



Queensberry
DESIGN LIMITED
RESIDENTIAL AND COMMERCIAL DESIGN CONSULTANTS

Strata and Thirteen Group

Main Avenue, Cowersley, Huddersfield

DRAINAGE MAINTENANCE PLAN REV 04

October 2025

Regional Office: Brookfield Court, Selby Road, Leeds, LS25 1NB
Head Office: The Staithes, The Watermark, Gateshead, NE11 9SN

ISSUE SHEET

Prepared	Date		Checked	Date
ND	04.11.2024		RPB	20.11.2024
P01	Initial Issue			14.11.2024
P02	Table headings amended – current site layout and drainage design added			11.12.2024
P03	Updated following planning consultation and site investigation			24.07.25
P04	Appendix drawings updated in line with revised layout for planning issue			07.10.25

This document has been prepared solely as a Drainage Maintenance Plan for Strata and Thirteen Group, Queensberry Design Ltd accepts no responsibility or liability for any use that is made of this document other than by the Client for which it was originally commissioned and prepared.

Regional Office:

Queensberry Design (Yorkshire) Ltd
Brookfield Court
Selby Road
Leeds
LS25 1NB

T:0113 517 7099

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APPENDICES

Appendix 1 – Engineering Design

Appendix 2 – Drainage Maintenance Responsibilities

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1. Introduction

- 1.1 Queensberry Design Ltd has been commissioned by Strata and Thirteen Group to prepare a Drainage Maintenance Plan in connection with a proposed residential development at Main Avenue, Huddersfield.
- 1.2 This Drainage Maintenance Plan has been produced to demonstrate how the proposed drainage features will be managed and maintained to satisfy the requirements set out in CIRIA C753 SuDS Manual and the requirements of Sewerage Sector Guidance and Kirklees Council.

2. Site Description

- 2.1 It is proposed to construct 57 dwellings on a single portion of land currently comprising open scrubland.
- 2.2 The application boundary is 2.12 ha with a developed area of 1.55 ha and is located 2km west of Huddersfield town centre, within the Cowersley area at a national grid reference of SE 110151.
- 2.3 Boundary features around the site are residential dwellings to the east, west and part of the northern boundary, the southern boundary is open undeveloped land, Woodside Green Primary School forms the majority of the northern boundary.

3. Management of Surface Water

- 3.1 Surface water flows are being attenuated by underground attenuation to a rate of 3.5 litres/second before discharge into the existing combined sewer network.
- 3.2 The attenuation is designed to accommodate flows up to and including the 1 in 100-year event plus 45% climate change.
- 3.3 As the ground conditions are unsuitable for infiltration and no permeable surfaces are proposed.
- 3.4 The Engineering Layouts can be viewed in Appendix 1.
- 3.5 All new adoptable standard surface water drainage is designed in accordance with 'The Design and Construction Guidance Document (DCG).

4. Management and Maintenance Responsibilities

Section 104 Drainage

- 4.1 The Section 104 drainage will be adopted by Yorkshire Water. Upon adoption, Yorkshire Water will be responsible for future maintenance of this system. Once a suitable number of dwellings are connected to the Section 104 drainage system (51% of the total) the system will be subject to a 12 month maintenance period where defects encountered will be rectified before the adoption is complete. During the construction and maintenance periods, the maintenance of the system will be the responsibility of Strata and Thirteen Group. The sewers will be inspected by site management frequently and after rainfall events to ensure effective operation.

Section 104 Drainage (before adoption)

- 4.2 If in the unlikely event that Yorkshire Water does not commence the vesting process of the drainage system and the system remains unadopted for a period of time, the responsibility of the management and maintenance of the prospective adoptable drainage system will remain with Thirteen Group as the landowner.
- 4.3 Management and maintenance of the system shall be carried out in accordance with this document.

Private Drainage System

- 4.4 The private plot drainage system will be maintained by Strata and Thirteen during the construction phase. Following the completion of the development, the maintenance of the private drainage system will become the responsibility of Thirteen Group.
- 4.5 If a property is sold by Thirteen to a current occupier, the responsibility of the drainage system within the conveyance redline will cease to be Thirteen and become the homeowner.

Contact Details

- 4.6 The developer/main contractor is to ensure that a Site Waste Management Plan, Health and Safety Plan, Construction Management Plan and Surface Water Management plan are prepared and implemented; and that works are carried out in accordance with Ciria Guidance.

Company Name	Strata
Company Address	Quay Point, Lakeside Boulevard, Doncaster, DN4 5PL
Email Address	
Telephone Number	01302 308 508
Emergency 24hr callout/out of hours number	

Details of who is responsible for the final management and maintenance

- 4.7 The attenuation and adoptable drainage will be managed and maintained in accordance with the guidance outlined in this document and Sewerage Sector Guidance by Yorkshire Water:

Company Name	Yorkshire Water Ltd.
Company Address	Western House, Western Way Bradford, BD6 2SZ
Email Address	
Telephone Number	0345 124 2424
Emergency 24hr callout/out of hours number	

- 4.8 The below ground drainage within the dwelling curtilage (private drainage) will be managed and maintained in accordance with the guidance outlined in this document by Thirteen Group:

Company Name	Thirteen Group
Company Address	2 Hudson Quay, Windward Way, Middlesbrough, TS2 1QG
Email Address	
Telephone Number	03000 111 1000
Emergency 24hr callout/out of hours number	

Expected Handover

- 4.9 The expected handover date is to be confirmed. However, it is normally on completion of plot connections to the main drainage and handover to the dwellings from the main contractor.

Funding Arrangements

- 4.10 The installation and initial management of the drainage infrastructure will be funded by Strata and Thirteen until final inspection and handover to a Yorkshire Water

5. Maintenance Activities

- 5.1 The scheme has proposed stormwater systems consisting of:
- Below-ground drainage – main drainage (adopted under Section 104)
 - Below-ground drainage – house drainage (within plot curtilage)
 - Attenuation tank and flow control device
 - Surface water flow routes

5.2 There are three categories of maintenance activities referred to in this report:

Regular Maintenance (including inspections and monitoring)

5.3 Consists of basic tasks done on a frequent and predictable schedule, including vegetation management, litter and debris removal, and inspections.

Occasional Maintenance

5.4 Comprises tasks that are likely to be required periodically but on a much less frequent and predictable basis than routine tasks (sediment removal is an example).


Remedial Maintenance

5.5 Comprises intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design.

6. Attenuation Tank and Flow Control

6.1 The scheme proposes 1No attenuation tank to assist with the controlled release of surface water to the existing public sewer network.

6.2 The details of the tank layout can be found in Appendix 1.

<p>Tank Internal Height: 2.0m Volume: 780m³ Flow Control Manhole: S13 Flow Control: Storm Brake Discharge Rate: 3.5 l/s Outfall: Combined sewerage Accessed from: Public Road/footpath</p>	 <p>The image is a technical site plan showing the layout of the drainage system. A large blue-shaded rectangular area represents the attenuation tank. It is surrounded by a network of orange and blue lines representing sewer pipes and manholes. The plan also shows surrounding roads and buildings, with labels for various infrastructure elements like 'Manhole S13' and 'Storm Brake'.</p>
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6.3 The primary function of the attenuation tank is to provide flow control through attenuation of stormwater runoff. The required maintenance activities can be seen in Table 1.

6.4 The vortex flow control device located downstream from the tank will regulate the flow before discharge to the existing network, the maintenance requirements of the flow control can be viewed in Table 2.

TABLE 1 - Operation and Maintenance Requirements for Attenuation Tank		
Schedule	Required Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required take remedial action	3 monthly – <i>during construction</i> Annually – <i>after construction</i>
	Remove debris from catchment surface (where it may cause risks to performance)	Monthly – <i>during construction</i>
Occasional Maintenance	Repair of inlets and outlines	As required
Remedial Maintenance	Inspect/check all inlets, and outlets to ensure that they are in good condition and operating as designed	After a large storm event - <i>during construction</i> Annually – <i>after construction</i>
	Survey the inside of the tank for sediment build-up and remove if necessary	Every 5 years or as required

TABLE 2 - Operation and Maintenance Requirements for Vortex Flow Control		
Schedule	Required Action	Frequency
Regular Maintenance	Inspection and removal of litter/debris	3 monthly – <i>during construction</i> Annually – <i>after construction</i>
Occasional Maintenance	For blockages resulting in flooded manhole chambers, drain down manhole chamber via penstock and unlock	As required
Remedial Maintenance	Inspect unit and hose down as required	After a large storm event - <i>during construction</i> Annually – <i>after construction</i>

7. Main Drainage (Adopted under Section 104)

- 7.1 The main drainage system to be offered for adoption under a Section 104 agreement will be managed by Strata and Thirteen until the system is vested and adopted by Yorkshire Water, the management and maintenance of the system shall be carried out in accordance with Table 3

TABLE 3 - Operation and Maintenance Requirements for Main Drainage (Adopted under Section 104)		
Schedule	Required Action	Frequency
Regular Maintenance	Removal of debris (which could be leaves, rubbish, branches) from areas served by the drainage (where it causes a risk to performance)	3 monthly – <i>during construction</i> Annually – <i>after construction</i>
	Inspections to include gratings and covers, locking bolts, exposed concrete and flushing with high-pressure jetting as required	3 monthly – <i>during construction</i> Annually – <i>after construction</i>
Occasional Maintenance	For blockages resulting in flooded manhole chambers, drain down manhole chamber and unblock	As required
	For pipework blockages, rod or jet clean between access points to unblock	
Remedial Maintenance	Lift covers and inspect chambers for damage and incorrect operation	After a large storm event - <i>during construction</i> Annually – <i>after construction</i>

8. House drainage

8.1 The house drainage system i.e. private drainage not included in the Section 104 agreement will remain the responsibility of the land/property owner Thirteen Group.

8.2 The maintenance schedule is outlined in Table 4 responsibilities.

TABLE 4 - Operation and Maintenance Requirements for House Drainage		
Schedule	Required Action	Frequency
Regular Maintenance	Removal of debris (which could be leaves, rubbish, branches) from areas served by the drainage (where it causes a risk to performance)	3 monthly – <i>during construction</i> Annually – <i>after construction</i>
	Inspections to include gratings and covers, locking bolts, exposed concrete and flushing with high-pressure jetting as required.	3 monthly – <i>during construction</i> Annually – <i>after construction</i>
	Inspection of gullies and drainage channels and flushing with high-pressure jetting	6 monthly – <i>during construction</i> As required – <i>after construction</i>

Occasional Maintenance	For blockages resulting in flooded manhole chambers, drain down manhole chamber and unblock For pipework blockages, rod or jet clean between access points to unblock	As required
Remedial Maintenance	Lift covers and inspect chambers for damage and incorrect operation	After a large storm event - <i>during construction</i> Annually – <i>after construction</i>

9. Gullies

- 9.1 Trapped road gullies provide a degree of pollution control in preventing silt and debris from passing from the site into the main sewer network. Road gullies are provided throughout the adoptable road network.
- 9.2 The highway gullies will be adopted by Kirklees Council under a Section 38 agreement.
- 9.3 The maintenance schedule is outlined in Table 5 responsibilities.

TABLE 5 - Operation and Maintenance Requirements for Trapped Road Gullies		
Schedule	Required Action	Frequency
Regular Maintenance	Clean and empty gullies	Quarterly

10. Land Drainage

- 10.1 A land drainage system is required to collect run-off from existing sources as set out in the Flood Risk Assessment. The land drainage network consists of 225mm pipe within the carriageway verge and between plots 42 – 43. A headwall is required on the high side of the retaining wall to the rear plot plots 42 – 43. The land drainage system will be managed by Strata and Thirteen during construction. Upon completion of the development, the management will be the responsibility of Thirteen as the landowner. The management and maintenance of the system shall be carried out in accordance with Table 6.

TABLE 6 - Operation and Maintenance Requirements for Land Drainage		
Schedule	Required Action	Frequency
Regular Maintenance	Removal of debris (which could be leaves, rubbish, branches) from areas served by the drainage (where it causes a risk to performance)	3 monthly – <i>during construction</i> Annually – <i>after construction</i>
	Inspections to include gratings and covers, locking bolts, exposed concrete and flushing with high-pressure jetting as required	3 monthly – <i>during construction</i> Annually – <i>after construction</i>

Occasional Maintenance	For blockages resulting in flooded manhole chambers, drain down manhole chamber and unblock For pipework blockages, rod or jet clean between access points to unblock	As required
Remedial Maintenance	Lift covers and inspect chambers for damage and incorrect operation	After a large storm event - <i>during construction</i> Annually – <i>after construction</i>

11. Exceedance routes

- 11.1 Existing overland flow routes enter the development which are directed to the original flow destination point via the public road network and shared drives.
- 11.2 The shared drives will remain under the ownership and management of Thirteen Group and must allow for the routing of surface water run-off as the exceedance drawing in appendix 1.
- 11.3 The road and drive network channelling the flow route shall be managed in accordance with Table 7.

TABLE 7 - Operation and Maintenance Requirements for Exceedance Routes		
Schedule	Required Action	Frequency
Regular Maintenance	Inspection and removal of excess litter/debris	Quarterly – during construction
Occasional Maintenance	Check route is not blocked by new fences, walls, stored materials, soil or other rubbish and remove as necessary	Monthly – <i>during construction</i> Annually – <i>after construction</i>
Remedial Maintenance	Repair (as a result of damage or vandalism)	As required

12. Important Information

- 12.1 The asset owners or management company is to familiarise themselves with the site constraints plan detailing existing utility locations across the scheme notably the presence of underground HV, watermain and foul sewerage.
- 12.2 The LLFA will be notified once the maintenance and management have been handed over to the responsible company. If a new management company is ever appointed details will be provided to the Lead Local Flood Authority.

Appendix 1 – Engineering Design

S104 ADOPTED SURFACE WATER MANHOLE SCHEDULE. Table with columns: MH No., DIAGRAM, CONDUIT INVERTS (m), MANHOLE DIMENSION (mm), MANHOLE TYPE, COVER TYPE, COVER LEVEL (m), INVERT LEVEL (m), DEPTH TO SOFFIT (m), ACCESS SIZE (mm), EASTING (m), NORTHING (m). Rows include HW1, S1, S2, S3, S4, S5, S6, S7, S8, S9, S11, S12, S14, S17, S26, S27, S13FC.

S104 ADOPTED COMBINED WATER MANHOLE SCHEDULE. Table with columns: MH No., DIAGRAM, CONDUIT INVERTS (m), MANHOLE DIMENSION (mm), MANHOLE TYPE, COVER TYPE, COVER LEVEL (m), INVERT LEVEL (m), DEPTH TO SOFFIT (m), ACCESS SIZE (mm), EASTING (m), NORTHING (m). Rows include C1, C2, C3, C4, C5, C6, C7, C8, C9, C9A, C10, C11, C12, C13, C14.

S104 ADOPTED FOUL WATER MANHOLE SCHEDULE. Table with columns: MH No., DIAGRAM, CONDUIT INVERTS (m), MANHOLE DIMENSION (mm), MANHOLE TYPE, COVER TYPE, COVER LEVEL (m), INVERT LEVEL (m), DEPTH TO SOFFIT (m), ACCESS SIZE (mm), EASTING (m), NORTHING (m). Row includes F1.

S104 ADOPTED FOUL WATER LATERAL MANHOLE SCHEDULE. Table with columns: MH No., DIAGRAM, CONDUIT INVERTS (m), MANHOLE DIMENSION (mm), MANHOLE TYPE, COVER TYPE, COVER LEVEL (m), INVERT LEVEL (m), DEPTH TO SOFFIT (m), ACCESS SIZE (mm), EASTING (m), NORTHING (m). Rows include FD/2, FD/4, FD/11, FD/3A, FD/3B, FD/5A, FD/5B, FD/7A, FD/7B, FD/8A, FD/8B, FD/12.

S104 ADOPTED SURFACE WATER CULVER MANHOLE SCHEDULE. Table with columns: MH No., DIAGRAM, CONDUIT INVERTS (m), MANHOLE DIMENSION (mm), MANHOLE TYPE, COVER TYPE, COVER LEVEL (m), INVERT LEVEL (m), DEPTH TO SOFFIT (m), ACCESS SIZE (mm), EASTING (m), NORTHING (m). Rows include SC1, SC3, SC4, SC5, SC6, SC7, SC8, SC10, SC11, SC12, SC13, SC14, SC15.

S104 ADOPTED SURFACE WATER LATERAL MANHOLE SCHEDULE. Table with columns: MH No., DIAGRAM, CONDUIT INVERTS (m), MANHOLE DIMENSION (mm), MANHOLE TYPE, COVER TYPE, COVER LEVEL (m), INVERT LEVEL (m), DEPTH TO SOFFIT (m), ACCESS SIZE (mm), EASTING (m), NORTHING (m). Rows include SD/1, SD/2, SD/3, SD/4, SD/8, SD/5A, SD/5B, SD/7A, SD/7B, SD/9A, SD/9B, SD/14, SD/26.

EXISTING MANHOLE SCHEDULE. Table with columns: MH No., DIAGRAM, CONDUIT INVERTS (m), MANHOLE DIMENSION (mm), MANHOLE TYPE, COVER TYPE, COVER LEVEL (m), INVERT LEVEL (m), DEPTH TO SOFFIT (m), ACCESS SIZE (mm), EASTING (m), NORTHING (m). Rows include EX 9002, EX 9101, EX 0102, EX 0202, EX 0205, EX 0204.

GENERAL NOTES: 1. THIS DRAWING IS A DESIGN DRAWING AND IS NOT TO BE USED FOR CONSTRUCTION WITHOUT THE APPROVAL OF THE ENGINEER. 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY. 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY. 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY. 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY. 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY. 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY. 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY. 9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY. 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY.

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Revision table with columns: Rev, Date, Revised/Drawn, Checked, Drawn. Rows include 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

QUEENSBERRY DESIGN logo and contact information. Includes address: STRATHATHIRTEEN, MAIN AVENUE, COWERSLEY. Website: www.queensberrydesign.co.uk. Project name: ADOPTABLE MANHOLE SCHEDULES. Drawing number: 2153-QD-XX-HD-DR-C-05-02. Drawing title: TENDER. Scale: NTS - A0. Date: 28.02.25.

- GENERAL NOTES:**
- DO NOT USE THIS DRAWING IN ISOLATION. THIS DRAWING HAS BEEN PREPARED AS PART OF A SET, AND MUST THEREFORE BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER PRIOR TO COMMENCING WORK.
 - THIRD PARTY INFORMATION IS USED TO PREPARE THE ENGINEERING DESIGN (INCLUDING ARCHITECTURAL LAYOUT, GROUND INVESTIGATION, EXISTING UTILITIES RECORDS, AND SPECIALIST DESIGN ITEMS). THE ENGINEERING DESIGN MUST THEREFORE BE READ IN CONJUNCTION WITH ALL THIRD PARTY INFORMATION PRIOR TO COMMENCING WORK. QUEENSBERRY DESIGN LTD ARE NOT RESPONSIBLE FOR ANY THIRD PARTY INFORMATION OR DETAILS.
 - DRAWING STATUS WILL REMAIN PRELIMINARY UNTIL FULL TECHNICAL APPROVAL IS RECEIVED FROM LOCAL AUTHORITY AND SEWERAGE UNDERTAKER. WORKS COMMENCED PRIOR TO TECHNICAL APPROVAL ARE DONE SO AT YOUR RISK AND MAY BE SUBJECT TO CHANGE.
 - THE CONTRACTOR IS EXPECTED TO PREPARE APPROPRIATE CONSTRUCTION METHOD STATEMENTS FOR ALL ASPECTS OF PROPOSED WORK. THIS SHOULD INCLUDE ANY TEMPORARY PROTECTION WORKS.
 - LAND DRAINAGE IS NOT PERMITTED TO DISCHARGE INTO THE PUBLIC SEWER NETWORK. ANY NEED FOR LAND DRAINAGE SHOULD BE ASSESSED BY THE GROUND WORKER AND LANDSCAPER DURING CONSTRUCTION AND PLACEMENT OF GARDENS ON AN INDIVIDUAL PLOT BASIS. IF LAND DRAINAGE IS REQUIRED, THIS SHOULD BE APPOINTED PRIOR TO PLOT COMPLETION.
 - THE CONTRACTOR IS EXPECTED TO CHECK ALL DRAINAGE INVERTS PRIOR TO COMMENCING WORK. THE WAY IN WHICH COMPLETION OF TRENCHES RIGOROUSLY LEVELS HAVE BEEN INTERPOLATED, THE POSITION, LINE AND DIAMETER OF ALL EXISTING DRAINAGE APPARATUS SHOULD BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORKS. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER IMMEDIATELY.
 - THE CONTRACTOR MUST MONITOR THE 'AS BUILT' PROGRESS OF EACH CONSTRUCTION STAGE (ROADS/SEWERS/PLOT WORKS ETC), TO ENABLE THE NEXT STAGES OF CONSTRUCTION TO BE CHECKED BEFORE INSTALLATION.

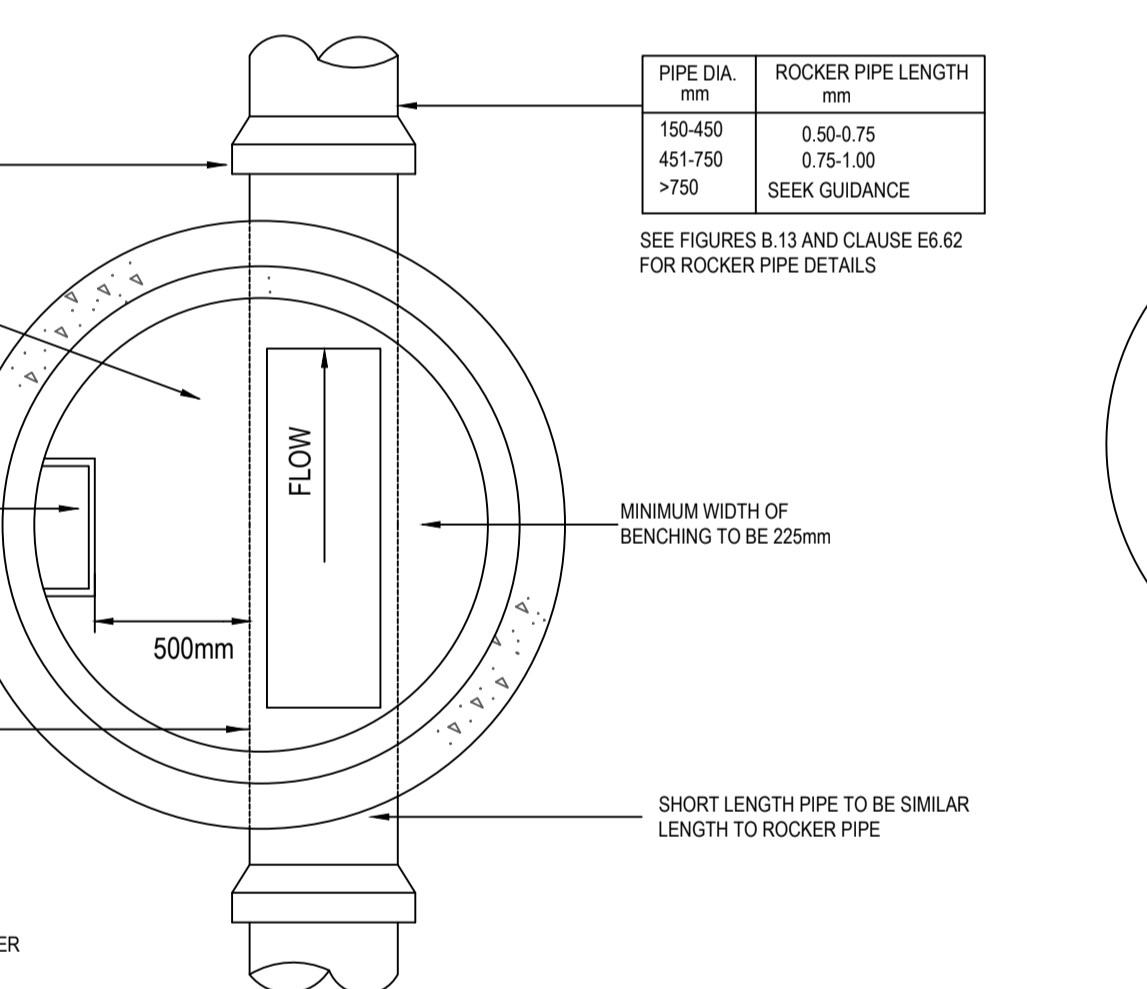
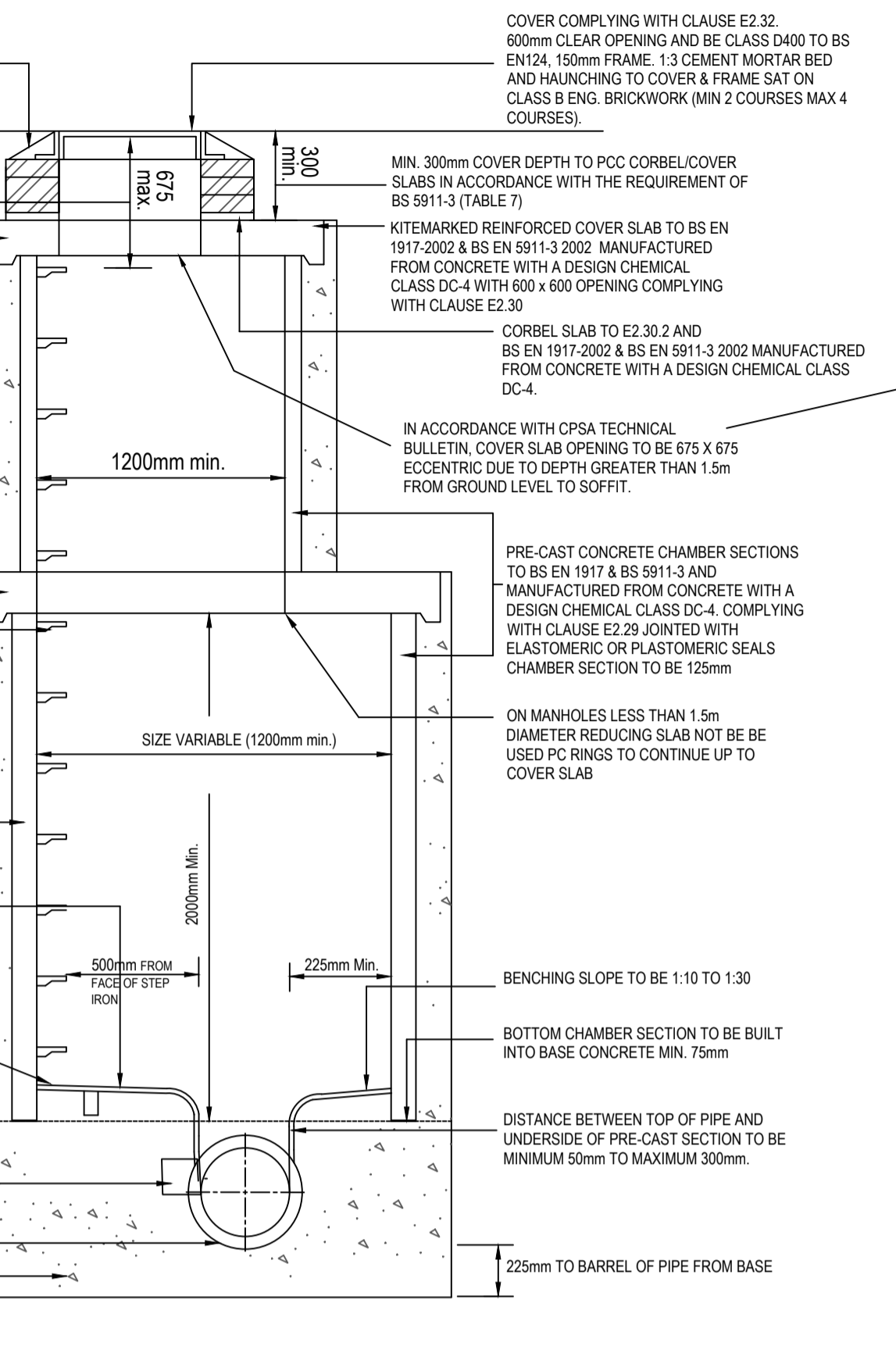
- HIGHWAYS**
- ALL HIGHWAY WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT LOCAL AUTHORITY DESIGN GUIDE AND SPECIFICATION.
 - ALL EXCAVATIONS BELOW PROPOSED AND EXISTING HIGHWAYS TO BE BACK FILLED WITH GRANULAR TYPE 1 SUB-BASE AND WELL COMPACTED IN LAYERS NOT EXCEEDING 150MM UNLESS OTHERWISE AGREED.
 - HIGHWAY AUTHORITY TO BE NOTIFIED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS.

- ADAPTABLE DRAINAGE**
- ALL ADAPTABLE SEWER WORKS AND MATERIALS TO BE IN ACCORDANCE WITH CODE FOR ADOPTION AND NATIONAL SPECIFICATION DESIGN MANUAL FOR ROADS AND BRIDGES.
 - MANHOLE COVERS SHALL HAVE A CLEAR OPENING OF 600MM AND SHALL BE CLASS D400 TO BS EN 124. ALL ADAPTABLE DRAINAGE SYSTEMS SHALL BE CLASS D400 TO BS EN 124. ALL ADAPTABLE DRAINAGE SYSTEMS SHALL BE CLASS D400 TO BS EN 124. ALL ADAPTABLE DRAINAGE SYSTEMS SHALL BE CLASS D400 TO BS EN 124.
 - SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES OR THE WIDTH OF THE CROWN AT MAXIMUM HEIGHT.
 - SEWERS TO BE LAD IN CLASS '3' BEDDING (150MM GRANULAR BED AND SURROUND), WHERE DEPTH OF COVER IS LESS THAN 1.2M IN HIGHWAYS AND VERGES OR LESS THAN 900MM IN NON-VEHICULAR ACCESS AREAS. THEN A CONCRETE SLAB SHOULD BE PROVIDED ABOVE GRANULAR BED AND SURROUND.
 - YORKSHIRE WATER POLICY IS THAT THE MINIMUM COVER DEPTH OF COVER TO PIPE SHOULD BE 1.5M.
 - ADAPTABLE PLASTIC SEWER PIPES TO BE BS 5751 (MARKED IDENTIFIED TO WIS 4-301 AND BS EN 12476). ADAPTABLE PLASTIC SEWER PIPES TO BE LAD IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS. PLASTIC CHAMBER SECTIONS IN MANHOLES ARE NOT ACCEPTABLE AND YORKSHIRE WATER WOULD REQUIRE CLAY WARE CHAMBER IN MANHOLES.
 - THE MINIMUM CRUSHING STRENGTH FOR CLAY PIPES SHOULD BE AS FOLLOWS: 100MM DIA. 40KNM, 150MM DIA. 40KNM, 225MM DIA. 40KNM AND 300MM DIA. 70KNM. THE MINIMUM CRUSHING STRENGTH FOR CONCRETE PIPES SHOULD BE (CLASS 20) TO EN 12918:1-1:2003. PLASTIC PIPES SHOULD CONFORM TO WIS 4-301 AND BS EN 12476.
 - WHERE A B125 COVER AND FRAME HAS BEEN APPROVED, THIS MUST NOT BE COATED IN PLASTIC AND MUST HAVE 150MM BEDDING SUITABLE TO ACCOMMODATE STANDARD LIFTING KEYS. SLOW DOWN COVERS ARE NOT ACCEPTABLE.
 - THERE MUST BE ENOUGH CLEARANCE AT CROSSOVERS TO ACCOMMODATE BEDDING TO BOTH PIPES. APPROX. 300MM. IF CROSSOVER IS NEAR THE ROCKER THEN THE CLEARANCE NEEDED MAY NEED TO BE INCREASED.

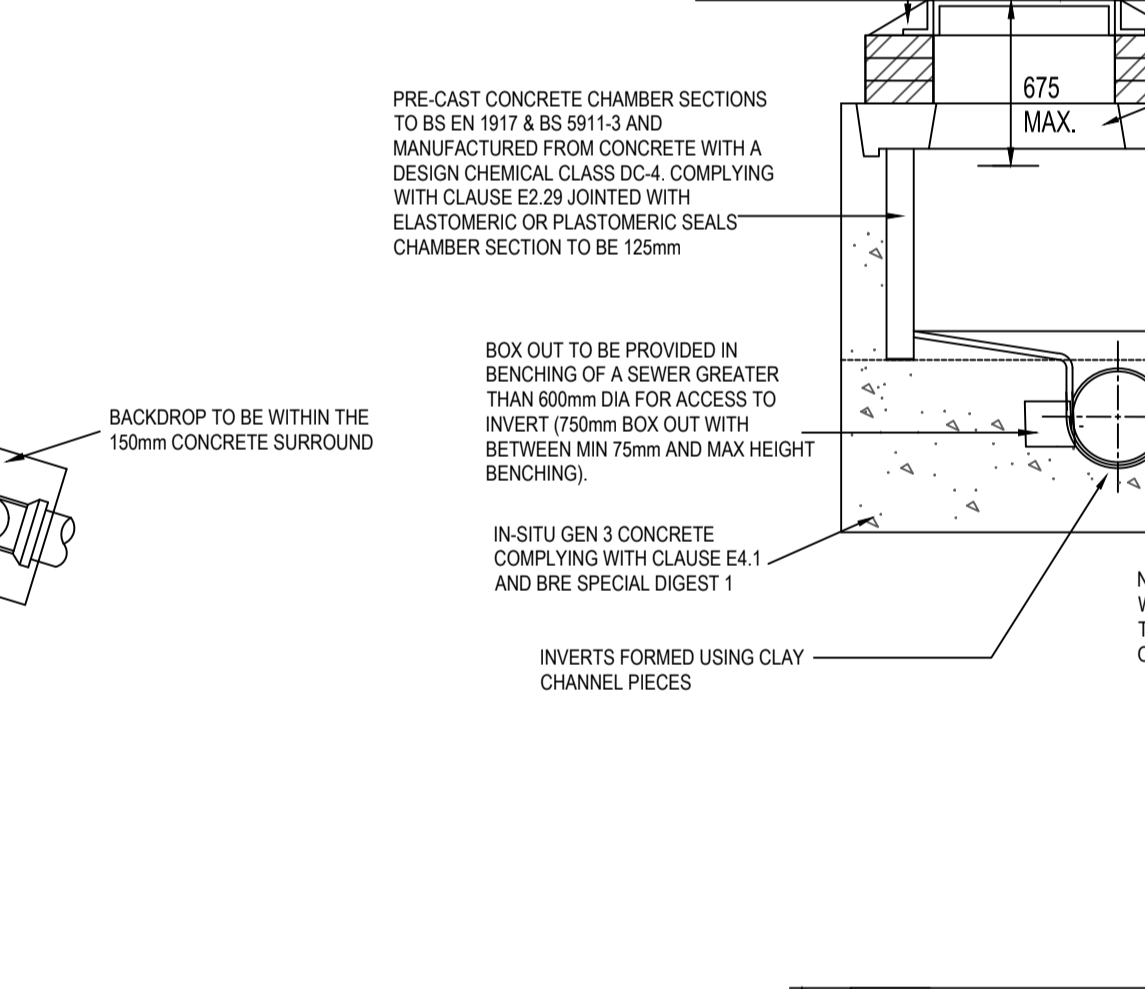
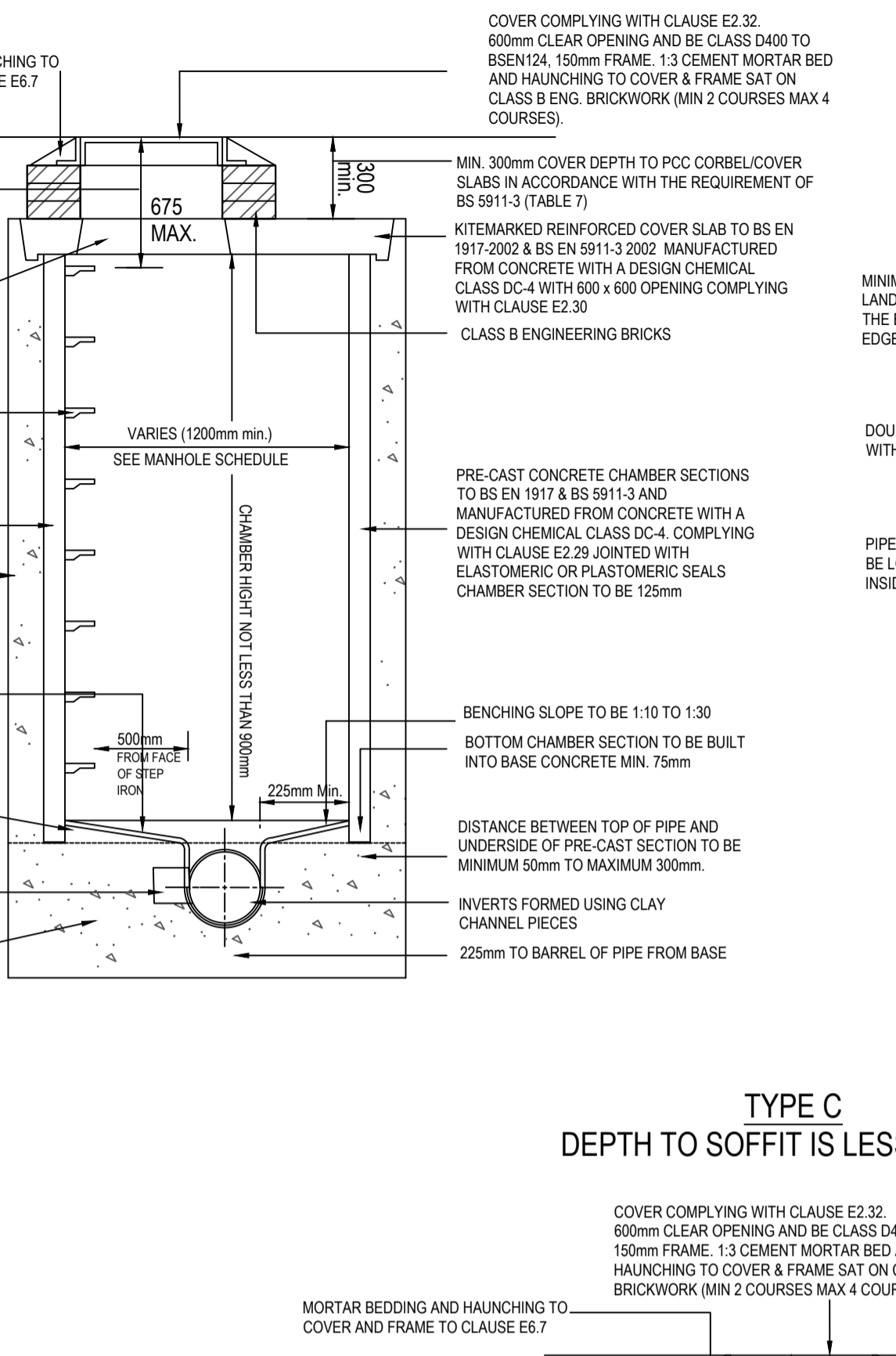
- DRAINAGE WITHIN HIGHWAY REQUIREMENTS**
- ALL ADAPTABLE SEWER WORKS AND MATERIALS TO BE IN ACCORDANCE WITH CODE FOR ADOPTION AND NATIONAL SPECIFICATION DESIGN MANUAL FOR ROADS AND BRIDGES.
 - ALL PIPES UNITS IN OVERSIZE MANHOLES MUST HAVE A DESIGN WORKING LIFE OF 100 YEARS (MIN) IN ACCORDANCE WITH BS 800-1:2015-AD-2018-TABLE A5.
 - PRE-CAST CONCRETE MANHOLE UNITS INCLUDING THEIR PCC COVER SLABS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 1917 AND BS 5911-3 AND SHALL BE MANUFACTURED FROM CONCRETE WITH A DESIGN CHEMICAL CLASS DC-4 UNLESS OTHERWISE AGREED.
 - PRE-CAST CONCRETE CORBEL SLABS SHALL COMPLY WITH BS 5911-3 TABLE 3 AND FIGURE 8.
 - COVER SLABS SHALL BE INSTALLED WITH A MINIMUM OF 300mm COVER TO FINISHED GROUND LEVEL.
 - SUBMISSION OF A CONSTRUCTION COMPLIANCE CERTIFICATE SHALL BE PROVIDED UPON COMPLETION OF DRAINAGE WORKS.

- EXISTING SERVICES**
- PRIOR TO THE COMMENCEMENT OF ANY WORKS UNDER GROUND MAPPING SURVEYS AND CONSTRAINTS PLAN IS TO BE REFERRED TO ANY DISCREPANCIES ARE TO BE REPORTED TO ENGINEER.
- ANY EXISTING SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED WORKS SHOULD BE LOCATED BY MEANS OF A HAND DIG IN CLOSE LIAISON WITH THE STATUTORY SERVICE AUTHORITIES. THE CONTRACTOR SHALL INFORM THE DEVELOPER OF ANY SERVICES THAT MAY AFFECT THE PROPOSED DESIGN. CONTRACTOR TO NOTIFY STATUTORY SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORK AS CONSTRUCTED INFORMATION IS THE CONTRACTOR'S RESPONSIBILITY. THE FOLLOWING IS CONSTRUCTED AS SHOWN IN THE DRAWINGS TO THE DEVELOPER UPON THE COMPLETION OF THE WORKS COVERED BY THE CONTRACT:
- POSITION AND ORDNATES OF ALL ADAPTABLE MANHOLES.
 - INVERT AND COVER LEVELS OF ALL ADAPTABLE MANHOLES.
 - NEW GULLY POSITIONS AND CONNECTIONS.
 - POSITION AND DEPTH OF SERVICE DUCTS FOR WATER, GAS, ELECTRIC, BT, CABLE AND STREET LIGHTING, STATING SIZE AND NUMBER OF DUCTS.

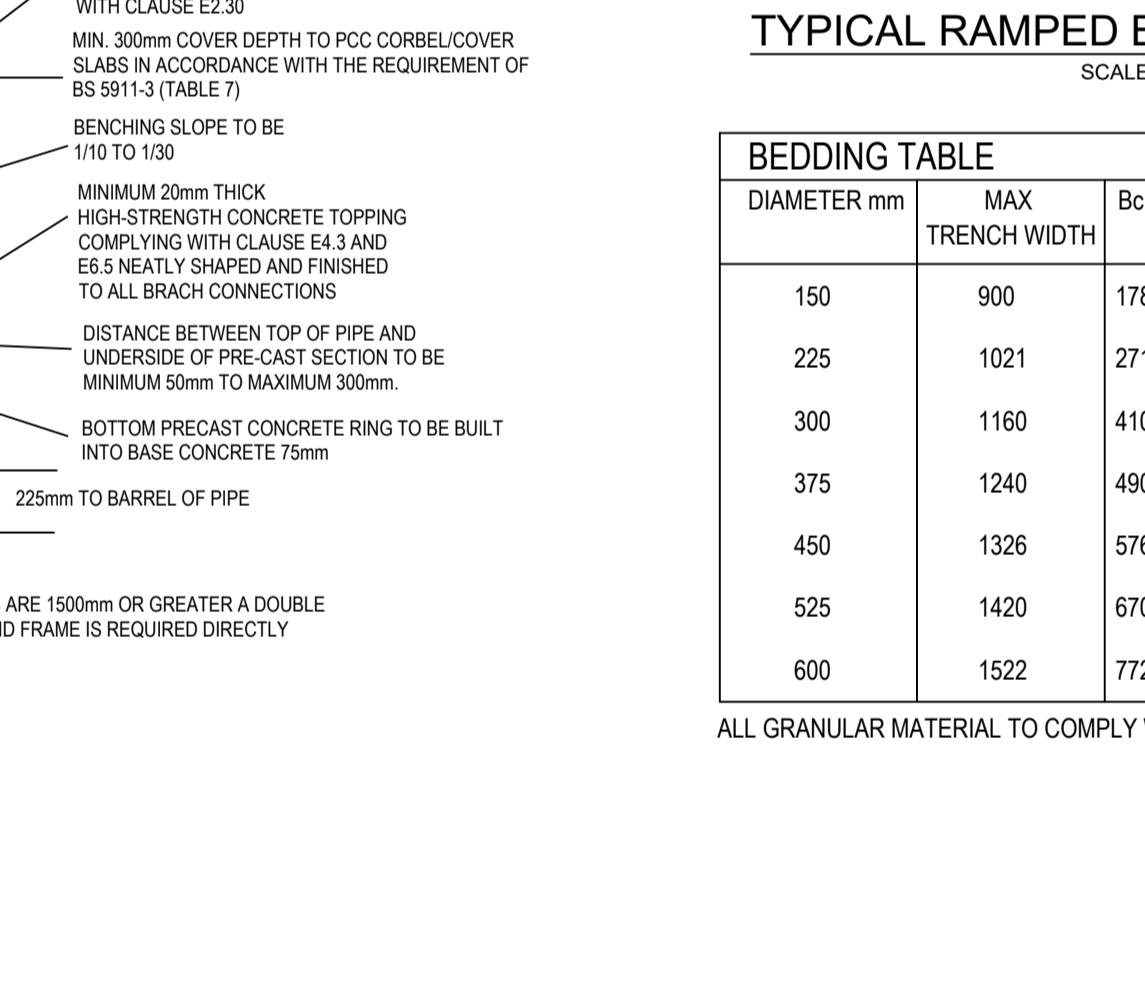
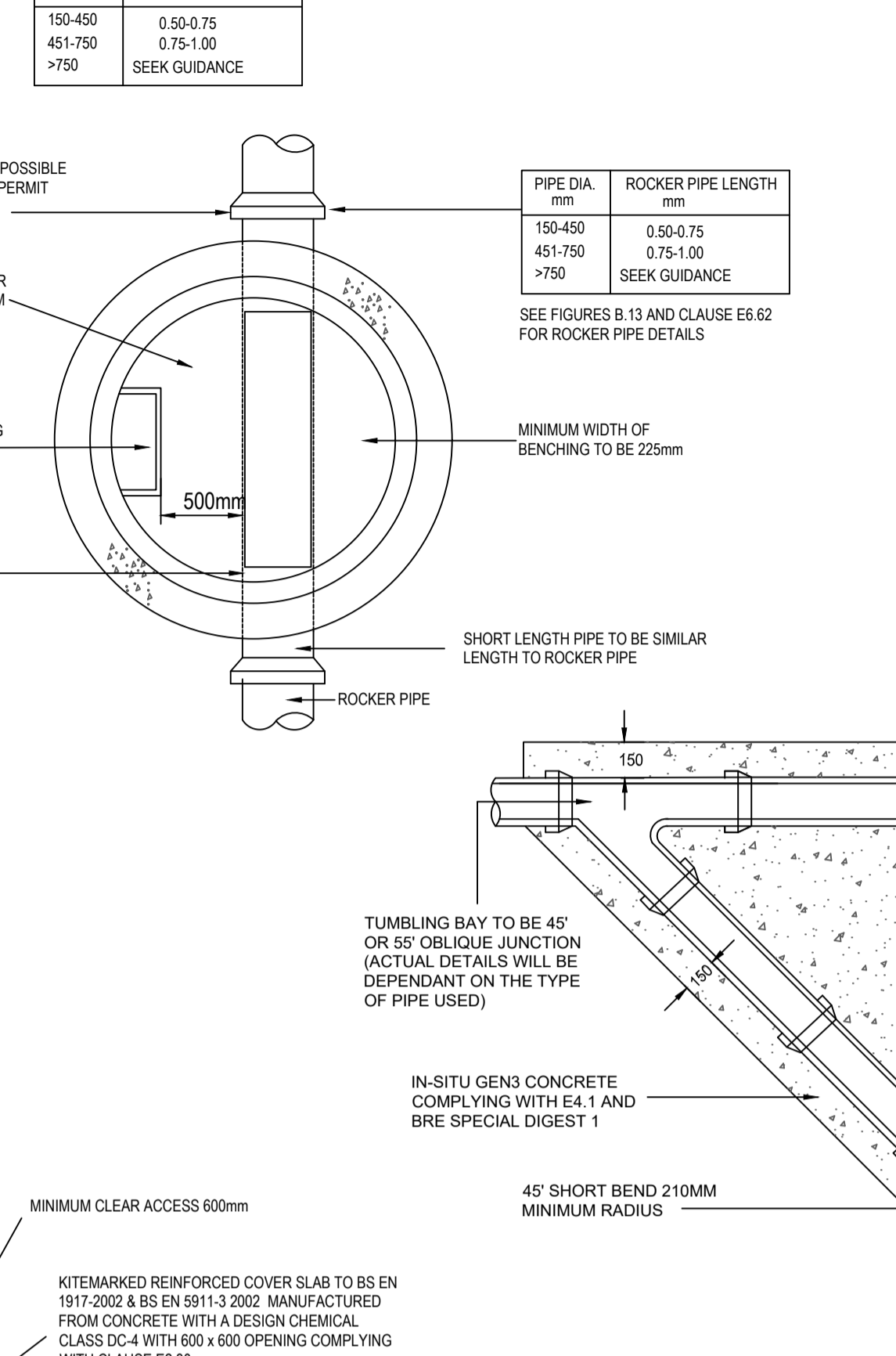
TYPE A
DEPTH TO SOFFIT 3.0 - 6.0m



TYPE B
DEPTH TO SOFFIT 1.5 - 3.0m



TYPE C
DEPTH TO SOFFIT IS LESS THAN 1.5m



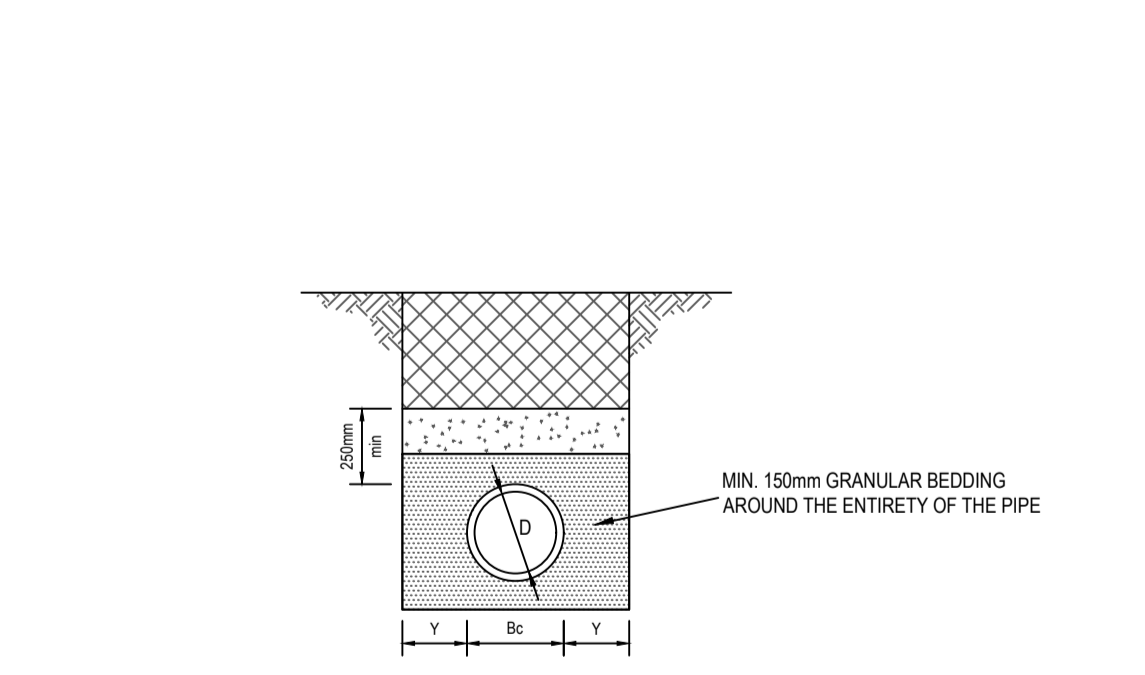
TYPICAL RAMPED BACKDROP DETAIL
SCALE 1:25

BEDDING TABLE

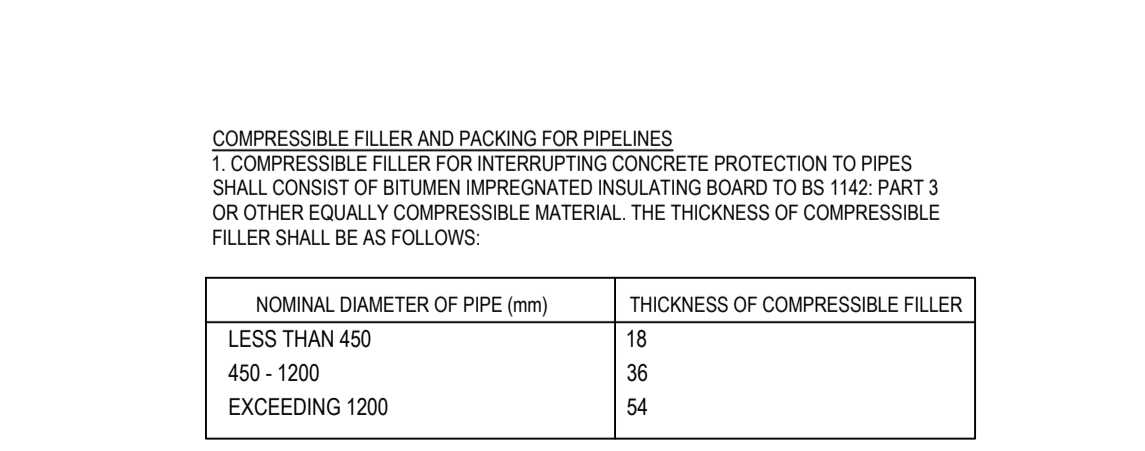
DIAMETER mm	MAX TRENCH WIDTH	Bc	Y (min)	PIPE BEDDING MATERIAL	
				PIPE SINGLE SIZE (mm)	GRADED (mm)
150	900	178	150	10 or 14	14-5
225	1021	271	150	10, 14 or 20	14-5 or 20-5
300	1160	410	150	10, 14 or 20	14-5 or 20-5
375	1240	490	150	14 or 20	14-5 or 20-5
450	1326	576	150	14 or 20	14-5 or 20-5
525	1420	670	150	14, 20 or 40	14-5, 20-5 or 40-5
600	1522	772	150	14, 20 or 40	14-5, 20-5 or 40-5

ALL GRANULAR MATERIAL TO COMPLY WITH THE REQUIREMENTS OF BS 882:1983

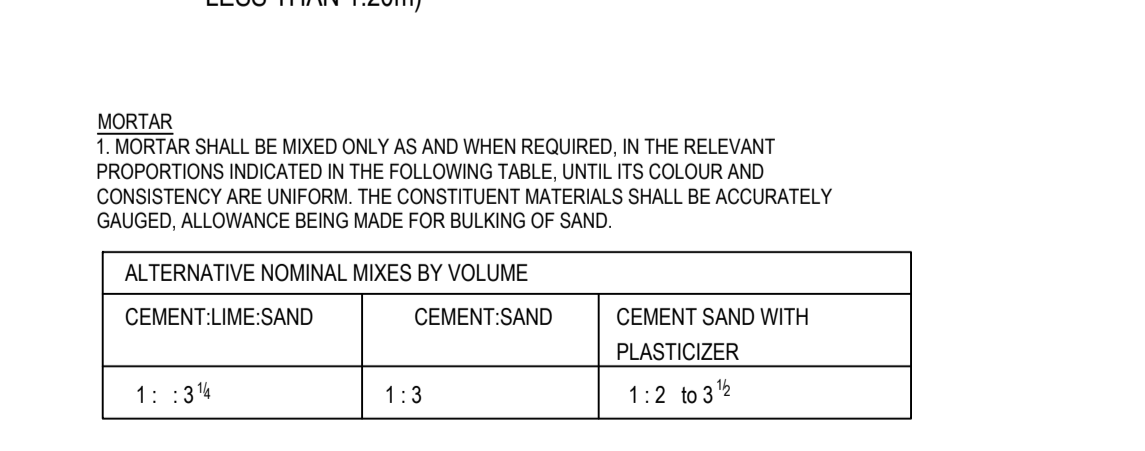
BACK DROP PLAN VIEW



BED TYPE S (IN HIGHWAYS)



BED FOR STRUCTURED WALL SEWER PIPE TO WIS 4-35-01



TYPICAL EXTERNAL VERTICAL BACKDROP DETAIL.



COMPRESSIBLE FILLER AND PACKING FOR PIPELINES

1. COMPRESSIBLE FILLER FOR INTERRUPTING CONCRETE PROTECTION TO PIPES SHALL CONSIST OF BITUMEN IMPREGNATED INSULATING BOARD TO BS 1142: PART 3 OR OTHER EQUALLY COMPRESSIBLE MATERIAL. THE THICKNESS OF COMPRESSIBLE FILLER SHALL BE AS FOLLOWS:

NOMINAL DIAMETER OF PIPE (mm)	THICKNESS OF COMPRESSIBLE FILLER
LESS THAN 450	18
450 - 1200	36
EXCEEDING 1200	54

2. COMPRESSIBLE PACKING FOR USE BETWEEN PIPES AND PRE-CAST CONCRETE SETTING BLOCKS SHALL CONSIST OF BITUMEN DAMP-PROOF SHEETING COMPLYING WITH BS 743.

MORTAR

1. MORTAR SHALL BE MIXED ONLY AS AND WHEN REQUIRED. IN THE RELEVANT PROPORTIONS INDICATED IN THE FOLLOWING TABLE. UNITS ITS COLOUR AND CONSISTENCY ARE UNIFORM. THE CONSTITUENT MATERIALS SHALL BE ACCURATELY GAUGED, ALLOWANCE BEING MADE FOR BULKING OF SAND.

ALTERNATIVE NOMINAL MIXES BY VOLUME		
CEMENT-LIME-SAND	CEMENT-SAND	CEMENT SAND WITH PLASTICIZER
1: :3 1/4	1:3	1: 2 to 3 1/2

ALL SEWERAGE WORKS TO BE IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION GUIDANCE DOCUMENT (DCG)

Rev	Date	Revision Details	Drawn	Checked
P02	16.07.25	UPDATED TO SUIT STRATA COMMENTS	JR	ND
P01	28.01.25	FIRST ISSUE	CW	ND

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QUEENSBERRY DESIGN
CIVIL, STRUCTURAL, ARCHITECTURAL & GEOTECHNICAL CONSULTANTS

QUEENSBERRY DESIGN YORKSHIRE LTD
SUITE 12A, BROOKFIELD COURT, SELBY ROAD,
LEEDS, LS25 1BB
T: 0113 917 7099
www.queensberrydesign.co.uk

Client: **STRATA/THIRTEEN**

Project: **MAIN AVENUE COWERSLEY**

Title: **ADAPTABLE DRAINAGE DETAILS**

Drawn: **CW** | Checked: **ND** | Date: **20.02.25**

Drawing Number: **2153-QD-XX-HD-DR-C-08-01**

Drawing Status: **TENDER** | Scale: **1:25 - A1** | Rev: **P02**

- GENERAL NOTES:**
- DO NOT USE THIS DRAWING IN ISOLATION. THIS DRAWING HAS BEEN PREPARED AS PART OF A SET, AND MUST THEREFORE BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER PRIOR TO COMMENCING WORKS.
 - THIRD PARTY INFORMATION IS USED TO PREPARE THE ENGINEERING DESIGN (INCLUDING ARCHITECTURAL LAYOUT, GROUND INVESTIGATION, EXISTING UTILITIES RECORDS, AND SPECIALIST DESIGN ITEMS). THE ENGINEERING DESIGN MUST THEREFORE BE READ IN CONJUNCTION WITH ALL THIRD PARTY INFORMATION PRIOR TO COMMENCING WORK. QUEENSBERRY DESIGN LTD ARE NOT RESPONSIBLE FOR ANY THIRD PARTY INFORMATION OR DETAILS.
 - DRAWING STATUS WILL REMAIN PRELIMINARY UNTIL FULL TECHNICAL APPROVAL IS RECEIVED FROM LOCAL AUTHORITY AND SEWERAGE UNDERTAKER. WORKS COMMENCED PRIOR TO TECHNICAL APPROVAL ARE DONE SO AT RISK AND MAY BE SUBJECT TO CHANGE.
 - THE CONTRACTOR IS EXPECTED TO PREPARE APPROPRIATE CONSTRUCTION METHOD STATEMENTS FOR ALL ASPECTS OF APPOINTED WORK. THIS SHOULD INCLUDE ANY TEMPORARY PROTECTION WORKS.
 - LAND DRAINAGE IS NOT PERMITTED TO DISCHARGE INTO THE PUBLIC SEWER NETWORK. ANY NEED FOR LAND DRAINAGE SHOULD BE ASSESSED BY THE GROUND WORKER AND LANDSCAPER DURING CONSTRUCTION AND PLACEMENT OF GARDENS ON AN INDIVIDUAL PLOT BASIS. IF LAND DRAINAGE DESIGNS ARE REQUIRED, THEY SHOULD BE APPOINTED PRIOR TO PLOT COMPLETION.
 - THE CONTRACTOR IS EXPECTED TO CROSS CHECK ALL DRAINAGE INVERTS PRIOR TO COMMENCING WORK. THE MANHOLE COMPLETION OF TRAIL HOLES AT ALL LEVELS HAVE BEEN INTERPOLATED. THE POSITION, LINE AND DIAMETER OF ALL EXISTING DRAINAGE APPARATUS MUST BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORKS. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER IMMEDIATELY.
 - THE CONTRACTOR MUST MONITOR THE 'AS BUILT' PROGRESS OF EACH CONSTRUCTION STAGE (ROADS/SEWERS/LOT WORKS ETC), TO ENABLE THE NEXT STAGES OF CONSTRUCTION TO BE CHECKED BEFORE INSTALLATION.

- HIGHWAYS**
- ALL HIGHWAY WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT LOCAL AUTHORITY DESIGN GUIDE AND SPECIFICATION.
 - ALL EXCAVATIONS BELOW PROPOSED AND EXISTING HIGHWAYS TO BE BACK FILLED WITH GRANULAR TYPE 1 SUB-BASE AND WELL COMPACTED IN LAYERS NOT EXCEEDING 150MM, UNLESS OTHERWISE AGREED.
 - HIGHWAY AUTHORITY TO BE NOTIFIED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS.

- ADAPTABLE DRAINAGE**
- ALL ADAPTABLE SEWER WORKS AND MATERIALS TO BE IN ACCORDANCE WITH 'CODE FOR ADOPTION'. THE RELEVANT BRITISH/EUROPEAN AND YORKSHIRE WATER'S STANDARDS REQUIREMENTS ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED.
 - MANHOLE COVERS SHALL HAVE A CLEAR OPENING OF 600MM AND SHALL BE CLASS D400 TO BS EN 124 WITH 150MM DEEP FRAMES IN HIGHWAYS.
 - FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF YORKSHIRE WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.
 - YORKSHIRE WATER IS NOT OBLIGED TO ACCEPT FILTER DRAINAGE DRAINAGE RUN-OFF INTO THE PUBLIC SEWER NETWORK OR ADAPTABLE DRAINAGE SYSTEM (DIRECTLY OR INDIRECTLY). AN ALTERNATIVE METHOD OF DISPOSAL OF THE LAND DRAINAGE RUN-OFF WILL THEREFORE BE REQUIRED AND YOU WILL HAVE TO LIAISE WITH THE LOCAL AUTHORITY. LAND DRAINAGE SECTION REGARDING THE DISPOSAL OF THE FILTER DRAINAGE DRAINAGE RUN-OFF.
 - THE ADAPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.5M FROM KERB FACES AND SERVICE MARGINS.
 - SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES OR THE WIDTH OF THE CANYON AT MAXIMUM HEIGHT.
 - SEWERS TO BE LAD IN CLASS '3' BEDDING (150MM GRANULAR BED AND SURROUND), WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2M IN HIGHWAYS AND VERGES (OR LESS THAN 900MM IN NON-VEHICULAR ACCESS AREAS) THEN A CONCRETE SLAB SHOULD BE PROVIDED ABOVE GRANULAR BED AND SURROUND.
 - BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4.28-02 (TABLE A2).
 - YORKSHIRE WATER POLICY IS THAT '1' BRICK MANHOLES AND 150MM DIAMETER MANHOLE RINGS ARE NOT PREFERRED. INSTEAD, IT IS PREFERRED THAT YOU USE A TYPE 'B' MANHOLE WITH 1200MM DIAMETER OR 1500MM DIAMETER RINGS, WITH THE OPENING SIZED OVER THE CHANNEL, WHERE DEPTH OF COVER TO PIPE CENTER IS 1.1 - 1.5M.
 - ADAPTABLE PLASTIC SEWER PIPES TO BE BS KITEMARKED (CERTIFIED TO WIS 4-301 AND BS EN 12476). ADAPTABLE PLASTIC SEWER PIPES TO BE LAD IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS. PLASTIC CHANNEL SECTIONS IN MANHOLES ARE NOT ACCEPTABLE AND YORKSHIRE WATER WOULD REQUIRE CLAY WARE CHANNELS IN MANHOLES.
 - THE MINIMUM CRUSHING STRENGTH FOR CLAY PIPES SHOULD BE AS FOLLOWS: 100MM DIA. 40KNM, 150MM DIA. 40KNM, 225MM DIA. 45KNM AND 300MM DIA. 72KNM. THE MINIMUM CRUSHING STRENGTH FOR CONCRETE PIPES SHOULD BE - CLASS 20 TO EN 12756/BS 11:2003. PLASTIC PIPES SHOULD CONFORM TO WIS 4-301 AND BS EN 12476.
 - WHERE A B125 COVER AND FRAME HAS BEEN APPROVED, THIS MUST NOT BE COATED IN PLASTIC AND MUST HAVE 17MM EYES SUITABLE TO ACCOMMODATE STANDARD LIFTING KEYS. SCREW DOWN COVERS ARE NOT ACCEPTABLE.
 - THERE MUST BE ENOUGH CLEARANCE AT CROSSOVERS TO ACCOMMODATE BEDDING TO BOTH PIPES. APPROX. 300MM. IF CROSSOVERS ARE NEARER THAN THE CLEARANCE NEEDED MAY NEED TO BE INCREASED.

- DRAINAGE WITHIN HIGHWAY REQUIREMENTS**
- ALL ADAPTABLE SEWER WORKS AND MATERIALS TO BE IN ACCORDANCE WITH CODE FOR ADOPTION AND NATIONAL SPECIFICATION DESIGN MANUAL FOR ROADS AND BRIDGES.
 - ALL FCC UNITS IN OVERSIZE MANHOLES MUST HAVE A DESIGN WORKING LIFE OF 100 YEARS (MIN) IN ACCORDANCE WITH BS 8001-1:2015-A2:2018-TABLE A5.
 - PRECAST CONCRETE MANHOLE UNITS INCLUDING THEIR PCC COVER SLABS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 1917 AND BS 8913-3 AND SHALL BE MANUFACTURED FROM CONCRETE WITH A DESIGN CHEMICAL CLASS DC-4 UNLESS SATISFACTORY EVIDENCE THROUGH SOIL ANALYSIS CAN BE PROVIDED THAT A LOWER CLASS WILL RESIST ATTACK FROM SOILS AND GROUND WATER.
 - PRECAST CONCRETE CORBEL SLABS SHALL COMPLY WITH BS 9111-3 TABLE 3 AND FIGURE 8.
 - COVER SLABS SHALL BE INSTALLED WITH A MINIMUM OF 300mm COVER TO FINISHED GROUND LEVEL.
 - SUBMISSION OF A CONSTRUCTION COMPLIANCE CERTIFICATE SHALL BE PROVIDED UPON COMPLETION OF DRAINAGE WORKS.

EXISTING SERVICES

PRIOR TO THE COMMENCEMENT OF ANY WORKS UNDER GROUND MAPPING SURVEYS AND CONTRACTOR'S PLAN IS TO BE REFERRED TO ANY DISCREPANCIES ARE TO BE REPORTED TO ENGINEER.

ANY EXISTING SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED WORKS SHOULD BE LOCATED BY MEANS OF A HAND DIG IN CLOSE LIKENESS WITH THE STATUTORY SERVICE AUTHORITIES. THE CONTRACTOR SHALL INFORM THE DEVELOPER OF ANY SERVICES THAT MAY AFFECT THE PROPOSED DESIGN. CONTRACTOR TO NOTIFY STATUTORY SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORK AS CONSTRUCTED INFORMATION IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE FOLLOWING AS CONSTRUCTED DRAWINGS TO THE DEVELOPER UPON THE COMPLETION OF THE WORKS COVERED BY THE CONTRACT:

- POSITION CO-ORDINATES OF ALL ADAPTABLE MANHOLES.
- INVERT AND COVER LEVELS OF ALL ADAPTABLE MANHOLES.
- NEW GULLY POSITIONS AND CONNECTIONS.
- POSITION AND DEPTH OF SERVICE DUCTS FOR WATER, GAS, ELECTRIC, BT, CABLE AND STREET LIGHTING, STATING SIZE AND NUMBER OF DUCTS.

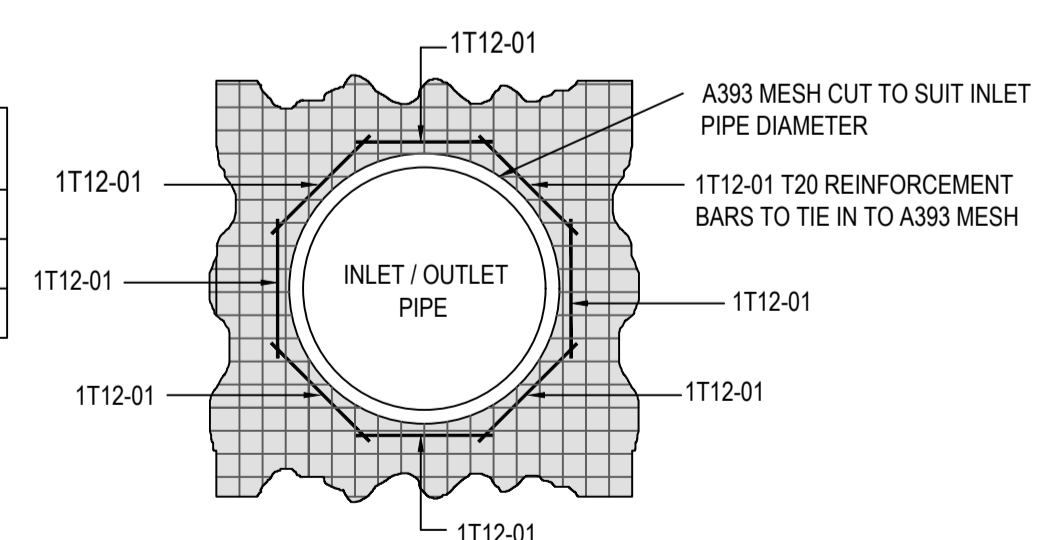
NOTE: ALL CUSTOM BUILT IRONWORK TO BE HOT-DIPPED GALVANIZED PRIOR TO FINAL FIXING.

NOTE: ALL DRAINAGE WORK AND MATERIALS TO CONFORM TO 'CODE FOR ADOPTION'.

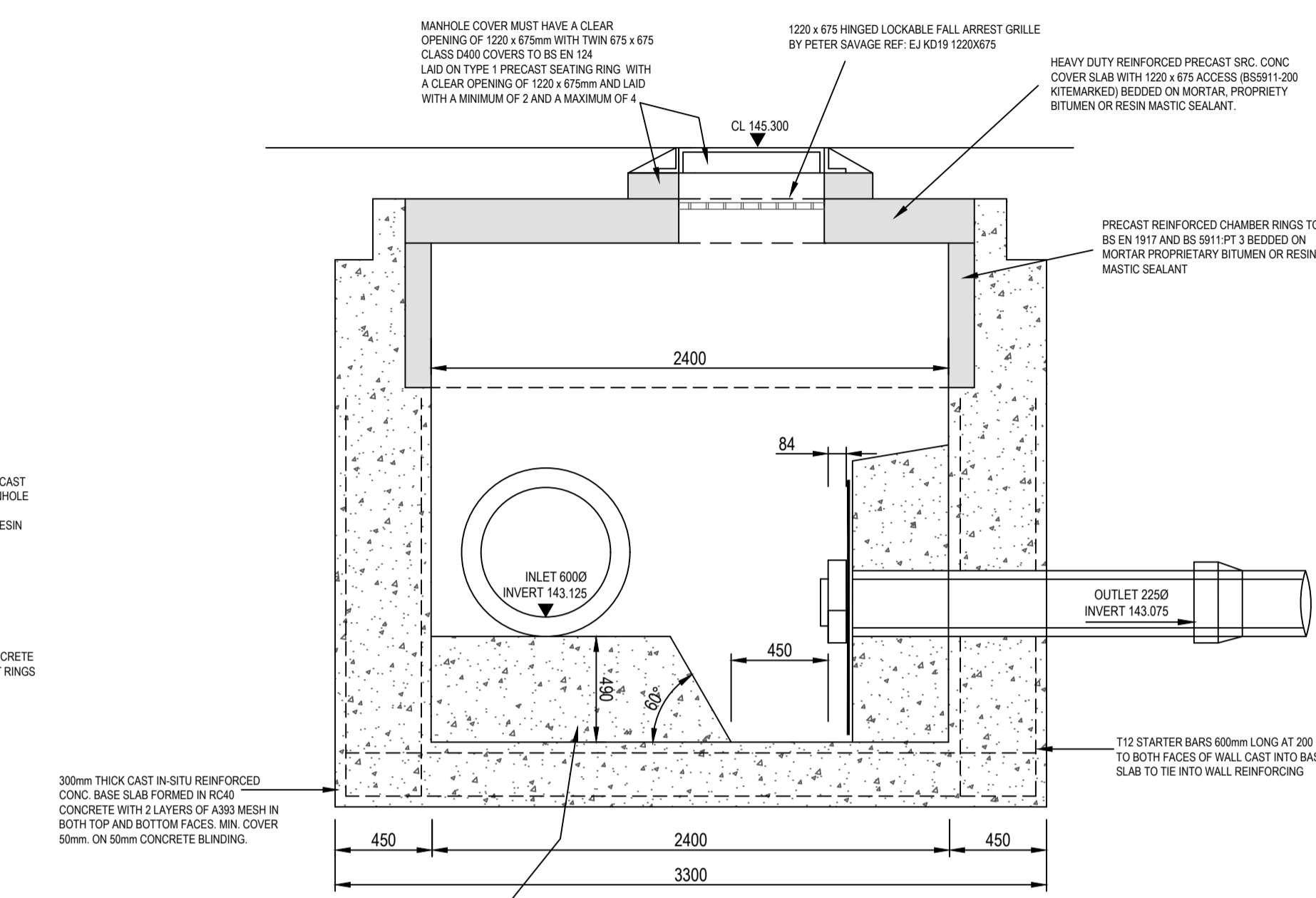
PIPE DIA. mm	ROCKER PIPE LENGTH
150-450	0.50-0.75
451-750	0.75-1.00
>750	1.25

TABLE 1

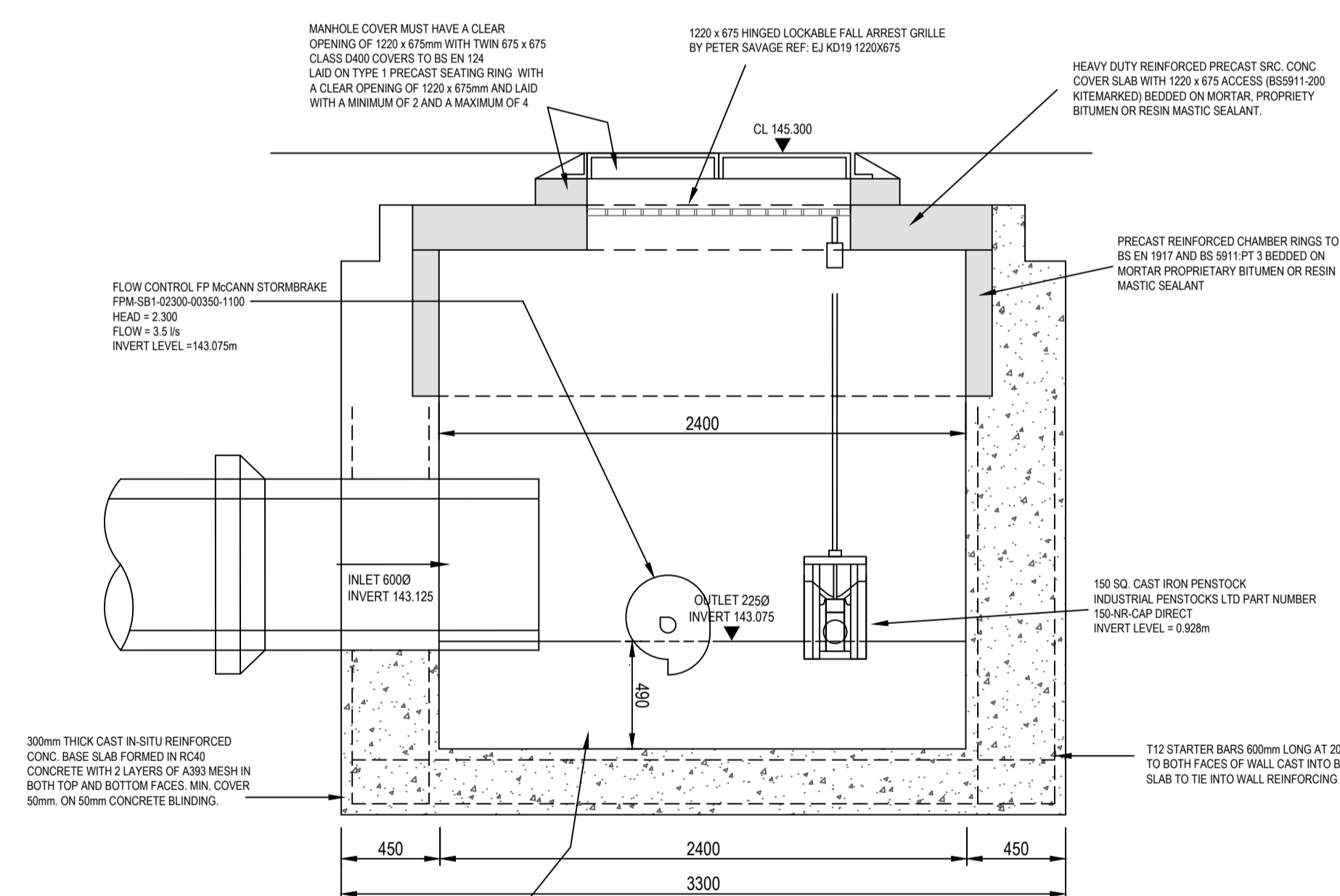
PIPE SIZE	BAR SIZE
< 1050 - 1200mm	T12
1350 - 1500mm	T16
> 1500mm	T20



REINFORCEMENT SECTION
See Table 1 For Bar Sizes Required

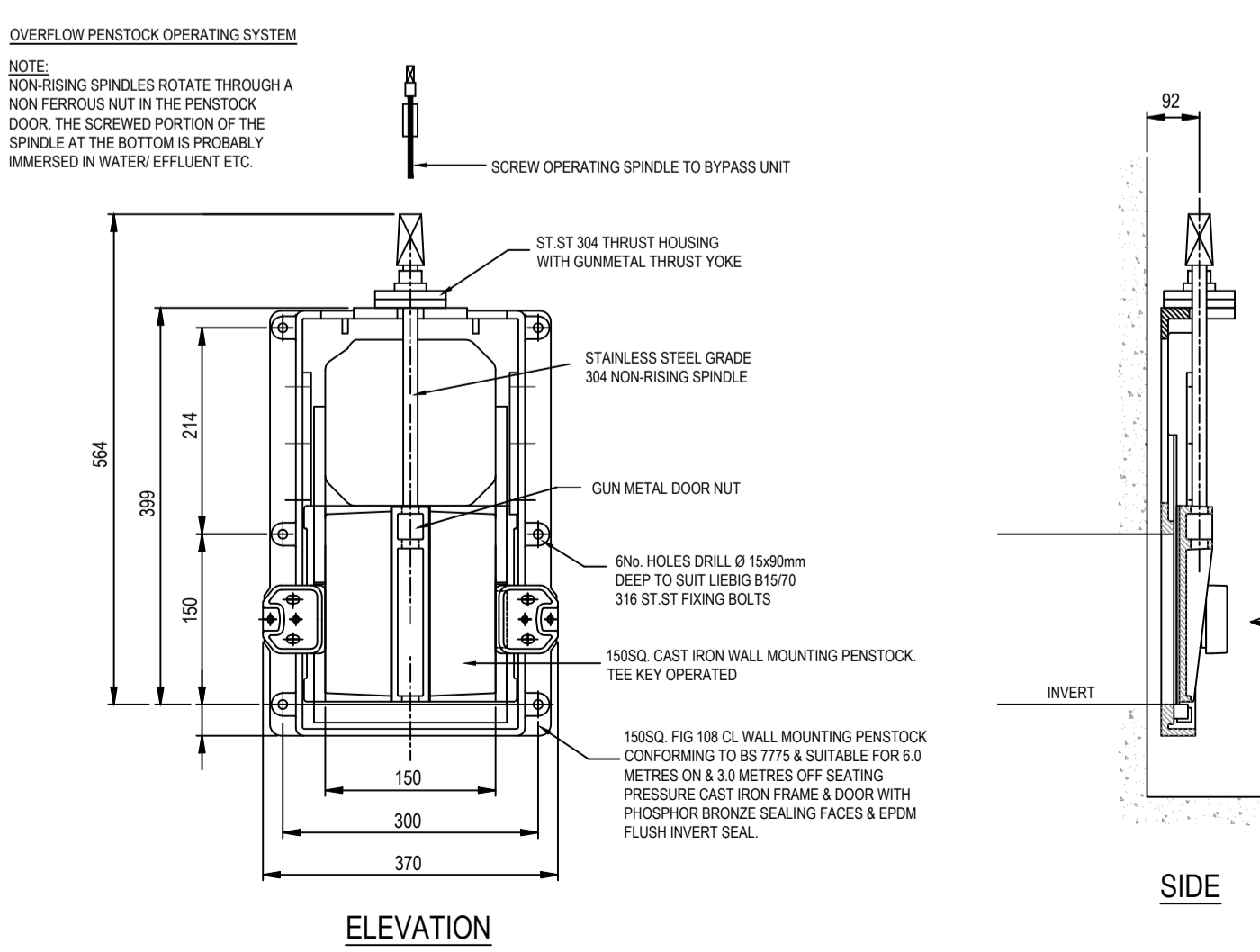


SECTION A-A

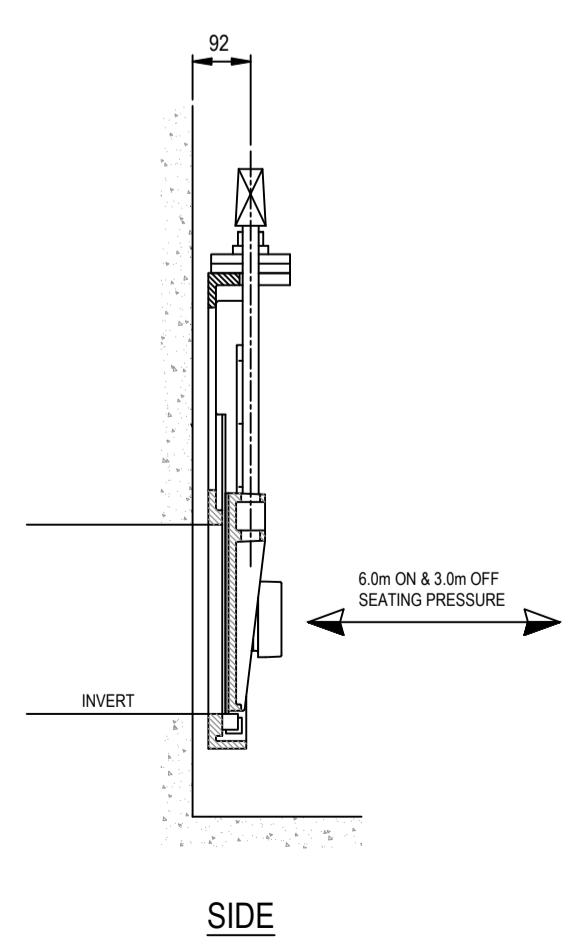


SECTION B-B

PENSTOCK DETAIL



ELEVATION



SIDE

Rev	Date	Description	Drawn	Checked
P02	16.07.25	UPDATED TO SUIT STRATA COMMENTS	JR	ND
P01	28.02.25	FIRST ISSUE	CW	ND

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QUEENSBERRY DESIGN YORKSHIRE LTD
SUITE 12A, BROOKFIELD COURT, SELBY ROAD,
LEEDS, LS15 1MB
T: 0113 517 7099
www.queensberrydesign.co.uk

Client: **STRATA/THIRTEEN**

Project: **MAIN AVENUE COWERSLEY**

Title: **FLOW CONTROL DETAIL**

Drawn: **CW** | Checked: **ND** | Date: **20.02.25**

Drawing Number: **2153-QD-XX-HD-DR-C-08-02**

Drawing Status: **TENDER** | Scale: **1:25 - A1** | Rev: **P02**

StormBrake™

Performance Report



Contractor: Queensberry Design

Site: Main Ave

Date: 11/12/2024

Created By: Nick Dunwoodie

Device Ref: FPM-SB1-02063-00350-0100

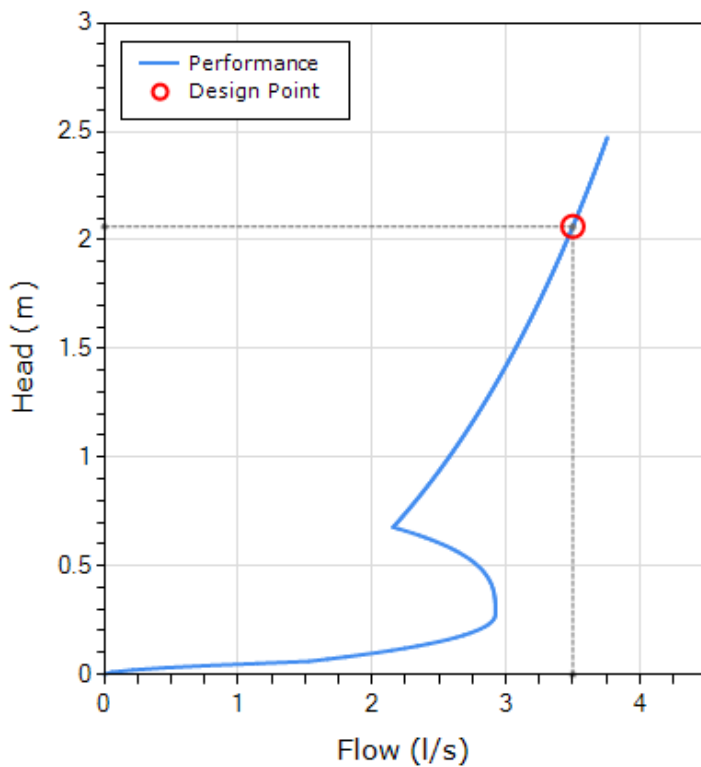
Head(m): 2.063

Flow(l/s): 3.5

Chamber Ref:

Mounting Style: LUGS (Default)

StormBrake™ Performance



Head (m)	Flow (l/s)
0	0.00
0.09	1.87
0.17	2.63
0.26	2.91
0.34	2.92
0.43	2.88
0.51	2.77
0.6	2.53
0.68	2.16
0.77	2.28
0.85	2.40
0.94	2.50
1.02	2.60
1.11	2.69
1.19	2.78
1.28	2.87
1.36	2.95
1.45	3.03
1.53	3.10
1.62	3.17
1.71	3.24
1.79	3.31
1.88	3.37
1.96	3.43
2.05	3.49
2.13	3.55
2.22	3.60
2.3	3.66
2.39	3.71
2.47	3.76

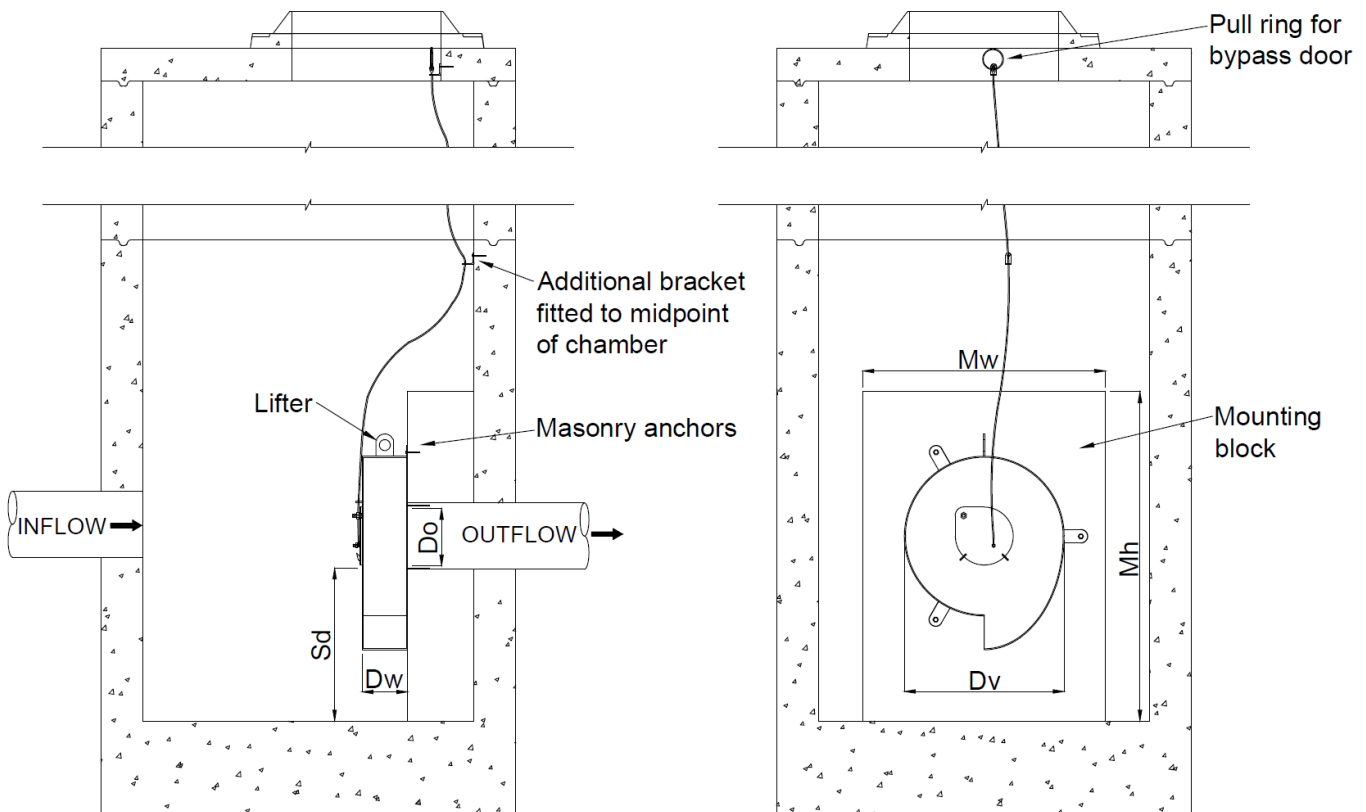
	Head (m)	Flow (l/s)
Design Point	2.06	3.50
Flush Flow	0.28	2.92
Kick Back	0.68	2.16

	Dims (mm)
Min. Chamber Diameter	1200
Min. Outlet Pipe Diameter	150
Min. Sump Depth	240

The unique performance characteristics of this StormBrake™ are derived from extensive dynamic modelling using parametric experimental testing and computational fluid dynamics.

INSTALLATION INSTRUCTIONS

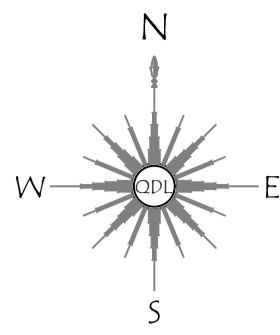
1. Position the StormBrake™ so that the inlet is at the bottom and the device outlet is in line with the chamber outlet pipe.
2. Mark the locations of the mounting points on the chamber/mounting wall.
3. Using the marked locations, drill holes to the required thickness and depth for the supplied masonry anchors (M10 throughbolts require 11 mm holes). Fit the bolts to the holes.
4. Attach the StormBrake™ to the anchor points, ensuring the neoprene gasket is flush with the chamber wall, and fasten the device by tightening the bolts. This will compress the neoprene gasket to provide a watertight seal between the StormBrake™ and the wall.
5. Fix the stainless steel wire cable from the front bypass door to the underside of the manhole cover, vertically above the device. A secondary bracket is supplied and should be fitted halfway up the chamber to guide the bypass door cable to the top.
6. Adjust the length of the bypass door cable accordingly, so that it reaches the ground level whilst ensuring the bypass door can open if required. Ensure the bypass door is closed for normal operating conditions.



Geometry	Annotation	(mm)
Device Vortex Diameter	Dv	392
Device Width	Dw	86
Device Orifice	Do	78
Sump Depth (outlet Ø150mm)	Sd	240
Mounting Block Width	Mw	630
Mounting Block Height	Mh	680

Dimensions quoted are minimum values based on the geometry of this unique StormBrake™ unit. These ensure the device can be fitted to the flow control chamber without restriction and meet the performance specification.

Appendix 2 – Drainage Maintenance Responsibilities



LEGEND

- ADOPTABLE DRAINAGE
- PROPOSED ADOPTABLE FOUL MANHOLE
- PROPOSED ADOPTABLE STORM MANHOLE
- EXISTING MANHOLE
- PROPOSED S185 MANHOLE
- PROPOSED S104 DRAINAGE EASEMENT
- PROPOSED S185 DRAINAGE EASEMENT

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GENERAL NOTES:

- DO NOT USE THIS DRAWING IN ISOLATION. THIS DRAWING HAS BEEN PREPARED AS PART OF A SET, AND MUST THEREFORE BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER PRIOR TO COMMENCING WORKS.
- THIRD PARTY INFORMATION IS USED TO PREPARE THE ENGINEERING DESIGN (INCLUDING ARCHITECTURAL LAYOUT, GROUND INVESTIGATION, EXISTING UTILITIES RECORDS, AND SPECIALIST DESIGN ITEMS). THE ENGINEERING DESIGN MUST THEREFORE BE READ IN CONJUNCTION WITH ALL THIRD PARTY INFORMATION PRIOR TO COMMENCING WORK. QUEENSBERRY DESIGN LTD ARE NOT RESPONSIBLE FOR ANY THIRD PARTY INFORMATION OR DETAILS.
- DRAWING STATUS WILL REMAIN PRELIMINARY UNTIL FULL TECHNICAL APPROVAL IS RECEIVED FROM LOCAL AUTHORITY AND SEWERAGE UNDERTAKER. WORKS COMMENCED PRIOR TO TECHNICAL APPROVAL ARE DONE SO AT RISK AND MAY BE SUBJECT TO CHANGE.
- THE CONTRACTOR IS EXPECTED TO PREPARE APPROPRIATE CONSTRUCTION METHOD STATEMENTS FOR ALL ASPECTS OF APPOINTED WORK. THIS SHOULD INCLUDE ANY TEMPORARY PROTECTION WORKS.
- LAND DRAINAGE IS NOT PERMITTED TO DISCHARGE INTO THE PUBLIC SEWER NETWORK. ANY NEED FOR LAND DRAINAGE SHOULD BE ASSESSED BY THE GROUND WORKER AND LANDSCAPER DURING CONSTRUCTION AND PLACEMENT OF GARDENS ON AN INDIVIDUAL PLOT BASIS. IF LAND DRAINAGE DESIGNING IS REQUIRED, THEY SHOULD BE APPOINTED PRIOR TO PLOT COMPLETION.
- THE CONTRACTOR IS EXPECTED TO CROSS CHECK ALL DRAINAGE INVERTS PRIOR TO COMMENCING WORK. THIS MAY INVOLVE COMPLETION OF TEST HOLES. INVERT LEVELS HAVE BEEN INTERPOLATED. THE POSITION, LINE AND DIAMETER OF ALL EXISTING DRAINAGE APPARATUS SHOULD BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORKS. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER IMMEDIATELY.
- THE CONTRACTOR MUST MONITOR THE 'AS BUILT' PROGRESS OF EACH CONSTRUCTION STAGE (ROADS/SEWERS/PLOT WORKS ETC), TO ENABLE THE NEXT STAGES OF CONSTRUCTION TO BE CHECKED BEFORE INSTALLATION.

HIGHWAYS

- ALL HIGHWAY WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT LOCAL AUTHORITY DESIGN GUIDE AND SPECIFICATION.
- ALL EXCAVATIONS BELOW PROPOSED AND EXISTING HIGHWAYS TO BE BACK FILLED WITH GRANULAR TYPE 1 SUB-BASE AND WELL COMPACTED IN LAYERS NOT EXCEEDING 150MM, UNLESS OTHERWISE AGREED.
- HIGHWAY AUTHORITY TO BE NOTIFIED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS.

ADOPTABLE DRAINAGE

- ALL ADOPTABLE SEWER WORKS AND MATERIALS TO BE IN ACCORDANCE WITH 'CODE FOR ADOPTION' THE RELEVANT EUROPEAN AND YORKSHIRE WATERS STANDARDS REQUIREMENTS ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITS/MANHOLES.
- MANHOLE COVERS SHALL HAVE A CLEAR OPENING OF 600MM AND SHALL BE CLASS D400 TO BS EN 124 WITH 150MM DEEP FRAMES IN HIGHWAYS AND VERGES (OR LESS THAN ROOM IN NON-VEHICULAR ACCESS AREAS). THEN A CONCRETE SLAB SHOULD BE PROVIDED ABOVE GRANULAR BED AND SURROUND.
- FILLED GROUND MUST BE FLEED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF YORKSHIRE WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.
- YORKSHIRE WATER IS NOT OBLIGED TO ACCEPT FILTER DRAINLAND DRAINAGE RUN-OFF INTO THE PUBLIC SEWER NETWORK OR ADOPTABLE DRAINAGE SYSTEM (DIRECTLY OR INDIRECTLY). AN ALTERNATIVE METHOD OF DISPOSAL OF THE LAND DRAINAGE RUN-OFF WILL THEREFORE BE REQUIRED AND YOU WILL HAVE TO LIAISE WITH THE LOCAL AUTHORITY. LAND DRAINAGE SECTION REGARDING THE DISPOSAL OF THE FILTER DRAINLAND DRAINAGE RUN-OFF.
- THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.5M FROM NEAR FENCES AND SERVICE MANGS.
- SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES OR THE WIDTH OF THE CANYON AT MATURE HEIGHT.
- SEWERS TO BE LAD IN CLASS 'S' BEDDING (150MM GRANULAR BED SURROUND) WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2M IN HIGHWAYS AND VERGES (OR LESS THAN ROOM IN NON-VEHICULAR ACCESS AREAS). THEN A CONCRETE SLAB SHOULD BE PROVIDED ABOVE GRANULAR BED AND SURROUND.
- BEDDING AND SHOULL MATERIAL TO CONFORM TO THE REQUIREMENTS OF WATER INDUSTRY SPECIFICATION 4-88-02 (TABLE A2).
- YORKSHIRE WATER POLICY IS THAT TYPE 'C' BRICK MANHOLES AND 150MM DIAMETER MANHOLE RINGS ARE NOT PREFERRED. INSTEAD, IT IS PREFERRED THAT YOU USE A TYPE 'B' MANHOLE WITH 1200MM DIAMETER OR 1500MM DIAMETER RINGS, WITH THE OPENING SIZED TO THE CHANNEL. MINIMUM DEPTH OF COVER TO PIPE TOP IS 1.5M.
- ADOPTABLE PLASTIC SEWER PIPES TO BE BS 8000 (CERTIFIED TO BS 4301 AND BS EN 12201). ADOPTABLE PLASTIC SEWER PIPES TO BE LAD IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS. PLASTIC CHANGES IN MANHOLES ARE NOT ACCEPTABLE AND YORKSHIRE WATER WOULD REQUIRE CLAY WARE CHANNEL IN MANHOLES.
- THE MINIMUM CRUSHING STRENGTH FOR CLAY PIPES SHOULD BE AS FOLLOWS: 150MM DIA. 40KNM, 150MM DIA. 40KNM, 225MM DIA. 45KNM AND 300MM DIA. 72KNM. THE MINIMUM CRUSHING STRENGTH FOR CONCRETE PIPES SHOULD BE - (CLASS 120 TO EN 12958) 11,000KPa. PLASTIC PIPES SHOULD CONFORM TO BS 4301 AND BS EN 12201.
- WHERE A B125 COVER AND FRAME HAS BEEN APPROVED, THIS MUST NOT BE ENCH IN PLASTIC AND MUST HAVE LIFTING EYES SUITABLE SIZES TO ACCOMMODATE STANDARD LIFTING KEYS. SCREEN DOWN COVERS ARE NOT ACCEPTABLE.
- THERE MUST BE ENOUGH CLEARANCE AT CROSSOVERS TO ACCOMMODATE BEDDING TO BOTH PIPES, APPROX. 300MM. IF CROSSOVERS IS NEAR THE WALKER THEN THE CLEARANCE NEEDED MAY NEED TO BE INCREASED.

DRAINAGE WITHIN HIGHWAY REQUIREMENTS

- ALL ADOPTABLE SEWER WORKS AND MATERIALS TO BE IN ACCORDANCE WITH CODE FOR ADOPTION AND NATIONAL SPECIFICATION DESIGN MANUAL FOR ROADS AND BRIDGES.
- ALL PCC UNITS IN OVERSIZE MANHOLES MUST HAVE A DESIGN WORKING LIFE OF 100 YEARS (MIN) IN ACCORDANCE WITH BS 8500-1:2015-A2:2018 TABLE A5.
- PRECAST CONCRETE MANHOLE UNITS INCLUDING THEIR PCC COVER SLABS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 1217 AND BS 8500-1:2015-A2:2018 TABLE A5.
- PRECAST CONCRETE MANHOLE UNITS INCLUDING THEIR PCC COVER SLABS SHALL BE MANUFACTURED FROM CONCRETE WITH A DESIGN CHEMICAL CLASS DC-4 UNLESS SATISFACTORY EVIDENCE THROUGH SOIL ANALYSIS CAN BE PROVIDED THAT A LOWER CLASS WILL RESIST ATTACK FROM SOILS AND GROUND WATER.
- PRECAST CONCRETE CORBEL SLABS SHALL COMPLY WITH BS 8113:1 TABLE 3 AND FIGURE 8.
- COVER SLABS SHALL BE INSTALLED WITH A MINIMUM OF 300mm COVER TO FINISHED GROUND LEVEL.
- SUBMISSION OF A CONSTRUCTION COMPLIANCE CERTIFICATE SHALL BE PROVIDED UPON COMPLETION OF DRAINAGE WORKS.

EXISTING SERVICES

PRIOR TO THE COMMENCEMENT OF ANY WORKS UNDER GROUND MAPPING SURVEYS AND CONSTRAINTS PLAN IS TO BE REFERRED TO ANY DISCREPANCIES ARE TO BE REPORTED TO ENGINEER.

ANY EXISTING SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED WORKS SHOULD BE LOCATED BY MEANS OF A HAND DIG IN CLOSE LIAISON WITH THE STATUTORY SERVICE AUTHORITIES. THE CONTRACTOR SHALL INFORM THE DEVELOPER OF ANY SERVICES THAT MAY AFFECT THE PROPOSED DESIGN. CONTRACTOR TO NOTIFY STATUTORY SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORK. AS CONSTRUCTED INFORMATION IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE THE FOLLOWING AS CONSTRUCTED DRAWINGS TO THE DEVELOPER UPON THE COMPLETION OF THE WORKS COVERED BY THE CONTRACT:

- POSITION AND ORDNATES OF ALL ADOPTABLE MANHOLES.
- INVERT AND COVER LEVELS OF ALL ADOPTABLE MANHOLES.
- NEW GULLY POSITIONS AND CONNECTIONS.
- POSITION AND DEPTH OF SERVICE DUCTS FOR WATER, GAS, ELECTRIC, BT, CABLE AND STREET LIGHTING, STATING SIZE AND NUMBER OF DUCTS.

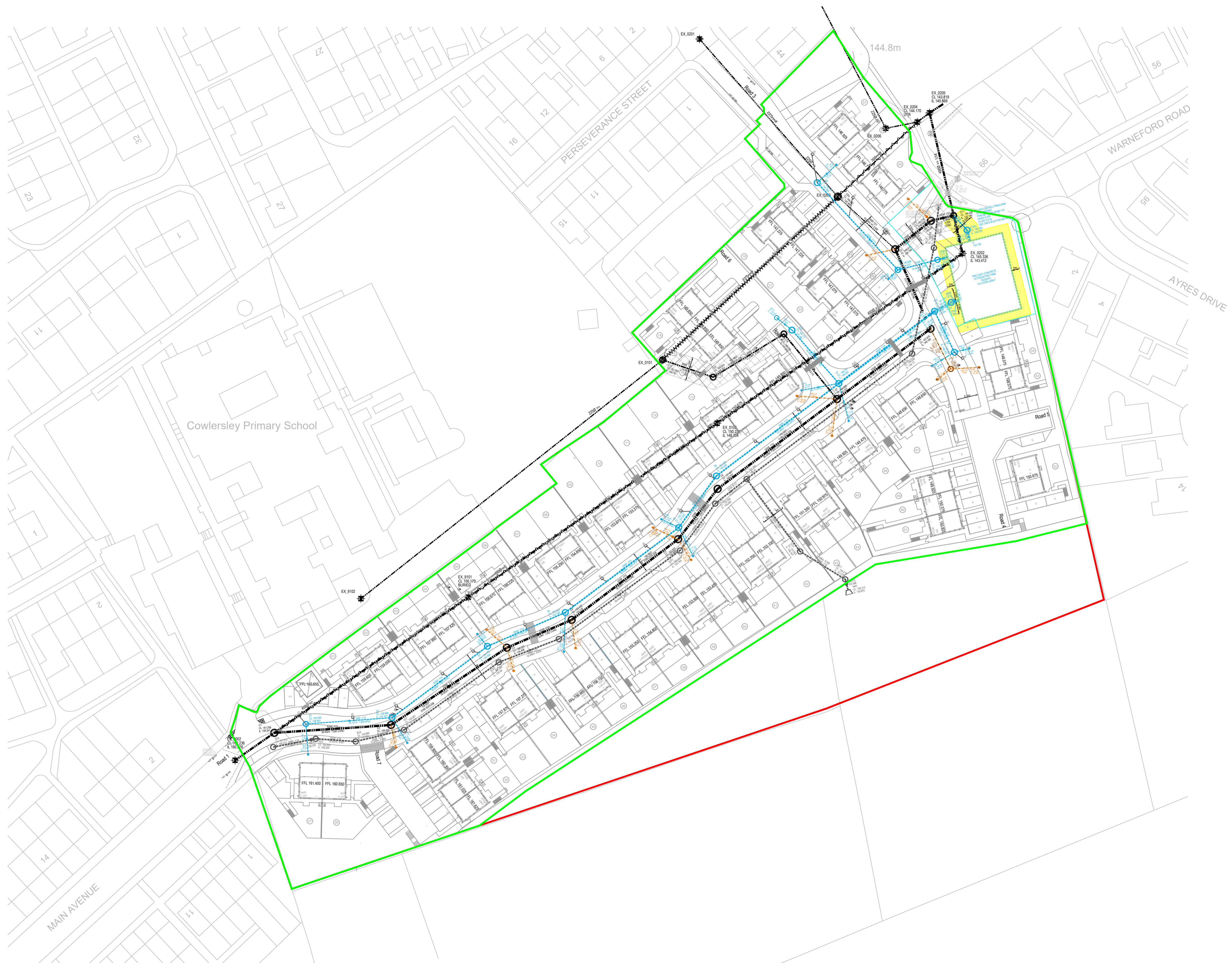
P04	06.10.25	DRAWING AMENDED FOR PLANNING TO SUIT REVISED ARCHITECTS LAYOUT REV P11	JR	ND
P03	21.07.25	UPDATED TO SUIT STRATA COMMENTS	JR	ND
P02	16.07.25	UPDATED TO SUIT STRATA COMMENTS	JR	ND
P01	28.02.25	FIRST ISSUE	CW	ND
Rev	Date	Revision Details	Drawn	Checked

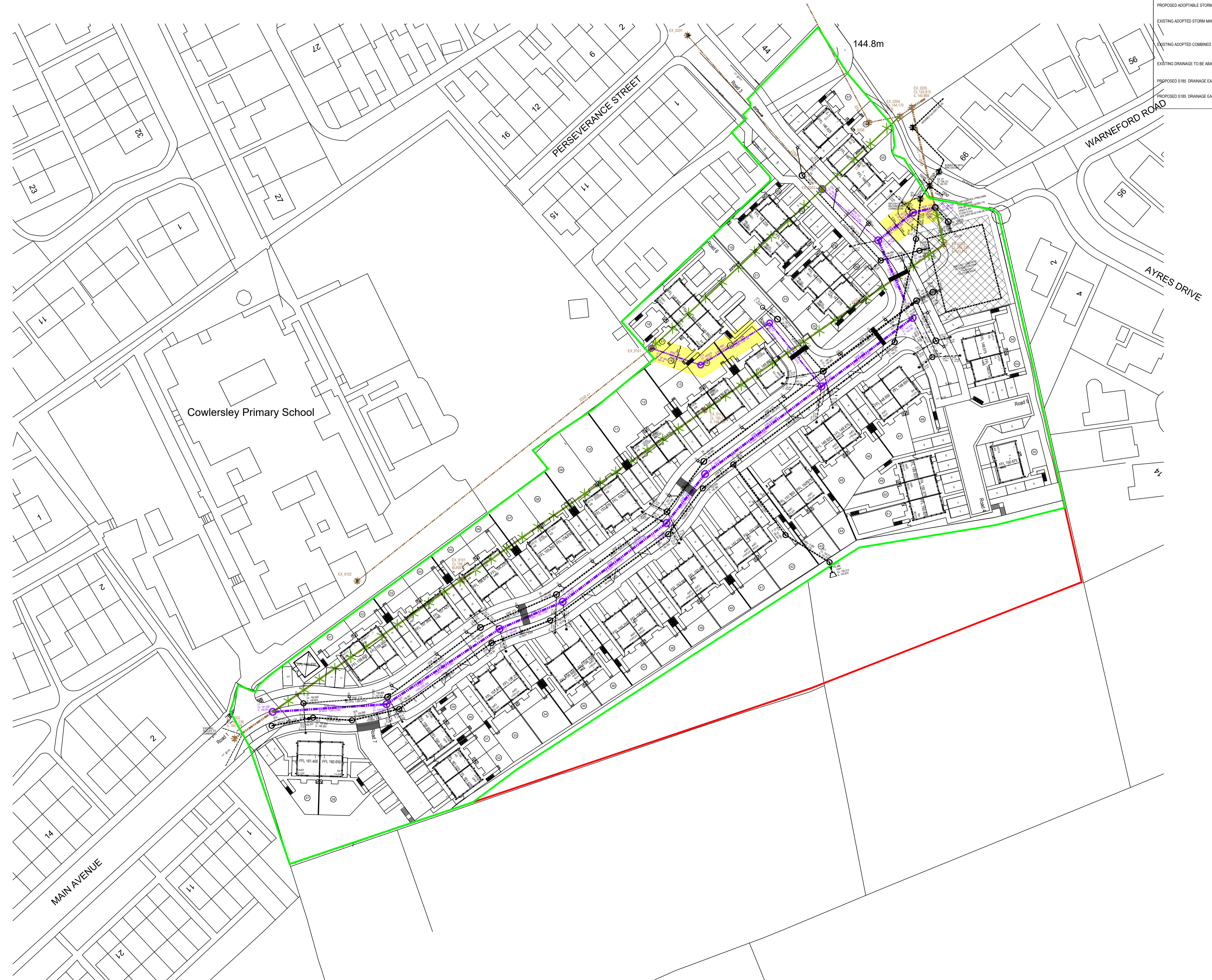
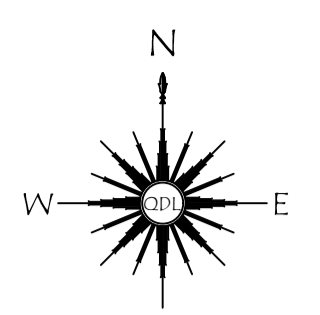
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 CIVIL, STRUCTURAL, ARCHITECTURAL & GEOTECHNICAL CONSULTANTS
 QUEENSBERRY DESIGN YORKSHIRE LTD
 BROOKFIELD COURT, SELBY ROAD,
 LEEDS, LS25 1BB
 T: 0113 517 7099
 www.queensberrydesign.co.uk

Client	STRATA/THIRTEEN		
Project	MAIN AVENUE COWERSLEY		
Title	SECTION 104 LAYOUT		
Drawn	ND	Checked	CW
Date	28.02.2025		
Drawing Number	2153-QD-XX-HD-DR-C-17-01		
Drawing Status	TENDER	Scale	1:500 - A1
Rev	P04		





LEGEND

ADOPTABLE DRAINAGE

- PROPOSED ADOPTABLE COMBINED DIVERSION:
- PROPOSED ADOPTABLE STORM MANHOLE:
- EXISTING ADOPTED STORM MANHOLE:
- EXISTING ADOPTED COMBINED MANHOLE:
- EXISTING DRAINAGE TO BE ABANDONED:
- PROPOSED S185 DRAINAGE EASEMENT:
- PROPOSED S185 DRAINAGE EASEMENT:

- GENERAL NOTES:
- DO NOT USE THIS DRAWING IN ISOLATION. THIS DRAWING HAS BEEN PREPARED AS PART OF A SET, AND MUST THEREFORE BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER PRIOR TO COMMENCING WORKS.
 - THIRD PARTY INFORMATION IS USED TO PREPARE THE ENGINEERING DESIGN (INCLUDING ARCHITECTURAL LAYOUT, GROUND INVESTIGATION, EXISTING UTILITIES RECORDS, AND SPECIALIST DESIGN ITEMS). THE ENGINEERING DESIGN MUST THEREFORE BE READ IN CONJUNCTION WITH ALL THIRD PARTY INFORMATION PRIOR TO COMMENCING WORK. QUEENSBERRY DESIGN IS NOT RESPONSIBLE FOR ANY THIRD PARTY INFORMATION OR DETAILS.
 - THIRD PARTY INFORMATION OR DETAILS. TECHNICAL APPROVAL IS RECEIVED FROM LOCAL AUTHORITY AND SEWERAGE UNDERTAKER WORKS COMMENCED PRIOR TO TECHNICAL APPROVAL ARE DONE SO AT RISK AND MAY BE SUBJECT TO CHANGE.
 - THE CONTRACTOR IS EXPECTED TO PREPARE APPROPRIATE CONSTRUCTION METHOD STATEMENTS FOR ALL ASPECTS OF APPOINTED WORK. THIS SHOULD INCLUDE ANY TEMPORARY PROTECTION WORKS.
 - LAND DRAINAGE IS NOT PERMITTED TO DISCHARGE INTO THE PUBLIC SEWER NETWORK. ANY NEED FOR LAND DRAINAGE SHOULD BE ASSESSED BY THE GROUND WORKER AND LANDSCAPER DURING CONSTRUCTION AND PLACEMENT OF GARDENS ON AN INDIVIDUAL PLOT BASIS. IF LAND DRAINAGE DESIGNS ARE REQUIRED, THEY SHOULD BE APPOINTED PRIOR TO PLOT COMPLETION.
 - THE CONTRACTOR IS EXPECTED TO CROSS CHECK ALL DRAINAGE INVERTS PRIOR TO COMMENCING WORK. THIS MAY INVOLVE COMPLETION OF TRENCHES TO INVERT LEVELS HAVE BEEN INTERPOLATED. THE POSITION, LINE AND DIAMETER OF ALL EXISTING DRAINAGE APPARATUS SHOULD BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORKS. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER IMMEDIATELY.
 - THE CONTRACTOR MUST MONITOR THE 'AS BUILT' PROGRESS OF EACH CONSTRUCTION STAGE (ROADS/SEWERS/PLOT WORKS ETC.) TO ENABLE THE NEXT STAGES OF CONSTRUCTION TO BE CHECKED BEFORE INSTALLATION.

- HIGHWAYS**
- ALL HIGHWAY WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT LOCAL AUTHORITY DESIGN GUIDE AND SPECIFICATION.
 - ALL EXCAVATIONS BELOW PROPOSED AND EXISTING HIGHWAYS TO BE BACK FILLED WITH GRANULAR TYPE 1 SUB-BASE AND WELL COMPACTED IN LAYERS NOT EXCEEDING 150MM UNLESS OTHERWISE AGREED.
 - HIGHWAY AUTHORITY TO BE NOTIFIED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS.

- ADOPTABLE DRAINAGE**
- ALL ADOPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH CODE FOR ADOPTION, THE RELEVANT BRITISH STANDARDS AND YORKSHIRE WATER'S STANDARDS REQUIREMENTS ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KIT DRAWINGS.
 - MANHOLES SHALL HAVE A CLEAR OPENING OF 600MM AND SHALL BE CLASS D900 TO BS EN 124 WITH 150MM DEEP FRAMES IN HIGHWAYS.
 - FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF YORKSHIRE WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.
 - YORKSHIRE WATER IS NOT OBLIGED TO ACCEPT FILTER DRAIN AND DRAINAGE RUN-OFF INTO THE PUBLIC SEWER NETWORK OR ADOPTABLE DRAINAGE SYSTEM (DIRECTLY OR INDIRECTLY). AN ALTERNATIVE METHOD OF DISPOSAL OF THE LAND DRAINAGE RUN-OFF WILL THEREFORE BE REQUIRED AND YOU WILL HAVE TO LIASE WITH THE LOCAL AUTHORITY. LAND DRAINAGE SECTION REGARDING THE DISPOSAL OF THE FILTER DRAIN AND DRAINAGE RUN-OFF.
 - THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.6M FROM KERB FACES AND SERVICE MARKINGS.
 - SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES OR THE WIDTH OF THE CANOPY AT MAJORE HEIGHT.
 - SEWERS TO BE Laid IN CLASS 'B' BEDDING (150MM GRANULAR BED AND SURROUND), WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2M IN HIGHWAYS AND VERGES (OR LESS THAN 200MM IN WORKING AREAS). IF THERE IS A CONCRETE SLAB SHOULD BE PROVIDED ABOVE GRANULAR BED AND SURROUND.
 - BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION (WIS) 718 AND 719.
 - YORKSHIRE WATER POLICY IS THAT TYPE 'C' BRICK MANHOLES AND 100MM DIAMETER MANHOLE RINGS ARE NOT ACCEPTABLE. IF IT IS PREFERRED THAT YOU USE A TYPE 'B' MANHOLE WITH 120MM DIAMETER OR 150MM DIAMETER RINGS, WITH THE OPENING SITED OVER THE CHANNEL WHERE DEPTH OF COVER TO PIPE SOFFIT IS 1.1-1.5M.
 - ADOPTABLE PLASTIC SEWER PIPES TO BE BS1182 (KITEMARKED) CERTIFIED TO BS 4354:1 AND BS EN 1247. ADOPTABLE PLASTIC SEWER PIPES TO LAY IN MANHOLES 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS. PLASTIC CHANNEL SECTIONS IN MANHOLES ARE NOT ACCEPTABLE AND YORKSHIRE WATER WOULD REQUIRE CLAY WARE CHANNEL IN MANHOLES.
 - THE MINIMUM CRUSHING STRENGTH FOR CLAY PIPES SHOULD BE AS FOLLOWS: 100MM DIA: 40N/M²; 150MM DIA: 40N/M²; 200MM DIA: 40N/M²; 250MM DIA: 40N/M²; 300MM DIA: 70N/M². THE MINIMUM CRUSHING STRENGTH FOR CONCRETE PIPES SHOULD BE: (CLASS) 20 TO EN 12450:1-1:2002. PLASTIC PIPES SHOULD CONFORM TO BS 4354:1 AND BS EN 1247. WHERE A 912 COVER AND FRAME HAS BEEN APPROVED, THIS MUST NOT BE COATED IN PLASTIC AND MUST HAVE LIFTING EYES SUITABLY SIZED TO ACCOMMODATE STANDARD LIFTING KEYS. SOFTEN DOWN COVERS ARE NOT ACCEPTABLE.
 - THERE MUST BE ENOUGH CLEARANCE AT CROSSOVERS TO ACCOMMODATE BEDDING TO BOTH PIPES APPROX. 300MM. IF CROSSOVER IS NEAR THE ROCKER THEN THE CLEARANCE NEEDED MAY NEED TO BE INCREASED.
 - EXISTING DRAINAGE THAT IS TO BE ABANDONED TO BE FILLED AND GRUBBED OUT WHERE PRACTICABLE.
 - ANY LIVE CONNECTION TO BE PICKED UP AND DIVERTED.

- DRAINAGE WITHIN HIGHWAY REQUIREMENTS**
- ALL ADOPTABLE SEWER WORKS AND MATERIALS TO BE IN ACCORDANCE WITH CODE FOR ADOPTION AND NATIONAL SPECIFICATION DESIGN MANUAL FOR ROADS AND BRIDGES.
 - ALL FCC UNITS IN OVERSIZE MANHOLES MUST HAVE A DESIGN WORKING LIFE OF 100 YEARS (MIN) IN ACCORDANCE WITH BS 8001:2014-2015 TABLE A5.
 - PRECAST CONCRETE MANHOLE UNITS INCLUDING THEIR FCC COVER SLABS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 1917 AND BS 1133 AND SHALL BE MANUFACTURED FROM CONCRETE WITH A DESIGN CHEMICAL CLASS C4 UNLESS SATISFACTORY EVIDENCE THROUGH SOIL ANALYSIS CAN BE PROVIDED THAT A LOWER CLASS WILL RESIST ATTACK FROM WATER.
 - PRECAST CONCRETE CORBEL SLABS SHALL COMPLY WITH BS 5911:3 TABLE 3 AND FIGURE 1.
 - COVER SLABS SHALL BE INSTALLED WITH A MINIMUM OF 300mm COVER TO FINISHED GROUND LEVEL.
 - SUBMISSION OF A CONSTRUCTION COMPLIANCE CERTIFICATE SHALL BE PROVIDED UPON COMPLETION OF DRAINAGE WORKS.

- EXISTING SERVICES**
- PRIOR TO THE COMMENCEMENT OF ANY WORKS UNDER GROUND MAPPING SURVEYS AND CONSTRAINTS PLAN IS TO BE REFERRED TO ANY DISCREPANCIES ARE TO BE REPORTED TO ENGINEER.
- ANY EXISTING SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED WORKS SHOULD BE LOCATED BY MEANS OF A HAND-HELD CLOSE RANGE SURVEY TO THE STATUTORY SERVICE AUTHORITIES. THE CONTRACTOR SHALL INFORM THE DEVELOPER OF ANY SERVICES THAT MAY AFFECT THE PROPOSED DESIGN. CONTRACTOR TO NOTIFY STATUTORY SERVICE AUTHORITIES PRIOR TO COMMENCEMENT OF WORK AS CONSTRUCTED INFORMATION IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE THE FOLLOWING AS CONSTRUCTED DRAWINGS TO THE DEVELOPER UPON THE COMPLETION OF THE WORKS COVERED BY THE CONTRACT:
- POSITIONS AND COORDINATES OF ALL ADOPTABLE MANHOLES.
 - INVERT AND COVER LEVELS OF ALL ADOPTABLE MANHOLES.
 - NEW GULLY POSITIONS AND CONNECTIONS.
 - POSITION AND DEPTH OF SERVICE DUCTS FOR WATER, GAS, ELECTRIC, BT, CABLE AND STREET LIGHTING, STATING SIZE AND NUMBER OF DUCTS.

Rev	Date	Revision Details	Drawn	Checked
P05	06.10.25	DRAWING AMENDED FOR PLANNING TO SUIT REVISED ARCHITECTS LAYOUT REV P11	JR	ND
P04	07.08.25	UPDATED TO SUIT COMMENTS FROM YV COMMENTS	CW	JR
P03	21.07.25	UPDATED TO SUIT STRATA COMMENTS	JR	ND
P02	16.07.25	UPDATED TO SUIT STRATA COMMENTS, NEW DIVERSION ROUTE ADDED	JR	ND
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QUEENSBERRY DESIGN YORKSHIRE LTD
BROOKFIELD COURT, SELBY ROAD,
LEEDS, LS25 1NB
T: 0113 517 7099
www.queensberrydesign.co.uk

Client	STRATA/THIRTEEN		
Project	MAIN AVENUE COWERSLEY		
Title	SECTION 185 LAYOUT		
Drawn	ND	Checked	CW
Date	28.02.2025		
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Drawing Status	TENDER	Scale	1:500 - A1
Rev.	P05		

Appendix 3 – Maintenance Logs

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Appendix B: Maintenance inspection checklist



Table B.25 SuDS maintenance inspection checklist			
General information			
Site ID			
Site location and co-ordinates (GIS if appropriate)			
Elements forming the SuDS scheme		Approved drawing reference(s)	
Inspection frequency		Approved specification reference	
Type of development		Specific purpose of any parts of the scheme (eg biodiversity, wildlife and visual aspects)	

Inspection date								
	Details	Y/N	Action required	Date completed	Details	Y/N	Action required	Date Completed
General inspection items								
Is there any evidence of erosion, channelling, ponding (where not desirable) or other poor hydraulic performance?								
Is there any evidence of accidental spillages, oils, poor water quality, odours or nuisance insects?								
Have any health and safety risks been identified to either the public or maintenance operatives?								
Is there any deterioration in the surface of permeable or porous surfaces (eg rutting, spreading of blocks or signs of ponding water)?								

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Silt/sediment accumulation								
Is there any sediment accumulation at inlets (or other defined accumulation zones such as the surface of filter drains or infiltration basins and within proprietary devices)? If yes, state depth (mm) and extent. Is removal required? If yes, state waste disposal requirements and confirm that all waste management requirements have been complied with (consult environmental regulator)								
Is surface clogging visible (potentially problematic where water has to soak into the underlying construction or ground (eg underdrained swale or infiltration basin)?)								
Does permeable or porous surfacing require sweeping to remove silt?								
System blockages and litter build-up								
Is there evidence of litter accumulation in the system? If yes, is this a blockage risk?								
Is there any evidence of any other clogging or blockage of outlets or drainage paths?								
Vegetation								
Is the vegetation condition satisfactory (density, weed growth, coverage etc)? (Check against approved planting regime.)								
Does any part of the system require weeding, pruning or mowing? (Check against maintenance frequency stated in approved design.)								
Is there any evidence of invasive species becoming established? If yes, state action required								
Infrastructure								
Are any check dams or weirs in good condition?								
Is there evidence of any accidental damage to the system (eg wheel ruts?)								

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Appendix B: Maintenance inspection checklist

Is there any evidence of cross connections or other unauthorised inflows?								
Is there any evidence of tampering with the flow controls?								
Are there any other matters that could affect the performance of the system in relation to the design objectives for hydraulic, water quality, biodiversity and visual aspects? (Specify.)								
Other observations								
Information appended (eg photos)								
Suitability of current maintenance regime								
Continue as current Increase maintenance Decrease maintenance								
Next inspection								
Proposed date for next inspection								