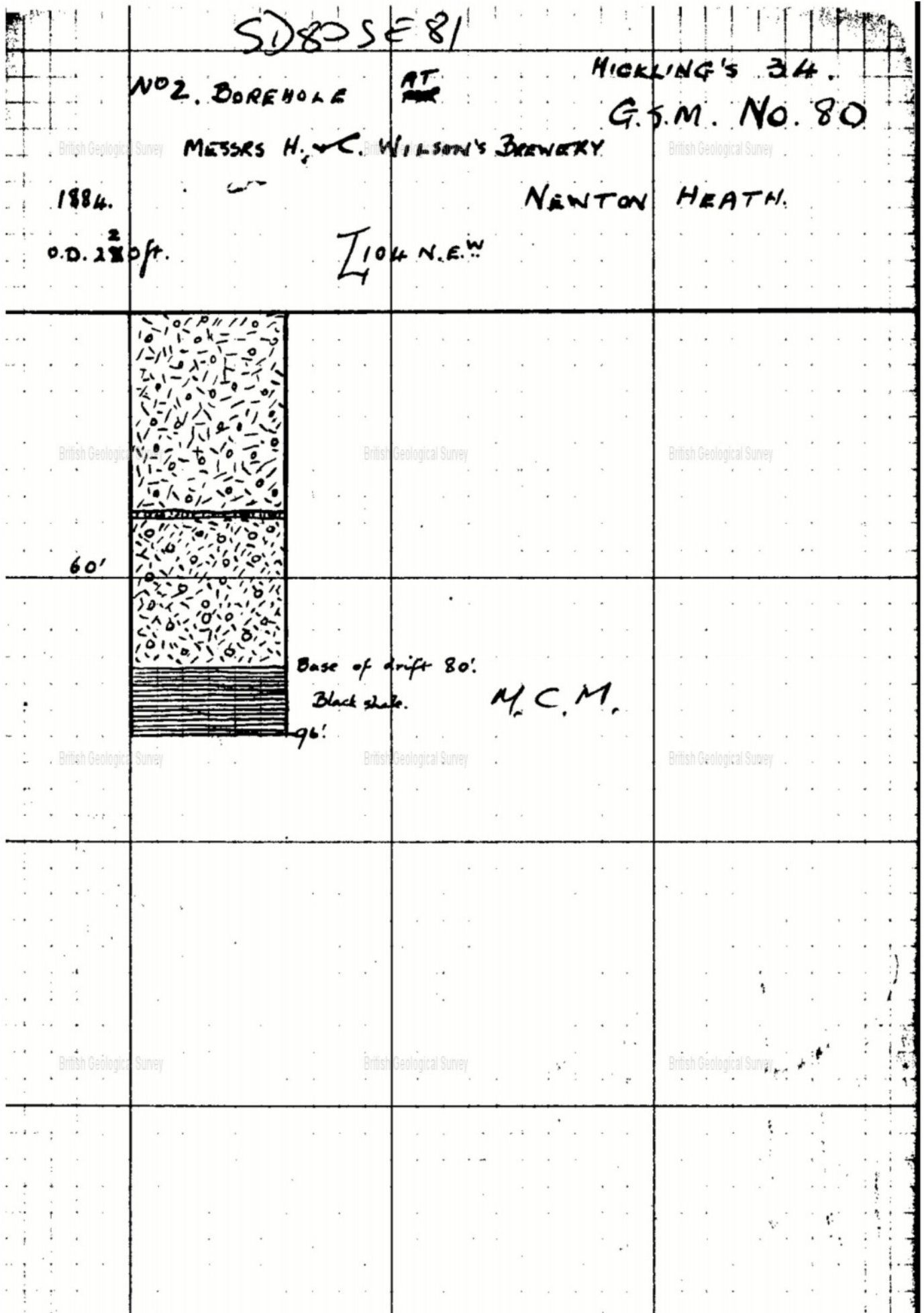
Boulder clay.

No. 91

No. 12.

Mill Street, Hulme Hall Lane.

Thickness			Depth from Surface.		
Yards.	feet.	ins.	Yards.	feet.	ins.
1.22	4	-	1.22	4	-
4.72	15	6	5.94	19	6
1.83	6	-	1.83	6	-
5.18	17	-	7.01	23	-
1.37	4	6	1.37	4	6
4.11	13	6	5.49	18	-
1.22	4	-	1.22	4	-
6.40	21	-	7.62	25	-
1.22	4	-	1.22	4	-
4.88	16	-	6.10	20	-
1.22	4	-	1.22	4	-
4.88	16	-	6.10	20	-
0.61	2	-	0.61	2	-
9.14	30	-	9.75	32	-
1.22	4	-	1.22	4	-
7.93	26	-	9.14	30	-
1.22	4	-	1.22	4	-
6.40	21	-	7.62	25	-



7.3 **Appendix C – Existing On-site Services Plan**

7.4 Appendix D – Proposed Surface Water Drainage Strategy Plan



PRE-DEVELOPMENT CONTRIBUTING AREA PLAN

INSET PLAN 1

(Scale 1:100)

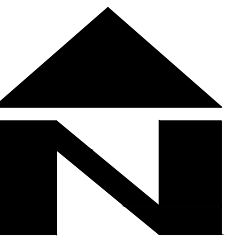


POST-DEVELOPMENT CONTRIBUTING AREA PLAN

INSET PLAN 2

(Scale 1:100)

- STANDARD DRAINAGE NOTES
- DO NOT SCALE FROM THIS DRAWING. REFER TO FIGURED DIMENSIONS ONLY. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
 - ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 - THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
 - ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY, SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
 - BEFORE COMMENCING CONSTRUCTION THE CONTRACTOR MUST CHECK THE INVERT LEVELS OF EXISTING SEWERS TO WHICH CONNECTIONS ARE MADE. IN ADDITION THE CONTRACTOR MUST LOCATE AND DETERMINE INVERT LEVELS OF THE EXISTING SURE TO WHICH CONNECTIONS ARE PROPOSED. ANY DISCREPANCIES ARE TO BE NOTIFIED TO THE ENGINEER IMMEDIATELY, PRIOR TO CONSTRUCTION.
 - ALL DRAINAGE WORKS SHOULD COMMENCE AT THE PROPOSED DOWNSTREAM CONNECTION POINT. THE WORKS CONTINUING UPSTREAM FOLLOWING CONFIRMATION OF THE TIE-IN INVERT LEVELS TO THE ENGINEER. CONNECTIONS TO MANHOLES OR LARGER SIZED PIPES ETC. SHOULD BE SOFFIT TO SOFFIT UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER, IF THIS IS NOT POSSIBLE INFORM THE ENGINEER IMMEDIATELY.
 - COVER LEVELS SHOWN ARE APPROXIMATE. COVERS AND FRAMES SHALL BE SET TO FINISHED GROUND LEVELS AND FALLS.
 - ALL UN-REFERENCED PIPES ARE ASSUMED TO BE 100mm DIA.
 - ALL PIPES TO BE ADOPTED, OR CONNECTING TO ADOPTED SEWERS, TO BE VITRIFIED CLAY TO BS EN 295 AND BS85 (SWS ONLY), OR CONCRETE PIPES TO BE EN 1916 AND BS5911-PART 1.
 - ROAD GULLY OUTLET PIPES ARE TO BE 150mm DIA. WITH CONCRETE SURROUND AND FLEXIBLE JOINTS. ALL GULLIES SHALL BE FITTED WITH GRADE D400 GRATINGS AND FRAMES TO BS EN124, UNLESS OTHERWISE STATED.
 - ALL ADOPTABLE SEWERS SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATION LAID DOWN DOWN IN 'SEWERS FOR ADOPTION' 6th EDITION, WITH A VIEW TO ADOPTION UPON COMPLETION OF WORKS.
 - ALL PRIVATE DRAINAGE TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS APPROVED DOCUMENT PART-H, AND TO THE SATISFACTION OF THE BUILDING CONTROL INSPECTOR.
 - THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWING CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
 - STUB CONNECTIONS TO ADOPTABLE MANHOLES SHALL BE MADE FROM VITRIFIED CLAY AND CONSIST OF TWO ROCKER PIPES LAID AT THE SAME GRADIENT AS THE UP OR DOWNSTREAM PIPE.
 - IF ANY SUB SOIL DRAINAGE SYSTEMS ARE UNCOVERED DURING THE WORKS CONTACT THE ENGINEER FOR INSTRUCTIONS. SUB SOIL DRAINS ARE TO BE DIVERTED AROUND NEW WORKS AND CONNECTED INTO THE SURFACE WATER.
 - NO PRIVATE AREAS ARE TO DRAIN ONTO ADOPTABLE AREAS AND VICE VERSA.
 - ALL EXISTING MANHOLE COVERS, GULLIES, ETC. ARE TO BE RAISED/LOWERED TO SUIT NEW LEVELS.
 - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM THE LOCATION AND DEPTH OF ALL EXISTING SERVICES AND UTILITIES THAT MAY BE PRESENT.
 - UPON COMPLETION BUT PRIOR TO HANDOVER, CONTRACTOR TO CARRY OUT FULL CCTV SURVEY OF DRAINAGE SYSTEM WHICH IS TO BE REVIEWED BY ENGINEER TO ENSURE SATISFACTORY INSTALLATION.
 - MANHOLE AND CHAMBER COVER GRADES:
 - 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
 - 'B125' IN ALL DRIVEWAYS
 - 'C250' IN PRIVATE PARKING AREAS
 - 'D400' IN CARRIAGEWAY/ACCESS ROAD



Prefixed to drawing numbers shall signify the following:-	
PL = PLANNING	Shall not be used for contract or construction purposes
P = PRELIMINARY	Shall not be used for contract or construction purposes
T = TENDER	Shall not be used for construction purposes
C = CONSTRUCTION	These are the only drawings that shall be used for construction purposes
R = RECORD	Record of actual completed work

P-	16.01.23	PRELIMINARY ISSUE	KCK	CS	CS
REV	DATE	DESCRIPTION	BY	CHK	APP

 Consulting Civil Engineers			
CLIENTGLADSTONE PLACE			
ARCHITECTWYETH PROJECTS SERVICES			
JOB TITLE571 OLDHAM ROAD, MANCHESTER, M40 5AF			
DRAWING TITLEEXISTING AND PROPOSED CONTRIBUTING AREA			
DRAWN KCK		ENGINEER TZ	
CHECKED CS		APPROVED CS	
DATE JUN 2023		SCALE @ A1 1:100	
JOB No. C2454		STATUS P	
DRAWING No. 150		REV. P-	

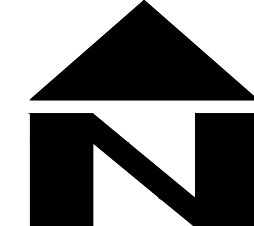
FOR PLANNING ONLY

DESIGN SUBJECT TO THE APPROVAL OF:
PLANNING AUTHORITY
BUILDING CONTROL
UNITED UTILITIES

DESIGN SUBJECT TO THE CONFIRMATION OF:
EXTERNAL LEVELS DESIGN
LOCATION AND DEPTH OF EXISTING UTILITIES

- Site Specific Notes
- The proposed development is for the demolition of the existing car wash and bin store area and construction of 3no. new car washes and 6no. EV charging/parking spaces.
 - Proposed pre-development contributing area and post development contributing area will remain the same therefore no attenuation is required.
 - SW runoff from car washing area will be collected and discharged into the combined public sewer via an on-site silt separator. The proposed separator final size, location and depth is subject to manufacturer and Client requirements.
 - Existing on-site sewers and services located within the area of the proposed new car wash and charging spaces will be relocated/removed. Final location to be confirmed at detail design stage.

- STANDARD DRAINAGE NOTES
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 - THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWING CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
 - STUB CONNECTIONS TO ADOPTABLE MANHOLES SHALL BE MADE FROM VITRIFIED CLAY AND CONSIST OF TWO ROCKER PIPES LAID AT THE SAME GRADIENT AS THE UP OR DOWNSTREAM PIPE.
 - IF ANY SUB SOIL DRAINAGE SYSTEMS ARE UNCOVERED DURING THE WORKS CONTACT THE ENGINEER FOR INSTRUCTIONS. SUB SOIL DRAINS ARE TO BE DIVERTED AROUND NEW WORKS AND CONNECTED INTO THE SURFACE WATER.
 - NO PRIVATE AREAS ARE TO DRAIN ONTO ADOPTABLE AREAS AND VICE VERSA.
 - ALL EXISTING MANHOLE COVERS, GULLIES, ETC. ARE TO BE RAISED/LOWERED TO SUIT NEW LEVELS.
 - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM THE LOCATION AND DEPTH OF ALL EXISTING SERVICES AND UTILITIES THAT MAY BE PRESENT.
 - UPON COMPLETION BUT PRIOR TO HANDOVER, CONTRACTOR TO CARRY OUT FULL CCTV SURVEY OF DRAINAGE SYSTEM WHICH IS TO BE REVIEWED BY ENGINEER TO ENSURE SATISFACTORY INSTALLATION.
 - MANHOLE AND CHAMBER COVER GRADES:
 - 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
 - 'B125' IN ALL DRIVEWAYS
 - 'C250' IN PRIVATE PARKING AREAS
 - 'D400' IN CARRIAGEWAY/ACCESS ROAD



DRAINAGE LEGEND (1:100)

EXISTING FEATURES

- Ex FWD Existing foul water sewer/drain and manhole
- Ex SWD Existing surface water sewer/drain and manhole
- Ex SWD Existing combined water sewer/drain and manhole
- Existing foul/surface water sewer/drain manhole and existing services to be abandoned

PROPOSED FEATURES

- SWD Storm water sewer/drain
- ACO MonoDrain PD100D 225mm deep
- SU Sump unit
- MA Maintenance access
- Storm water inspection chamber (4500)
- Storm water catchpit chamber
- Pipe info - diameter, length, gradient, bedding type

ABBREVIATIONS

- MH - MANHOLE
- IC - INSPECTION CHAMBER
- AC - ACCESS CHAMBER
- CP - CATCHPIT
- BC - BRAKE CHAMBER
- RE - RODDING EYE
- IL - INVERT LEVEL
- SL - SUMP LEVEL
- CL - COVER LEVEL

Site Boundary
(as taken from Wyeth projects services 'Site Location and Block Plan' drawing No:WPS-MFG-573-P-01 dated: September 2022)

Prefix to drawing numbers shall signify the following:-

PL = PLANNING	Shall not be used for contract or construction purposes
P = PRELIMINARY	Shall not be used for contract or construction purposes
T = TENDER	Shall not be used for construction purposes
C = CONSTRUCTION	These are the only drawings that shall be used for construction purposes
R = RECORD	Record of actual completed work

P-	16.01.23	PRELIMINARY ISSUE	KCK	CS	CS
REV	DATE	DESCRIPTION	BY	CHK	APP

REV		DATE		DESCRIPTION		BY		CHK	
 Consulting Civil Engineers									
CLIENT GLADSTONE PLACE									
ARCHITECT WYETH PROJECTS SERVICES									
JOB TITLE 571 OLDHAM ROAD, MANCHESTER ,M40 5AF									
DRAWING TITLE PROPOSED SW DRAINAGE STRATEGY									
DRAWN KCK		ENGINEER TZ		CHECKED CS		APPROVED CS			
DATE JUN 2023				SCALE @ A1 1:100					
JOB No. C2454		STATUS P		DRAWING No. 100		REV. P-			

FOR PLANNING ONLY

FIGURE B 23
TYPICAL INSPECTION CHAMBER DETAIL - TYPE E

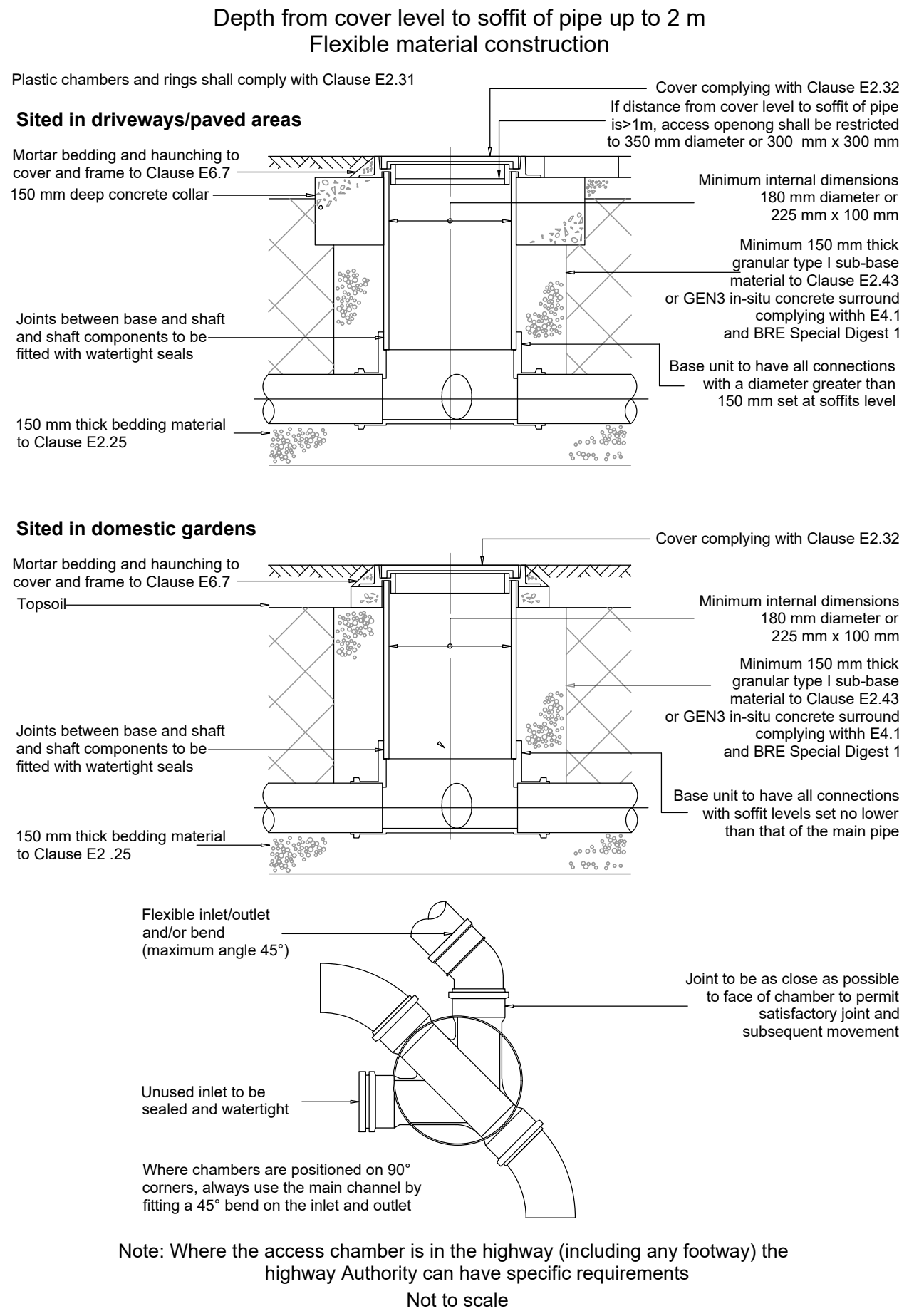
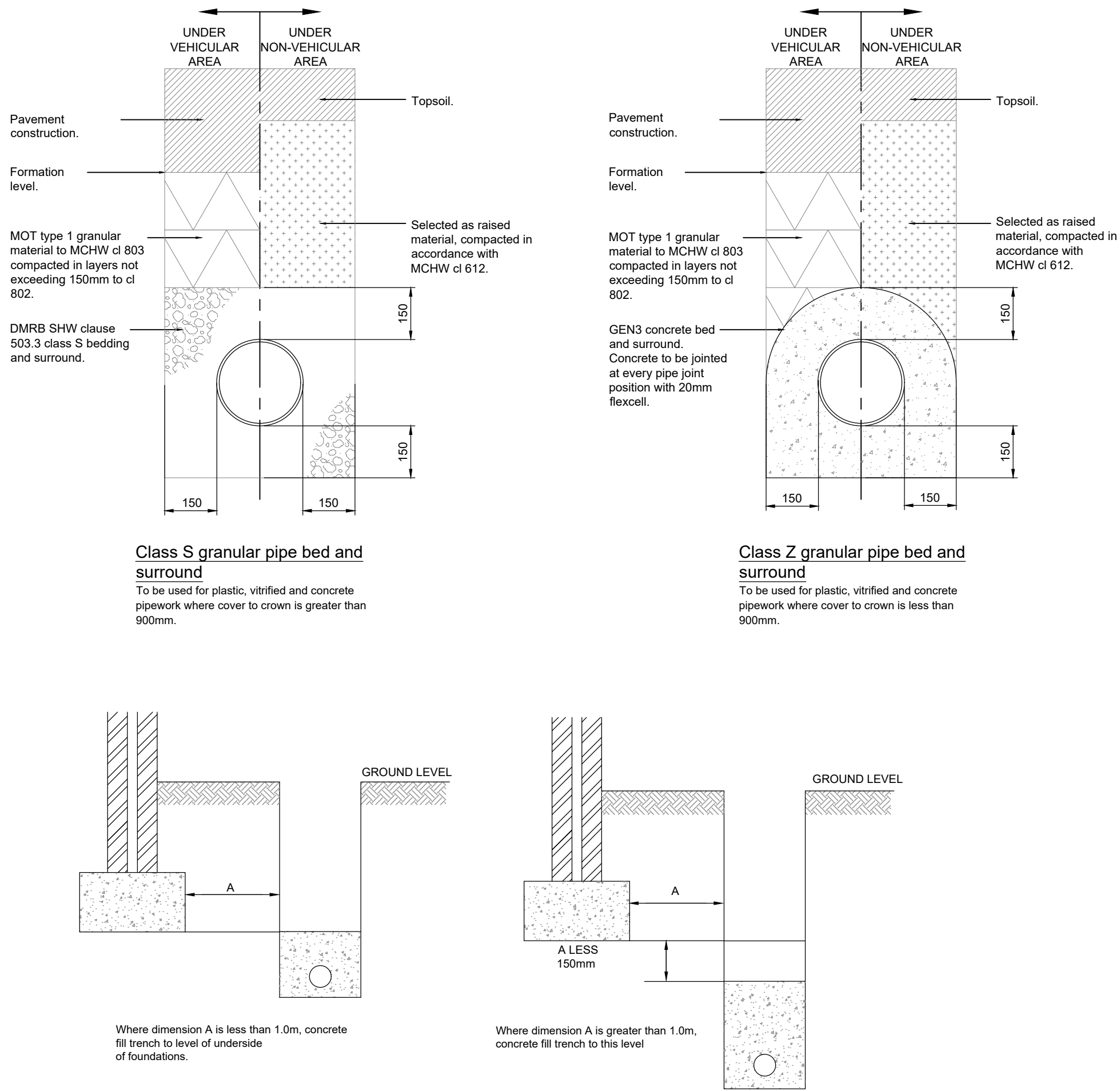
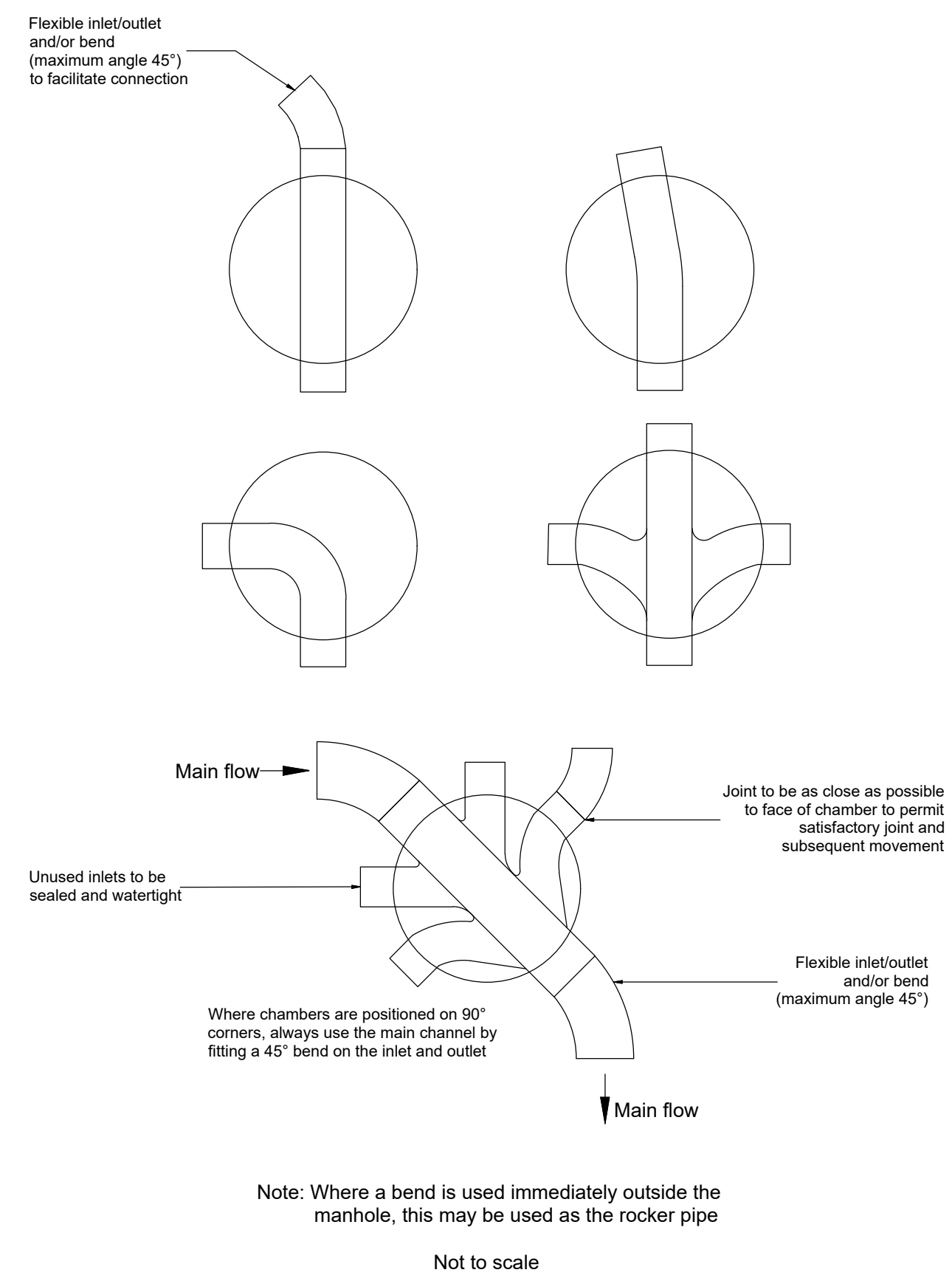
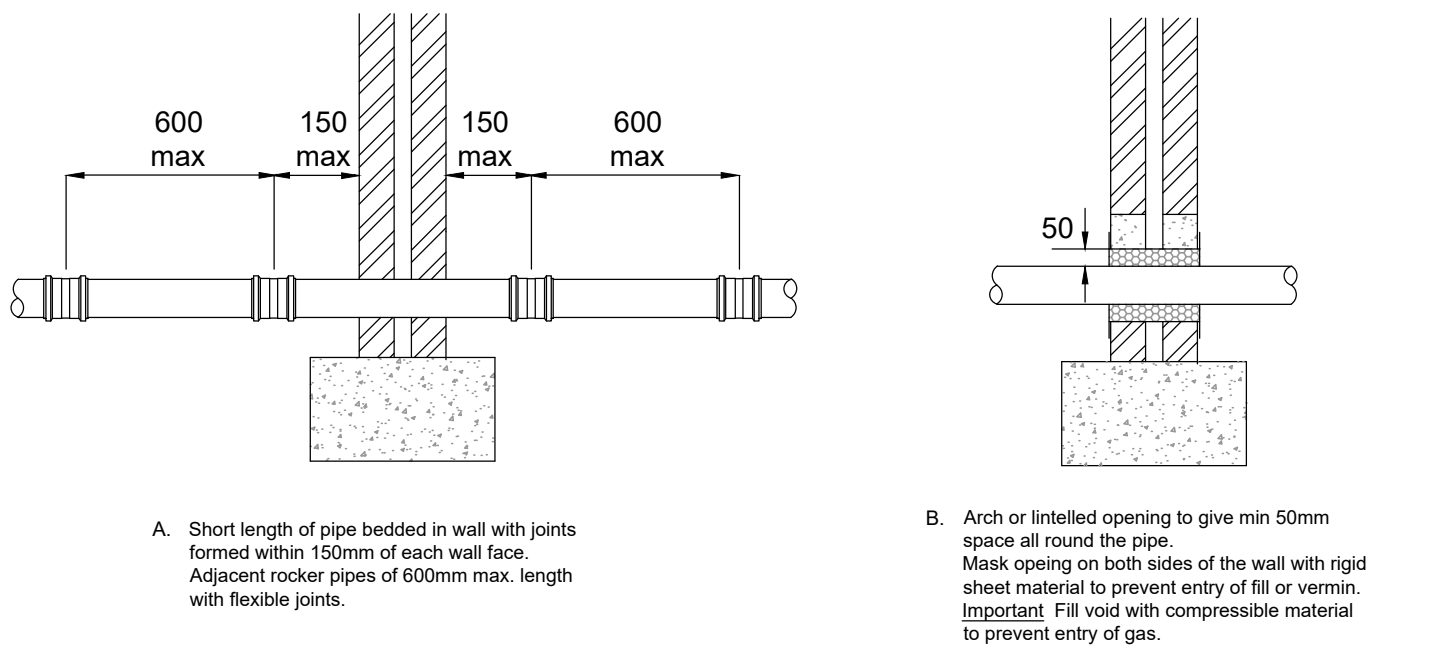


FIGURE B 22
TYPICAL BASE LAYOUTS FOR TYPE D CHAMBERS



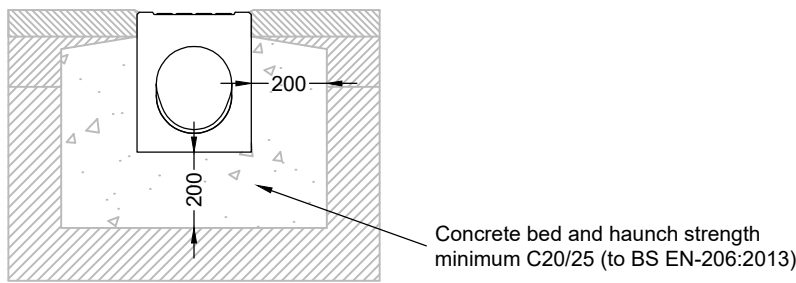
Pipes near buildings
NTS

Pipes near buildings
NTS



Pipes through wall detail
NTS

Pipes through wall with lintel detail
NTS



Aco Monodrain Construction Detail in Asphalt
(To be read in conjunction with Aco installation specification)

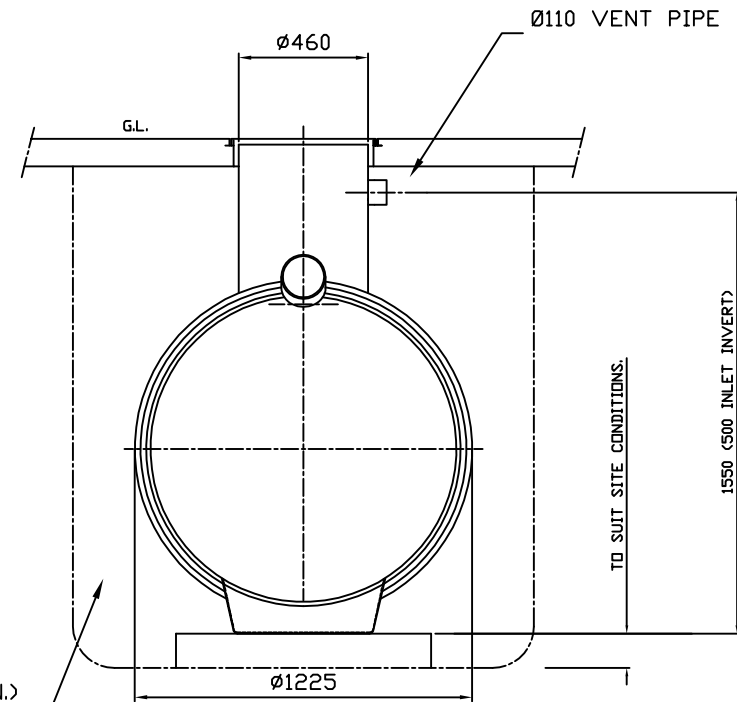
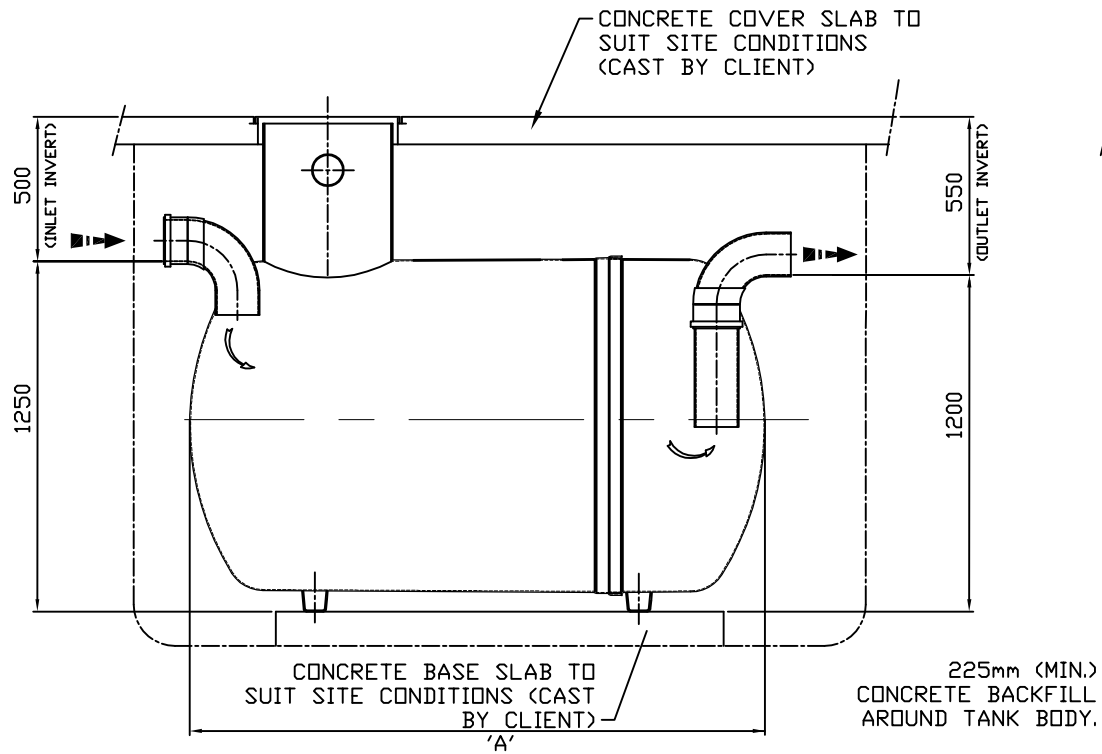
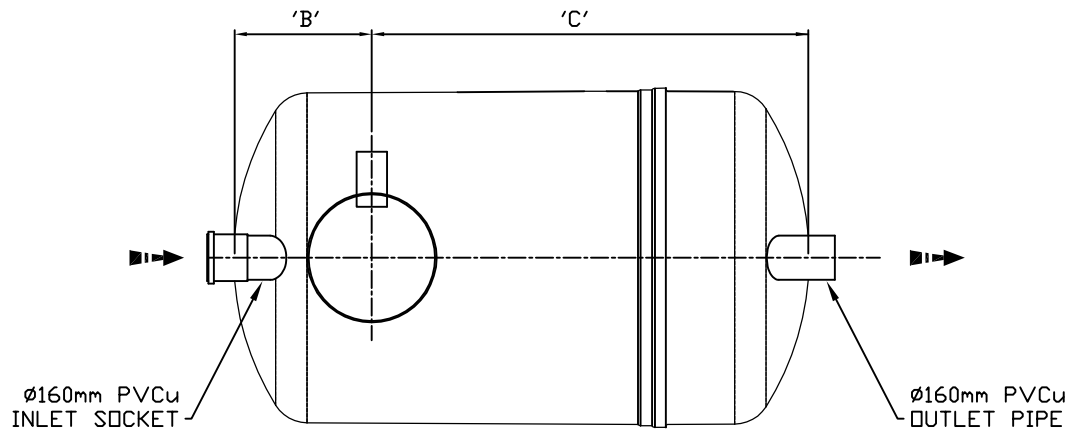
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P-	16.01.23	PRELIMINARY ISSUE		KCK	CS	CS
REV	DATE	DESCRIPTION			BY	CHK/APP
 Consulting Civil Engineers						
CLIENT GLADSTONE PLACE						
ARCHITECT WYETH PROJECTS SERVICES						
JOB TITLE 571 OLDHAM ROAD, MANCHESTER, M40 5AF						
DRAWING TITLE PROPOSED TYPICAL CONSTRUCTION DETAILS						
DRAWN KCK		ENGINEER TZ		CHECKED CS	APPROVED CS	
DATE JUN 2023		SCALE @ A1 AS SHOWN				
JOB No. C2454		STATUS P	DRAWING No. 500			REV. P-

FOR PLANNING ONLY

7.5 **Appendix E – Klargesten Washdown and Silt Trap Maintenance and Typical Details**



NOTES:-

1.) UNITS CAN BE SUPPLIED WITH EXTENSION SHAFTS IN 0.5m INCREMENTS.

2.) STANDARD INLET / OUTLET PIPES ARE PVCu UNDERGROUND DRAINAGE TO BS4660. FOR OTHER PIPE SIZES AND TYPES AVAILABLE CONSULT KLARGESTER.

3.) STANDARD IN-LINE ORIENTATION SHOWN. FOR OTHER ORIENTATIONS SEE DOCUMENT TDS0033.

4.) IT IS ESSENTIAL THAT THIS DRAWING IS READ INCONJUNCTION WITH THE INSTALLATION INSTRUCTIONS (SUPPLIED WITH UNIT). THIS DRAWING SHOULD BE USED FOR DIMENSIONAL INFORMATION ONLY.

UNIT	DIM 'A'	DIM 'B'	DIM 'C'	WORKING CAPACITY.	APPROX WEIGHT.		FALL ACROSS UNIT
					EMPTY	FULL	
W1/010	1123	560	563	1013 Litres	50 Kg	1065 Kg	50
W1/020	2074	700	1374	2052 Litres	70 Kg	2125 Kg	50
W1/030	2952	700	2252	3005 Litres	95 Kg	3100 Kg	50
W1/040	3898	700	3198	4023 Litres	120 Kg	4145 Kg	50

ALL DIMENSIONS ARE IN MILLIMETRES – DO NOT SCALE



W1/010 - W1/040
WASH DOWN & SILT
SEPARATORS
(1-STAGE)

SCALE: 1:10 SHEET SIZE: A1

DRAWING No. DS0832P ISSUE 2

2	04/07/12	L.S	CC1061
1	02.03.09	JC	CC702
ISSUE	DATE	DRAWN	MODIFICATION
This drawing is copyright and may not be reproduced or used without the written permission of Kingspan.			
KINGSPAN RESERVE THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE			



012582
Washdown & Silt Separator
Installation & Operation Guidelines



Kingspan Environmental Service Contact Numbers:

GB: 0844 846 0500

NI: 028 3025 4077

IRL: 048 3025 4077

HEALTH & SAFETY

These warnings are provided in the interest of safety. You must read them carefully before installing or using the equipment.

It is important that this document is retained with the equipment for future reference. Should the equipment be transferred to a new owner, always ensure that all relevant documents are supplied in order that the new owner can be acquainted with the functioning of the equipment and the relevant warnings.

Installation should only be carried out by a suitably experienced contractor, following these guidelines.

We recommend the use of a dust mask and gloves when cutting GRP components.

Electrical work should be carried out by a qualified electrician.

Contaminated surface water can contain substances harmful to human health. Any person carrying out maintenance on the equipment should wear suitable protective clothing, including gloves. Good hygiene practice should also be observed.

Access covers should be selected with reference to the location of the unit and traffic loads to be accommodated. These are not (normally) part of the Separator supply.

When covers are removed precautions must be taken against personnel falling into the unit.

Should you wish to inspect the operation of the equipment, please observe all necessary precautions, including those listed below, which apply to maintenance procedures.

Ensure that you are familiar with the safe working areas and accesses. Ensure that the working area is adequately lit.

Take care to maintain correct posture, particularly when lifting. Use appropriate lifting equipment when necessary. Keep proper footing and balance at all times. Avoid any sharp edges.

Issue	Description	Date
02	CC1090	September 2012

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1.0 Introduction

These Guidelines represent Best Practice for the installation of the above Kingspan Separator Units. Many years of specialist experience has led to the successful installation of thousands of separator units. It must be noted, however, that these Guidelines are necessarily of a general nature. It is the responsibility of others to verify that they are appropriate for the specific ground conditions and in-service loads of each installation. Similarly, any information or advice given by employees or agents of Kingspan regarding the design of an installation must be verified by a qualified specialist (e.g. Civil engineering consultant).

2.0 Handling & Storage

- 2.1. Care must be taken to ensure that units are not damaged during delivery and handling on site. Please take care and place unit so that it cannot fall and become damaged
- 2.2. The design requirements of Kingspan products will frequently mean that the centre of gravity of the unit is “offset”. Care must therefore be taken to ensure that the unit is stable when lifting. Rainwater may also collect inside units, particularly if they have been stored on site prior to installation, adding weight and increasing instability. Check units before lifting and pump out any excess water.
- 2.3. When lifting units, use webbing slings of a suitable specification. Do not use chains.
- 2.4. A suitable spreader bar should be used to ensure that units are stable and that loads are evenly distributed during lifting. When lifting separators, a spreader bar should be used where the slings would otherwise be at an angle > 30 degrees to the vertical.
- 2.5. Lifting equipment should be selected by taking into account the unit weight, length and the distance of lift required on site.
- 2.6. Kingspan Environmental accepts no responsibility for the selection of lifting equipment.
- 2.7. Whenever Kingspan units are stored or moved on site, ensure that the storage location is free of rock, debris and any sharp objects which may damage the unit. The units must be placed on ground which is flat and level and the unit orientated onto its side with even support. Do not roll separators.

3.0 Site Planning

The following points should be considered before installation of the equipment:

- 3.1. The discharge must have the consent of the relevant Environmental Regulator.
- 3.2. The installation should have Planning and Building Control approval.
- 3.3. Consider installing flow cut-off valves to isolate the separator in an emergency or during site cleaning operations. See Environment Agency Guidelines PPG3.
- 3.4. Consider installation of a sampling point downstream of the separator. There is no suitable facility to effectively sample the waste water from inside the unit..
- 3.5. Uncontaminated run off such as roof water should be excluded from separators. (EA Guidelines PPG3.)
- 3.6. Ground conditions and water table level should be assessed. If the water table will be above the base of the units at any time of the year, adequate concrete backfill must be provided to avoid flotation. In poorly draining ground, consideration should also be given to the likelihood of flotation due to surface water collecting in the backfill, and an appropriate installation method devised to avoid this.
- 3.7. The separator must be installed at a level which will allow connection to the incoming drain and a free discharge at the system outlet. The water table must be below the discharge outlet.
- 3.8. Do not install the unit deeper than necessary, ensure that you purchase extension shafts. The minimum invert depth of the unit is shown on the customer drawing.
- 3.9. Adequate access must be provided for routine maintenance. Vehicles should not be permitted within a distance equal to the depth of the unit, unless suitable structural protection is provided to the installation.
- 3.10. There must be at least 1 metre of clear, level ground all around the access covers to allow for routine maintenance.
- 3.11. It is essential that a mains water supply is accessible for routine cleansing and refilling after removal of waste material and liquid.

4.0 Installation – General

- 4.1. When units are installed in unstable ground conditions where movement of the surrounding material and/or unit may occur, the connecting pipework should be designed to minimise the risk of damage from differential movement of the unit(s) and/or surrounding material.
- 4.2. For separators with burial depths greater than 1000mm from cover level to the top of the unit, specific site conditions should be taken into consideration and the backfill designed to bear any loads which may be applied during and after installation to prevent the tank being subjected to these loads.
- 4.3. The excavation must be deep enough to provide bedding and cover depth as determined by the type of surface pavement and loading. Asphalt and concrete pads should extend a minimum of 300mm horizontally beyond the unit in all directions.
- 4.4. In situations where the excavation will not maintain a vertical wall, it will be necessary to shore up the side walls of the excavation with suitable trench sheets and bracing systems to maintain a vertical wall from the bottom to the top of the excavation. DO NOT completely remove the shoring system until the backfilling is complete, but before the concrete fully hardens.
- 4.5. In areas where the water table is above the bottom of the excavation and/or the excavation is liable to flood, the excavation should be dewatered using suitable pumping equipment and this should continue until the installation is complete.
- 4.6. During installation care must be taken to ensure that the body of the unit is uniformly supported so that point loads through the unit are avoided.

4.7. Concrete Specification is a *general* specification. It is not a site-specific installation design.

GENERAL CONCRETE SPECIFICATION IN ACCORDANCE WITH BS EN 206-1 (BS 8500-1)		
TYPE OF MIX		(DC) DESIGN
PERMITTED TYPE OF CEMENT		BS 12 (OPC): BS 12 (RHPC): BS 4027 (SRPC)
PERMITTED TYPE OF AGGREGATE (coarse & fine)		BS 882
NOMINAL MAXIMUM SIZE OF AGGREGATE		20 mm
GRADES: C25 /30 C25 /30 C16 /20		REINFORCED & ABOVE GROUND WITH HOLDING DOWN BOLTS REINFORCED (EG. FOR HIGH WATER TABLE) UNREINFORCED (NORMAL CONDITIONS)
MINIMUM CEMENT CONTENT	C30 C20	270 - 280 Kg/M ³ 220 - 230 Kg/M ³
SLUMP CLASS		S1 (25mm)
RATE OF SAMPLING		READY MIX CONCRETE SHOULD BE SUPPLIED COMPLETE WITH APPROPRIATE DELIVERY TICKET IN ACCORDANCE WITH BS EN 12350-1
NOTE: STANDARD MIXES SHOULD NOT BE USED WHERE SULPHATES OR OTHER AGGRESSIVE CHEMICALS EXIST IN GROUND WATER		

5.0 Separator Installation

- 5.1. Excavate a hole of sufficient length and width to accommodate the tank and a minimum 225mm concrete surround and to a depth which allows for the burial depth of the unit plus concrete base slab and haunch.
- 5.2. Construct a suitable concrete base slab appropriate to site conditions. Ensure that the slab is flat and level.
- 5.3. When the concrete base slab has set enough to support the installed load, add a concrete haunch so as to provide even support under the unit, then lower the unit onto the haunch using suitable webbing slings and lifting equipment.
- 5.4. **Pour no more than 300 mm depth of clean water into the unit, avoiding shock loads. For units with more than one chamber, add water to each chamber simultaneously. DO NOT OVERFILL, the unit is not designed to hold water whilst unsupported.**
- 5.5. **Place concrete backfill to approximately 250mm depth under and to the sides of the tank ensuring good compaction to remove voids. DO NOT use vibrating pokers. Continue adding concrete backfill, simultaneously keeping the internal water level no more than 200 mm above the backfill level at all times, until the backfill is just below the underside of the outlet drain, giving sufficient room to connect the inlet and outlet pipework.**
- 5.6. Connect inlet and outlet drains and vent pipes when safe access to the backfill can be gained.

PIPEWORK CONNECTIONS

In all cases, ensure that the outlet pipework level is maintained for correct operation. (Unless specified on the order, the fall across the unit will be as per the customer drawings).

Small units are generally fitted with **PVCu spigots** to both the outlet and the inlet.

Connect using the same size PVCu socket or a suitable reducer.

Larger units are generally fitted with **Kingspan GRP** manufactured sockets.

The connecting pipework should be pushed into the socket and a joint made to fill in the gap using rope/hemp with a cement mortar or bonding mix. Ensure that the seal is secure and watertight before backfilling the pipe.

Alternatively, proprietary **flex seal couplings** can be obtained to fit over the outside of the site pipework and the outside of the GRP socket. When using this connection method, please be aware that the outside GRP laminate is not perfectly regular and that you may need to use a sealant on the outside diameter of the GRP. Take care not to over tighten the coupling when connecting to the GRP and ensure that the seal is secure before backfilling the pipe. A drawing can be provided to show the ID of our GRP sockets. The OD is variable, as the wall thickness can be up to 15-20 mm. If purchasing a flexseal coupling for use with clay /concrete, we suggest that a size 110 mm larger than the ID is selected.

- 5.7. Continue backfilling with concrete over the tank body to the required level. Build up a shell of concrete, minimum 225mm thick, around the access shaft(s). Temporarily strut the access shaft to avoid distortion.
- 5.8. It is advisable to seal the joints on the extension shafts (particularly on sites with high ground water) with proprietary sealant or by GRP lamination. Temporarily strut the extension neck(s) to avoid distortion during back filling. Where more than one neck section is required to suit a deep invert, consider back-filling section by section. If the extension neck is too long, it can be trimmed using a fine-toothed saw.
- 5.9. Ensure that the vent socket if cut out, is replaced elsewhere. The maximum recommended inlet invert is 2000mm (using 500mm long extension sections).
- 5.10. Continue back-filling, ensuring minimum 225mm concrete thickness around the access shaft/ extension neck and alarm access tube (as applicable).
- 5.11. In traffic areas a suitable top slab must be constructed. The top slab should bear on a suitable foundation to prevent superimposed loads being transmitted to the unit and access shafts. Loads applied to covers and frames must bear on the top slab, not the access shaft.
- 5.12. The unit should be filled with clean water up to the invert level of the outlet pipe. Ensure the unit identification is placed/ marked inside the neck for future information. The unit is now ready for use.

Unit	Total Capacity (Litres)	Max. Recommended Silt Volume
W1/012	1200	600
W1/020	2000	1000
W1/030	3000	1500
W1/040	4000	2000
W1/060	6000	3000
W1/080	8000	4000
W1/100	10000	5000
W1/120	12000	6000
W1/150	15000	7500
W1/190	19000	9500

The units above all include a single chamber, (W1) but on request, we may be able to provide with 2 or 3 chambers. If you require larger units, these are also available. Please contact us to discuss your specific application

Invert depths (E) can be supplied in additional increments of 500mm from the minimum stated above. Please indicate the inlet drain invert required when specifying units. Maximum 2.0 m.

6.0 Operation

As contaminated water passes through the separation chamber, it is retained long enough to allow settleable solids to sink to the bottom of the unit. Our design uses a maximum of 6 minutes retention time, at the flow rate given. The separator water is able to discharge safely without the risk of pollution to the municipal plant.

The nature of the silt varies depending on either the ground or surface receiving the flow. These aspects should be considered when selecting the size of the unit in relation to the flow being treated. .

7.0 Maintenance

Waste Removal and Servicing

7.1 Separators should be inspected at least every six months or more frequently if experience dictates. A log should be maintained detailing any silt removal or cleaning carried out. A specimen maintenance log is included in the appendices.

7.2 Every site is different, in respect to the amount and type of silt generated by the drain design and installation. Frequently, the construction programme itself generates large and perhaps unusual quantities of silt and grit. We do recommend that following the initial installation, an inspection of the separator contents be made to check that building rubble has not entered the unit. Further inspections at 3 and 6 months should be made so as to be able to assess the volumes of silt accumulated. The inspection and emptying programme can then be defined following the first 6 months site experience. We recommend leaving a maximum interval between inspections of 6 months.

Waste Removal Procedure –Silt

7.3 Remove the access cover and lower the desludging hose in to the separation chamber.

7.4 Lower the desludging hose to the base of the tank and withdraw any grit or sludge that may be present. Do not remove more water than is necessary. Ensure that you access and clean both compartments.

8.0 Emergencies

At sites where there is a high risk of spillage, spill kits containing drain seals, absorbent materials, disposal containers and other appropriate equipment should be held. In the event of a spillage on site, the material should be contained, (if a spill kit is not available, sand or soil may be used) and the Environment Agency notified immediately using the appropriate emergency hotline number listed in the Agency Guideline PPG3. Year 2012 - **0800 80 70 60**

9.0 Warranty

Taken from 'Kingspan's Terms & Conditions of Sale'

The company will replace or, at its option, properly repair without charge any goods which are found to be defective and which cause failure in normal circumstances of use within a period of twelve months from the date of delivery.

This warranty is conditional upon:

- (a) the Buyer notifying the Company of any claim within Seven days of the failure becoming discernible.
- (b) the Company being allowed a reasonable opportunity to inspect the goods so as to confirm that they are defective.
- (c) the goods not having been modified, mishandled or misused and being used strictly in accordance with any relevant instructions issued by the Company.

The Company's liability under this Clause is limited to the repair or replacement of the defective goods, and does not cover costs of transport, installation or associated site costs, if applicable.

The Company's liability to replace or repair the goods is in lieu of and excludes all other warranties and conditions, and in particular (but without limitation) the Company shall have no liability of any kind for consequential loss or damage.

For any further advice, please contact us.

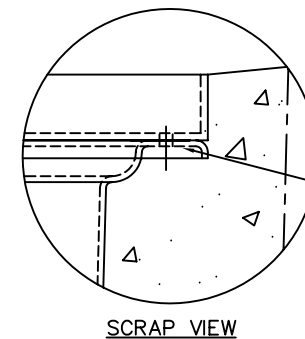
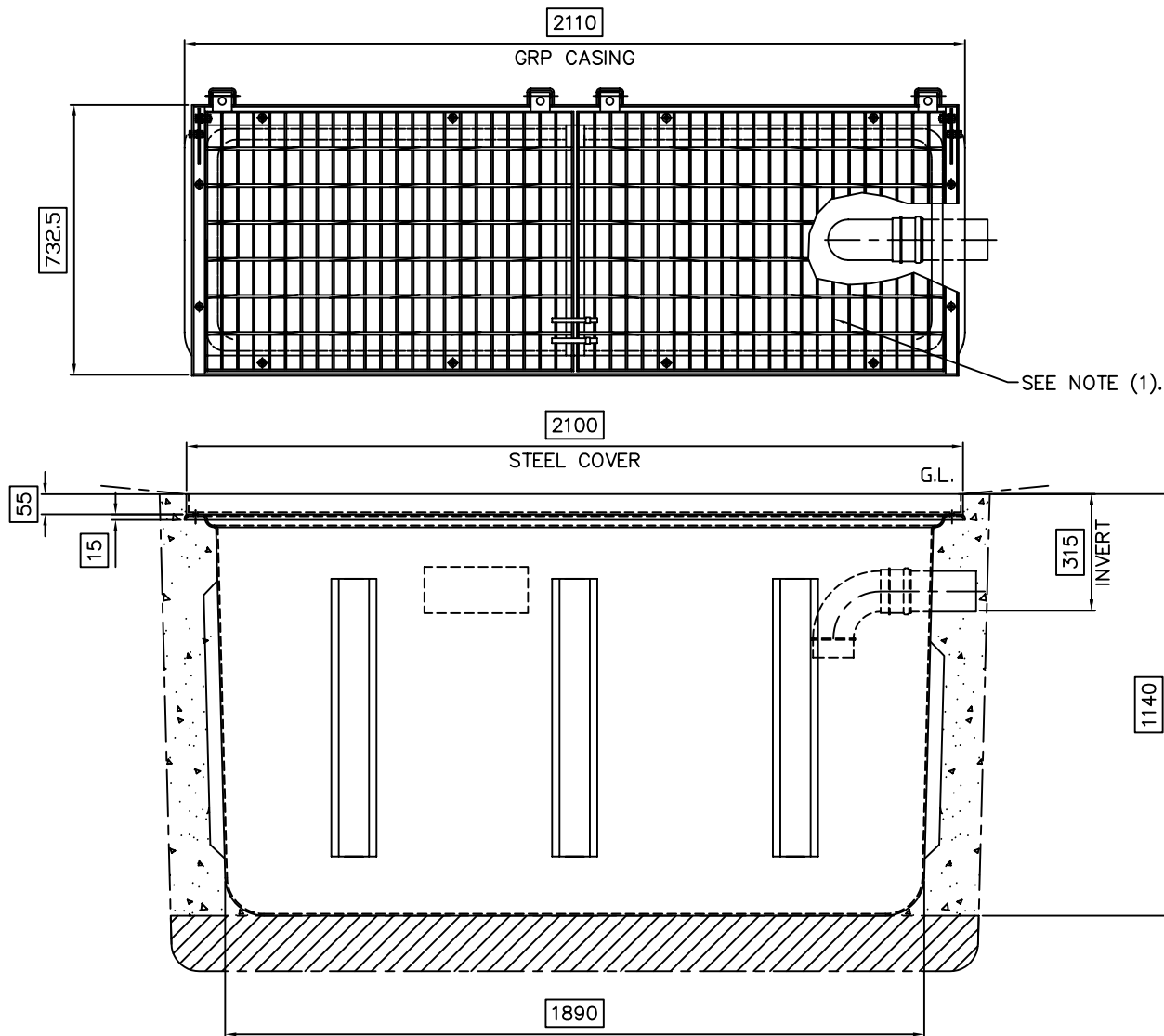
Our service provider: Kingspan Environmental Services: 0844 846 0500

SEPARATOR MAINTENANCE LOG

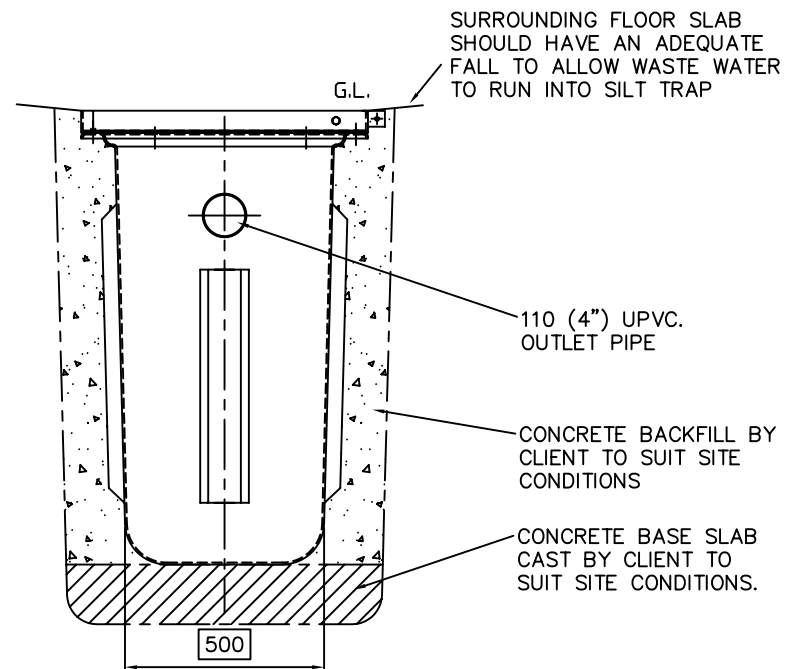


Site address/location
.....
Separator location
.....
Type of separator
Nominal Flow
Total capacity

Inspection/ Maintenance Date	Comments	Waste Volumes Removed (if appropriate)



IMPORTANT TO TRANSFER ANY COVER LOADS THROUGH TO BACKFILL i.e. CONCRETE TO BE FREE OF ANY VOIDS UNDER G.R.P. TOP FLANGE.



SURROUNDING FLOOR SLAB SHOULD HAVE AN ADEQUATE FALL TO ALLOW WASTE WATER TO RUN INTO SILT TRAP

110 (4") UPVC. OUTLET PIPE

CONCRETE BACKFILL BY CLIENT TO SUIT SITE CONDITIONS

CONCRETE BASE SLAB CAST BY CLIENT TO SUIT SITE CONDITIONS.

NOTES: -

- 1.) GALVANISED MESH COVERS.
DESIGNED TO FACTA 'B' LOADING - 5 TONNE SMWL.
- 2.) VOLUMES.
TOTAL VOLUME = 1150 Litres.
- 3.) TOTAL UNIT WEIGHT = 240kgs (EMPTY).

3	02.06.10	T.K.	CC856
2	30.10.09	P.T.C	CC774
1	10.12.08	JC	INITIAL ISSUE
ISSUE	DATE	DRAWN	MODIFICATION
This drawing is copyright and may not be reproduced or used without the written permission of Kingspan. KINGSPAN RESERVE THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE			
			THIRD ANGLE PROJECTION

ALL DIMENSIONS ARE IN MILLIMETRES - DO NOT SCALE



TITLE
CAR WASH
SILT TRAP
CST1H (c/w COVER)
CUSTOMER DRAWING

SCALE 1:10 D.O. REF. A2

DRAWING No. DS0714P ISSUE 3

012848
INSTALLATION GUIDELINES FOR
CAR WASH SILT TRAPS



Kingspan Environmental Service Contact Numbers:

GB: 0844 846 0500

NI: 028 3025 4077

IRL: 048 3025 4077

Enclosed Document

DS0714P	Car Wash Silt Trap Sales Drawing
----------------	---

Issue	Description	Date
02	CC1089	September 2012

HEALTH & SAFETY

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Installation should only be carried out by a suitably experienced contractor, following these guidelines.

We recommend the use of a dust mask and gloves when cutting GRP components.

Electrical work should be carried out by a qualified electrician.

Contaminated surface water can contain substances harmful to human health. Any person carrying out maintenance on the equipment should wear suitable protective clothing, including gloves. Good hygiene practice should also be observed.

When covers are removed precautions must be taken against personnel falling into the unit.

Should you wish to inspect the operation of the equipment, please observe all necessary precautions, including those listed below, which apply to maintenance procedures.

Ensure that you are familiar with the safe working areas and accesses. Ensure that the working area is adequately lit.

Take care to maintain correct posture, particularly when lifting. Use appropriate lifting equipment when necessary. Keep proper footing and balance at all times. Avoid any sharp edges.

Introduction

Our Silt Traps are manufactured in Glass Fibre Reinforced Polyester (GRP). The finished products are light in weight, easy to transport and install. GRP is extremely robust, but can be susceptible to damage by sharp objects and from point loads. Care should be taken to avoid contact with sharp objects and point loads and the unit should be uniformly supported during transportation and installation.

Because of their light weight and large volume, there is a risk of buoyancy and movement during installation. The unit should be carefully strutted in position and ballasted with water in order to minimise these risks. On sites where the excavation is likely to be water logged the excavation must be kept free of water using suitable pumping equipment.

We will accept no liability for damage incurred through failure to comply with this procedure.

This document should be used in conjunction with the latest issue of the relevant General Arrangement drawing, along with the concrete specification.

WARNING

The unit is designed to take light vehicular loads, such as passenger cars. Under no circumstances should the load exceed that stated on the General Arrangement Drawing.

Installation Procedure

CHECK: Drain invert depth and orientation of unit. Relevant drawing and the concrete specification are supplied with this document.

INSPECT: Silt Trap for damage before installation.

DO NOT: Subject Silt Trap to impact, contact with sharp edges or use metal chains, when lifting the unit.

1. The installation of any particular unit should be carried out in accordance with details shown on the relevant and current issue of the drawing. In particular, note the outlet pipe position and levels relevant to ground level, the depth and size of the excavation.
2. Set out the excavation to size, in the correct position relevant to existing pipe positions. Allowance must be made for timbering or trench sheeting.
3. Excavate the hole to the correct size and depth. For wet installations it will be necessary to dewater the excavation using suitable pumping equipment.
4. Lay a concrete base (sulphate resisting, if required) of suitable thickness to suit site conditions in accordance with the concrete specification below and level to the correct depth below drain invert. Reinforcement may be required for installations where a high water table is present.
5. Allow the concrete base to set.
6. Using webbing slings of suitable strength, lift the unit and lower onto the base. Wedge the unit in position with timber wedges under the unit, set to the correct level and alignment of pipes. The level should be checked across the width and along the length of the unit. Strut firmly with suitable timbers.
7. Begin to ballast the unit with water, in stages, to invert level and backfill with concrete to a minimum thickness of 150mm. Pour concrete, keeping the level of water ballasting 300mm ahead of backfill until full.
8. Connect pipe work before backfilling up to final level as shown on relevant drawing. Ensure that the concrete is free of voids under the GRP top flange as it is important that any loads exerted on the mesh covers are transferred to the concrete and not the GRP. Ensure that the hinges are kept free of concrete to enable cover to be lifted and replaced.
9. Carefully remove trench sheeting and strutting before the concrete fully sets and prevents their removal, ensuring that the unit's position is not moved during this operation.
10. Leave unit full of water on completion of installation. For wet installations dewatering should continue until the unit is full of water or the concrete has set.
11. In the event of any problems please contact us.

GENERAL CONCRETE SPECIFICATION IN ACCORDANCE WITH BS EN 206-1 (BS 8500-1)		
TYPE OF MIX		(DC) DESIGN
PERMITTED TYPE OF CEMENT		BS 12 (OPC): BS 12 (RHPC): BS 4027 (SRPC)
PERMITTED TYPE OF AGGREGATE (coarse & fine)		BS 882
NOMINAL MAXIMUM SIZE OF AGGREGATE		20 mm
GRADES: C25 /30 C25 /30 C16 /20		REINFORCED & ABOVE GROUND WITH HOLDING DOWN BOLTS REINFORCED (EG. FOR HIGH WATER TABLE) UNREINFORCED (NORMAL CONDITIONS)
MINIMUM CEMENT CONTENT	C30 C20	270 - 280 Kg/M ³ 220 - 230 Kg/M ³
SLUMP CLASS		S1 (25mm)
RATE OF SAMPLING		READY MIX CONCRETE SHOULD BE SUPPLIED COMPLETE WITH APPROPRIATE DELIVERY TICKET IN ACCORDANCE WITH BS EN 12350-1
NOTE: STANDARD MIXES SHOULD NOT BE USED WHERE SULPHATES OR OTHER AGGRESSIVE CHEMICALS EXIST IN GROUND WATER		