

Edgefold Homes

Drainage Strategy Report

**Site located at
Springside Road
Walmersley
Bury**

9 October 2025

(Revision D)

JSD/J292

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J292/101D – ‘Stormwater Drainage Appraisal’
J292/102D – ‘Stormwater Drainage Scheme Areas’
J292/103F – ‘Drainage General Arrangement Plan’
J292/106A – ‘Typical Drainage Details’
J292/107C - ‘Overland Flood Flow Routing Plan’
J292/117B – ‘S104 - Control Manhole Details’

SCHEDULE OF REVISIONS

<u>Revision</u>	<u>Date</u>	<u>Description</u>
A	30/10/2025	Layout plan updated (water butts added).
B	20/02/2026	Layout plan updated (road and plot location adjusted).
C	29/05/2026	Layout plan updated (road and plot location adjusted).
D	21/07/2026	Layout plan updated (road and plot location adjusted).



1.0 Purpose of Report

- 1.1** Edgefold Homes are considering redeveloping the above site with 12 No. residential properties. The former pasture field, now only partly maintained, does not contain any formal drainage. An undrained tarmaced accessway, which is to be maintained as part of the development crosses the site.
- 1.2** The site is therefore considered ‘undeveloped’ i.e. Greenfield, from a drainage point of view.
- 1.3** The development has obtained outline planning approval (68815) dated 3 August 2023. A Drainage Strategy Report, by Hamilton Technical Services, was included in the submitted documents. The planning approval includes Condition 6 :-

6 Notwithstanding the submitted Drainage Strategy, as part of a reserved matters application, surface water drainage proposals shall be submitted to and approved in writing by the Local Planning Authority. The scheme should be in accordance with the a Surface Water Sustainable Drainage Assessment and must be based on the hierarchy of drainage options in the National Planning Practice Guidance and be designed in accordance with the Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015). This must include assessment of potential SuDS options for surface water drainage with appropriate calculations and test results to support the chosen solution. Details of proposed maintenance arrangements should also be provided. The approved scheme only shall be implemented prior to first occupation and thereafter maintained.

Reason. To promote sustainable development and reduce flood risk pursuant to Unitary Development Plan Policies EN5/1- New Development and Flood Risk , EN7/3 - Water Pollution and EN7/5 - Waste Water Management and chapter 14 - Meeting the challenge of climate change, flooding and coastal change of the NPPF.

- 1.4** Figure 1 shows the site being located in Flood Zone 1 [low probability], a residential development [more vulnerable] of less than 1ha, is considered appropriate under the sequential test and would not require a site specific Flood Risk Assessment (FRA).

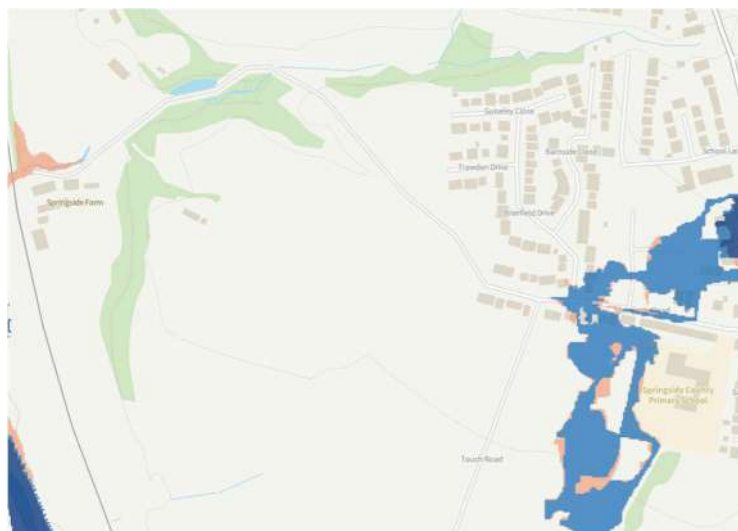


Figure 1 – Flood Zone Map

- 1.5** The drainage design should consider flood risk on site, ensure no increase in flood risk off-site due to the development and prepare the drainage strategy in accordance with the drainage hierarchy.

2.0 Site Location Details

- 2.1** The developable site, excluding the alterations to the end of the existing highway, of 0.526 Hectares (5,260sq.m), comprises the existing tarmacked accessway with fields either side.
- 2.2** The site is located to the West of Springside Road, Walmersley, Bury, BL9 5JQ. Site co-ordinates are 380186E, 413604N.
- 2.3** A Topographic survey of the site is in Appendix A.
- 2.4** Manor Architecture's Proposed Site Plan is also included in Appendix A.
- 2.5** Pluvial flood risk on and around the site is identified on Figure 2 and can be seen that only 'low risk' i.e. 1 in 1000 annual likelihood of flooding risk is noted on site, associated with the low area to the Northeast boundary to the site.



Figure 2 – Pluvial Flood Risk

- 2.6** No other significant sources of flood risk have been identified which could adversely affect the site.

3.0 Scheme Development – Surface Water Drainage Design

3.1 Drainage Strategy

- 3.1.1** The drainage scheme for the proposed residential development is to be carried out in accordance with the drainage hierarchy approach in Building Regulations 2000 Approved Document H – 'Drainage & Waste Disposal, Section H3 – Rainwater

Drainage', DEFRA Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) and where possible aspects of DEFRA National standards for sustainable drainage systems (July 2025) i.e. re-use (as appropriate), infiltration, waterbody, surface water sewer, combined sewer.

3.2 Non-potable Water Use

- 3.2.1 The site, served by United Utilities, is not located within a seriously water stressed area, with no need for landscape irrigation and being individual private houses (no landlord or communal building owner) no demand for efficient water savings beyond Building Regulation requirements. However, water butts will be installed to each property giving the householders a suitable water re-use benefit, which is also accepted by United Utilities as a positive water saving action.

3.3 Use of Soakaways/Infiltration

- 3.3.1 With reference to the Drainage Strategy Report, by Hamilton Technical Services, within the Outline Planning Application, it has been confirmed that infiltration is not suitable for disposal of surface water. Whilst infiltration is not considered appropriate for the site, permeable paving is to be provided, as a source control benefit i.e. minimizing run-off during lighter rainfall events. The drainage system is however to be designed assuming zero infiltration from hardstandings. The permeable driveways account for 20% of the total site drained area.

3.4 Drain to Waterbody

- 3.4.1 A natural 'valley' is present off-site to the West which serves the site and surrounding area drainage run-off, which flows to the Walmersley brook to the Northwest. Whilst the 'valley' is dry at the point of proposed outfall, there is an existing land drain discharging nearby (which appears to serve a gully to the accessway. The 'valley' is therefore considered to be an Ordinary Watercourse which discharges to River Irwell (Main River). Agreement from the third-party landowner allows for new adoptable drainage to cross the off-site field to discharge to the Ordinary Watercourse, in accordance with the previous Drainage Strategy Report.
- 3.4.2 The United Utilities sewer records (refer to Appendix C) indicate a private drain crossing the site. The previous landowner, as part of the Outline Planning Application undertook site investigation trenching in the area of the drain and did not locate the drain. Edgefold Homes have also carried out similar site investigations and also have not located the drain. With reference to the sewer records, topographic survey and historic plans within the Phase 1 Desktop Study (refer to Outline Planning Application), no evidence of any such drain has been identified and there is no logical reason why such a drain would exist (it is shown not serving any purpose and flowing away from the nearby watercourse). As such the drain shown on the sewer records (private so United Utilities have no responsibility for it) is considered to be a historic mistake on the records, most probably occurring when paper records were updated to digital. Notwithstanding the above, the Contractor should take all reasonable precautions when carrying out the below ground construction on site. Refer to Appendix B for photographs of the original and subsequent trench investigations.
-

3.5 Surface Water Design Philosophy

3.5.1 Due to the previous Outline Planning agreed scheme together with the lack of any significant areas of open space, surface storage structures i.e. ponds are not considered appropriate storage, with below ground pipe storage the most suitable and adoptable (under Section 104) storage solution. Such a solution is also in accordance with the previous Drainage Strategy Report forming part of the Outline Planning application and approval.

3.5.2 A formal drainage easement across the third-party land will be required which is agreeable to the landowner.

3.5.3 Run-off Generated by the Development

As noted above, the site is essentially Greenfield, from a drainage point of view. Appendix E includes drawings J292/101D and 102D which confirms the site area of 5,475 sq.m, however the planning 'red line' also includes alteration works to the site entrance, meaning the actual developable area is reduced to 5,260sq.m (0.526ha). The proposed roof, drive and road drained areas of 1,025sq.m, 527sq.m and 1,059sq.m respectively, giving a total drained area of 2,611sq.m. Note that these areas are to be increased by an Urban Creep allowance, see below.

With reference to the previous Drainage Strategy Report the full site area is stated as 4,472sq.m, which the greenfield run-off rates are based on, whereas the actual developable site area is 5,260sq.m.

Appendix D includes the corrected Greenfield rates (MicroDrainage calculations) which confirm $Q_{\text{Bar}} = 4.3\text{l/s}$, $Q_1 = 3.8\text{l/s}$, $Q_2 = 4.0\text{l/s}$, $Q_{30} = 7.4\text{l/s}$ & $Q_{100} = 9.0\text{l/s}$. United Utilities require an adoptable drainage system to have an adequate self-cleansing flow and the risk of blockages in the system minimized. As such, their requirement of a minimum control orifice of 100mm (98mm actually used here which has been previously accepted by United Utilities), which generally results in a peak flow of circa 5.0l/s.

A detailed site specific drainage design has been carried out, with all drained areas increased by 10% to allow for any future urban creep resulting in the total design drained area to be 2,873sq.m. The proposed scheme design is also to be subject to 45% climate change allowance (DEFRA Irwell Management Catchment) and all storms up to and including the 100 year event be considered. Appendix D also includes a drainage schematic and detailed Site3D calculations (utilising site specific FEH2022 rainfall data) for the drainage scheme.

With reference to the drainage calculations within Appendix D it can be seen that for the 100 year event with an allowance of 45% for climate change and a total drained area of 2,873sq.m the peak flow is limited to 5.4l/s (utilising an adoptable Hydrobrake with 98mm orifice) and all water stored within the drainage system i.e. no flooding. The full analysis results are $Q_1 = 4.9\text{l/s}$, $Q_2 = 4.9\text{l/s}$, $Q_{30} = 5.1\text{l/s}$ & $Q_{100} = 5.4\text{l/s}$, demonstrating a significant reduction in peak flow for the more critical Q_{30} and Q_{100} storm events compared to the existing Greenfield rates.

The maximum water level within the storage part of the drainage system is 120.763m (for 100 year plus 45% c.c.) which is below the lowest drained point within the drainage system of 121.000m (Manhole S3 cover level) confirming that all storm water is contained within the drainage system. United Utilities require a 1.0m surcharge to the outfall pipe to be checked that no flooding occurs for the 15, 30 & 60min storms for the 30 year + climate change events, which has been carried out and confirmed.

Drawing J292/103F in Appendix E confirms the detailed drainage design layout.

The new outfall is therefore to be limited to 5.4l/s for the 100 year event, with a 45% climate change.

Whilst permeable paving is discounted as a 'formal' infiltration solution due to the underlying clay ground, permeable paving will be provided to private domestic driveways, which will under lighter rainfall prevent/minimize surface water flows and therefore volume entering the sewer network.

3.5.4 Assessment of Exceedance Flows

Exceedance flows have been assessed on drawing J292/107C and the houses are to be typically set 150mm (minimum) above adjacent ground level.

4.0 Foul Drainage Design

4.1 Foul drainage is also detailed on drawing J292/103F, utilising a pumped solution due to the shallow depth of the existing combined sewer in Springside Road and will comply with Building Regulations. The proposed pump would have an operation flow of 5.9l/s, however this would only occur when the wet well is being emptied.

4.2 An appropriate S106 agreement will be required with United Utilities for the new proposed separate foul connection to the public sewer in Springside Road.

5.0 Maintenance

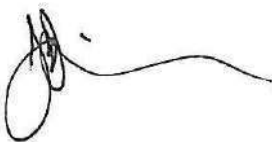
5.1 The main surface water drainage system is to be adopted by United Utilities, which noting the size of the development is considered appropriate. The adopted drainage infrastructure, pipe storage, silt traps and Hydrobrake would be maintained by United Utilities and individual householders would be responsible for their own localised drainage.

5.2 The site drainage is to comply with Building Regulations and would therefore be self-cleansing and fully accessible. Therefore, the proposed drainage system provides a robust design which can be easily maintained.

6.0 Conclusions and Recommendations

6.1 This drainage design is proposed to satisfy the requirements of the Outline Planning Application i.e. Condition 6. All relevant drainage and where appropriate, flood risk considerations have been addressed.

-
- 6.2 Exceedance flows have been catered for by ensuring a positive fall away from the properties which are to be set 150mm above external ground level. The overland flow routes are to be maintained and mimic the existing flow routes thereby not increasing any off-site flood risk by the development works. As also noted above, betterment to critical Greenfield flow rates are also being provided by the drainage scheme, thus improving off-site flood risk.
- 6.3 Previous specific site investigation percolation testing confirms infiltration to be inadequate, resulting in a storage and attenuation drainage system to an existing watercourse within reasonable vicinity of the site. Proposed drained areas have been increased by 10% to allow for urban creep and to achieve adequate self-cleansing, the peak flow rate is to be limited to 5.4l/s (due to United Utilities adoptable control orifice requirements) with all water stored within the drainage system on site for up to the 100 year event with a 45% climate change allowance. Adoptable oversized pipe and a Hydrobrake control are to be used in the scheme as per the original Drainage Strategy.
- 6.4 Foul drainage is to be separate and discharge to the nearby combined water sewer in Springside Road utilising a private pump/rising main.
- 6.5 All drainage and where appropriate, flood risk concerns associated with on and off-site sources have been addressed and demonstrate a sustainable, maintained and safe development.
- 6.6 This report is confined to the matters mentioned in Section 1 and no opinion is expressed or implied on matters not specifically mentioned.

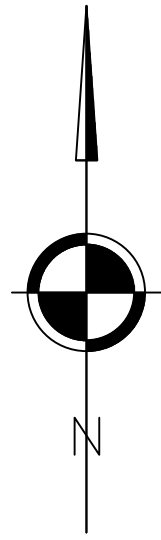
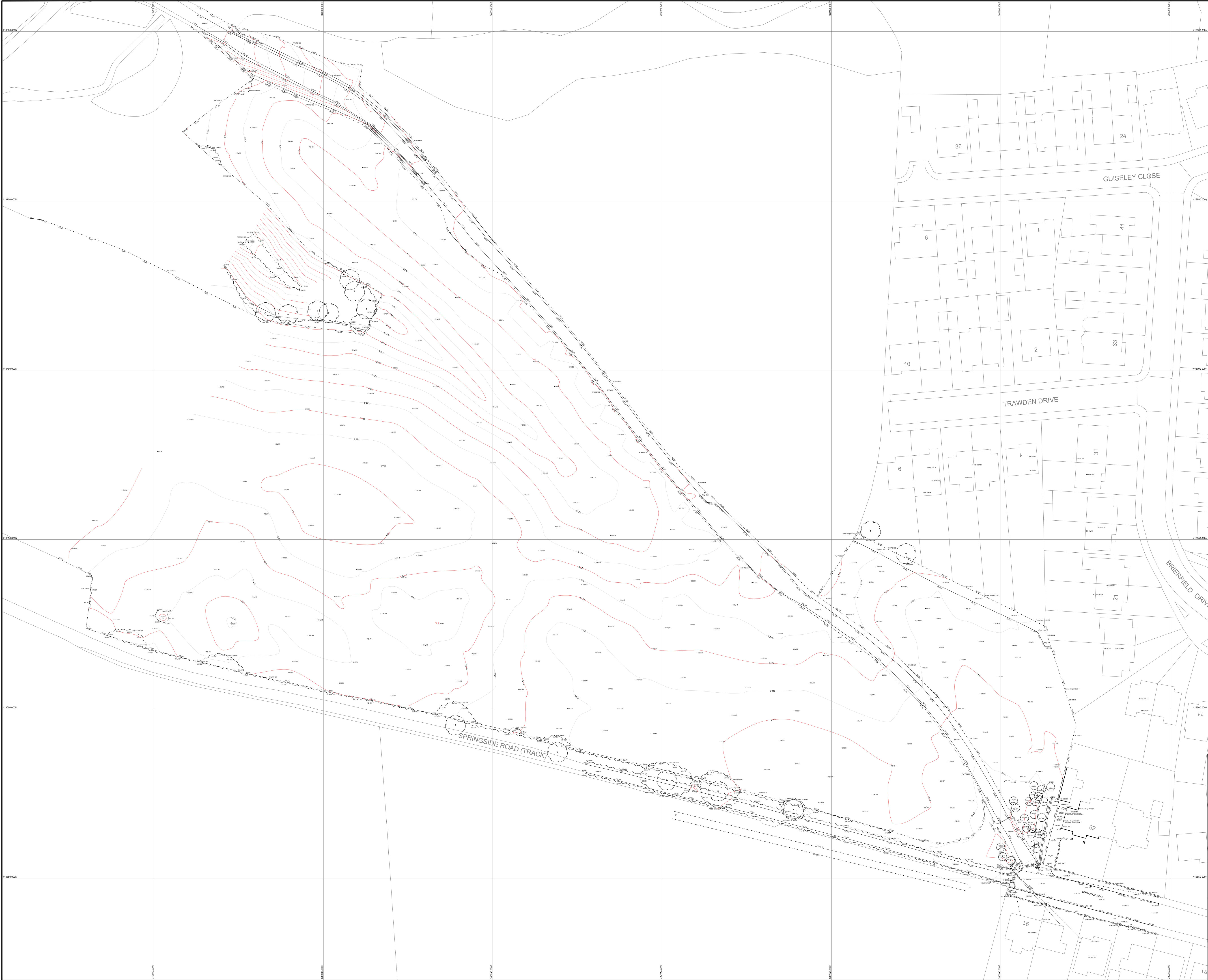


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B.Eng., C.Eng., M.I.Struct.E.
On behalf of D and D Consulting Engineers Ltd

APPENDICES

- Appendix A: Topo Survey & Proposed Site
- Appendix B: Drainage Investigations
- Appendix C: United Utilities Sewer Records
- Appendix D: Drainage Design Calculations
- Appendix E: Drainage Drawings

Appendix A
Topo Survey & Proposed Site



Topographical Survey Legend	
Bin	Litter bin
BH	Bore Hole
Bol	Bollard
BS	Bus stop
BT	British telecom ic
OPS	Concrete paving slabs
Dec	Electrical ic
DR	Drain
ER	Earth rod
EP	Elec. pole
ER	Fence erection
FH	Fire Hydrant
FT	Flagpole
FT	Floodlight
G	Gully
GP	Gate post
GV	Gas valve
IC	Inspection cover
JB	Junction box
KO	Kerb outlet
LB	Letter box
LP	Lamp post
Mir	Mirror
MP	Mile post
MW	Monitoring Well
NP	Name plate
PM	Planning meter
RE	Rodding eye
RS	Road sign
rwp	Rain water pipe
SP	Sign post
ST	Stop tap
SV	Stop valve
SB	Service box
TCB	Telephone call box
TH	Trial Hole
TL	Tie line
TP	Telegraph pole
TPS	Tactile paving slabs
TS	Traffic signal light
TV	Television cover
VP	Vent pipe
WM	Water meter
WO	Wash Out
UTL	Unable to lift
B/W	Barbed wire
C/B	Closed boarded
C/I	Corrugated iron
C/L	Chain link
C/P	Concrete panel
H/R	Hand rail
I/R	Iron railings
O/B	Open boarded
P/C	Post & chain
P/R	Post & rail
P/W	Post & wire
W/M	Wire mesh
Level	Level profile descriptions
AL	Arch level
BL	Bed level
CL	Cover level
EH	Eaves level
FL	Floor level
IL	Invert level
PL	Parapet level
RH	Roofridge level
SL	Soffit level
Spr	Arch springing level
Top	Top of spectaclevent
WH	Wall height
WL	Water level

BENCH MARK INFORMATION
All levels relate to O.S (Newlyn) Datum, Established using network RTK. Survey plotted on a plane local grid, orientated to National Grid.

NOTES
ONLY MANHOLES AND SERVICES VISIBLE AT TIME OF SURVEY SHOWN
DRAINAGE INFORMATION MUST BE CHECKED AND VERIFIED WITH LOCAL AUTHORITY RECORDS PRIOR TO WORK COMMENCING
Levels defining edge of carriageway are observed at channel (bottom of kerb). Unless otherwise stated.
TREE SPREADS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE THE AVERAGE SPREAD.
THE DRIP LINE LAYER DENOTES THE TREES EXTREMITY

SURVEY STATIONS			
stn1	380210.781	413553.539	124.346
stn2	380279.042	413534.035	124.188

REVISIONS

REV	DESCRIPTION	SURVEYED	DRAWN	DATE

JLP Surveying

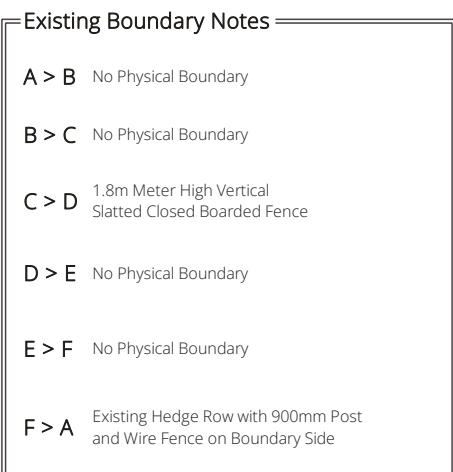
JLP Surveying Consultants Ltd,
Suite 45 Rodhey House,
King Street,
Wigan
WN1 1BT
Tel - 01942 243313
Fax - 01942 492230
Mobile - 07710 429498
EMAIL:- petechouston@jlp surveys.com

PROJECT
Springside Road
Warrersley

DRAWING TITLE
Topographical Land Survey

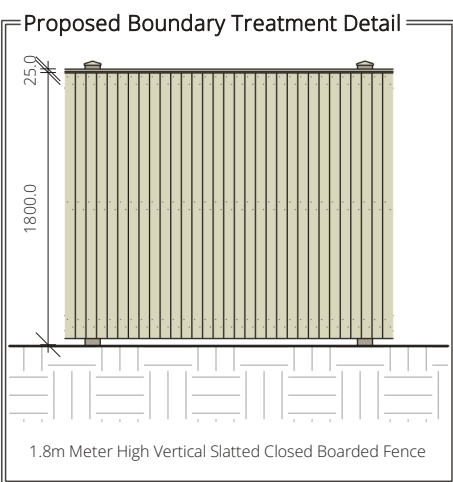
SCALE	SHEET SIZE	No. of SHEETS	DATE	REVISION
1 : 500	A1	1	23.04.2025	

DRAWING NUMBER
S25-0352

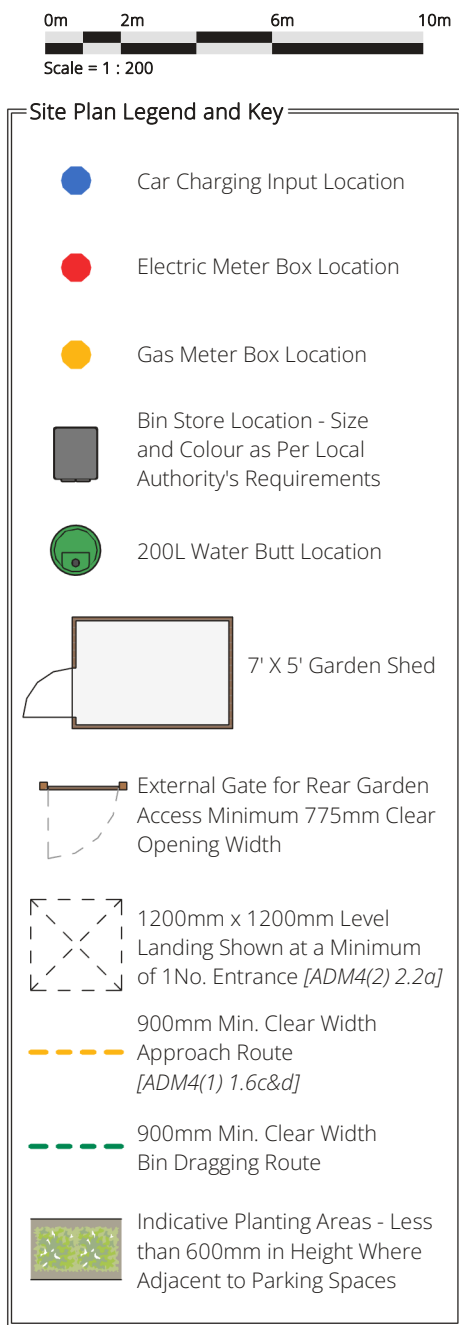


Proposed Boundary Notes

A > B	No Physical Boundary - As Existing
B > C	No Physical Boundary - As Existing
C > D	1.8m Meter High Vertical Slatted Closed Boundary Fence - to be Retained
D > E	Newly Proposed 1.8m Meter High Vertical Slatted Closed Boundary Fence to Tie into and Match Existing
E > F	No Physical Boundary - As Existing
F > A	Existing Hedge Row to be Retained with 3000mm Post and Wire Fence to be Removed and Replaced with 1.8m Meter High Vertical Slatted Closed Boundary Fence



Acomodation Schedule							
House Type	Building Type	Bedrooms	GIFA m²	GIFA ft²	Count	Total GIFA m²	Total GIFA ft²
Kenyon (Bay)	Detatched	4	127.37	1371.00	1	127.37	1371.00
Lancaster	Detatched	5	173.75	1870.23	2	347.50	3740.46
LancasterTwo	Detatched	5	191.44	2060.64	1	191.44	2060.64
Lightshaw	Detatched	3	109.07	1174.02	5	545.35	5870.09
Marley	Detatched	4	132.55	1426.75	1	132.55	1426.75
Rivinton	Detatched	3	105.12	1131.50	2	210.24	2263.00
					12	1554.45	16731.94



N	1707/2026	Minor Update Following Information from Engineer
P	2406/26	Footpath to Back of Pits 1-4 updated to Show Width & 6.2 Spring Road Paving Resurfaced
C	2206/26	Final and Altered, Pits 5 Parking Rearranged
N	14/05/2026	Pit 4 Redesignated
M	06/05/2026	General Site Rearrangement, Pit 5 Slips and House Type Change
N	20/03/2026	Access Road Updated to Match Approved Access Plan and Pits 5 Paved Out for Smaller Units
K	09/03/2026	Final and Altered, Pits 5 Parking Rearranged Updated
J	20/02/2026	Minor Update to Pit 5 Slips
I	12/02/2026	Landscape Update to Front of Pits
H	11/02/2026	Minor Amendments
G	29/01/2026	Final and Altered, Pit 5 Updated, Turning Head Widened to 6.75m
F	19/01/2026	Final and Altered, Pit 5 Updated, Turning Head Widened to 6.75m Throughout Site
E	18/01/2026	Final and Altered, Pit 5 Updated, Turning Head Widened to 6.75m
D	24/09/2025	Various Changes Following Client Design Review Update to M40 Standards
C	28/08/2025	Road 5 Final Connection to House Locations Approved
B	27/08/2025	Minor Amendments
A	22/08/2025	Final Issue

DRAWING NUMBER	J1192-WS-PL102 Q			ISSUE
DRAWING TITLE	Proposed Site Plan			
PROJECT	Springside Road, Walmersley			
CLIENT	Edgefold Homes Ltd.			
JOB NUMBER	DATE	SCALE	SIZE	
J1192	Aug 25	1 : 200	A1	
INFORMATION				



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 **CIAT**
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All Setting Out, Dimensions And Levels Should Only Be Taken From The Figured Dimensions. Values Stated On The Drawing. No Attempt Should Be Made To Scale From The Drawing Manually. Always Ask If You Require More Information.

Any Variation Between Drawings And Site Conditions Are To Be Reported To Manor Architecture Ltd. Immediately. All Contractors Must Visit The Site And Are Solely Responsible For Taking And Checking All Dimensions Relative To The Work They Are Required To Carry Out.

This Drawing Must Not Be Used On Site Unless Issued For Construction.

Appendix B
Drainage Investigations

Trench Investigations to Locate Drain Indicated on Sewer Plan

Landowners Investigations (Outline Planning Application)

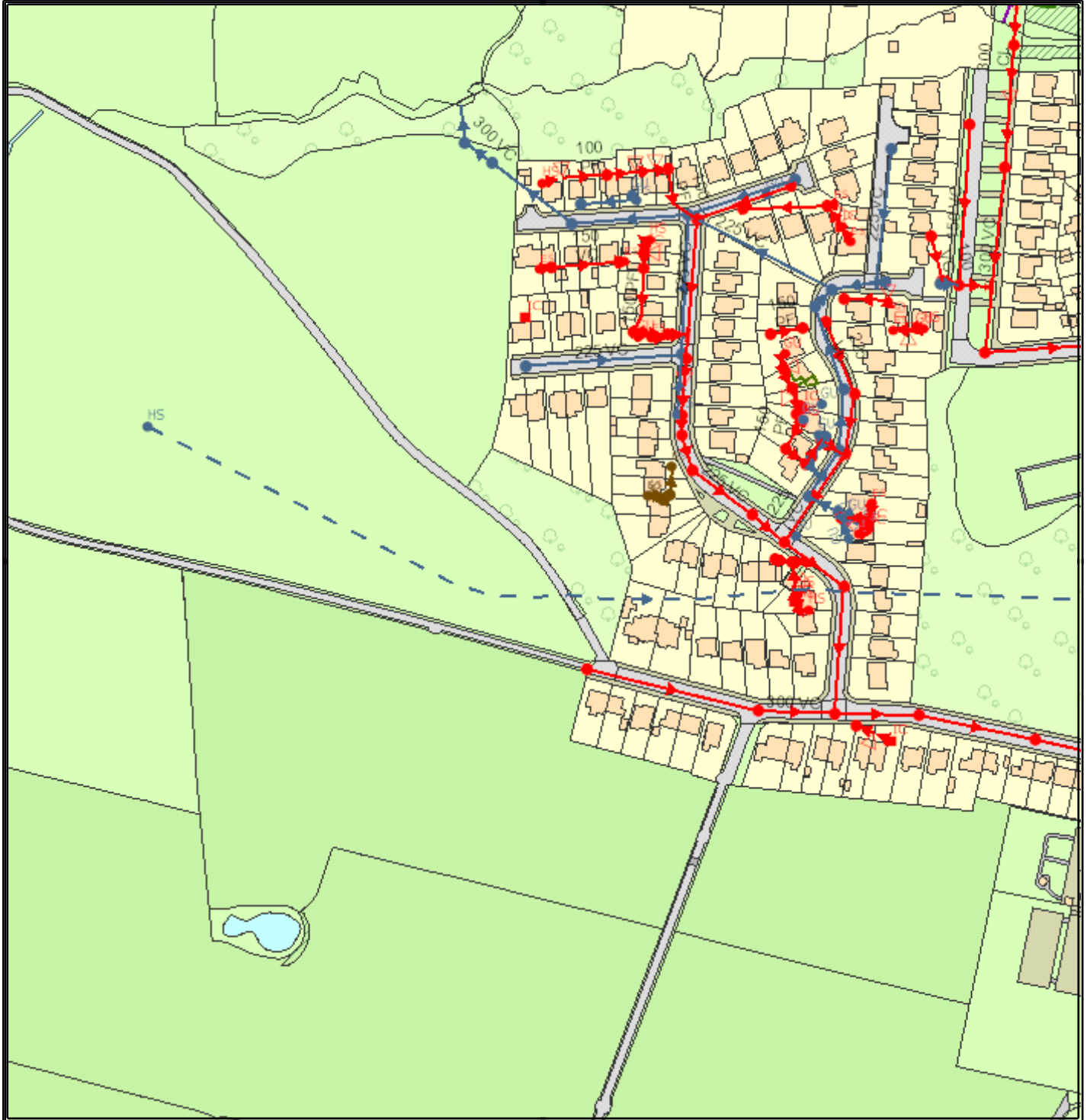


Edgefold Investigations (Reserved Matters Planning Application)





Appendix C
United Utilities Sewer Records

SEWER RECORD LAND AT SPRINGSIDE ROAD WALMERSLEY BURY BL9 5JA


The position of underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private pipes, sewers or drains may not be recorded. United Utilities Water Limited will not accept any liability for any damage caused by the actual positions being different from those shown.

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Appendix D

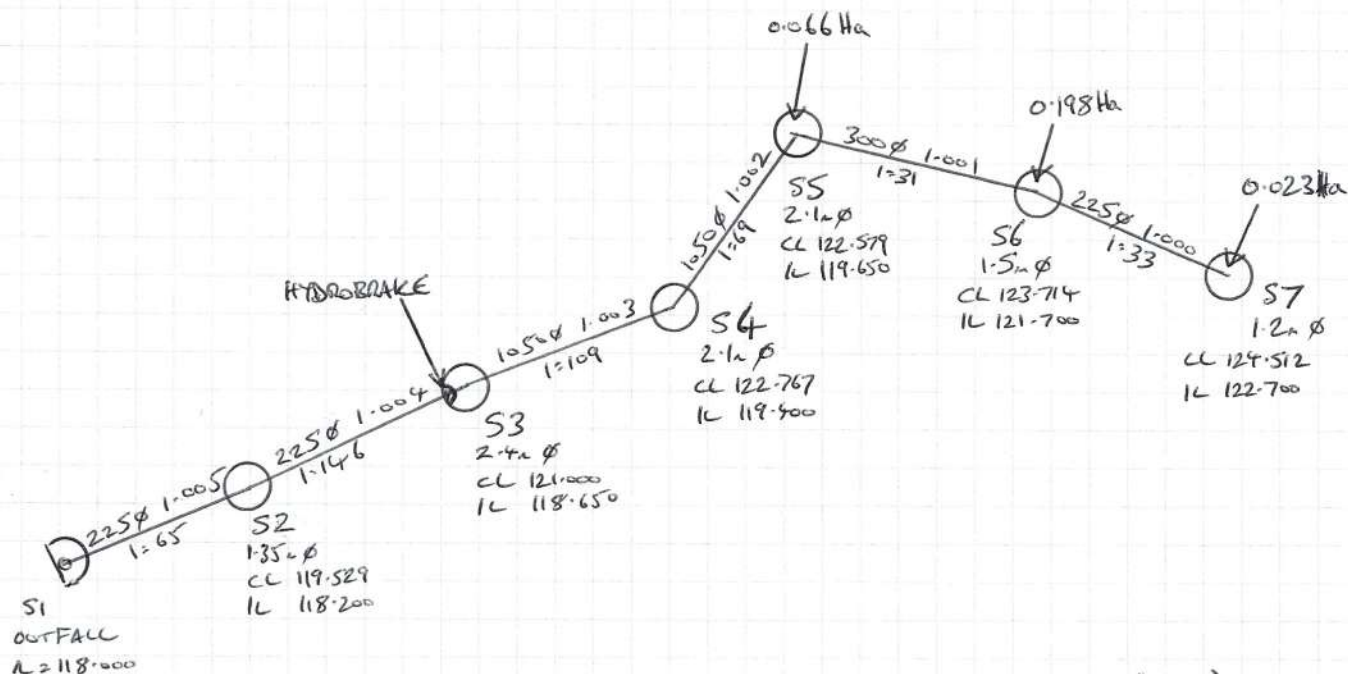
Drainage Design Calculations

D and D Consulting Engineers Ltd		Page 1
Labyrinth Business Centre 45 Middle Hillgate Stockport SK1 3DG		
Date 09/10/2025 09:46 File	Designed by jsd Checked by	
Micro Drainage		Source Control 2020.1
<u>ICP SUDS Mean Annual Flood</u> Input Return Period (years) 2 Soil 0.450 Area (ha) 0.526 Urban 0.000 SAAR (mm) 1200 Region Number Region 10 Results 1/s QBAR Rural 4.3 QBAR Urban 4.3 Q2 years 4.0 Q1 year 3.8 Q30 years 7.4 Q100 years 9.0		
©1982-2020 Innovyze		

Job Title

SPRINGSIDE ROAD, WALMERSLEY

SURFACE WATER DRAINAGE SCHEMATIC



(N.T.S)

DRAINED AREAS

$S7 \approx 0.023$

$S6 \approx 0.198$

$S5 \approx 0.066$

TOTAL ≈ 0.286 Ha

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S7	0.023	1200	Type B	124.512	122.700	1.587	380203.921	413563.884
S6	0.198	1500	Type B	123.714	121.700	1.714	380189.858	413591.455
S5	0.066	2100	Type B	122.579	119.650	1.879	380161.724	413619.960
S4	0.000	2100	Type B	122.767	119.400	2.317	380144.401	413619.074
S3	0.000	2400	Type B	121.000	118.650	2.125	380084.895	413675.583
S2	0.000	1350	Type C	119.529	118.200	1.104	380032.014	413714.824
S1	0.000	225	Unknown	118.250	118.000	0.025	380018.928	413715.344

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S7	122.700	S6	121.775	Circ	225	30.950	33	0.600	1.587	1.714
1.001	S6	121.700	S5	120.400	Circ	300	40.050	31	0.600	1.714	1.879
1.002	S5	119.650	S4	119.400	Circ	1050	17.346	69	0.600	1.879	2.317
1.003	S4	119.400	S3	118.650	Circ	1050	82.062	109	0.600	2.317	1.300
1.004	S3	118.650	S2	118.200	Circ	225	65.851	146	0.600	2.125	1.104
1.005	S2	118.200	S1	118.000	Circ	225	13.096	65	0.600	1.104	0.025

Outfall Details

Outfall Manhole S1 : Free Discharge

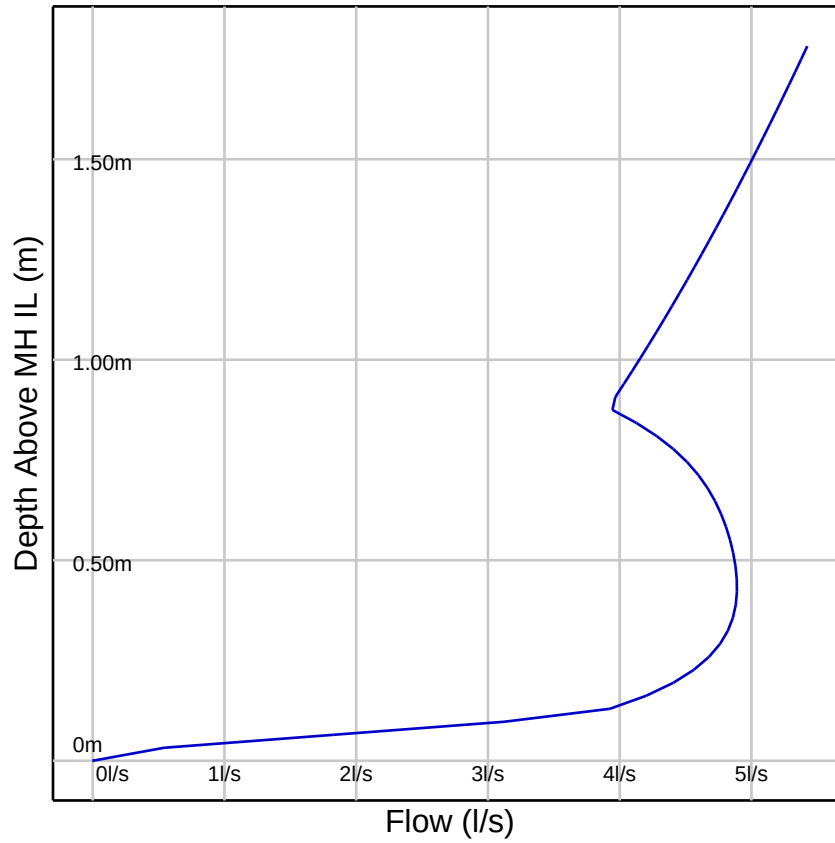
Flow Control Details

Controls within Manhole S3

Hydro-Brake® Optimum Control

Model Ref	Design Depth (m)	Design Flow (l/s)	Invert Offset (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
SHE-0098-5000-1500-5000	1.500	5.000	0.000	0.432	4.890	0.879	3.910

Hydro-Brake® Optimum Control from S3 to S2



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_380186_413613_v5_1_0.xml

Summer (Cv: 0.75), Winter (Cv: 0.84)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (1, +45%), (2, +45%), (30, +45%), (100, +45%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
1Yr+45% 15Min Winter	20.162	0.00	0.00	30Yr+45% 15Min Summer	98.368	0.00	0.00
1Yr+45% 15Min Summer	20.162	0.00	0.00	30Yr+45% 15Min Winter	98.368	0.00	0.00
1Yr+45% 30Min Winter	13.346	0.00	0.00	30Yr+45% 30Min Summer	67.732	0.00	0.00
1Yr+45% 30Min Summer	13.346	0.00	0.00	30Yr+45% 30Min Winter	67.732	0.00	0.00
1Yr+45% 60Min Winter	8.890	0.00	0.00	30Yr+45% 60Min Summer	44.891	0.00	0.00
1Yr+45% 60Min Summer	8.890	0.00	0.00	30Yr+45% 60Min Winter	44.891	0.00	0.00
1Yr+45% 120Min Summer	7.156	0.00	0.00	30Yr+45% 120Min Summer	27.021	0.00	0.00
1Yr+45% 120Min Winter	7.156	0.00	0.00	30Yr+45% 120Min Winter	27.021	0.00	0.00
1Yr+45% 180Min Winter	6.149	0.00	0.00	30Yr+45% 180Min Summer	19.906	0.00	0.00
1Yr+45% 180Min Summer	6.149	0.00	0.00	30Yr+45% 180Min Winter	19.906	0.00	0.00
1Yr+45% 240Min Winter	5.260	0.00	0.00	30Yr+45% 240Min Summer	16.227	0.00	0.00
1Yr+45% 240Min Summer	5.260	0.00	0.00	30Yr+45% 240Min Winter	16.227	0.00	0.00
1Yr+45% 360Min Summer	4.276	0.00	0.00	30Yr+45% 360Min Summer	12.029	0.00	0.00
1Yr+45% 360Min Winter	4.276	0.00	0.00	30Yr+45% 360Min Winter	12.029	0.00	0.00
1Yr+45% 480Min Winter	3.672	0.00	0.00	30Yr+45% 480Min Summer	9.719	0.00	0.00
1Yr+45% 480Min Summer	3.672	0.00	0.00	30Yr+45% 480Min Winter	9.719	0.00	0.00
1Yr+45% 600Min Winter	3.224	0.00	0.00	30Yr+45% 600Min Summer	8.256	0.00	0.00
1Yr+45% 600Min Summer	3.224	0.00	0.00	30Yr+45% 600Min Winter	8.256	0.00	0.00
1Yr+45% 720Min Winter	2.882	0.00	0.00	30Yr+45% 720Min Summer	7.231	0.00	0.00
1Yr+45% 720Min Summer	2.882	0.00	0.00	30Yr+45% 720Min Winter	7.231	0.00	0.00
1Yr+45% 960Min Summer	2.417	0.00	0.00	30Yr+45% 960Min Summer	5.869	0.00	0.00
1Yr+45% 960Min Winter	2.417	0.00	0.00	30Yr+45% 960Min Winter	5.869	0.00	0.00
1Yr+45% 1440Min Summer	1.883	0.00	0.00	30Yr+45% 1440Min Summer	4.396	0.00	0.00
1Yr+45% 1440Min Winter	1.883	0.00	0.00	30Yr+45% 1440Min Winter	4.396	0.00	0.00
1Yr+45% 2160Min Summer	1.480	0.00	0.00	30Yr+45% 2160Min Summer	3.338	0.00	0.00
1Yr+45% 2160Min Winter	1.480	0.00	0.00	30Yr+45% 2160Min Winter	3.338	0.00	0.00
1Yr+45% 2880Min Winter	1.258	0.00	0.00	30Yr+45% 2880Min Summer	2.760	0.00	0.00
1Yr+45% 2880Min Summer	1.258	0.00	0.00	30Yr+45% 2880Min Winter	2.760	0.00	0.00
1Yr+45% 4320Min Summer	1.016	0.00	0.00	30Yr+45% 4320Min Summer	2.109	0.00	0.00
1Yr+45% 4320Min Winter	1.016	0.00	0.00	30Yr+45% 4320Min Winter	2.109	0.00	0.00
1Yr+45% 5760Min Summer	0.881	0.00	0.00	30Yr+45% 5760Min Summer	1.738	0.00	0.00
1Yr+45% 5760Min Winter	0.881	0.00	0.00	30Yr+45% 5760Min Winter	1.738	0.00	0.00
1Yr+45% 7200Min Winter	0.795	0.00	0.00	30Yr+45% 7200Min Summer	1.502	0.00	0.00
1Yr+45% 7200Min Summer	0.795	0.00	0.00	30Yr+45% 7200Min Winter	1.502	0.00	0.00
1Yr+45% 8640Min Summer	0.735	0.00	0.00	30Yr+45% 8640Min Summer	1.339	0.00	0.00
1Yr+45% 8640Min Winter	0.735	0.00	0.00	30Yr+45% 8640Min Winter	1.339	0.00	0.00
1Yr+45% 10080Min Summer	0.691	0.00	0.00	30Yr+45% 10080Min Summer	1.218	0.00	0.00
1Yr+45% 10080Min Winter	0.691	0.00	0.00	30Yr+45% 10080Min Winter	1.218	0.00	0.00
2Yr+45% 15Min Summer	40.159	0.00	0.00	100Yr+45% 15Min Summer	123.033	0.00	0.00
2Yr+45% 15Min Winter	40.159	0.00	0.00	100Yr+45% 15Min Winter	123.033	0.00	0.04
2Yr+45% 30Min Summer	26.916	0.00	0.00	100Yr+45% 30Min Summer	86.156	0.00	0.03
2Yr+45% 30Min Winter	26.916	0.00	0.00	100Yr+45% 30Min Winter	86.156	0.00	0.03
2Yr+45% 60Min Summer	17.663	0.00	0.00	100Yr+45% 60Min Summer	57.516	0.00	0.00
2Yr+45% 60Min Winter	17.663	0.00	0.00	100Yr+45% 60Min Winter	57.516	0.00	-0.04
2Yr+45% 120Min Summer	12.155	0.00	0.00	100Yr+45% 120Min Summer	33.833	0.00	0.00
2Yr+45% 120Min Winter	12.155	0.00	0.00	100Yr+45% 120Min Winter	33.833	0.00	-0.06
2Yr+45% 180Min Summer	9.698	0.00	0.00	100Yr+45% 180Min Summer	24.581	0.00	0.00
2Yr+45% 180Min Winter	9.698	0.00	0.00	100Yr+45% 180Min Winter	24.581	0.00	-0.05
2Yr+45% 240Min Summer	8.092	0.00	0.00	100Yr+45% 240Min Summer	20.006	0.00	0.00
2Yr+45% 240Min Winter	8.092	0.00	0.00	100Yr+45% 240Min Winter	20.006	0.00	-0.04
2Yr+45% 360Min Winter	6.280	0.00	0.00	100Yr+45% 360Min Summer	14.786	0.00	0.00
2Yr+45% 360Min Summer	6.280	0.00	0.00	100Yr+45% 360Min Winter	14.786	0.00	-0.03
2Yr+45% 480Min Summer	5.234	0.00	0.00	100Yr+45% 480Min Summer	11.942	0.00	0.00
2Yr+45% 480Min Winter	5.234	0.00	0.00	100Yr+45% 480Min Winter	11.942	0.00	-0.01

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
2Yr+45% 600Min Summer	4.519	0.00	0.00	100Yr+45% 600Min Summer	10.168	0.00	0.00
2Yr+45% 600Min Winter	4.519	0.00	0.00	100Yr+45% 600Min Winter	10.168	0.00	0.00
2Yr+45% 720Min Summer	3.994	0.00	0.00	100Yr+45% 720Min Summer	8.936	0.00	0.00
2Yr+45% 720Min Winter	3.994	0.00	0.00	100Yr+45% 720Min Winter	8.936	0.00	0.00
2Yr+45% 960Min Summer	3.286	0.00	0.00	100Yr+45% 960Min Summer	7.303	0.00	0.00
2Yr+45% 960Min Winter	3.286	0.00	0.00	100Yr+45% 960Min Winter	7.303	0.00	0.00
2Yr+45% 1440Min Summer	2.503	0.00	0.00	100Yr+45% 1440Min Summer	5.533	0.00	0.00
2Yr+45% 1440Min Winter	2.503	0.00	0.00	100Yr+45% 1440Min Winter	5.533	0.00	0.00
2Yr+45% 2160Min Summer	1.929	0.00	0.00	100Yr+45% 2160Min Summer	4.233	0.00	0.00
2Yr+45% 2160Min Winter	1.929	0.00	0.00	100Yr+45% 2160Min Winter	4.233	0.00	0.00
2Yr+45% 2880Min Summer	1.615	0.00	0.00	100Yr+45% 2880Min Summer	3.503	0.00	0.00
2Yr+45% 2880Min Winter	1.615	0.00	0.00	100Yr+45% 2880Min Winter	3.503	0.00	0.00
2Yr+45% 4320Min Summer	1.272	0.00	0.00	100Yr+45% 4320Min Summer	2.659	0.00	0.00
2Yr+45% 4320Min Winter	1.272	0.00	0.00	100Yr+45% 4320Min Winter	2.659	0.00	0.00
2Yr+45% 5760Min Summer	1.084	0.00	0.00	100Yr+45% 5760Min Summer	2.169	0.00	0.00
2Yr+45% 5760Min Winter	1.084	0.00	0.00	100Yr+45% 5760Min Winter	2.169	0.00	0.00
2Yr+45% 7200Min Summer	0.965	0.00	0.00	100Yr+45% 7200Min Summer	1.855	0.00	0.00
2Yr+45% 7200Min Winter	0.965	0.00	0.00	100Yr+45% 7200Min Winter	1.855	0.00	0.00
2Yr+45% 8640Min Summer	0.883	0.00	0.00	100Yr+45% 8640Min Summer	1.638	0.00	0.00
2Yr+45% 8640Min Winter	0.883	0.00	0.00	100Yr+45% 8640Min Winter	1.638	0.00	0.00
2Yr+45% 10080Min Summer	0.822	0.00	0.00	100Yr+45% 10080Min Summer	1.476	0.00	0.00
2Yr+45% 10080Min Winter	0.822	0.00	0.00	100Yr+45% 10080Min Winter	1.476	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):

1yr+45%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S7	15 min Winter	8	122.723	0.023	2.153		OK
S6	15 min Winter	8	121.764	0.064	20.475		OK
S5	15 min Winter	8	119.711	0.061	26.200		OK
S4	15 min Winter	9	119.468	0.068	25.933		OK
S3	180 min Winter	124	119.127	0.477	4.901		Surcharged
S2	180 min Winter	129	118.242	0.042	4.890		OK
S1	180 min Winter	129	118.041	0.041	4.890		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	9	S7	S6	0.023	0.963	2.089	0.023	OK
1.001	15 min Winter	8	S6	S5	0.063	1.858	20.085	0.100	OK
1.002	15 min Winter	9	S5	S4	0.064	1.221	25.977	0.007	OK
1.003	180 min Winter	122	S4	S3	0.254	0.398	10.261	0.004	OK
1.004	180 min Winter	129	S3	S2	0.047	0.811	4.890	0.114	OK
1.005	180 min Winter	129	S2	S1	0.041	0.974	4.890	0.076	OK

Return Period (yrs) + Climate Change (%):

2yr+45%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S7	15 min Winter	8	122.733	0.033	4.288		OK
S6	15 min Winter	8	121.791	0.091	40.821		OK
S5	15 min Winter	8	119.736	0.086	52.386		OK
S4	180 min Winter	134	119.511	0.111	4.732		OK
S3	180 min Winter	135	119.511	0.861	7.349		Surcharged
S2	720 min Winter	454	118.242	0.042	4.890		OK
S1	720 min Winter	454	118.041	0.041	4.890		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	8	S7	S6	0.032	1.181	4.185	0.046	OK
1.001	15 min Winter	8	S6	S5	0.090	2.259	40.204	0.200	OK
1.002	15 min Winter	9	S5	S4	0.089	1.471	52.057	0.015	OK
1.003	180 min Winter	136	S4	S3	0.485	0.443	16.192	0.006	OK
1.004	720 min Winter	425	S3	S2	0.047	0.811	4.890	0.114	OK
1.005	720 min Winter	454	S2	S1	0.041	0.974	4.890	0.076	OK

Return Period (yrs) + Climate Change (%):

30yr+45%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S7	15 min Winter	8	122.751	0.051	10.515		OK
S6	15 min Winter	8	121.850	0.150	100.244		OK
S5	120 min Winter	114	120.245	0.595	5.390		OK
S4	120 min Winter	114	120.244	0.844	6.755		OK
S3	120 min Winter	116	120.247	1.597	1.644		Surcharged
S2	120 min Winter	114	118.243	0.043	5.065		OK
S1	120 min Winter	114	118.042	0.042	5.066		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	8	S7	S6	0.063	1.355	10.415	0.115	OK
1.001	15 min Winter	8	S6	S5	0.148	2.860	98.955	0.493	OK
1.002	120 min Winter	114	S5	S4	0.720	1.342	78.028	0.022	OK
1.003	120 min Winter	114	S4	S3	0.947	0.626	45.299	0.016	OK
1.004	120 min Winter	115	S3	S2	0.048	0.819	5.069	0.118	OK
1.005	120 min Winter	114	S2	S1	0.042	0.984	5.066	0.079	OK

Return Period (yrs) + Climate Change (%):

100yr+45%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S7	15 min Winter	8	122.757	0.057	13.155		OK
S6	15 min Winter	8	121.873	0.173	125.417		OK
S5	240 min Winter	207	120.764	1.114	5.249		Surcharged
S4	240 min Winter	207	120.763	1.363	5.218		Surcharged
S3	240 min Winter	203	120.765	2.115	2.489		Flood Risk
S2	120 min Winter	84	118.244	0.044	5.424		OK
S1	120 min Winter	85	118.043	0.043	5.424		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	8	S7	S6	0.077	1.317	13.038	0.145	OK
1.001	240 min Winter	176	S6	S5	0.170	1.999	25.831	0.129	OK
1.002	180 min Winter	140	S5	S4	1.050	1.257	77.413	0.022	OK
1.003	120 min Winter	80	S4	S3	1.050	0.651	47.361	0.017	OK
1.004	120 min Winter	84	S3	S2	0.050	0.835	5.425	0.127	OK
1.005	120 min Winter	85	S2	S1	0.044	1.003	5.424	0.084	OK

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S7	0.023	1200	Type B	124.512	122.700	1.587	380203.921	413563.884
S6	0.198	1500	Type B	123.714	121.700	1.714	380189.858	413591.455
S5	0.066	2100	Type B	122.579	119.650	1.879	380161.724	413619.960
S4	0.000	2100	Type B	122.767	119.400	2.317	380144.401	413619.074
S3	0.000	2400	Type B	121.000	118.650	2.125	380084.895	413675.583
S2	0.000	1350	Type C	119.529	118.200	1.104	380032.014	413714.824
S1	0.000	225	Unknown	118.250	118.000	0.025	380018.928	413715.344

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S7	122.700	S6	121.775	Circ	225	30.950	33	0.600	1.587	1.714
1.001	S6	121.700	S5	120.400	Circ	300	40.050	31	0.600	1.714	1.879
1.002	S5	119.650	S4	119.400	Circ	1050	17.346	69	0.600	1.879	2.317
1.003	S4	119.400	S3	118.650	Circ	1050	82.062	109	0.600	2.317	1.300
1.004	S3	118.650	S2	118.200	Circ	225	65.851	146	0.600	2.125	1.104
1.005	S2	118.200	S1	118.000	Circ	225	13.096	65	0.600	1.104	0.025

Outfall Details

Outfall Manhole S1 : Surcharged (Constant Level)

Surcharged Constant

Water Elevation (m)	Water Depth (m)
119.225	1.225

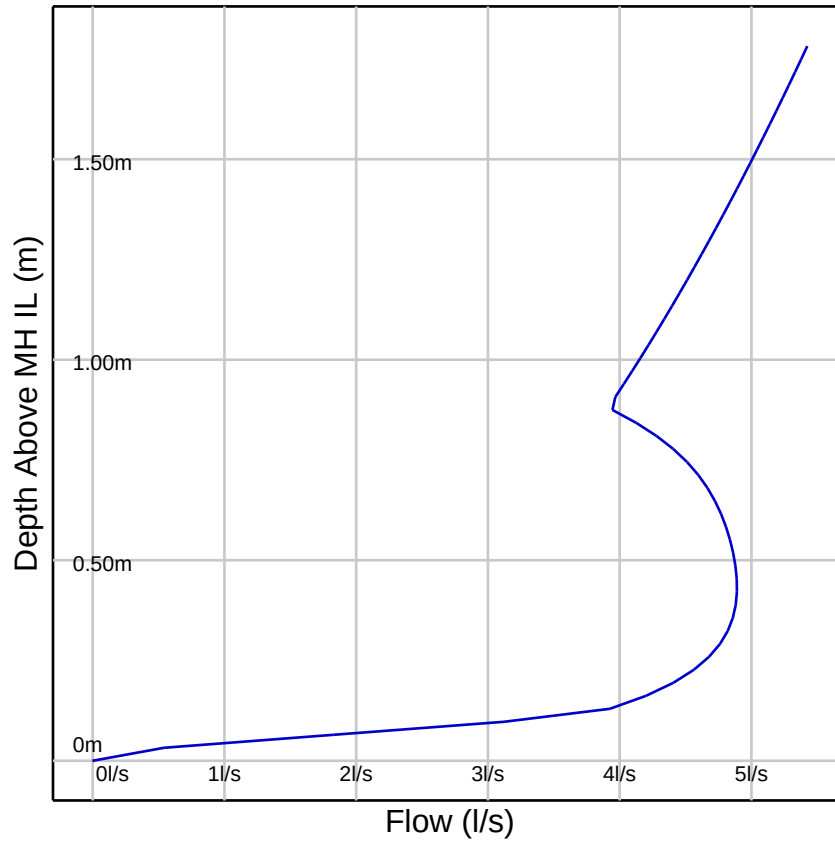
Flow Control Details

Controls within Manhole S3

Hydro-Brake® Optimum Control

Model Ref	Design Depth (m)	Design Flow (l/s)	Invert Offset (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
SHE-0098-5000-1500-5000	1.500	5.000	0.000	0.432	4.890	0.879	3.910

Hydro-Brake® Optimum Control from S3 to S2



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_380186_413613_v5_1_0.xml

Summer (Cv: 0.75), Winter (Cv: 0.84)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60

Return Periods (yrs) + Climate Change: (30, +45%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr+45% 15Min Winter	98.368	0.00	2.98	30Yr+45% 30Min Summer	67.732	0.00	2.42
30Yr+45% 15Min Summer	98.368	0.00	3.21	30Yr+45% 60Min Winter	44.891	0.00	1.66
30Yr+45% 30Min Winter	67.732	0.00	2.19	30Yr+45% 60Min Summer	44.891	0.00	1.85

Simulation Results

Return Period (yrs) + Climate Change (%):

30yr+45%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S7	15 min Winter	8	122.751	0.051	10.515		OK
S6	15 min Winter	8	121.850	0.150	100.239		OK
S5	60 min Winter	60	120.280	0.630	3.698		OK
S4	60 min Winter	60	120.278	0.878	6.185		OK
S3	60 min Winter	58	120.284	1.634	0.584		Surcharged
S2	15 min Summer	8	119.230	1.030	0.003		Flood Risk
S1	15 min Winter	0	119.225	1.225	81.788		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	8	S7	S6	0.063	1.353	10.410	0.115	OK
1.001	15 min Winter	8	S6	S5	0.148	2.860	98.942	0.493	OK
1.002	60 min Winter	60	S5	S4	0.754	1.502	93.806	0.026	OK
1.003	60 min Winter	60	S4	S3	0.964	0.284	64.687	0.023	OK
1.004	15 min Summer	12	S3	S2	0.225	0.123	4.894	0.114	OK
1.005	15 min Summer	12	S2	S1	0.225	0.129	5.129	0.080	OK

Technical Specification

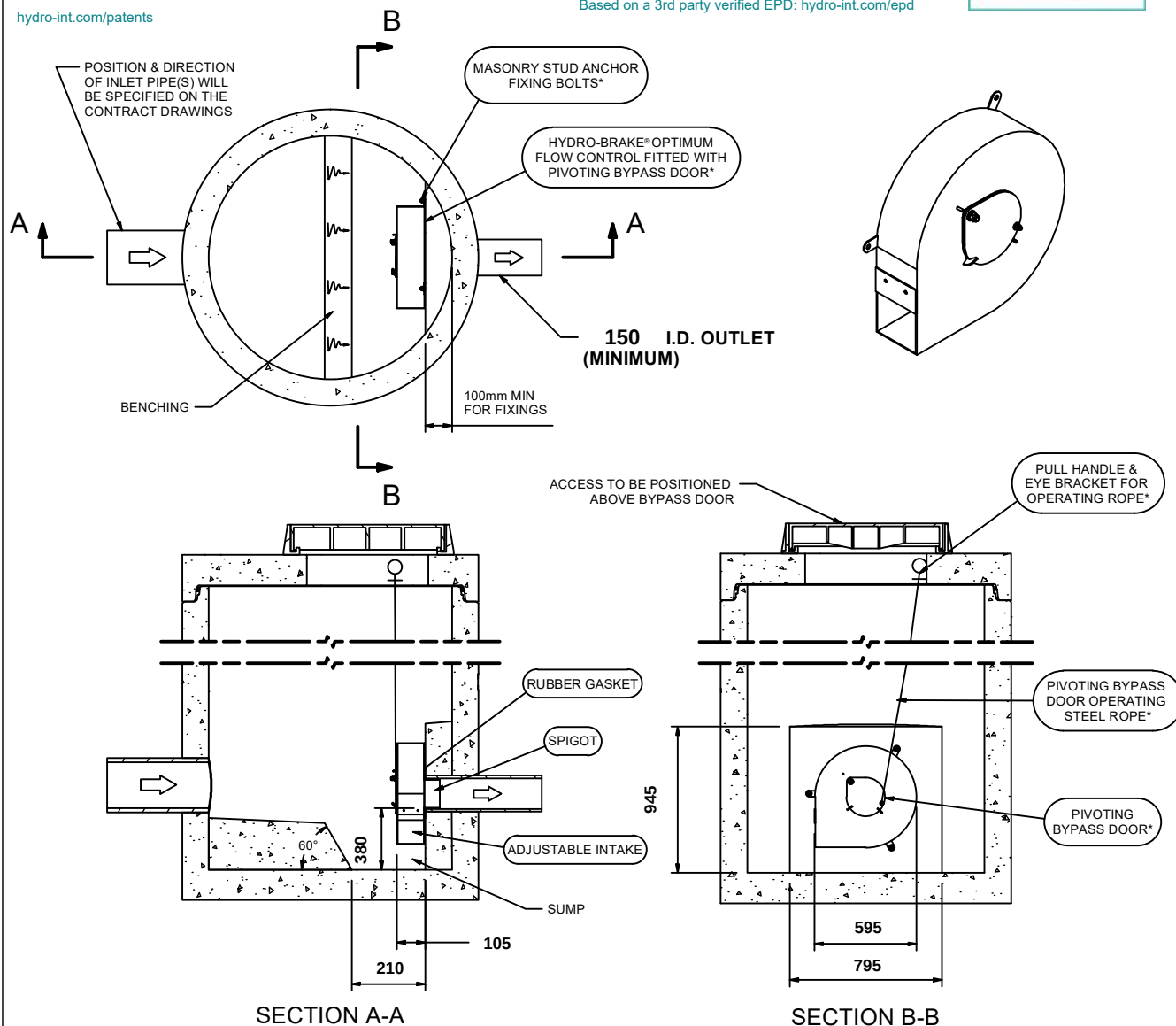
Control Point	Head (m)	Flow (l/s)
Primary Design	1.500	5.000
Flush-Flo™	0.432	4.890
Kick-Flo®	0.879	3.910
Mean Flow		4.331

hydro-int.com/patents

This Hydro-Brake® Optimum includes:

- All in 3 mm Grade 304L stainless steel
- Integral pivoting by-pass door allowing clear line of sight through to outlet, c/w operating rope
- Media blasted for corrosion resistance
- Variable flow rate post installation via adjustable inlet (if necessary)
- Indicative Weight: 20 kg
- Product Carbon Footprint: 81.87 kgCO2e

Based on a 3rd party verified EPD: hydro-int.com/epd



IMPORTANT: ○ LIMIT OF HYDRO INTERNATIONAL SUPPLY
 THE DEVICE WILL BE HANDED TO SUIT SITE CONDITIONS
 FOR SITE SPECIFIC DETAILS AND MINIMUM CHAMBER SIZE REFER TO HYDRO INTERNATIONAL
 ALL CIVIL AND INSTALLATION WORK BY OTHERS
 * WHERE SUPPLIED
 HYDRO-BRAKE® IS A REGISTERED TRADEMARK FOR FLOW CONTROLS DESIGNED AND MANUFACTURED EXCLUSIVELY BY
 HYDRO INTERNATIONAL

THIS DESIGN LAYOUT IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE.

DESIGN ADVICE



The head/flow characteristics of this SHE-0098-5000-1500-5000 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.
The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

Hydro International
 A CRH COMPANY

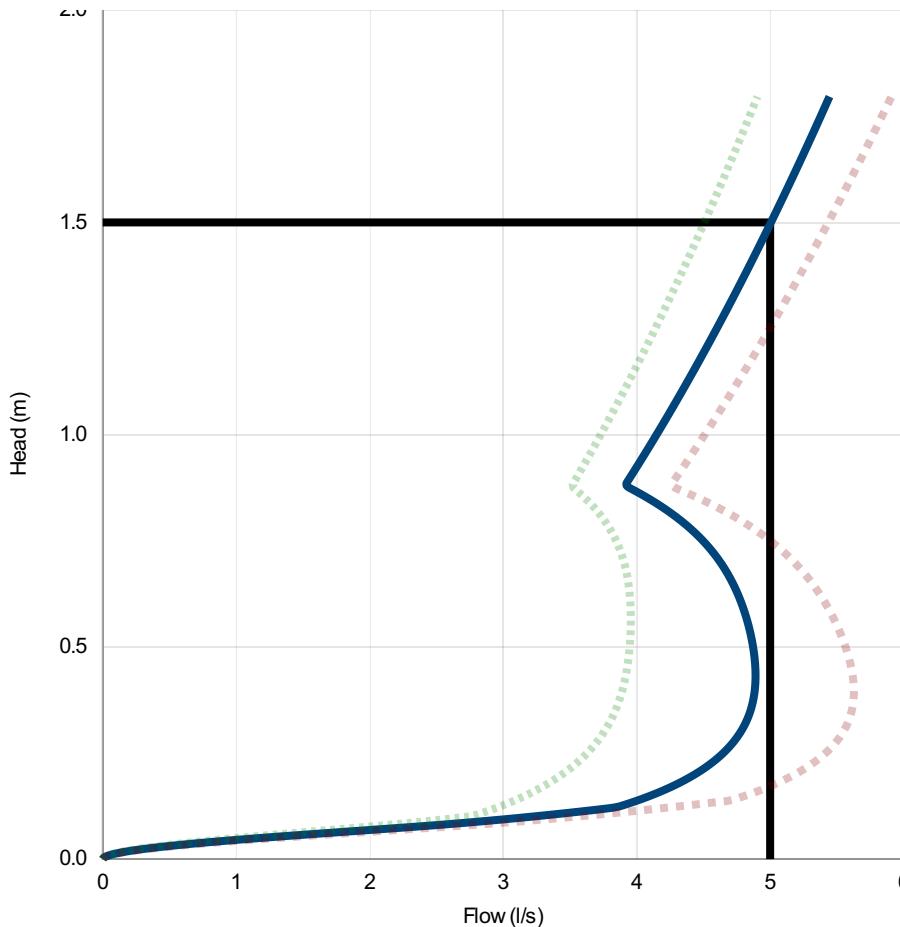
DATE	08/10/2025 09:59	SHE-0098-5000-1500-5000 Hydro-Brake® Optimum
SITE	23 21 5586 Springside Road, Bury	
DESIGNER		
REF	HQT-198459	

Technical Specification

	Original Setting		Minimum Setting		Maximum Setting	
Control Point	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)
Primary Design	1.500	5.000	1.500	4.507	1.500	5.435
Flush-Flo™	0.432	4.890	0.563	3.956	0.395	5.627
Kick-Flo®	0.879	3.910	0.877	3.510	0.878	4.250
Mean Flow		4.331		3.692		4.830



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Head (m)	Flow (l/s)
0.000	0.000
0.052	1.260
0.103	3.321
0.155	4.149
0.207	4.473
0.259	4.677
0.310	4.799
0.362	4.864
0.414	4.889
0.466	4.886
0.517	4.862
0.569	4.821
0.621	4.763
0.672	4.681
0.724	4.568
0.776	4.412
0.828	4.200
0.879	3.926
0.931	4.015
0.983	4.116
1.034	4.215
1.086	4.311
1.138	4.404
1.190	4.496
1.241	4.585
1.293	4.673
1.345	4.759
1.397	4.843
1.448	4.925
1.500	5.006

DESIGN ADVICE



The head/flow characteristics of this SHE-0098-5000-1500-5000 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.

The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.



DATE	08/10/2025 09:59
Site	23_21_5586 Springside Road, Bury
DESIGNER	
Ref	HQT-198459

SHE-0098-5000-1500-5000
Hydro-Brake® Optimum

Appendix E

Drainage Drawings :-

J292/101D – 'Stormwater Drainage Appraisal'

J292/102D – 'Stormwater Drainage Scheme Areas'

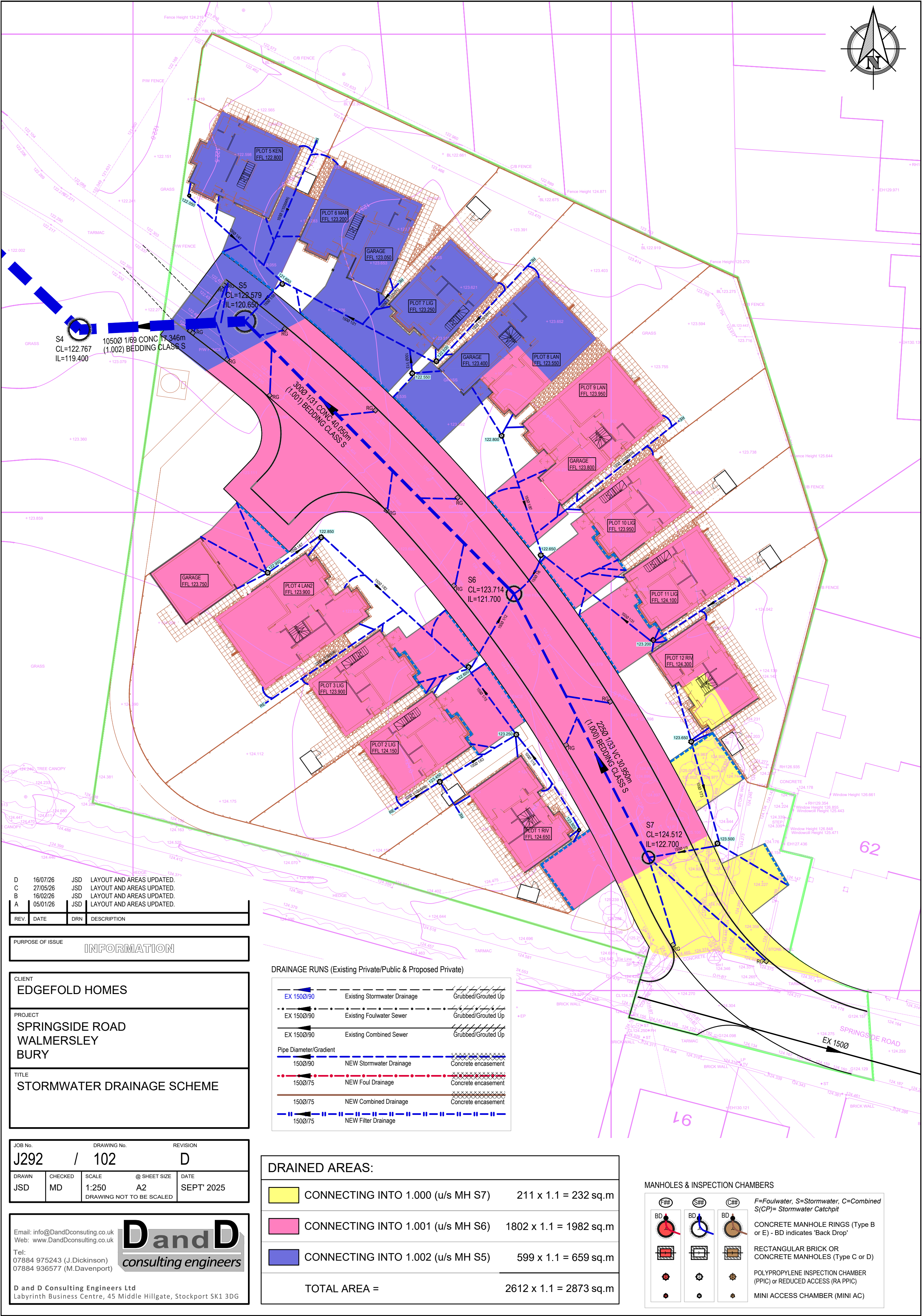
J292/103F – 'Drainage General Arrangement Plan'

J292/106A – 'Typical Drainage Details'

J292/107C - 'Overland Flood Flow Routing Plan'

J292/117B – 'S104 - Control Manhole Details'





D	16/07/26	JSD	LAYOUT AND AREAS UPDATED.
C	27/05/26	JSD	LAYOUT AND AREAS UPDATED.
B	16/02/26	JSD	LAYOUT AND AREAS UPDATED.
A	05/01/26	JSD	LAYOUT AND AREAS UPDATED.

REV.	DATE	DRN	DESCRIPTION
------	------	-----	-------------

PURPOSE OF ISSUE
INFORMATION

CLIENT
EDGEFOLD HOMES

PROJECT
SPRINGSIDE ROAD
WALMERSLEY
BURY

TITLE
STORMWATER DRAINAGE SCHEME

JOB No.	DRAWING No.	REVISION
J292	/ 102	D
DRAWN	CHECKED	SCALE
JSD	MD	1:250
		@ SHEET SIZE
		A2
		DATE
		SEPT' 2025
		DRAWING NOT TO BE SCALED

Email: info@DandDconsulting.co.uk
Web: www.DandDconsulting.co.uk
Tel:
07884 975243 (J.Dickinson)
07884 936577 (M.Davenport)

DandD
consulting engineers

D and D Consulting Engineers Ltd
Labyrinth Business Centre, 45 Middle Hillgate, Stockport SK1 3DG

DRAINAGE RUNS (Existing Private/Public & Proposed Private)

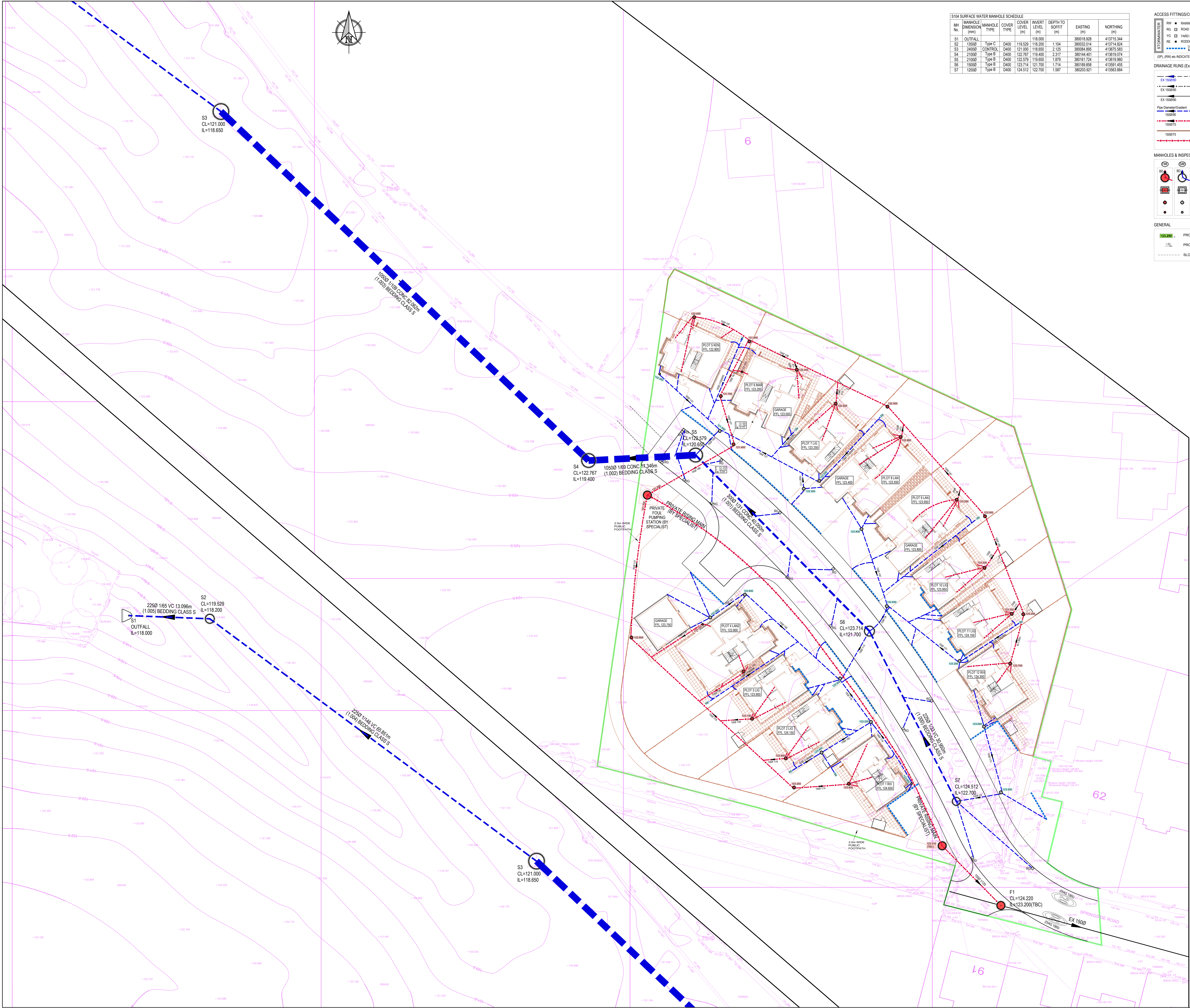
EX 1500/90	Existing Stormwater Drainage	Grubbed/Grouted Up
EX 1500/90	Existing Foulwater Sewer	Grubbed/Grouted Up
EX 1500/90	Existing Combined Sewer	Grubbed/Grouted Up
Pipe Diameter/Gradient		
1500/90	NEW Stormwater Drainage	Concrete encasement
1500/75	NEW Foul Drainage	Concrete encasement
1500/75	NEW Combined Drainage	Concrete encasement
1500/75	NEW Filter Drainage	Concrete encasement

DRAINED AREAS:

CONNECTING INTO 1.000 (u/s MH S7)	211 x 1.1 = 232 sq.m
CONNECTING INTO 1.001 (u/s MH S6)	1802 x 1.1 = 1982 sq.m
CONNECTING INTO 1.002 (u/s MH S5)	599 x 1.1 = 659 sq.m
TOTAL AREA =	2612 x 1.1 = 2873 sq.m

MANHOLES & INSPECTION CHAMBERS

F#	S#	C#
BD	BD	BD
CONCRETE MANHOLE RINGS (Type B or E) - BD indicates 'Back Drop'	RECTANGULAR BRICK OR CONCRETE MANHOLES (Type C or D)	POLYPROPYLENE INSPECTION CHAMBER (PPIC) or REDUCED ACCESS (RA PPIC)
MINI ACCESS CHAMBER (MINI AC)		



S104 SURFACE WATER MANHOLE SCHEDULE									
MANHOLE No.	MANHOLE DIMENSION (mm)	MANHOLE TYPE	COVER TYPE	COVER LEVEL (m)	INVERT LEVEL (m)	DEPTH TO SOFFIT (m)	EASTING (m)	NORTHING (m)	
S1	OUTFALL				118.000		380018.928	413715.344	
S2	13500	Type C	D400	119.529	118.200	1.329	380032.014	413714.824	
S3	24000	CONTROL	D400	121.000	118.650	2.350	380084.895	413675.583	
S4	21000	Type B	D400	122.767	119.400	3.367	380144.401	413610.074	
S5	21000	Type B	D400	122.579	119.650	2.929	380181.724	413619.960	
S6	15000	Type B	D400	123.714	121.700	2.014	380189.855	413619.455	
S7	13000	Type B	D400	124.512	122.700	1.812	380203.921	413603.884	

ACCESS FITTINGS/CONNECTIONS

FORMWATER

RW ■ RAINWATER PIPE (AND)

RD ■ ROAD GULLY

YG ■ YARD GULLY

RE ■ ROOFING EYE

LD ■ LINEAR DRAINAGE

■ & OUTFALL UNIT

FULLWATER

FG ■ FLOOR GULLY

BG ■ BACKINLET GULLY

SP ■ SOL VENT PIPE

WO ■ WASTE OUTLET

(SP), (RW) etc INDICATES INTERNAL ROADABLE ACCESS TO BE PROVIDED

DRAINAGE RUNS (Existing Private/Public & Proposed Private)

Existing Stormwater Drainage

Existing Foulwater Sewer

Existing Combined Sewer

NEW Stormwater Drainage

NEW Foul Drainage

NEW Combined Drainage

NEW Foul Rising Main

MANHOLES & INSPECTION CHAMBERS

EO ■ F=Fullwater, S=Stormwater, C=Combined

SCPP=Stormwater Catchpit

CONCRETE MANHOLE RINGS (Type B or C) - ISO Indication (BWA DWA)

RECTANGULAR BRICK OR CONCRETE MANHOLES (Type C or D)

POLYPROPYLENE INSPECTION CHAMBER (PPIC) - REDUCED ACCESS (RA-PPIC)

MINI ACCESS CHAMBER (MINI AC)

GENERAL

PROPOSED LEVELS

PROPOSED HARDSTANDING GRADIENTS

SLOPE CHANGE (w/ RIDGE, VALLEY or FOLD)

NOTES -

1.0 GENERAL

1.1 THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALIST DRAWINGS & SPECIFICATIONS.

1.2 WORK TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT GOOD PRACTICE, BUILDING REGULATIONS AND SUBSEQUENT AMENDMENTS. THE PROJECT SPECIFICATION, RELEVANT BRITISH STANDARDS AND CODES OF PRACTICE, MATERIALS AND COMPONENTS TO BE SUITABLE FOR THEIR INTENDED USE.

1.3 FOR SETTING OUT REFER TO ARCHITECTS DRAWINGS.

2.0 EXISTING SERVICES

2.1 SERVICE MEDIA INDICATED IS BASED ON INFORMATION AVAILABLE TO DATE & IS REPRODUCED IN GOOD FAITH. NO RESPONSIBILITY CAN BE ACCEPTED FOR THE LOCATING OF UNKNOWN SERVICES NOT INDICATED.

2.2 STATUTORY SERVICES INDICATED PRIOR TO ANY WORKS TAKING PLACE ARE FOR INFORMATION PURPOSES ONLY & MUST BE CONFIRMED.

2.3 IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND PROTECT EXISTING SERVICE MEDIA AFFECTED BY THE PROPOSED WORKS.

2.4 ANY EXISTING DRAINAGE ON SITE IS TO BE INVESTIGATED, UNCOVERED AND AS FOUND TO BE NECESSARY EITHER MAINTAINED, DIVERTED OR ABANDONED (SUBJECT TO APPROVAL OF THE SEWAGE UNDERTAKER).

3.0 PRIVATE DRAINAGE

3.1 VITRIFIED CLAY DRAINAGE GOODS TO BE HEPTWORTH SUPERLEVE OR SIMILAR TO BS EN 285 - PLASTIC DRAINAGE GOODS TO BE HEPTWORTH PLASTODRAINSEWERDRAN OR SIMILAR STRENGTH CLASS & BEDDING TO BE AS INDICATED ON THE TYPICAL DRAINAGE DETAILS DRAWING.

3.2 DRAINAGE INVERTS NOT LANDING WITHIN LESS THAN 150mm COVER TO BE CONCRETE ENCASED. DRAINAGE BESIDE ROADS/DRIVEWAYS WITH LESS THAN 1.2m COVER TO BE CONCRETE ENCASED.

3.3 DRAINS WHICH ARE CONCRETE ENCASED TO HAVE 150mm FIBREGLASS OR POLYETHYLENE JOINTS AT 5m INTERVALS.

3.4 FOR TRADITIONAL FOUNDATION CONSTRUCTION

3.4.1 ANY DRAINAGE WHOSE EXCAVATION IS LOWER THAN THE UNDERSIDE OF ADJACENT FOUNDATION & WITHIN 1.0m OF THE FOUNDATION IS TO BE CONCRETE ENCASED UP TO THE LEVEL OF THE UNDERSIDE OF THE FOUNDATION.

3.4.2 ANY DRAINAGE WHOSE EXCAVATION IS LOWER THAN THE UNDERSIDE OF ADJACENT FOUNDATION & WITHIN 1.0m FROM THE FOUNDATION IS TO BE CONCRETE ENCASED UP TO A LEVEL 1.0m BELOW THE UNDERSIDE OF THE FOUNDATION (WHERE X IS THE HORIZONTAL DISTANCE FROM THE FACE OF FOUNDATION TO THE EDGE OF THE DRAINAGE EXCAVATION).

3.5 FOR VIBRO IMPROVED GROUND SUPPORTING STRIP FOOTINGS

3.5.1 WHERE DRAINAGE IS LOCATED LESS THAN 1.0m FROM AN ADJACENT FOUNDATION AND AT A GREATER DEPTH THAN THE VIBRO FOUNDATION LEVEL, THE ADJACENT FOUNDATION IS TO BE EXTENDED DOWN TO THE DEPTH OF THE DRAINAGE.

3.5.2 WHERE DRAINAGE IS LOCATED MORE THAN 1.0m FROM AN ADJACENT FOUNDATION AND AT A GREATER DEPTH THAN THE VIBRO FOUNDATION LEVEL, THE ADJACENT FOUNDATION IS TO BE EXTENDED DOWN TO A LEVEL 1.0m ABOVE THE INVERT OF THE DRAINAGE (WHERE X IS THE HORIZONTAL DISTANCE FROM THE FACE OF FOUNDATION TO THE EDGE OF THE DRAINAGE EXCAVATION).

3.6 ALL SURFACE WATER DRAINS TO BE MINIMUM 100mmØ AT MINIMUM 1:100 GRADIENT UNLESS ALL FULWATER DRAINS TO BE MINIMUM 150mmØ AT MINIMUM 1:50 GRADIENT UNLESS A TOLL TOLL IS LOCATED UPSTREAM WHERE MINIMUM GRADIENT SHOULD BE 1:50.

3.7 COVER LEVELS ARE APPROXIMATE AND TO BE VERIFIED ON SITE.

3.8 INTERNAL INSPECTION CHAMBERS TO BE PROVIDED WITH DOUBLE SEAL AIR TIGHT DOWN DOWN COVERS.

3.9 POLYPROPYLENE ICES TO INCLUDE 100mm (MIN) CONCRETE SURROUND WHEN LOCATED IN HARDSTANDINGS (SEE DETAILS).

3.10 PPIC'S DEEPER THAN 1.2m TO HAVE REDUCED ACCESS (RA) COVER-3300.

4.0 ADOPTABLE DRAINAGE (UNITED UTILITIES)

4.1 ALL ADOPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH SEWAGE SECTOR GUIDANCE - APPENDIX C - DESIGN AND CONSTRUCTION GUIDANCE. THE RELEVANT BRITISH STANDARDS AND STANDARDS AND UNITED UTILITIES REQUIREMENTS.

4.2 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING UNITED UTILITIES P.L.C. DRAWINGS CONTAINING THEIR RESPECTIVE SERVICES STANDARD DETAILS :

- STND18000A - DETAIL 1 - MANHOLE TYPE 1
- STND18000A - DETAIL 2 - MANHOLE TYPE 2
- STND18000A - DETAIL 3 - MANHOLE TYPE 4
- STND18000A - SH SHALLOW MANHOLES
- STND18000A - FLOW CONTROL MANHOLE
- STND18000A - EXTERNAL MANHOLE DETAIL
- STND18000A - PIPE BEDDING DETAIL
- STND18000A - VARIABLE MANHOLE FEATURES
- STND18000A - HEADWALL TYPE 1 DETAIL
- STND18000A - HEADWALL TYPE 2 DETAIL
- STND18000A - HEADWALL TYPE 3 DETAIL

4.3 MANHOLE COVERS SHALL HAVE A CLEAR OPENING OF 800mm AND SHALL BE CLASS D400 TO EN WITH 150mm DEEP FRAMES IN HIGHWAYS.

4.4 COVER SLABS MUST CARRY THE BS KITEMARK. WHERE THE CLEAR OPENING OF THE KITEMARK PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME A LOAD BEARING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN TO 800mm x 600mm. PLEASE REFER TO CONCRETE PRESS SYSTEMS ASSOCIATION (CPSA) TECHNICAL BULLETIN AUTUMN 2004 FOR KITEMARKED COVER SLAB OPENING SIZES.

5.0 LINEAR DRAINAGE SYSTEM

5.1 THE LINEAR DRAINAGE SYSTEM SHALL BE BRICO (SEE DRAWING FOR DETAILS). MANUFACTURED IN PRECAST CONCRETE WITH THE EXCEPTION OF CERTAIN FITTINGS MANUFACTURED IN STEEL OR CAST IRON, AND INSTALLED IN ACCORDANCE WITH MARSHALLS STANDARD DETAILS SHEETS.

5.2 THE LINEAR DRAINAGE SHALL BE A TWO PART SYSTEM CONSISTING OF STEEL OR CAST IRON GRATINGS OR COVERS BOLTED TO PRECAST CONCRETE DRAINAGE CHANNELS. DRAINAGE CHANNELS TO COMPILE CONSTANT DEPTH AND INBUILT FALL UNITS AS REQUIRED TO SATISFY THE HYDRAULIC DESIGN.

5.3 ALL COMPONENTS OF THE MARSHALLS BRICO SYSTEM SHALL COMPLY WITH LOAD CLASSIFICATION D400 IN ACCORDANCE WITH BS EN 1433:2002.

5.4 THE LINEAR DRAINAGE SYSTEM COMPRISING GRATINGS, COVERS, CONSTANT DEPTH AND INBUILT FALL CHANNELS, OUTFALLS, T-JUNCTION CHANNELS, END CAPS, CAP COVERS AND SEALANTS SHALL BE INSTALLED TO THE LINE AND LEVELS INDICATED IN THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND STANDARD DETAILS.

5.5 BRICO OUTFALLS TO BE 150 SEDTRAP UNITS (SUPPLIED IN TWO SECTIONS WITH UNIVERSAL FIT SEAL AND STOPPER INCLUDED). OUTFALL SECTIONS TO BE BEDDED USING MARSHALLS POLYSULPHIDE SEALANT.

5.6 MARSHALLS VERTICAL JOINT SEALANT, M-SEAL, SHALL BE APPLIED TO ALL VERTICAL JOINTS OF THE CHANNEL.

MAXIMUM SITE SURFACE WATER FLOW TO DIVERTED CULVERT (ORDINARY WATERCOURSE) TO BE 5.4l/s (100 Yr + 45% CLIMATE CHANGE ALLOWANCE)

THIS DRAWING IS SUBJECT TO SECTION 104 & SECTION 38 TECHNICAL APPROVALS.

ALL CONNECTIONS TO THE ADOPTED SYSTEM TO BE MADE AT LEVEL SOFFITS.

LEVELS ARE RELATED TO OSBM02 (OSBM02 CONVERTS GPS ELLIPSOID HEIGHTS TO ORTHOMETRIC HEIGHTS ABOVE MEAN SEA LEVEL).

COORDINATES ARE RELATED TO NATIONAL GRID (GPS)

F 160126 JSD LAYOUT AND DRAINAGE UPDATED

E 270526 JSD LAYOUT AND DRAINAGE UPDATED

D 170226 JSD LAYOUT AND DRAINAGE UPDATED

C 050126 JSD LAYOUT UPDATED AND PLOT DRAINAGE ADDED

B 301025 JSD LAYOUT UPDATED (WATER BUTTS ADDED)

A 010125 JSD FULWATER/SEWER MAINS UPDATED

REV DATE CHG DESCRIPTION

1 160126 JSD LAYOUT AND DRAINAGE UPDATED

2 270526 JSD LAYOUT AND DRAINAGE UPDATED

3 170226 JSD LAYOUT AND DRAINAGE UPDATED

4 050126 JSD LAYOUT UPDATED AND PLOT DRAINAGE ADDED

5 301025 JSD LAYOUT UPDATED (WATER BUTTS ADDED)

6 010125 JSD FULWATER/SEWER MAINS UPDATED

PURPOSE OF ISSUE

PRELIMINARY

CLIENT

EDGEFOLD HOMES

PROJECT

SPRINGSIDE ROAD
WALMERSLEY
BURY

TITLE

EXTERNAL WORKS G.A.
SURFACE WATER & FOUL DRAINAGE

DWG No.

J292 / 103

F

DRAWN

JSD

CHECKED

MD

SCALE

1:200

AD

DATE

SEPT 2025

REVISION

1

DATE

160126

BY

JSD

DESCRIPTION

LAYOUT AND DRAINAGE UPDATED

Email: info@DandDconsulting.co.uk

Web: www.DandDconsulting.co.uk

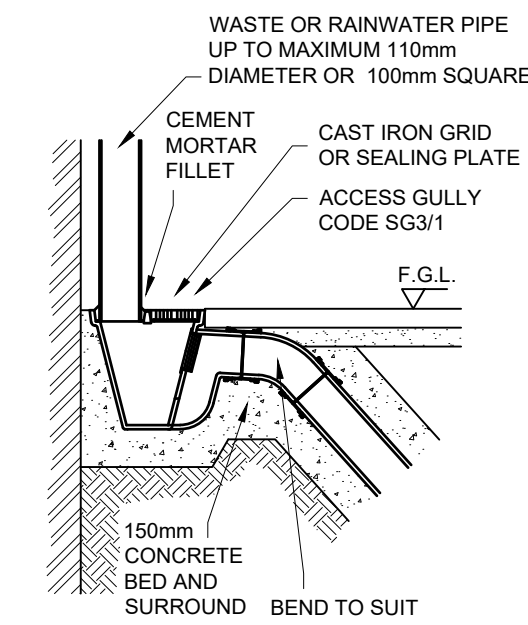
Tel: 07884 975243 (J. Dickinson)

07884 536577 (M. Davey)

DandD
consulting engineers

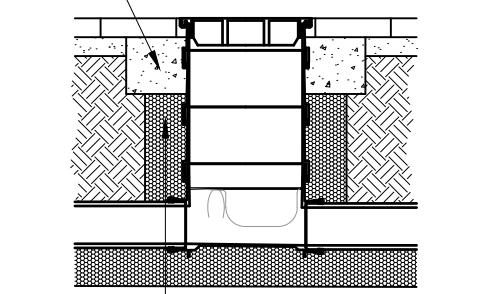
D and D Consulting Engineers Ltd

Liberty Business Centre, 45 Middle Hillgate, Stockport SK1 3DG

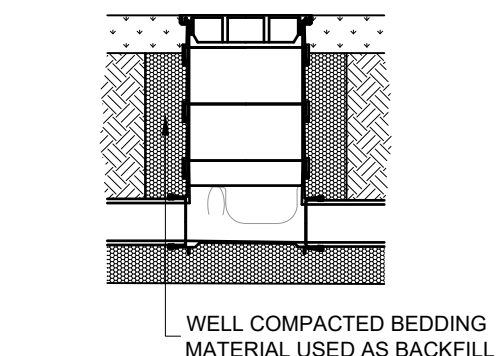


ACCESS GULLY CONNECTION
SCALE - 1:20

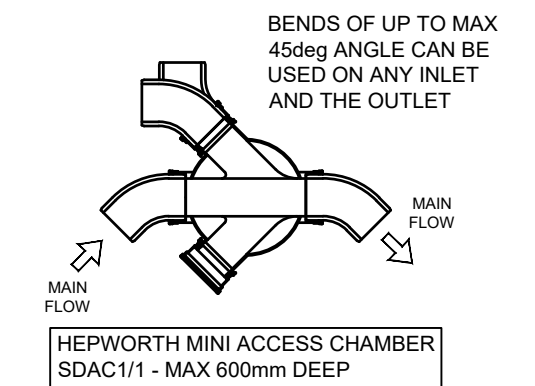
150mm x 150mm DEEP INSITU CONCRETE PLINTH TO SUPPORT FINISH (SEE NOTE 1)



MINI ACCESS CHAMBER (PAVED AREAS)
SCALE - 1:20



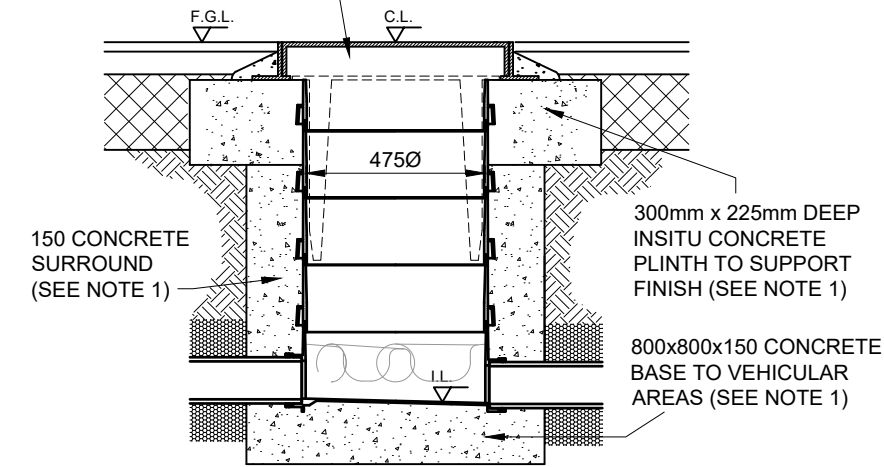
MINI ACCESS CHAMBER (SOFT LANDSCAPED AREAS)
SCALE - 1:20



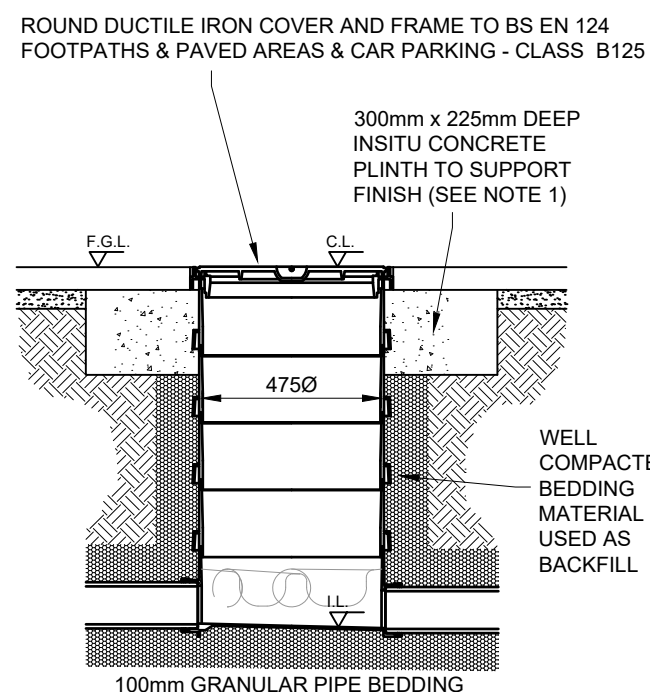
WHERE CHAMBERS ARE FITTED ON 90° CORNERS ALWAYS USE THE MAIN CHANNEL BY FITTING A 45deg BEND ON INLET & OUTLET.

PLAN ON MINI ACCESS CHAMBER
SCALE - 1:20

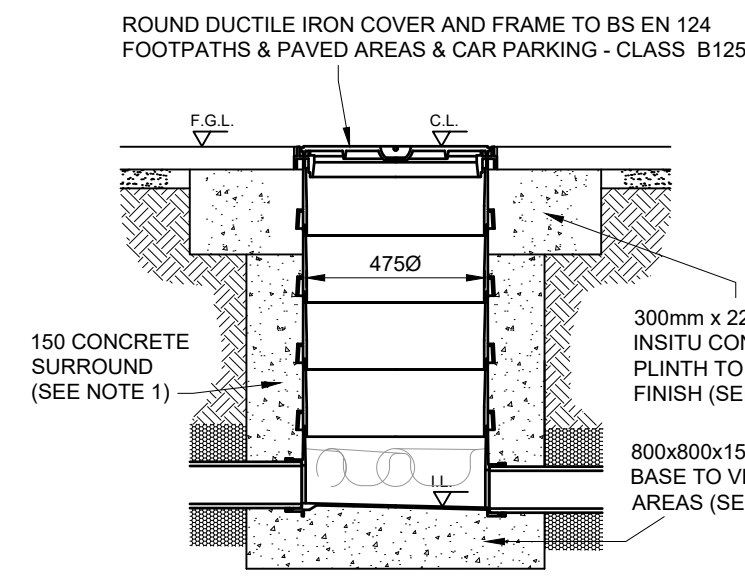
M.H. COVER & FRAME (TO BS EN124) TO PROVIDE 600x600 CLEAR OPENING, BEDDED AND HAUNCHED WITH 1:3 CEMENT:SAND MORTAR. COVER TO BE CLASS C250 (SUITABLE FOR USE IN CAR PARKS, FORECOURTS & AREAS WITH SLOW MOVING TRAFFIC). FOR REDUCED ACCESS (RA) PPIC's A SEPARATE REDUCED ACCESS COVER (OR OTHER MEANS OF RESTRICTED ENTRY) IS ALSO TO BE PROVIDED AT THE LOWER LEVEL.



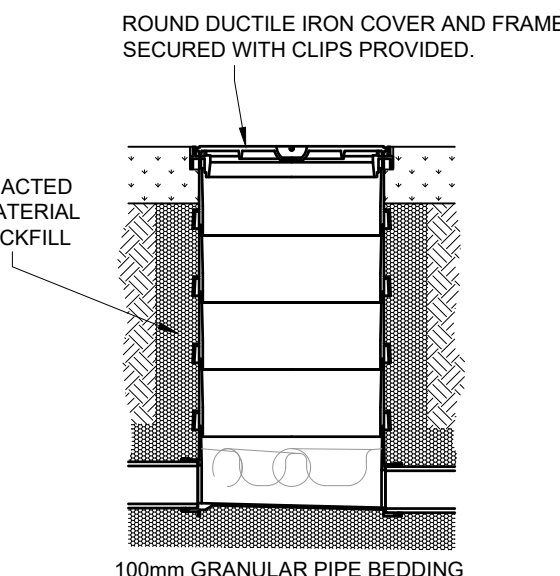
POLYPROPYLENE INSPECTION CHAMBER LOCATED IN 'SHARED ACCESS' AREAS (ACCESSABLE TO BIN WAGONS ETC)
SCALE - 1:20



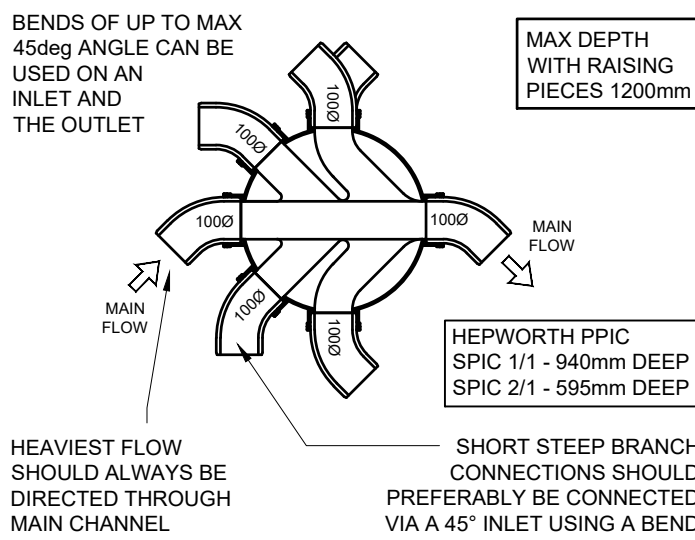
POLYPROPYLENE INSPECTION CHAMBER LOCATED IN HARD LANDSCAPED AREAS (NOT ACCESSABLE TO WHEELED VEHICLES)
SCALE - 1:20



POLYPROPYLENE INSPECTION CHAMBER LOCATED IN PRIVATE DRIVEWAY AREAS (ACCESSABLE TO DOMESTIC VEHICLES)
SCALE - 1:20

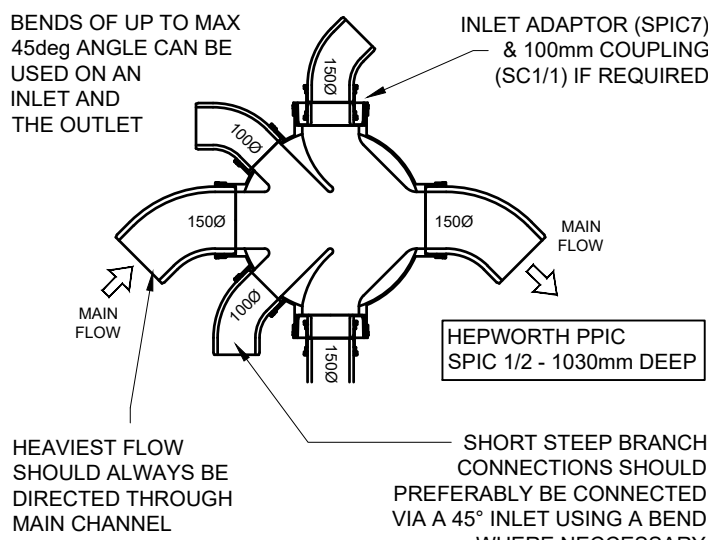


POLYPROPYLENE INSPECTION CHAMBER LOCATED IN SOFT LANDSCAPED AREAS
SCALE - 1:20



WHERE CHAMBERS ARE FITTED ON 90° CORNERS ALWAYS USE THE MAIN CHANNEL BY FITTING A 45deg BEND ON INLET & OUTLET.

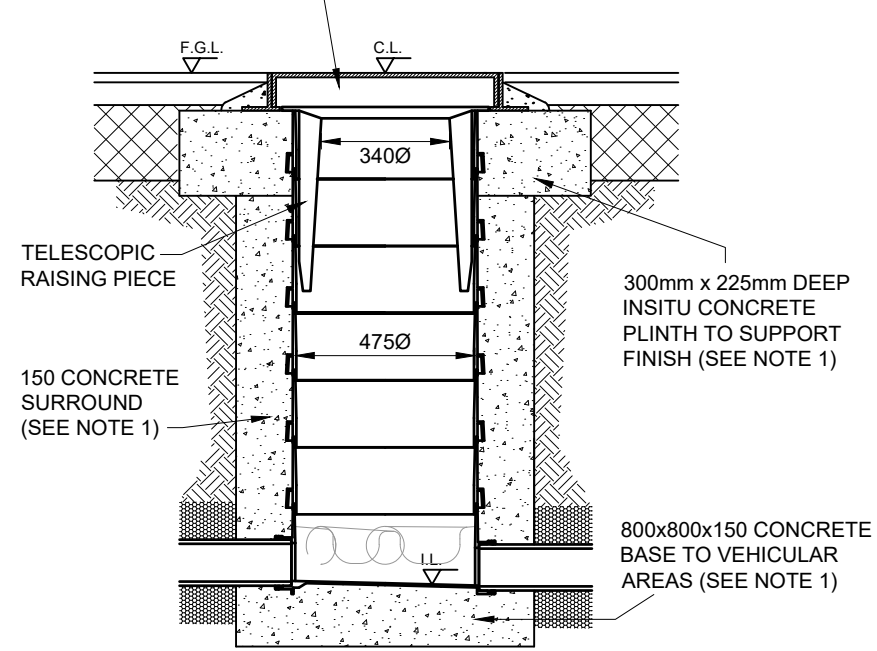
PLAN ON PREFORMED BENCHING TO POLYPROPYLENE INSPECTION CHAMBER
SCALE - 1:20



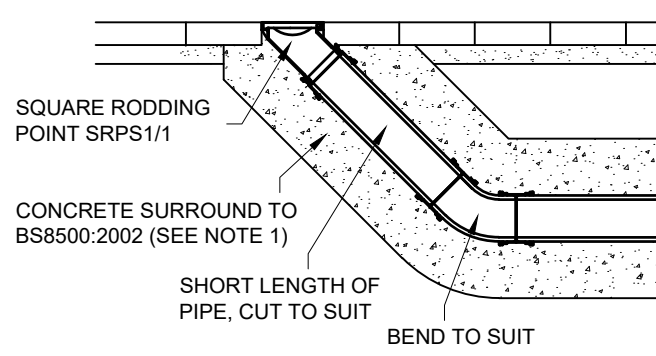
WHERE CHAMBERS ARE FITTED ON 90° CORNERS ALWAYS USE THE MAIN CHANNEL BY FITTING A 45deg BEND ON INLET & OUTLET.

PLAN ON PREFORMED BENCHING TO POLYPROPYLENE INSPECTION CHAMBER
SCALE - 1:20

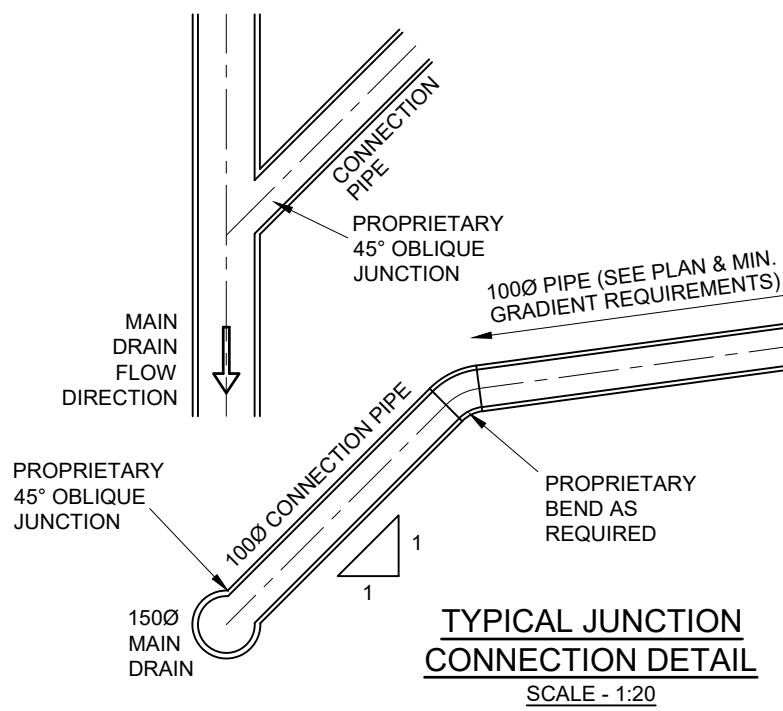
M.H. COVER & FRAME (TO BS EN124) TO PROVIDE 600x600 CLEAR OPENING, BEDDED AND HAUNCHED WITH 1:3 CEMENT:SAND MORTAR. COVER TO BE AS DETAILED IN MANHOLE SCHEDULE. FOR REDUCED ACCESS (RA) PPIC's A SEPARATE REDUCED ACCESS COVER (OR OTHER MEANS OF RESTRICTED ENTRY) IS ALSO TO BE PROVIDED AT THE LOWER LEVEL.



REDUCED ACCESS POLYPROPYLENE INSPECTION CHAMBER
SCALE - 1:20



DETAILS OF RODDING EYE (RE)
SCALE - 1:20



TYPICAL JUNCTION CONNECTION DETAIL
SCALE - 1:20

GULLY POT SIZE Ø450mm x 900mm DEEP (P1) OR Ø375mm x 750mm DEEP (P2)

VITRIFIED CLAY TO BS 65 OR PRECAST CONCRETE TO BS 5911 PART 230 OR INSITU CONCRETE GULLY. GULLY TO BE PROVIDED WITH RODDING EYE AND STOPPER

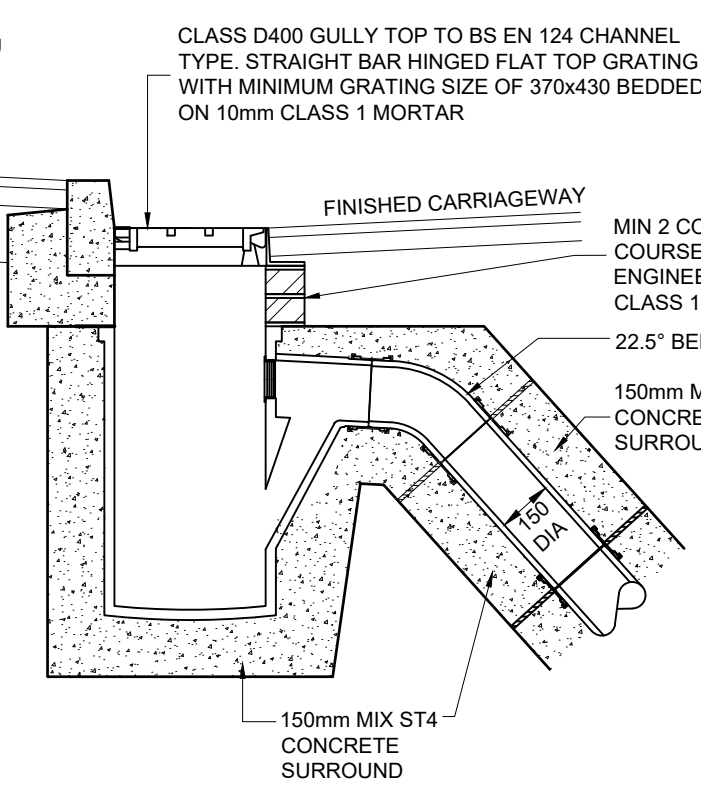
NOTES:

GULLY GRATING AND FRAME TO COMPLY WITH BS EN 124

BACKFILL TO GULLY CONNECTIONS BELOW FORMATION IN CARRIAGEWAYS SHALL BE TYPE 1 SUB-BASE MATERIAL. WHERE MECHANICAL COMPACTION IS IMPRACTICABLE THE BACKFILLING SHALL BE MIX ST4 CONCRETE

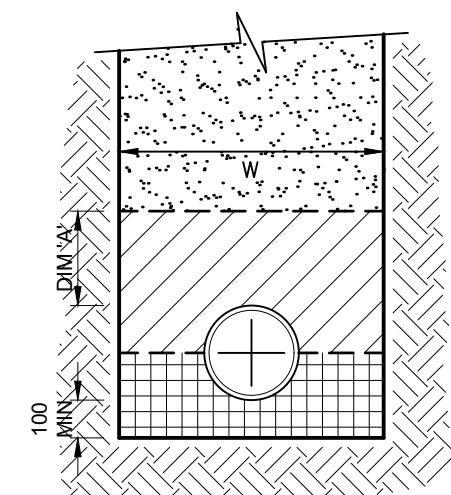
GULLY GRATING AND FRAME TO BE HINGED TYPE

INSITU GULLY TO BE SURROUNDED BY A MINIMUM OF 150mm GRADE ST4 CONCRETE



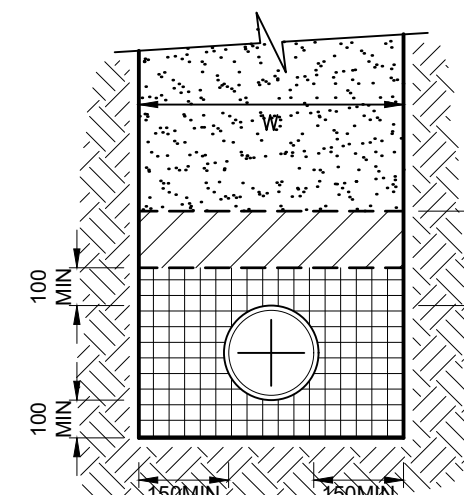
ROAD GULLY DETAIL
SCALE - 1:20

CLASS 'B' HALF DEPTH GRANULAR SURROUND
a) LAY AND COMPACT TO A THICKNESS NOT LESS THAN 100mm OVER FULL WIDTH OF TRENCH WHERE TRENCH BOTTOM IS UNEVEN DUE TO HARD SPOTS INCREASE DEPTH BY 100mm. LAY PIPES DIGGING SLIGHTLY INTO BED AND RESTING UNIFORMLY. ADJUST TO LINE AND GRADIENT.
b) LAY & COMPACT GRANULAR MATERIAL UNIFORMLY TO HALFWAY UP EACH SIDE OF PIPE.
c) BACKFILL WITH SELECTED CUSHION OF 'SELECTED FILL'. COMPACT BY HAND IN 100mm LAYERS TO 150mm (250mm FOR ADAPTABLE SEWERS) ABOVE CROWN OF PIPE.



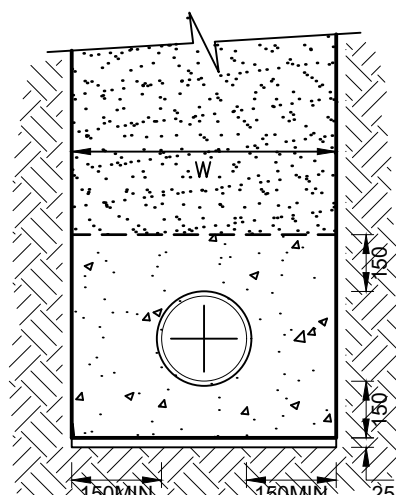
CLASS 'B' HALF DEPTH GRANULAR SURROUND FOR VITRIFIED CLAY PIPEWORK
COVER > 1200mm in ROADS/PARKING
COVER > 600mm in SOFT LANDSCAPING
SCALE - 1:20

CLASS 'S' GRANULAR SURROUND
a) LAY AND COMPACT TO A THICKNESS NOT LESS THAN 100mm OVER FULL WIDTH OF TRENCH WHERE TRENCH BOTTOM IS UNEVEN DUE TO HARD SPOTS INCREASE DEPTH BY 100mm. LAY PIPES DIGGING SLIGHTLY INTO BED AND RESTING UNIFORMLY. ADJUST TO LINE AND GRADIENT.
b) LAY & COMPACT GRANULAR MATERIAL IN 100mm LAYERS TO 100mm ABOVE CROWN OF PIPE. SIDEFILL MATERIAL TO BE PLACED EVENLY ON BOTH SIDES OF PIPE TAKING CARE TO WORK THE MATERIAL UNDER THE LOWER QUADRANT OF THE PIPE (ENSURING THE PIPE IS NOT LIFTED). BOTH SIDES OF THE TRENCH SHOULD BE FILLED SIMULTANEOUSLY TO AVOID HORIZONTAL MOVEMENT OF THE PIPE.
c) BACKFILL WITH SELECTED CUSHION OF 'SELECTED FILL'. COMPACT BY HAND IN 100mm LAYERS TO 150mm (250mm FOR ADAPTABLE SEWERS) ABOVE CROWN OF PIPE.



CLASS 'S' GRANULAR SURROUND FOR PVC STRUCTURED PIPES
COVER > 1200mm in ROADS/PARKING
COVER > 600mm in SOFT LANDSCAPING
SCALE - 1:20

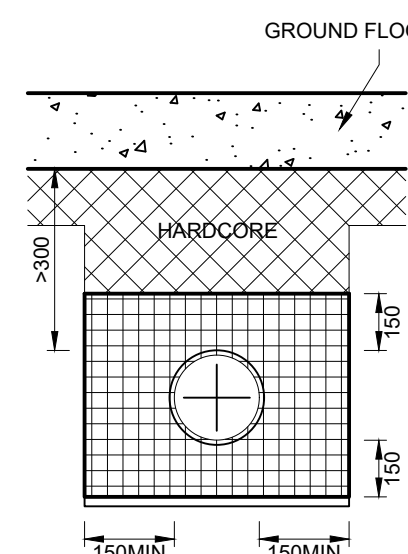
CLASS 'Z' CONCRETE SURROUND
a) FOR CONCRETE MIX SEE NOTE 2
b) LAY CONCRETE BLINDING, 25mm THICK OVER FULL WIDTH OF TRENCH & ALLOW TO SET.
c) LAY PIPES ON BLINDING ON FOLDING WEDGES OF COMPRESSIBLE BOARD TO GIVE MIN 150mm CLEARANCE UNDER THE PIPE.
d) FORM VERTICAL CONSTRUCTION JOINTS IN SURROUND AT FACE OF FLEXIBLE PIPE JOINTS AT MAX 5m c/c USING 18mm THICK COMPRESSIBLE BOARD PRECUT TO PROFILE OF PIPE. FILL ANY GAP BETWEEN SPIGOT AND SOCKET WITH RESILIENT MATERIAL TO PREVENT ENTRY OF CONCRETE.
e) AFTER INITIAL TESTING, PLACE AND COMPACT MORE CONCRETE FOR FULL WIDTH OF TRENCH TO ENCASE PIPE TO 150mm ABOVE CROWN.



CLASS 'Z' CONCRETE SURROUND
COVER > 1200mm in ROADS/PARKING
COVER > 600mm in SOFT LANDSCAPING
SCALE - 1:20

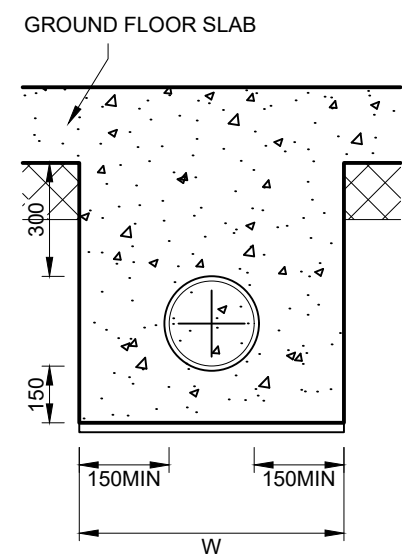
PIPE DIA.	WIDTH
150	600
225	700
300	750
375	1050
400	1100
450	1150
525	1200
600	1350
675	1450
750	1500
900	1900

DIM 'A'
MIN 250 (ADAPTABLE)
MIN 150 (GENERALLY)



PIPE BEDDING DETAIL BELOW SLAB
(WHERE MORE THAN 300mm COVER)
SCALE - 1:20

CLASS 'Y' CONCRETE SURROUND
a) WHERE CROWN OF PIPE IS LESS THAN 300mm BELOW UNDERSIDE OF SLAB, ENCASE PIPE IN CONCRETE OF SAME MIX AS SLAB AND CAST INTEGRALLY WITH SLAB. EXTEND LENGTH OF CONCRETE TO WITHIN 150mm OF NEAREST FLEXIBLE JOINT.
b) EXCAVATE TRENCH AFTER HARDWARE HAS BEEN LAID AND COMPACTED.
c) LAY CONCRETE BLINDING, 25mm THICK OVER FULL WIDTH OF TRENCH & ALLOW TO SET.
d) LAY PIPES ON BLINDING ON FOLDING WEDGES OF COMPRESSIBLE BOARD TO GIVE A MINIMUM 150mm CLEARANCE UNDER THE PIPE.



CLASS 'Y' CONCRETE SURROUND BELOW SLAB
(WHERE LESS THAN 300mm COVER)
SCALE - 1:20



GENERAL FILL MATERIALS
TRENCHES SHALL BE BACKFILLED WITH MATERIAL EXCAVATED FROM WITHIN THE SITE OR IMPORTED ON TO THE SITE WHICH MEETS THE REQUIREMENTS OF A CLASS 1, 2 OR 3 GENERAL FILL MATERIAL COMPLYING WITH OF THE 'SPECIFICATION FOR HIGHWAY WORK, SERIES 600, TABLE 6/1. MECHANICAL COMPACTION OF MAIN BACKFILL MATERIAL SHOULD NOT BE COMMENCED UNTIL THERE IS A TOTAL COVER DEPTH OF 300mm ABOVE THE CROWN OF PIPE.



SELECTED FILL (FILL SELECTED FROM EXCAVATED MATERIAL)
SELECTED FILL FROM EXCAVATED MATERIAL SHOULD BE READILY COMPACTABLE BY HAND AND FREE FROM TIMBER, FROZEN MATERIAL, VEGETABLE MATTER AND FOREIGN MATTER AND EXCLUDE HARD LUMPS OF CLAY RETAINED ON A 100mm SIEVE AND STONES RETAINED ON A 40mm SIEVE.



GRANULAR PIPE BEDDING
PRIVATE PIPEWORK
FOR PIPE SIZE DN100 & DN150, GRANULAR SUPPORT TO COMPLY WITH THE REQUIREMENTS OF A MATERIAL OF DESIGNATION TYPE 4/10 TO BS EN 12620:2002 (i.e. 10mm SINGLE SIZED). FOR PIPE SIZE DN225 & DN300, GRANULAR SUPPORT TO COMPLY WITH THE REQUIREMENTS OF A MATERIAL OF DESIGNATION TYPE 4/20 TO BS EN 12620:2002 (i.e. THE MATERIAL SHOULD HAVE A PARTICLE SIZE THAT IS PREDOMINANTLY WITHIN THE RANGE OF 5 TO 20mm).
ADOPTED PIPEWORK
BEDDING AND SIDEFILL MATERIAL TO CONFORM TO THE REQUIREMENTS OF WATER INDUSTRY SPECIFICATION (WIS) 4-06-02 - 'SPECIFICATION FOR BEDDING AND SIDEFILL MATERIALS INCLUDING RECYCLED AGGREGATES FOR BURIED PIPELINES' (FEBRUARY 1994, INCORPORATING NOVEMBER 2008 AMMENDMENTS).

PIPE SIZE / STRENGTH CLASS / BEDDING
FOR EACH PIPE SIZE THE STRENGTH CLASS AND BEDDING/SIDEFILL (DEPENDANT ON COVER PROVIDED AND DESIGNATION OF SURFACING ie ROADS/PARKING, SOFT LANDSCAPING) SHOULD BE AS FOLLOWS -

CLAY PIPEWORK
VITRIFIED CLAY DRAINAGE GOODS TO BE HEPWORTH SUPERSLEVE OR SIMILAR APPROVED TO BS EN 295-1 (KITEMARKED).

PVC-U PIPEWORK
PVC-U DRAINAGE GOODS TO BE HEPWORTH PLASTIDRAIN (110 to 1600), HEPWORTH SEWERDRAIN (200 to 6300) OR SIMILAR APPROVED TO BS 4660:2000 AND BS EN 1401-1:1998.

SIZE:	DN 100	DN150	DN225	DN300
STRENGTH:	FN 40	FN 40	FN 45	FN 72
BEDDING:	CLASS 'B'	CLASS 'B'	CLASS 'B'	CLASS 'B'

- 1.0 GENERAL**
- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S, ENGINEER'S & SPECIALIST'S DRAWINGS & SPECIFICATIONS.
 - WORK TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT GOOD PRACTICE, BUILDING REGULATIONS AND SUBSEQUENT AMENDMENTS, THE PROJECT SPECIFICATION, RELEVANT BRITISH STANDARDS AND CODES OF PRACTICE. MATERIALS AND COMPONENTS TO BE SUITABLE FOR THEIR INTENDED USE.

A	27/05/26	JSD	TYPICAL JUNCTION DETAIL ADDED.
REV	DATE	DRN	DESCRIPTION

PURPOSE OF ISSUE	PRELIMINARY
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CLIENT	EDGEFOLD HOMES
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PROJECT	SPRINGSIDE ROAD WALMERSLEY BURY
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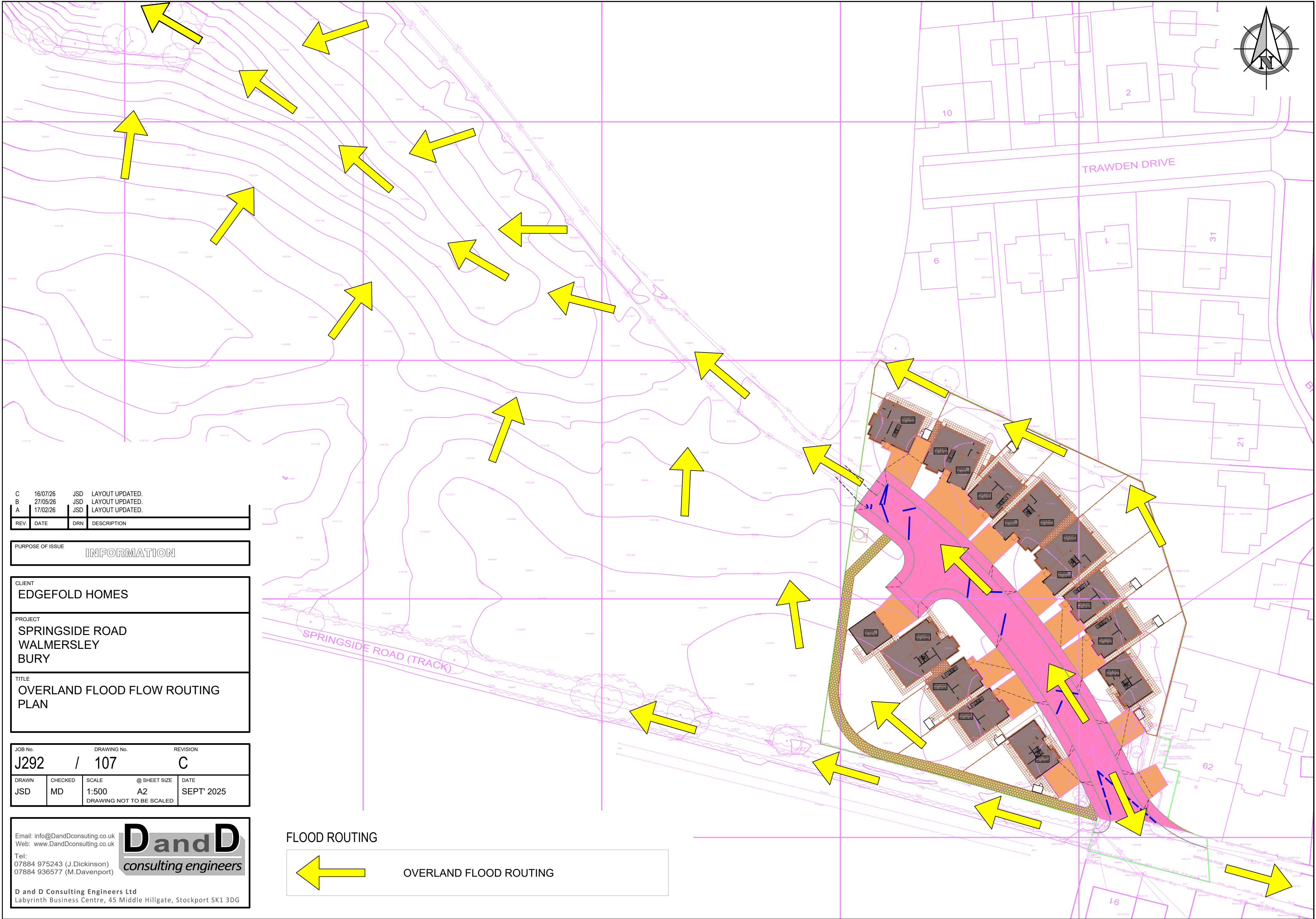
TITLE	TYPICAL DRAINAGE DETAILS (PRIVATE)
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JOB No.	J292	DRAWING No.	106	REVISION	A
DRAWN	JSD	CHECKED	MD	@ SHEET SIZE	A1
DATE	SEPT' 2025	DRAWING NOT TO BE SCALED			

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C	16/07/26	JSD	LAYOUT UPDATED.
B	27/05/26	JSD	LAYOUT UPDATED.
A	17/02/26	JSD	LAYOUT UPDATED.
REV.	DATE	DRN	DESCRIPTION

PURPOSE OF ISSUE
INFORMATION

CLIENT
EDGEFOLD HOMES

PROJECT
**SPRINGSIDE ROAD
WALMERSLEY
BURY**

TITLE
**OVERLAND FLOOD FLOW ROUTING
PLAN**

JOB No.	DRAWING No.	REVISION
J292	/ 107	C
DRAWN	CHECKED	SCALE
JSD	MD	1:500
		@ SHEET SIZE
		A2
		DATE
		SEPT' 2025
		DRAWING NOT TO BE SCALED

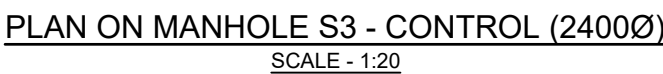
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FLOOD ROUTING

← OVERLAND FLOOD ROUTING



**BENCHING DETAILS FOR OVERSIZED SEWERS
TO BE IN ACCORDANCE WITH UNITED UTILITIES
STANDARD DRAWING NUMBERS STND/19/002
REV A, 004 REV A & 010 REV A.**

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