

Hinckley CDC

SuDs Operations and Maintenance Manual

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1.0 Introduction

1.1 Project Background

Darwin Group have prepared a SuDS Drainage Operations and Maintenance Manual as supplementary to the SuDs Drainage Strategy for the proposed Hinckley CDC, Hinckley and District Hospital. Particular reference is paid to the inspection, aftercare and maintenance of SuDS drainage features as part of this manual in order to demonstrate to the LLFA the effectiveness and longevity of the SuDS features designed within the scheme as opposed to the standard Building Regulations local and domestic drainage and/or the main discharge drainage connections to 'Design and Construction Guidance' standards.

This report is based on current best practice guidance.

Proposals contained or forming part of this report represent the design intent and may be subject to alteration or adjustment in completing the detailed design and construction for this project. Where such adjustments are undertaken and are deemed a material derivation from the intent contained in this document, prior approval shall be obtained from the relevant authority in advance of commencing such works.

In accordance with the SuDs Drainage Strategy Report the surface water network has been designed to accommodate the 1 in 100 year storm rainfall event plus an allowance of 40% for climate change. As the flows are generally being attenuated on site and within SuDS features there will be a period of time after storm events where the network is still partially or fully surcharged and is draining down. Where this surcharging is still present after 48hrs appropriate action should be taken as noted below.

1.2 SuDs for Hinckley Community Diagnostic Centre

The SuDs across the site is generally accommodated within the geocellular subbase replacements tanks under the car park to the North of the proposed building.

The SuDs also aim to:

- Control the flow, volume and frequency of water leaving the development,
- Prevent pollution by intercepting silt and cleaning runoff from hard surfaces,
- Provide attractive surroundings for the community,
- Create opportunities for wildlife.

1.3 Scope of O&M Manual

This manual is intended to give an overview of the operation and maintenance for the range of SuDs features included with the drainage strategy and in relation to typical details only. Where proprietary products are specified the manufacturer's instructions and recommendations should be followed in priority to this document unless specifically noted otherwise due to project constraints.

The recommended operations and frequencies are typical only and should be more frequent initially to ensure that there are no unforeseen issues with the operation and then adjusted to suit the site requirements.

As the hospital a private single site the operations and maintenance will be the responsibility of the hospital. This can be outsourced to a third-party management company, but the ultimate responsibility will lie with the hospital for the correct operation and maintenance once the initial snagging period has been completed. During construction, the operations and maintenance will be the responsibility of the Main Contractor.

Maintenance has been separated into different categories for each type of feature as follows:

- Regular care – Inspection of key components (inlets, outlets etc.), litter collection, grass cutting
- Occasional tasks – managing vegetation and removing silt build-up in the SuDs features
- Remedial work – identifying failures in the SuDs network and how to repair them

1.4 Emergency Actions

Spillages on site may require emergency action. Most spillages on development sites are of compounds that do not pose a serious risk to the environment if they enter the drainage network in a slow and controlled manner with time available for natural breakdown in the rain garden. Therefore, small spillages of oil, milk or other known organic substances should be removed where possible using soak mats as recommended by the Environment Agency, with residual spillage allowed to bioremediate in the drainage system. The access road includes gullies with sumps which will intercept small volumes from spillages but should be emptied\cleaned with a gully sucker where a spillage occurs.

In the event of a serious spillage, either by volume or of unknown or toxic compounds, then isolate the spillage with soil, turf or fabric and block the outlet pipes from chamber(s) downstream of the spillage with a bung(s). This should only be undertaken where it will not cause a flood risk issue due to rainfall. (A bung for blocking pipes may be made by wrapping soil or turf in a plastic sheet or closely woven fabric.)

Contact the Environment Agency and Local Authority immediately.

1.5 Timetable for Implementation

The construction timetable is anticipated with a programmed start of construction in mid 2024 with approximately 12-month construction period.

During construction all responsibilities lay with the contractor until such time as snagging has been successfully completed.

2.0 Attenuation Tank (Geocellular Units)

2.1 Location and Description

The attenuation tank is located to the North of the proposed building under the car park to the front of the main entrance, as shown on drainage strategy drawing 19849-WIE-ZZ-XX-DR-D-92-001.

The tank has been designed in accordance with CIRIA C753 and C737.

A typical arrangement is shown on drawing 19849-WIE-ZZ-XX-DR-D-92-001.

Geocellular units are proprietary products and therefore manufacturer's recommendations should also be taken into consideration. Additionally, different manufacturers may have different connection types and arrangements which will need to be taken in to consideration, with the original design intent being Permavoid units as required for subbase replacement given the shallow construction.

2.2 Operation

The attenuation tank is intended to be the surface water storage feature to attenuate the discharge from the site up to and including the 1 in 100 year plus 40% climate change event. As such during rainfall events the tank will fill to full depth. The tank is intended to be empty between rainfall events.

Direct access for maintenance is accessible via the upstream and downstream chambers.

2.3 Inspection and Maintenance Regime

Regular inspection and maintenance is important for the effective operation of attenuation tanks as designed. As the feature is buried a regularly inspection regime is very important to ensure the correction functionality of the surface water drainage network.

Sediment\material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols, especially where run-off is taken from potentially contaminated areas such as car parks/service yards.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required)	Inspect inlets, outlets and overflows for blockages, and clear if required. If faults persist jetting and CCTV survey may be required.	Monthly and after large storms.
	Inspect ventilation cowl (if present)	Monthly and after large storms.
Regular maintenance\inspection	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Debris removal from catchment surface (where may cause risks to performance)	Monthly
	Remove sediment from pre-treatment structures	Annually (or as required after heavy rainfall events)
Remedial actions	Repair/rehabilitation of inlets, outlet, overflows and vents.	As required.

3.0 Pipes (Including Oversized), Linear Channels & Manholes

3.1 Location and Description

Pipes are the main conveyance across the site with the network as shown on drainage strategy drawing 19849-WIE-ZZ-XX-DR-D-92-001.

A typical details for pipe bedding and detailing are shown on drawing 19849-WIE-ZZ-XX-DR-D-92-006, 19849-WIE-ZZ-XX-DR-D-92-007, 19849-WIE-ZZ-XX-DR-D-92-008 & 19849-WIE-ZZ-XX-DR-D-92-009.

Pipes are proprietary products and the materials can vary across the site and as such where used the manufacture's recommendations should be followed. Regardless of the product used the pipes will be fully compliant with the drainage specification.

3.2 Operation

Pipes are intended to be the main conveyance across the development and where oversized they form the attenuation volume required by the limitation of the discharge rate. They are intended to be dry except for during rainfall events. These have been designed to be self-cleansing where possible for smaller diameter pipes, and for larger diameters the risk is reduced due to the overall pipe size.

Access for maintenance is provided through access chambers, manholes, rodding plates and rodding eyes.

3.3 Inspection and Maintenance Regime

Regular inspection and maintenance is important to identify areas which may have been obstructed/clogged and may not be drainage correctly thus exposing the development to a greater level of flood risk.

Sediment\material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols, as run-off is taken from potentially contaminated areas such as car parks.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required)	Initial inspection should be provided as post construction CCTV survey.	N/A
	Inspect for evidence of poor operation via water level in chambers. If required take remedial action.	3-monthly, 48 hours after large storms.
Occasional maintenance	Check and remove large vegetation growth near pipe runs.	6 monthly
	If continued poor performance jet and CCTV survey poorly performing runs.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue and location.	As required If above does not improve performance.

Appendices

Appendix A – Design Drawings

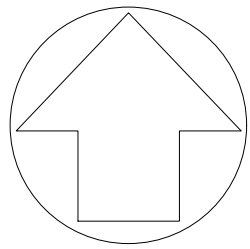
19849-WIE-ZZ-XX-DR-D-92-001 Drainage Strategy

19849-WIE-ZZ-XX-DR-D-92-006 Drainage Details sheet 1 of 4

19849-WIE-ZZ-XX-DR-D-92-007 Drainage Details sheet 2 of 4

19849-WIE-ZZ-XX-DR-D-92-008 Drainage Details sheet 3 of 4

19849-WIE-ZZ-XX-DR-D-92-009 Drainage Details sheet 4 of 4



- KEY**
- REDLINE BOUNDARY
 - BLUELINE BOUNDARY
 - EXISTING FOUL WATER DRAINAGE
 - EXISTING SURFACE WATER DRAINAGE
 - EXISTING PRIVATE COMBINED WATER DRAINAGE
 - EXISTING PUBLIC COMBINED WATER SEWER
 - PROPOSED COMBINED SEWER
 - PROPOSED SURFACE WATER DRAINAGE
 - PROPOSED OIL SEPARATOR
 - PROPOSED ATTENUATION TANK
 - PROPOSED PERMEABLE PAVING
 - PROPOSED PERMEABLE PAVING PERFORATED PIPE
 - PROPOSED ACO DRAINAGE LINEAR CHANNEL
 - EXISTING FOUL WATER DRAIN DIVERTED
 - EXISTING SURFACE WATER DRAIN ABANDONED
 - EXISTING LINEAR CHANNEL TO BE RETAINED
 - PROPOSED RAINWATER PIPE
 - PROPOSED SOIL VENT PIPE
 - PROPOSED TRAPPED FLOOR GULLEY
 - PROPOSED YARD GULLEY

This drawing should not be scaled. Dimensions to be verified on site. Any discrepancies should be referred to the Engineer prior to work being put in hand.

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GENERAL NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEER, ARCHITECT'S OR OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.
- ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO PREPARING ANY WORKING DRAWINGS OR COMMENCING ON SITE.
- THE CONTRACTOR MUST ENSURE AND WILL BE HELD RESPONSIBLE FOR THE OVERALL STABILITY OF THE BUILDING/STRUCTURE/EXCAVATION AT ALL STAGES OF THE WORK.
- ALL WORK BY THE CONTRACTOR MUST BE CARRIED OUT IN SUCH A WAY THAT ALL REQUIREMENTS UNDER THE HEALTH AND REGULATIONS.
- ALL WORK IS TO BE CARRIED OUT IN COMPLIANCE WITH THE REQUIREMENTS OF THE RELEVANT STATUTORY AUTHORITIES.
- THE PROPOSED ARCHITECTS LAYOUT IS BASED ON THE DESIGN BURD'S DRAWING "DB1762-DB2-ENB-00-0R-0650" REV P07 DATED 23.05.2024.
- THE TOPOGRAPHICAL SURVEY INFORMATION IS BASED ON SURVEY SOLUTIONS DRAWING "24422v-01" DATED 24/05/19.
- THE EXISTING UTILITY SURVEY INFORMATION IS BASED ON C L B SURVEY LTD'S DRAWING "JAZ3-4882-1" DATED JANUARY 2023.
- THE EXISTING PUBLIC SEWER INFORMATION IS BASED ON SEVERN TRENT'S SEWER RECORD PLAN.
- PROPOSED CATCHMENT AREA IS CALCULATED BASED ON ASSUMED IMPERMEABILITY COEFFICIENT OF 0.95 FOR IMPERMEABLE AREAS. THE APPROXIMATE OVERALL EFFECTIVE IMPERMEABLE AREA FOR THE SITE IS 0.280ha.
- THE PROPOSED OVERALL ATTENUATION STORAGE VOLUME OF 140m³ IS SIZED BASED ON A MAXIMUM ALLOWABLE SURFACE WATER DISCHARGE RATE OF 5 L/S FOR THE 1 IN 100 YEAR CRITICAL STORM RETURN PERIOD WITH 40% ALLOWANCE FOR CLIMATE CHANGE. ALLOWANCE FOR CLIMATE CHANGE.
- THE PROPOSED ATTENUATION IS PROVIDED IN THE FORM OF SUDS FEATURE SUCH AS PERMEABLE PAVING AND BELOW GROUND CELLULAR CRATES/TANK.
- THE PROPOSED SURFACE WATER DRAINAGE STRATEGY IS SUBJECT TO FURTHER SITE INVESTIGATIVE WORKS AND THIRD PARTIES APPROVAL.
- THE PROPOSED SURFACE WATER DRAINAGE STRATEGY IS BASED ON ASSUMED FINISHED FLOOR LEVELS AND EXTERNAL LEVELS THAT WORKS WITH THE DRAINAGE DESIGN DICTATED BY THE OUTFALL INVERT LEVEL OF 118.390.
- SECTION 108 APPLICATION WILL BE REQUIRED FOR BOTH SURFACE WATER AND FOUL WATER CONNECTIONS FROM SEVERN TRENT WATER.
- IMPERMEABLY LINED PERMEABLE PAVING ARE PROVIDED IN PARKING BAYS CONTRIBUTING TO SUSTAINABLE DRAINAGE OF ONSITE SURFACE WATER RUNOFF.
- PROPOSED PETROL INTERCEPTOR PRODUCT BY KLARGESTER IS DESIGNED TO PROVIDE ONSITE SURFACE WATER TREATMENT BEFORE RUNOFF IS DISCHARGED TO CELLULAR CRATES/TANK AND THEN TO OUTFALL.
- THE EXISTING ACCESS ROAD TO THE WEST OF THE SITE UP TO THE ENTRANCE INTO THE SITE IS EXCLUDED FROM DRAINAGE DESIGN. IT IS ASSUMED THAT THE EXISTING DRAINAGE SYSTEM WITHIN THE ROAD IS ADEQUATE AS THE TOPO SURVEY INDICATE GULLIES AND MANHOLE PRESENT IN THE ROAD.
- THE EXISTING LINEAR CHANNEL AT THE ENTRANCE OF THE SITE IS TO BE RETAINED. THE CONTRACTOR TO CONFIRM ON SITE THE OUTFALL CONNECTION OF THIS LINEAR CHANNEL.
- PRIOR TO COMMENCEMENT OF WORKS, CONTRACTOR TO CHECK PRESENCE OF ALL BELOW GROUND SERVICES AND DRAINAGE, AND INFORM THE ENGINEER.
- RWPs AND FOUL DOWN POINTS ARE PROVIDED BY ARCHITECT.
- ALL FOUL DOWN POINTS TO HAVE RODDING ACCESS ABOVE FLOOR SLAB LEVEL FOR MAINTENANCE.

C04	21.06.24	MH DIAMETER UPDATED	TY	PE
C03	14.06.24	FW SVPS UPDATED	AS	SS
C02	31.05.24	SW CONNECTION PIPE MOVED TO FOOTPATH	AS	SS
C01	30.05.24	STAGE 4 ISSUE	AS	SS
A02	08.08.23	REDLINE BOUNDARY AND SITE LAYOUT UPDATED	AS	R8
A01	02.06.23	FIRST ISSUE	RL	R8

Rev	Date	Description	By	Chk
Amendments				

Project

HINCKLEY CDC AND ENDOSCOPY

Title

PROPOSED SURFACE WATER AND FOUL WATER DRAINAGE STRATGEY

Client

DARWIN GROUP

5th Floor, One Cornwall Street, Birmingham, B3 2DX.
T: 0121 212 7700
mail@watermangroup.com www.watermangroup.com

Work Stage

STAGE 4 Technical Design

Subsidiary

W waterman

Designed By

RB Director **SS** Waterman Ref **WIE19849**

Drawn By

RL Date **JUNE 2023** Scales @ A1 **1:200**

Project | Originator | Functional | Spatial | Form | Discipline | Number | Revision

19849-WIE-ZX-XX-DR-D-92-001

DETAILED DESIGN

C04

19849-WIE-ZX-XX-DR-D-92-001

C04

- PROPOSED ATTENUATION TANK:**
- STORAGE VOLUME: 140m³
 - DEPTH OF TANK: 1.000m
 - TANK DIMENSION: 20x7x1.0 (m)
 - COVER LEVEL OF GROUND: VARIES WITH MINIMUM 800mm COVER
 - INVERT LEVEL OF BASE OF TANK: 118.930
 - PRODUCT: HYDRO INTERNATIONAL'S STORMBLOC EXTRA OR SIMILAR APPROVED

NOTE:
EXISTING COMBINED DRAINAGE RUN TO BE RETAINED. THE CONTRACTOR TO CONFIRM THE COVER LEVEL AND INVERT LEVELS OF THE EXISTING COMBINED DRAINAGE MANHOLES/RUN ON SITE.
THE CONTRACTOR ALSO NEED TO MAKE SURE THAT THE EXISTING COMBINED DRAINAGE DOWNSTREAM RUN OF MH22 HAS ADEQUATE DRAINAGE NETWORK IN PLACE.

PROPOSED MANHOLE WITH FLOW CONTROL DEVICE (HYDROBRAKE) DISCHARGE RATE TO RESTRICT SURFACE WATER FLOW TO 5L/S.

15
CL: 120.900m
Depth: 2.061m
IL: 118.839m
Diam.: 1.200m

14
CL: 120.400m
Depth: 0.951m
IL: 119.449m
Diam.: 0.900m

8
CL: 120.030m
Depth: 0.953m
IL: 119.077m
Diam.: 0.900m

DIVERSION MANHOLE 4
CL: TBC
IL: TBC

EXISTING MANHOLE 09 (AS PER CCTV SURVEY
CL: TBC

27
CL: 120.050m
Depth: 1.050m
IL: 119.000m
Diam.: 450mm

28
CL: 120.100m
Depth: 1.141m
IL: 118.959m
Diam.: 450mm

29
CL: 120.200m
Depth: 1.379m
IL: 118.821m
Diam.: 450mm

17
CL: 120.250m
Depth: 1.825m
IL: 118.425m
Diam.: 0.900m

NON-RETURN VALVE TO BE INSTALLED IN THIS MANHOLE.

PROPOSED SW & FW CONNECTION MANHOLE:

PROPOSED SURFACE WATER AND FOUL WATER DRAINAGE CONNECTION TO EXISTING FOUL WATER MANHOLE.

THIS MANHOLE AND THE ASSOCIATED OUTGOING PIPE TO BE REINSTATED TO A COMBINED DRAINAGE SYSTEM.

EX MH18
CL: 120.070m
Depth: 1.680m
IL: 118.390m
Diam.: 1.200m

6
CL: 120.500m
Depth: 1.210m
IL: 119.290m
Diam.: 0.900m

7.005
12.00m
80.00 (1-X)
150mm

7.004A
8.890m
80.00 (1-X)
150mm

24
CL: 119.980m
Depth: 1.100m
IL: 118.880m
Diam.: 450mm

NOTE:
THE TWO SVPS TO BE CONNECTED TO PROPOSED INSPECTION CHAMBER AT THE PROPOSED LOCATION SUBJECT TO FOUNDATION PLAN. THE SVPS TO RUN PARALLEL TO AVOID CLASH WITH FOUNDATION.

DIVERSION MANHOLE 2
CL: 122.515m
Depth: 1.759m
IL: 120.756m
IL OUT: 119.950

DIVERSION MANHOLE 1
CL: 123.400m
Depth: 2.400m
IL: 120.980m
BACK DROP 1.5M

9
CL: 121.700m
Depth: 2.200m
Diam.: 0.900m

3.000
21.568m
89.50 (1-X)
225mm

1.004
9.138m
100.00 (1-X)
300mm

6.000
12.646m
109.96 (1-X)
150mm

2.003
16.788m
238.56 (1-X)
225mm

2.002
10.573m
248.18 (1-X)
300mm

1.002A
10.971m
90.61 (1-X)
225mm

3
CL: 120.030m
Depth: 0.834m
IL: 119.196m
Diam.: 0.600m

2.001
40.885m
240.50 (1-X)
300mm

8.000
3.64m
40.00 (1-X)
150mm

8.001
4.910m
35.00 (1-X)
150mm

8.002
7.039m
35.00 (1-X)
150mm

7.005
11.748m
80.00 (1-X)
150mm

7.004
12.177m
80.00 (1-X)
150mm

7.003
2.480m
80.00 (1-X)
150mm

7.002
5.277m
80.00 (1-X)
150mm

7.005
12.00m
80.00 (1-X)
150mm

7.004A
8.890m
80.00 (1-X)
150mm

7.003
2.480m
80.00 (1-X)
150mm

7.002
5.277m
80.00 (1-X)
150mm

11.200m
100.00 (1-X)
150mm

3.700m
30. (1-X)
150mm

4.000
12.097m
66.13 (1-X)
150mm

3.001
10.402m
98.67 (1-X)
225mm

4.001
22.911m
71.74 (1-X)
225mm

3A
CL: 119.988m
Depth: 0.882m
IL: 119.104m
Diam.: 0.600m

CL: 119.988m
Depth: 0.737m
IL: 119.243m
Diam.: 0.600m

CL: 119.988m
Depth: 0.500m
IL: 119.480m
Diam.: 450mm

1.001
4.521m
96.20 (1-X)
225mm

7.000
13.513m
80.00 (1-X)
150mm

1.000
31.124m
198.24 (1-X)
225mm

7.001
14.378m
80.00 (1-X)
150mm

20
CL: 119.98m
Depth: 0.669m
IL: 119.311m
Diam.: 450mm

21
CL: 119.980m
Depth: 0.851m
IL: 119.129m
Diam.: 450mm

22
CL: 119.980m
Depth: 0.917m
IL: 119.063m
Diam.: 450mm

23
CL: 119.980m
Depth: 0.948m
IL: 119.032m
Diam.: 450mm

24
CL: 119.980m
Depth: 1.100m
IL: 118.880m
Diam.: 450mm

25
CL: 119.980m
Depth: 1.112m
IL: 118.768m
Diam.: 450mm

26
CL: 119.980m
Depth: 1.124m
IL: 118.656m
Diam.: 450mm

27
CL: 120.050m
Depth: 1.050m
IL: 119.000m
Diam.: 450mm

28
CL: 120.100m
Depth: 1.141m
IL: 118.959m
Diam.: 450mm

29
CL: 120.200m
Depth: 1.379m
IL: 118.821m
Diam.: 450mm

30
CL: 120.500m
Depth: 1.878m
IL: 118.622m
Diam.: 600mm

31
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

32
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

33
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

34
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

35
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

36
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

37
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

38
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

39
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

40
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

41
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

42
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

43
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

44
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

45
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

46
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

47
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

48
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

49
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

50
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

51
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

52
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

53
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

54
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

55
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

56
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

57
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

58
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

59
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

60
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

61
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

62
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

63
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

64
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

65
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

66
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

67
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

68
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

69
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

70
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

71
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

72
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

73
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

74
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

75
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

76
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

77
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

78
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

79
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

80
CL: 120.770m
Depth: 1.511m
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Diam.: 0.900m

81
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IL: 119.259m
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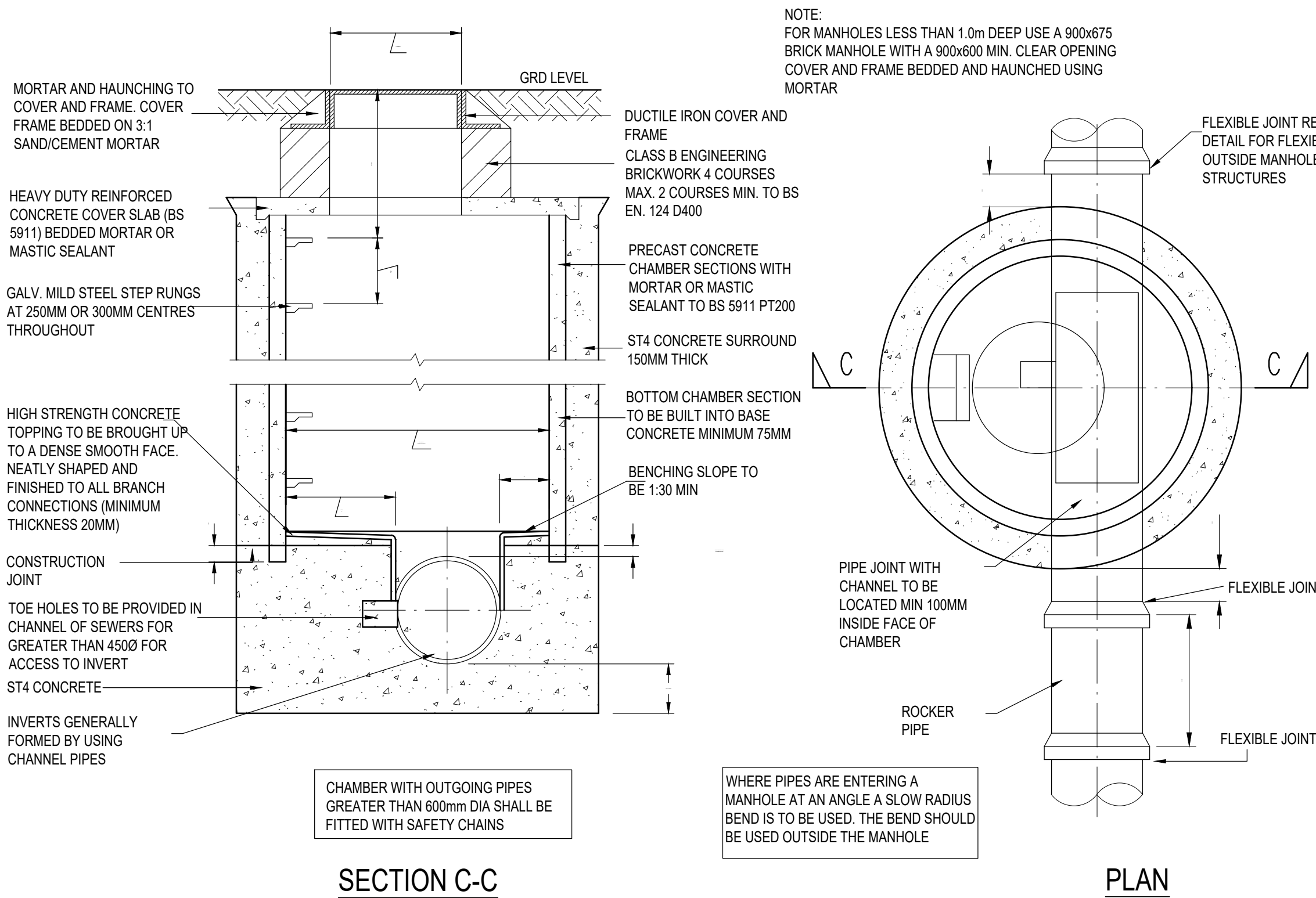
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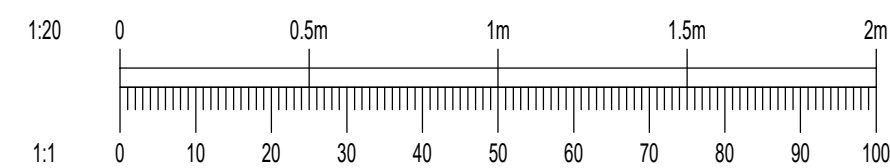
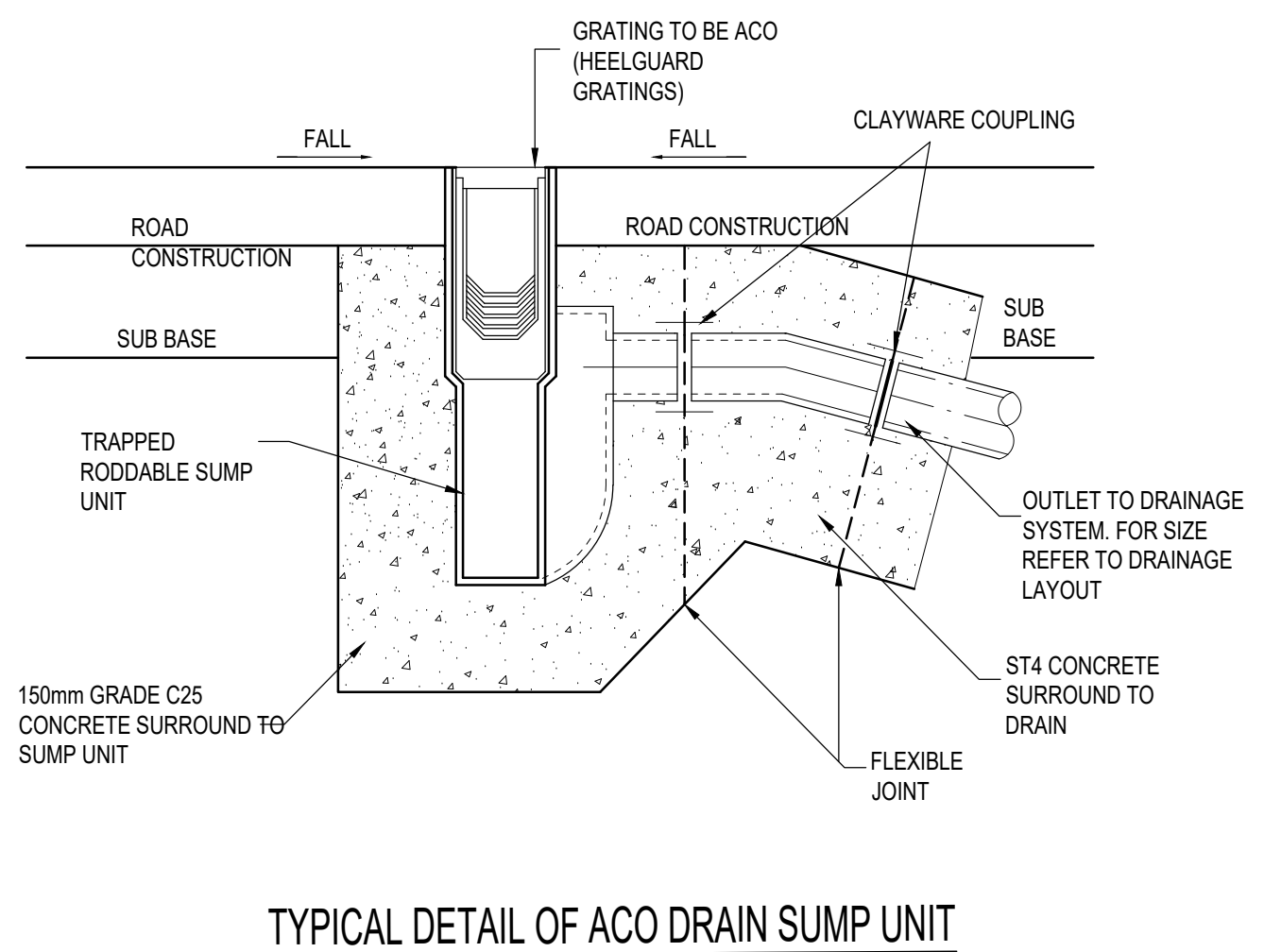
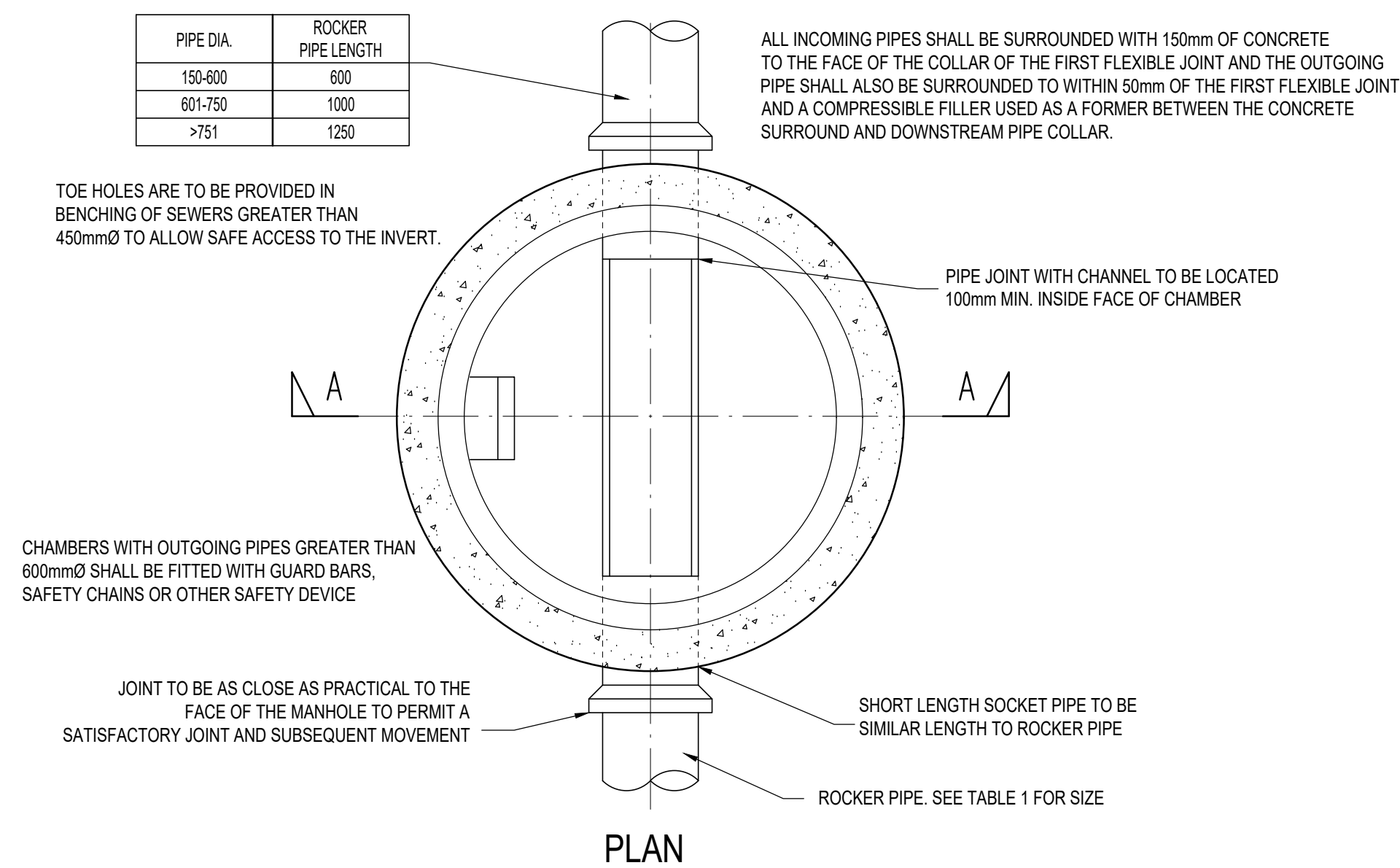
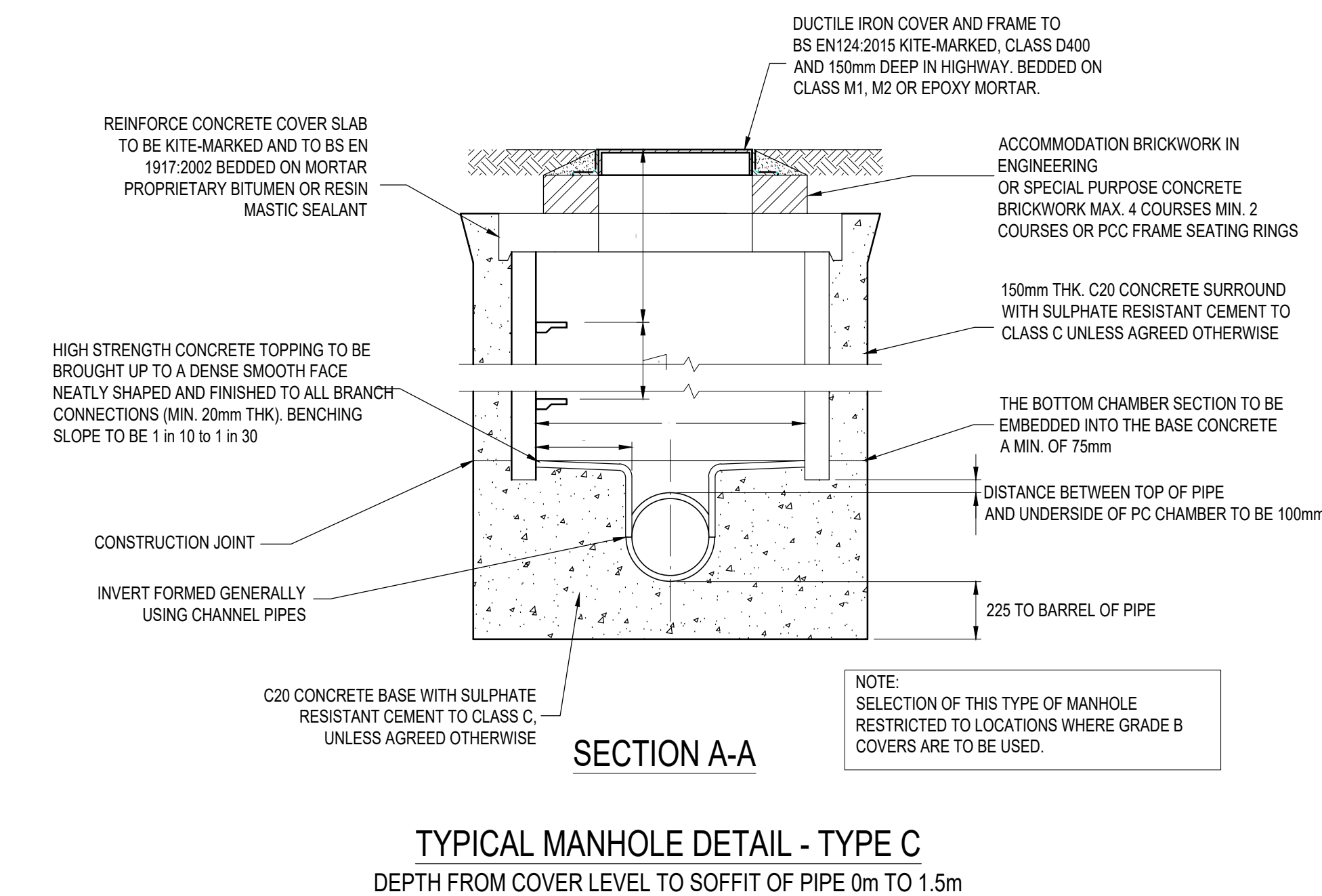
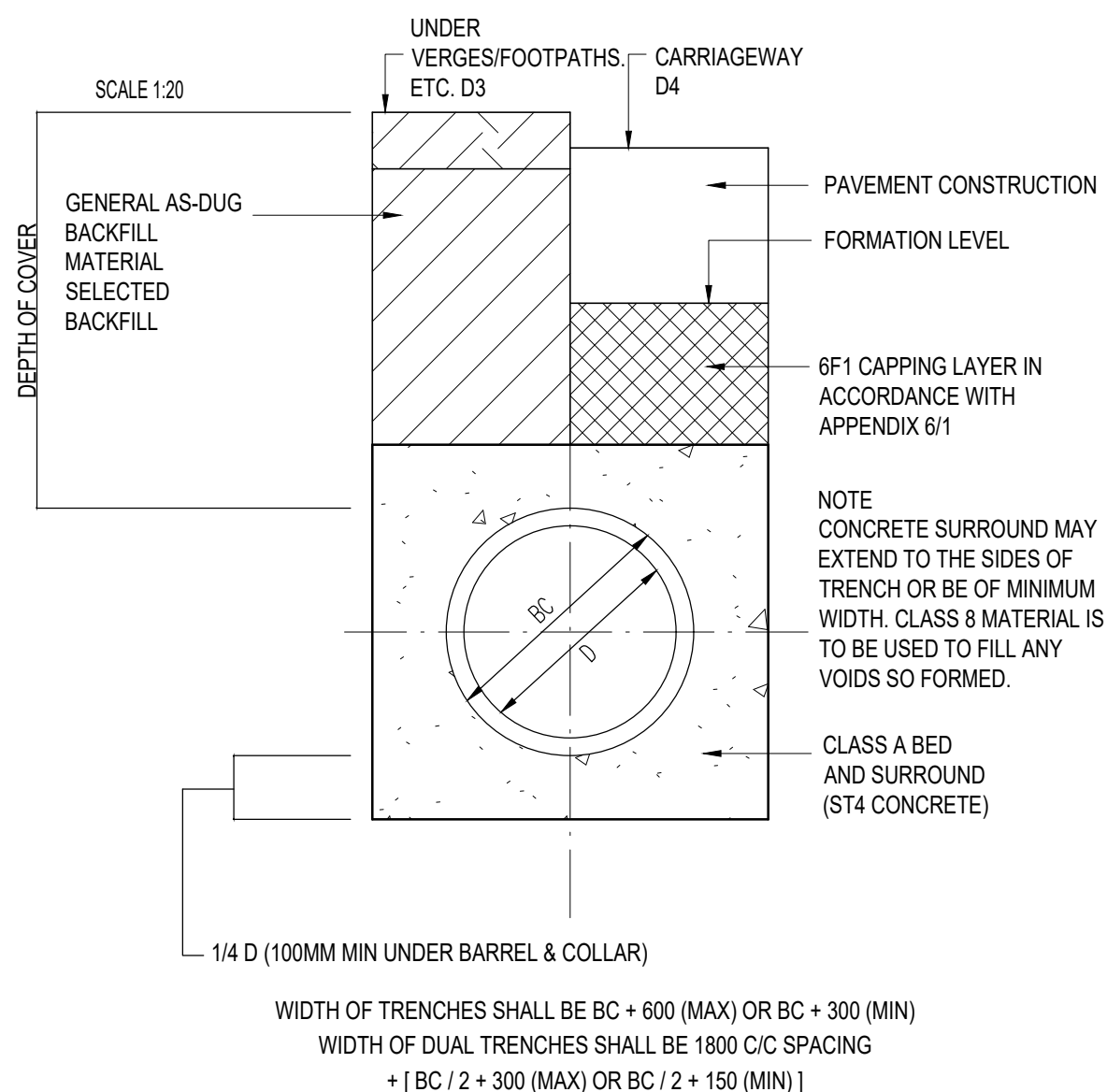
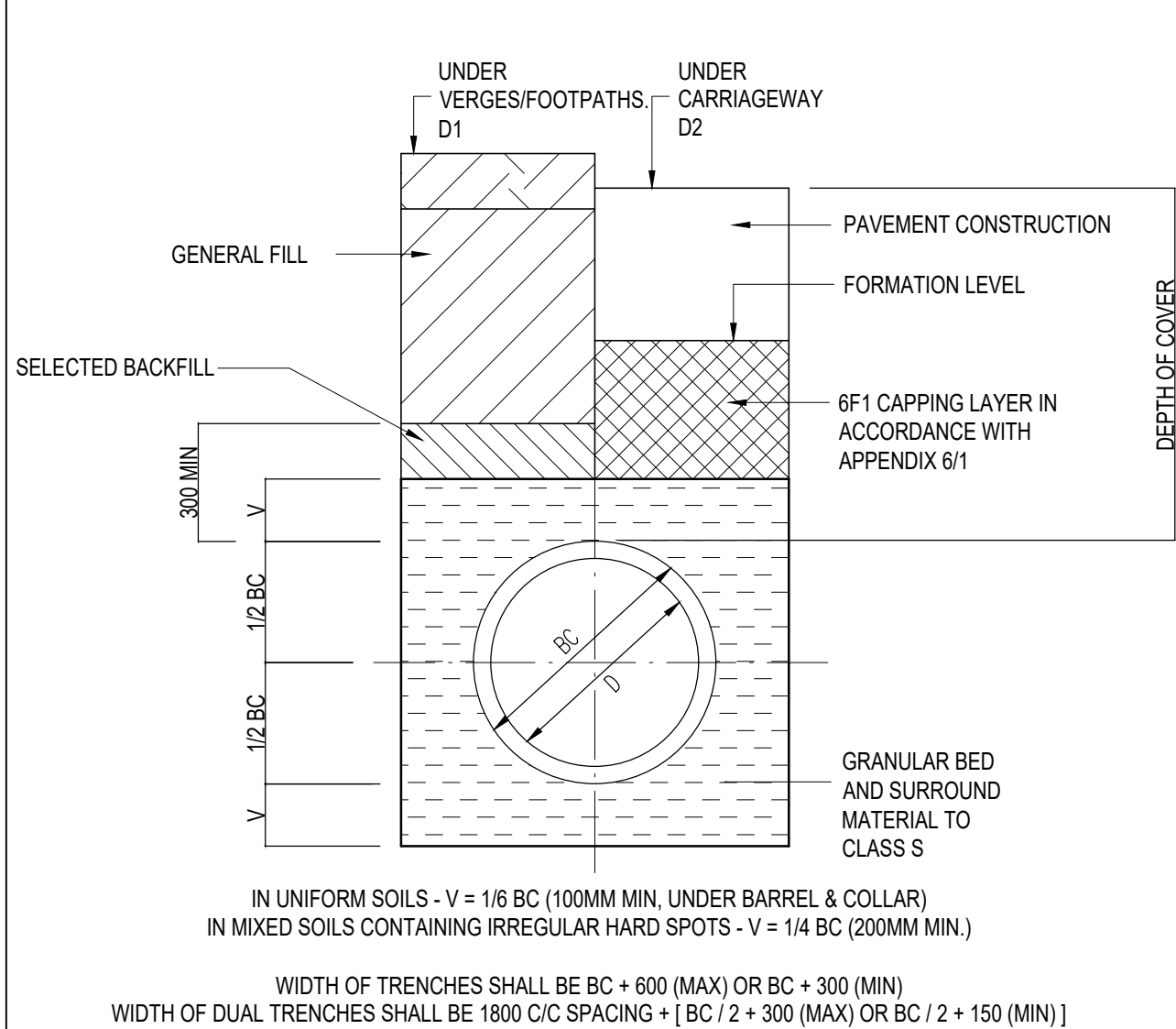
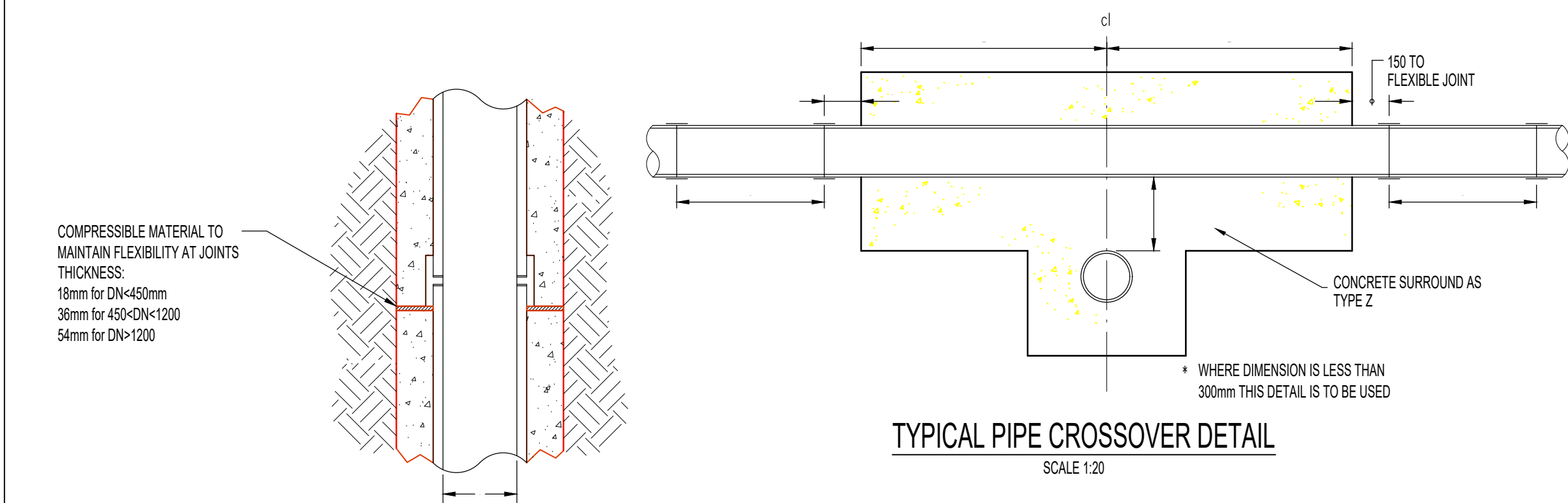
84
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Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

85
CL: 120.770m
Depth: 1.511m
IL: 119.259m
Diam.: 0.900m

86
CL: 120.770m
Depth: 1.



TYPE B MANHOLE DETAIL
(DEPTH FROM COVER LEVEL TO SOFFIT 1.5M TO 3.0m DEEP)



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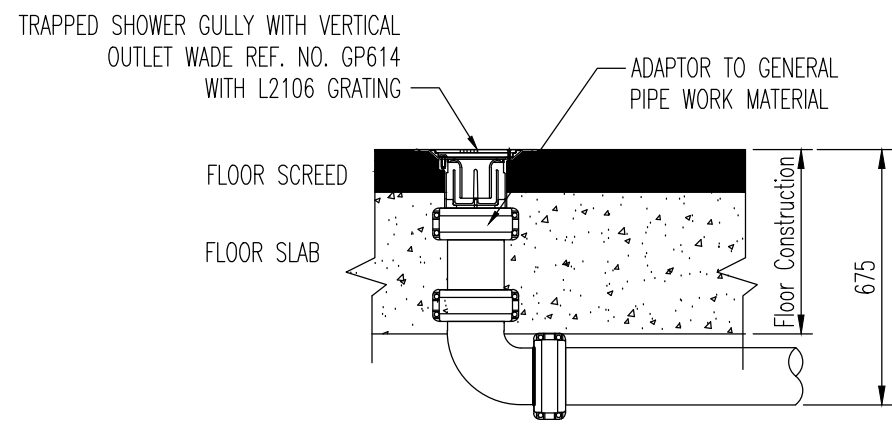
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Pickfords Wharf, Clink Street, London SE1 1UG 1 020 7928 7888 1 03333 444 501

GENERAL NOTES

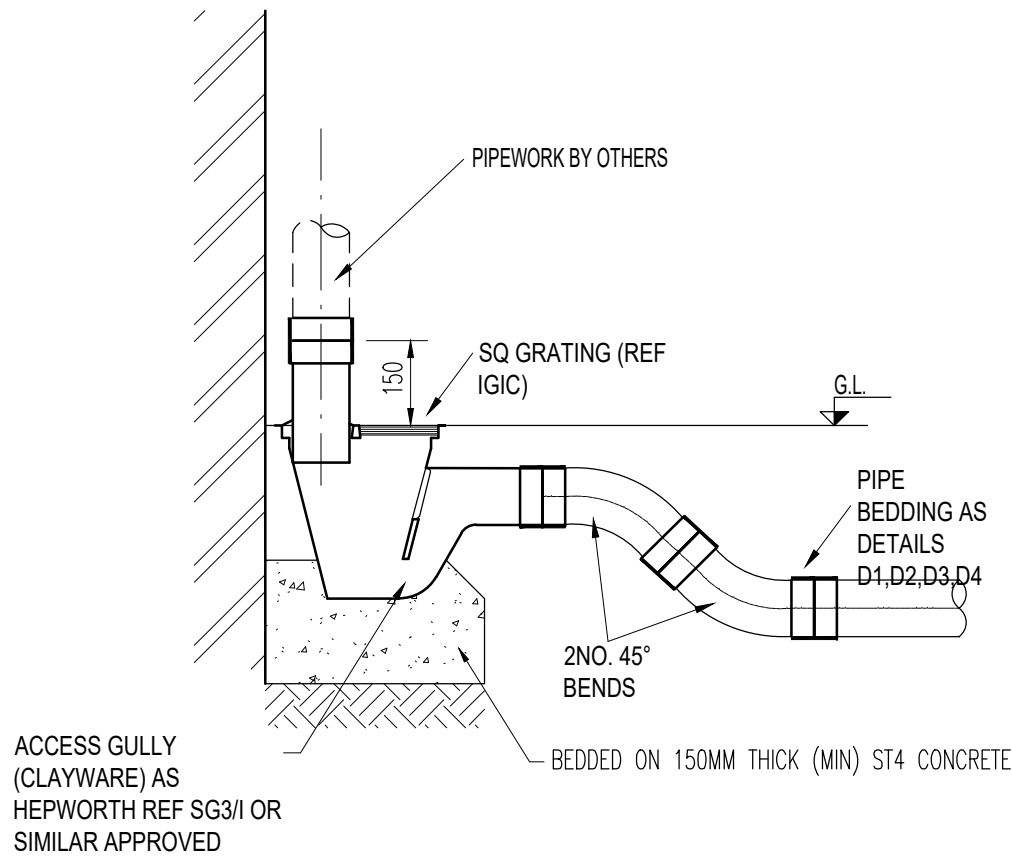
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CD1	30.05.24	FIRST ISSUE	AS	SS
Rev	Date	Description	By	Chk

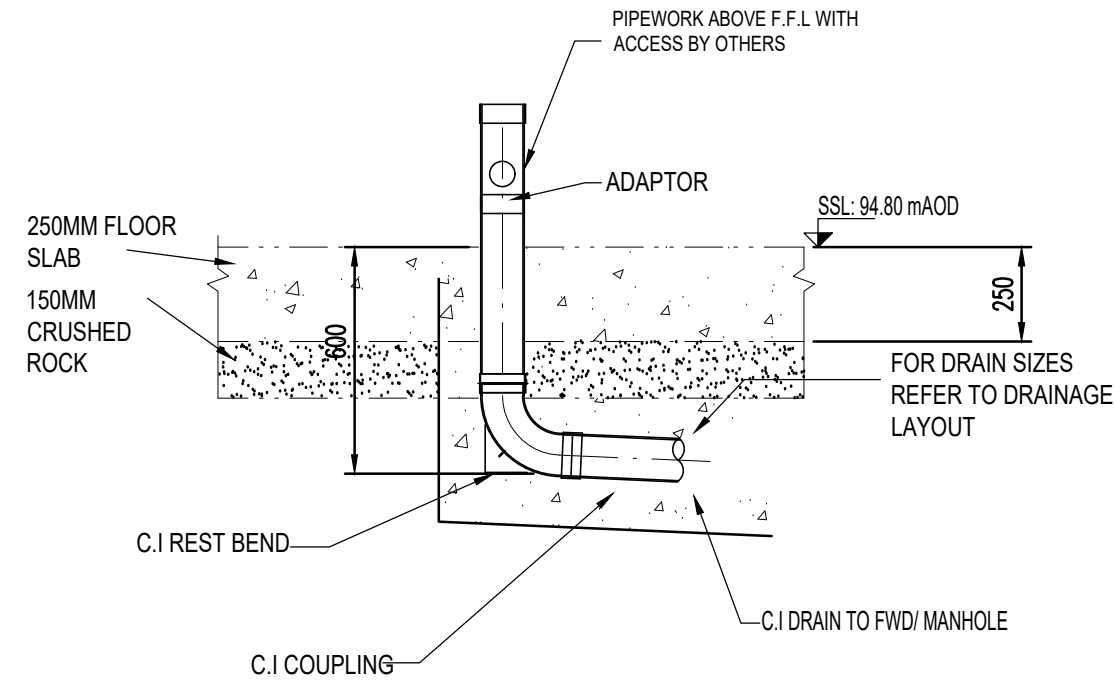
Amendments									
Project		HINCKLEY CDC AND ENDOSCOPY							
Title		PROPOSED DRAINAGE DETAILS SHEET 1 OF 4							
Client		DARWIN GROUP							
 waterman									
5th Floor One Cornwall Street Birmingham B3 2DX 1 0121 212 7700 mail@watermangroup.com www.watermangroup.com									
Work Stage		STAGE 4 Technical Design						RIBA	
Subsidiary		STAGE COMPLETE						A1	
Designed By		AS		Director		SS		Waterman Ref WIE19849	
Drawn By		AS		Date		MAY 2024		Scales @ A1 1:20	
Project		Originator		Functional		Spatial		Form	
Discipline		Number		Revision		19849-WIE-ZZ-XX-DR-D-92-006			
						C01			



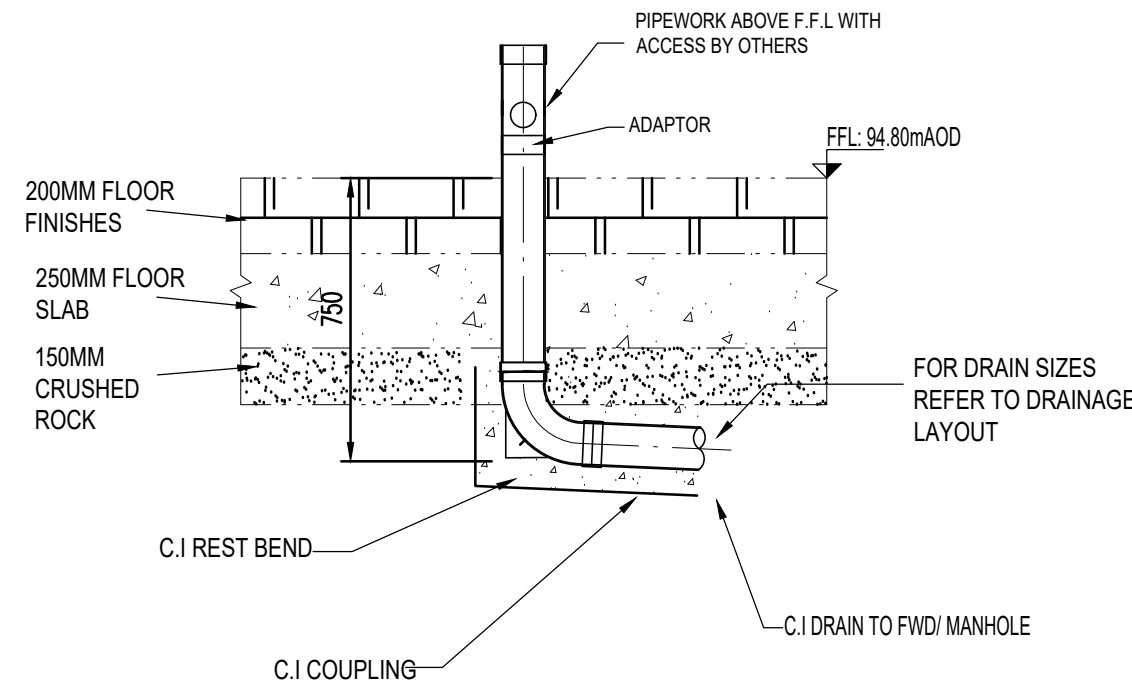
TYPICAL SHOWER GULLY
SCALE 1:20



TYPICAL RWP TRAPPED BACK INLET GULLY
SCALE 1:20

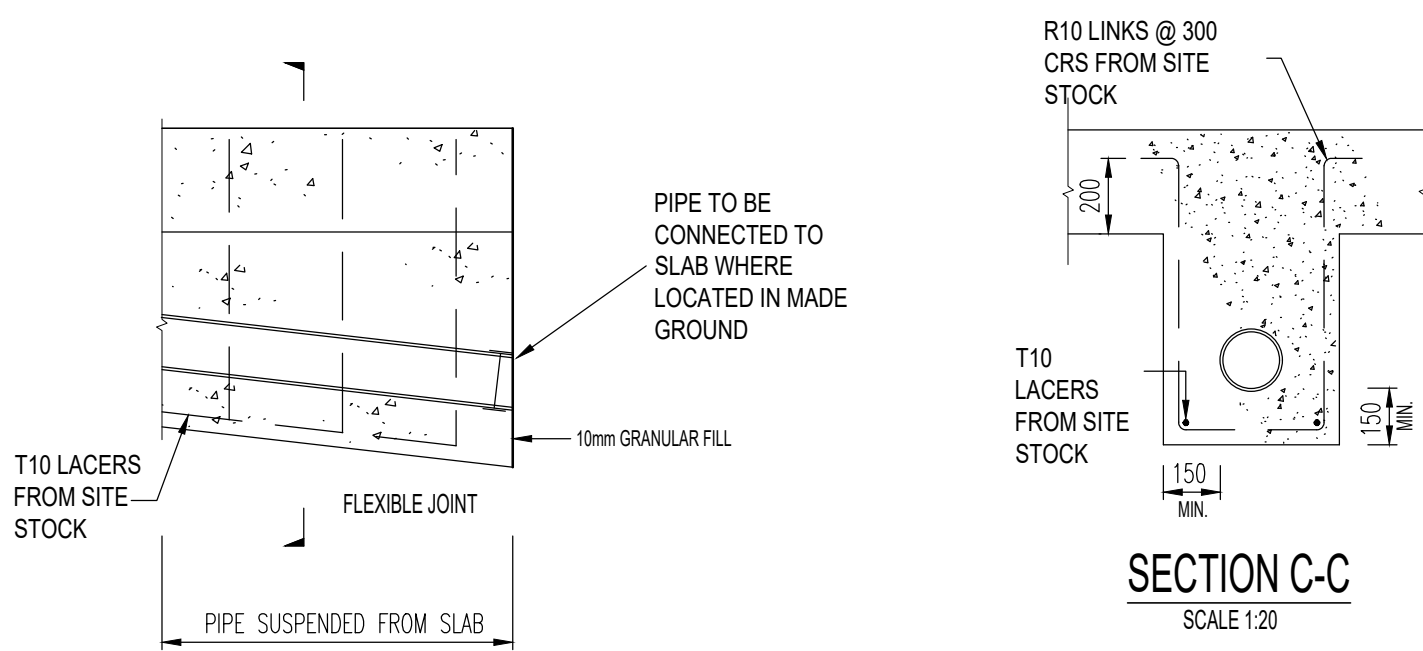


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SCALE 1:20

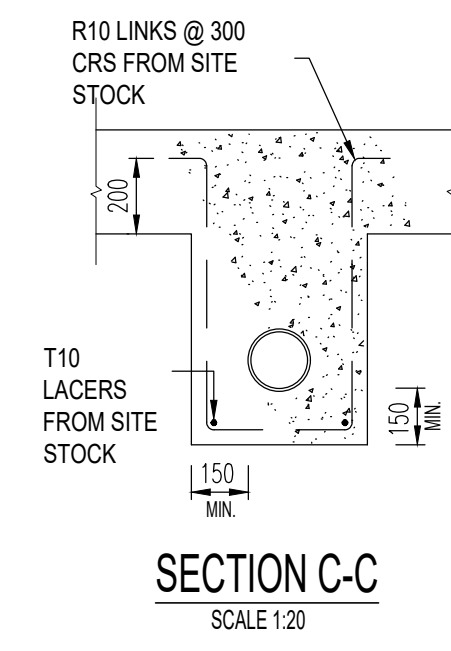


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SCALE 1:20

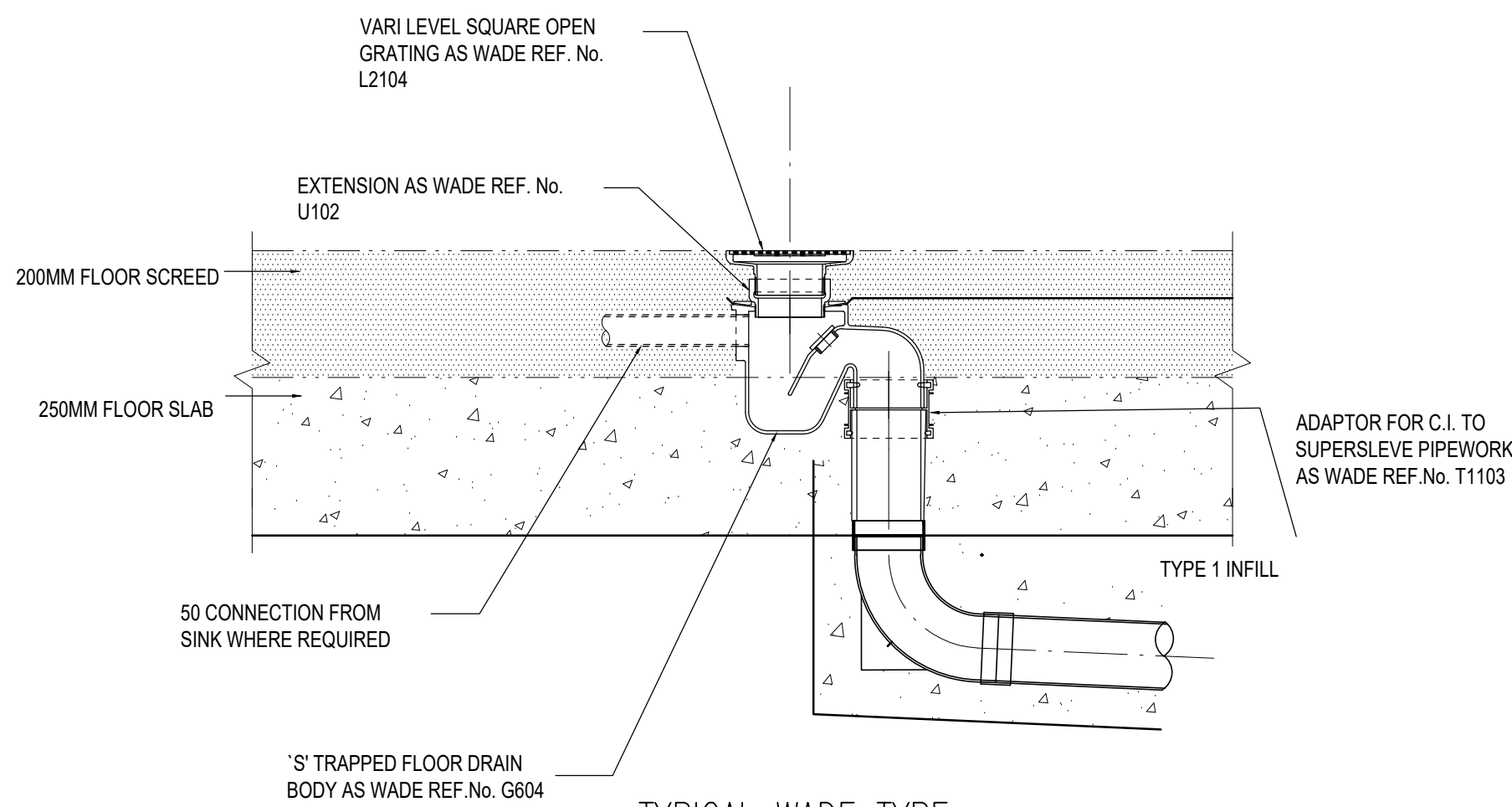
EXACT REQUIREMENTS TO BE CONFIRMED



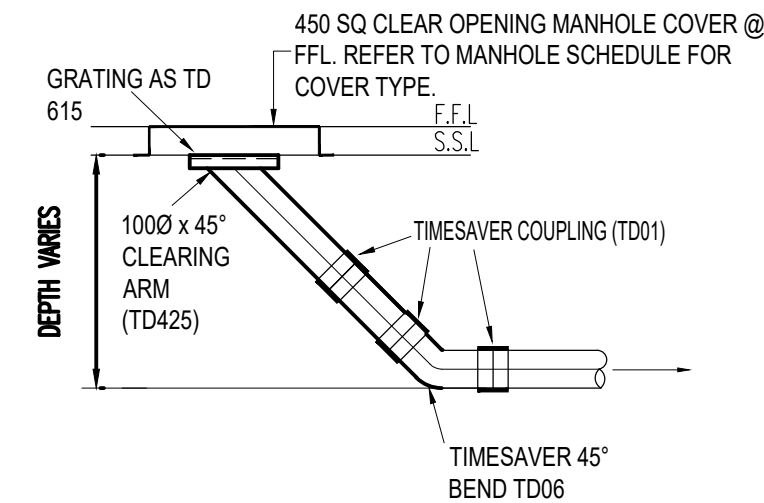
INTERNAL BEDDING DETAILS
SCALE 1:20



SECTION C-C
SCALE 1:20

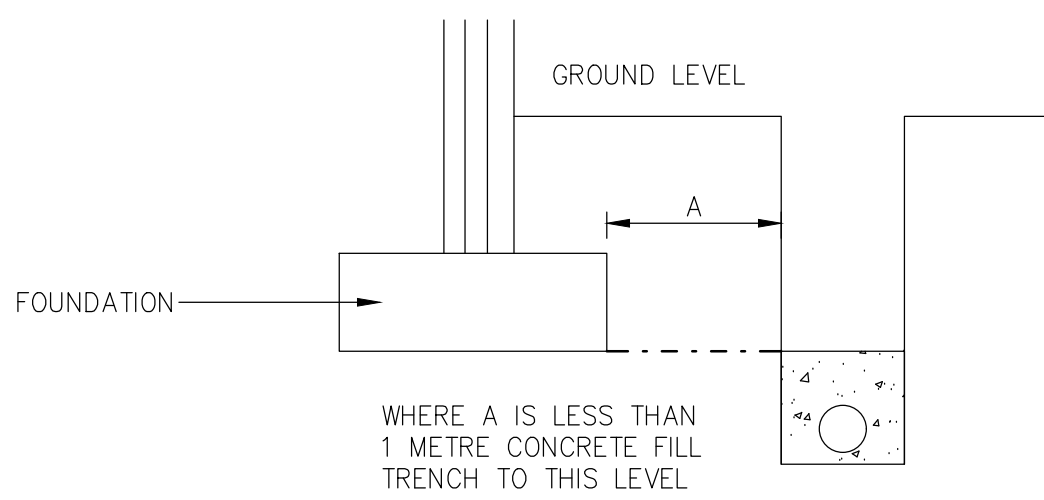
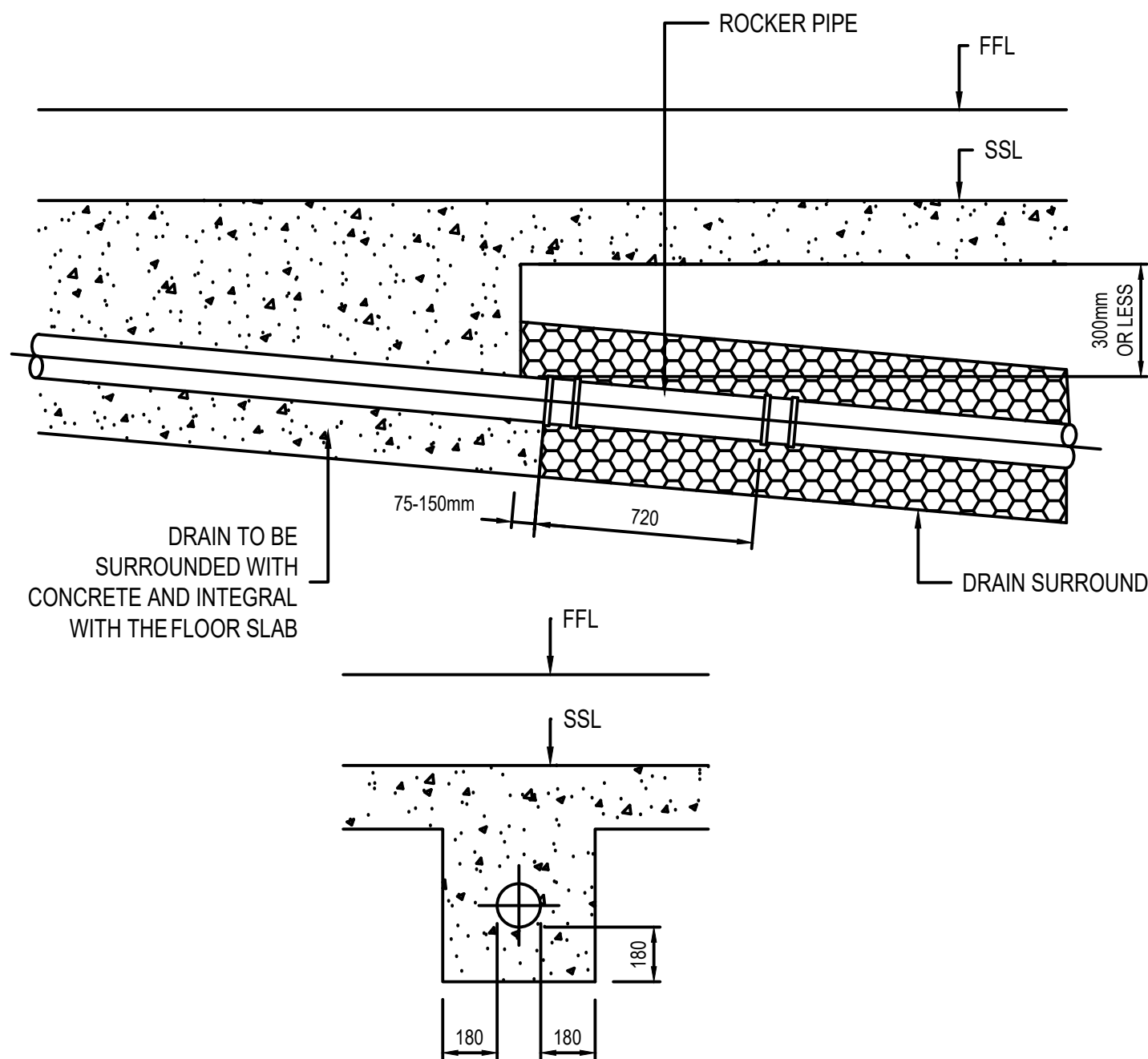


TYPICAL WAFT TYPE FLOOR GULLY

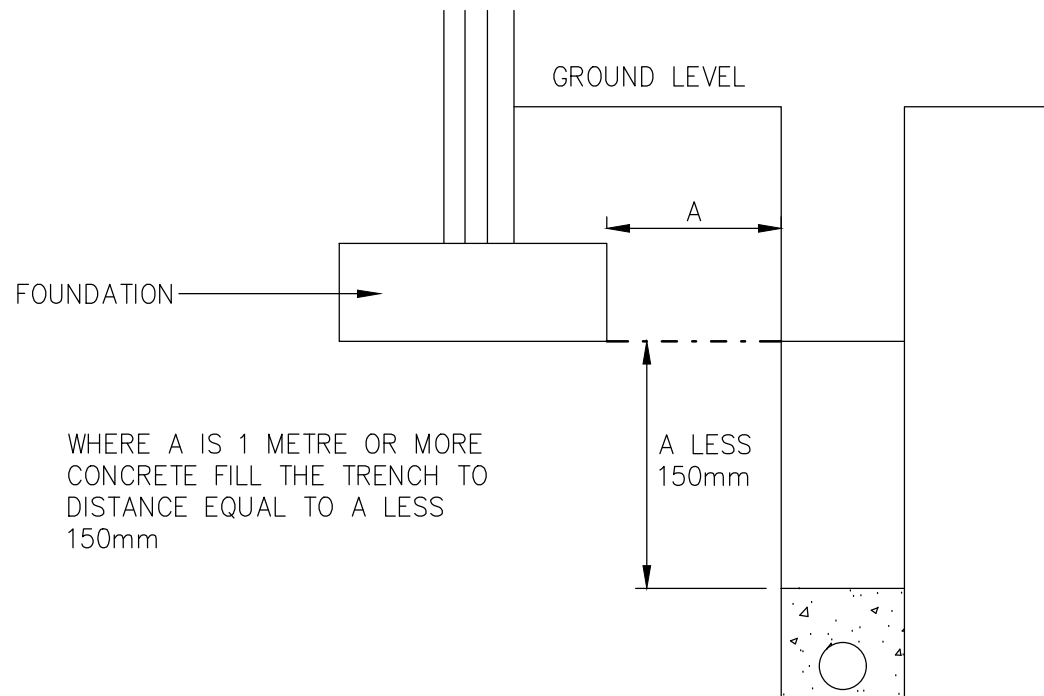


TYPICAL DETAIL OF CAST IRON RODDING EYE WITH ACCESS COVER LOCATED @ F.F.L.

CLASS Y CONCRETE SURROUND WITHIN 300mm OF FLOOR SLAB

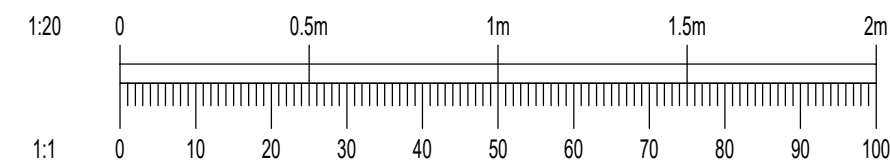


TYPICAL VENT DETAIL
Scale 1:20



TYPICAL CATCHPIT DETAIL

PIPE RUNS NEAR BUILDINGS FROM BUILDING REGULATIONS PART H N.T.S



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Rev	Date	Description	By	Chk
CD1	30.05.24	FIRST ISSUE	AS	SS

Amendments

Project	HINCKLEY CDC AND ENDOSCOPY
Title	PROPOSED DRAINAGE DETAILS SHEET 2 OF 4

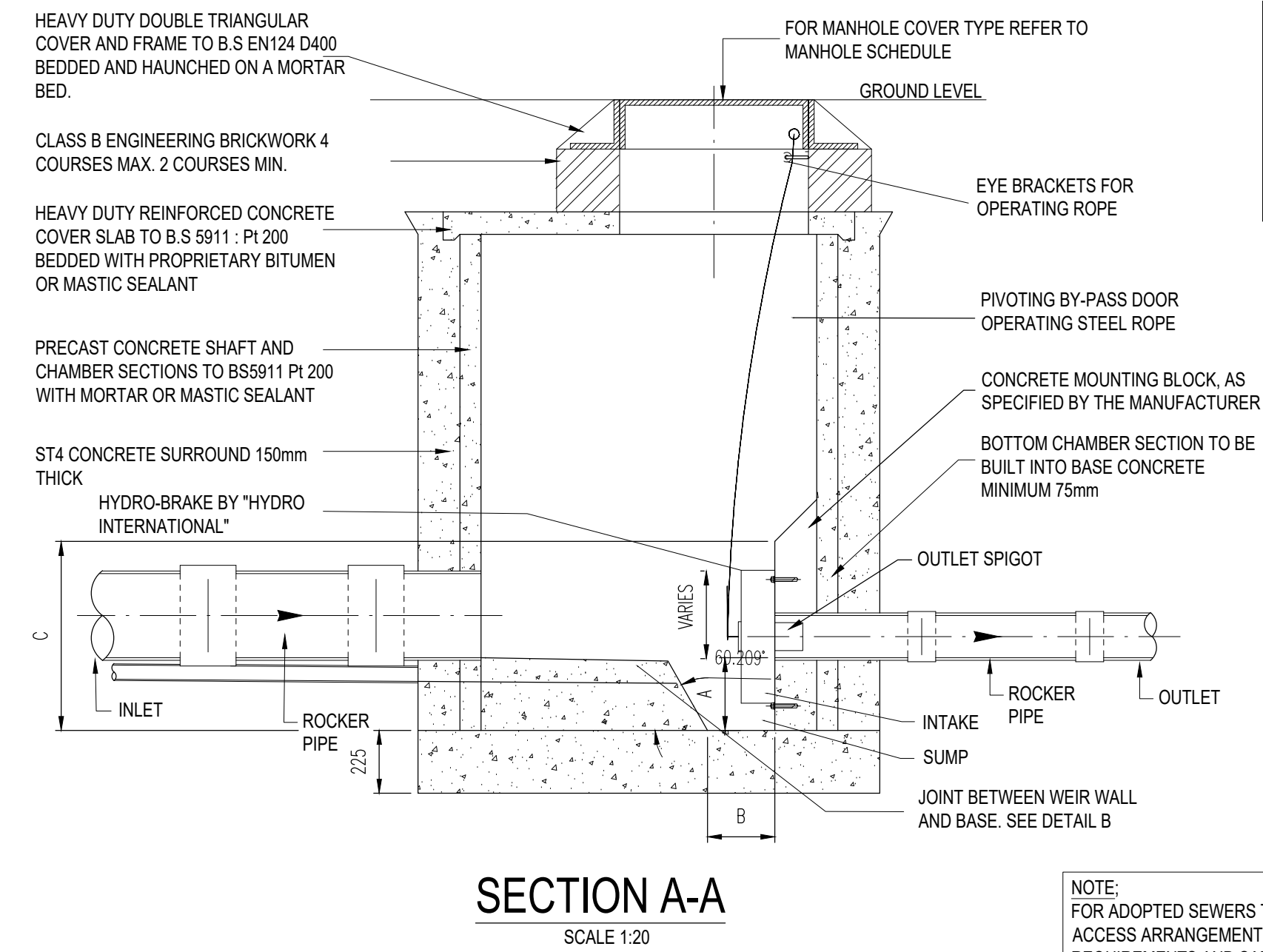
Client	DARWIN GROUP
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Work Stage	STAGE 4 Technical Design	RIBA
Suitability	STAGE COMPLETE	A1

Designed By	AS	Director	SS	Waterman Ref	WIE20008
Drawn By	AS	Date	MAY 2024	Scales @ A1	1:20

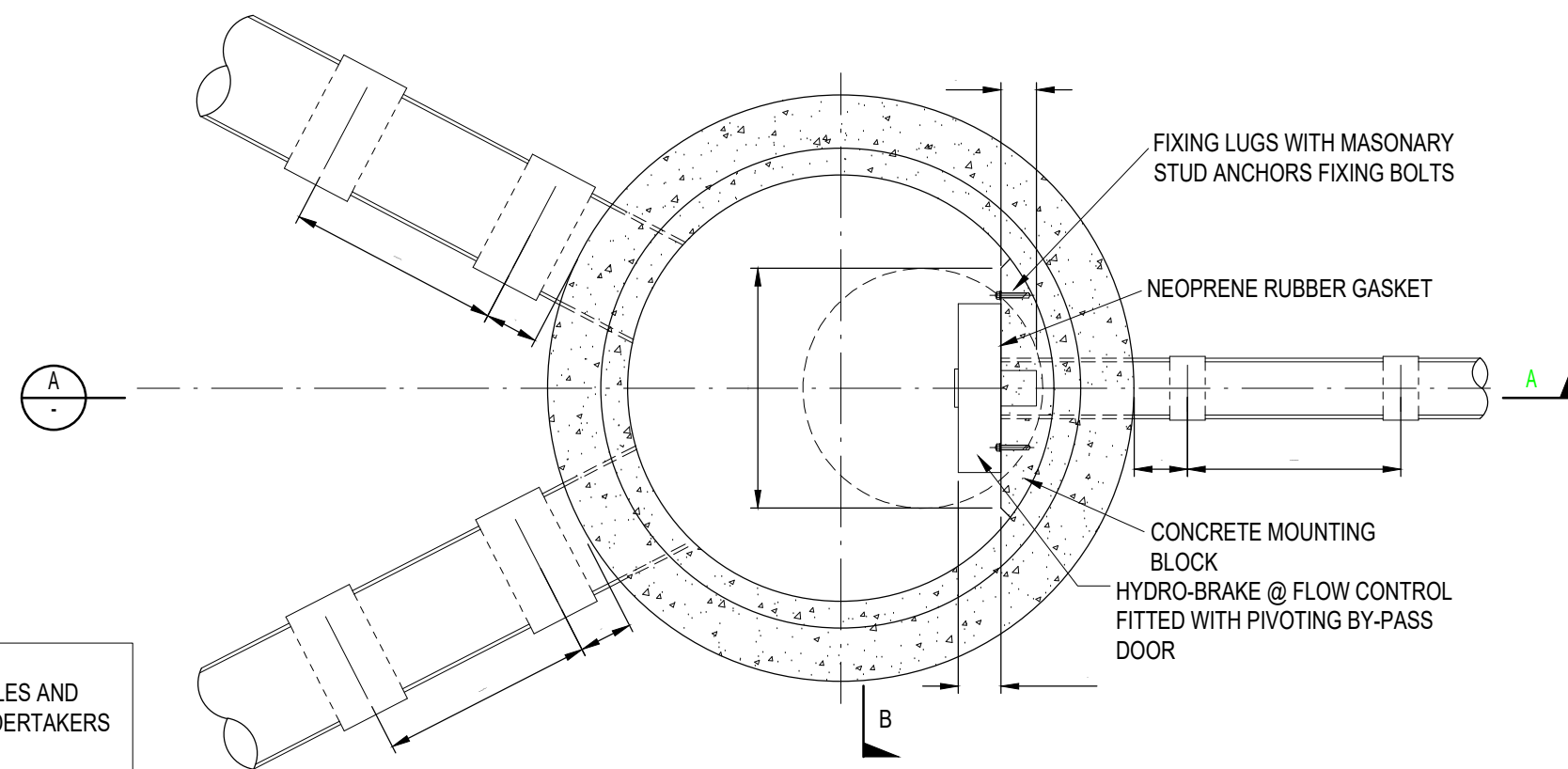
Project	Originator	Functional	Spatial	Form	Discipline	Number	Revision
19849-WIE-ZZ-XX-DR-D-92-007							C01

FLOW CONTROL DETAILS												
MH NO.	INVERT LEVEL (m A.O.D.)	DESIGN HEAD (m)	DESIGN FLOW (l/s)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	MANHOLE DIAMETER (mm)	OUTLET DIA. (mm)	HYDROBRAKE REF.
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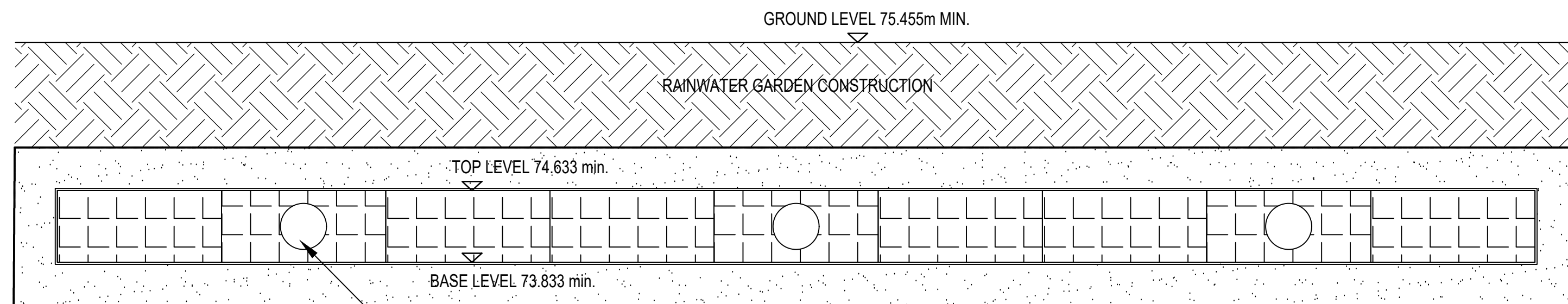


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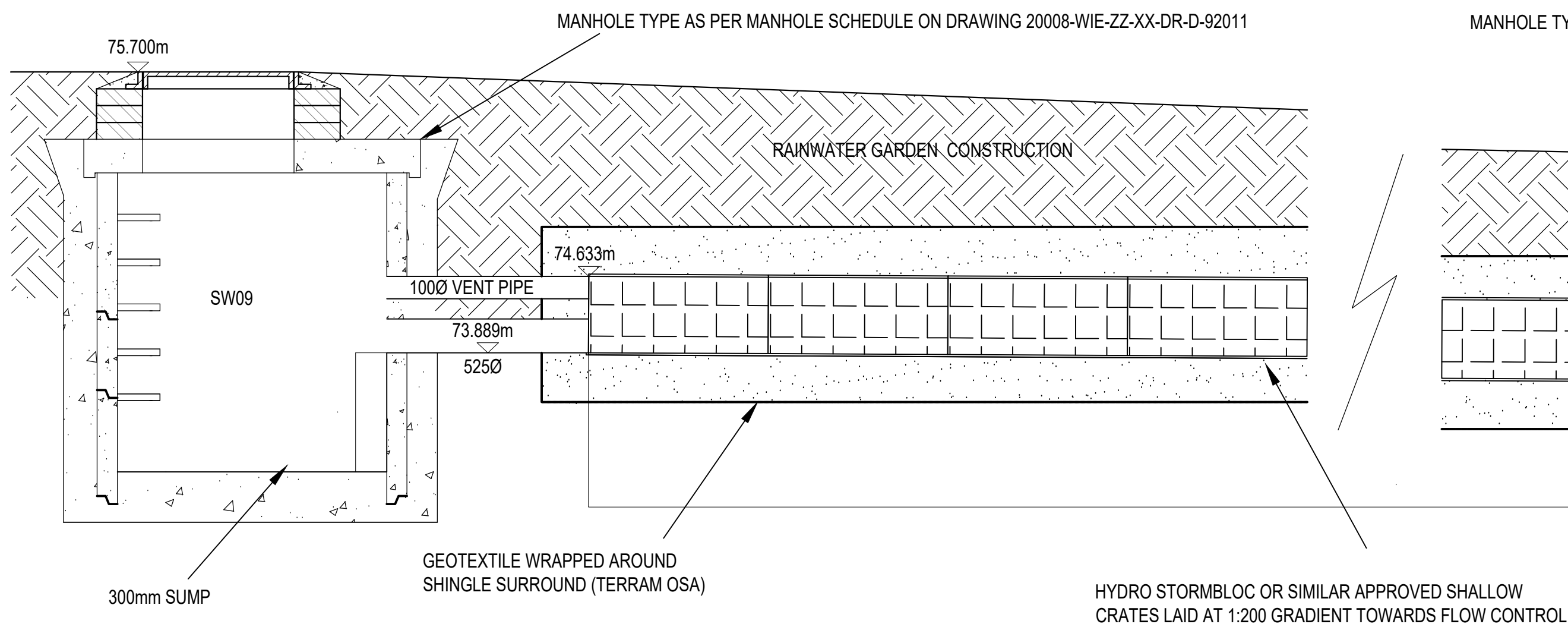
- 1) FLOW CONTROL CHAMBER SHALL BE CONSTRUCTED USING PROPRIETARY PREFORMED ELEMENTS.
- 2) INSTALLATION DETAIL OF ANY PROPRIETARY ELEMENT TO BE CONFIRMED BY MANUFACTURER.
- 3) HYDROBRAKE AS PER CONTRACTOR'S PROPOSAL



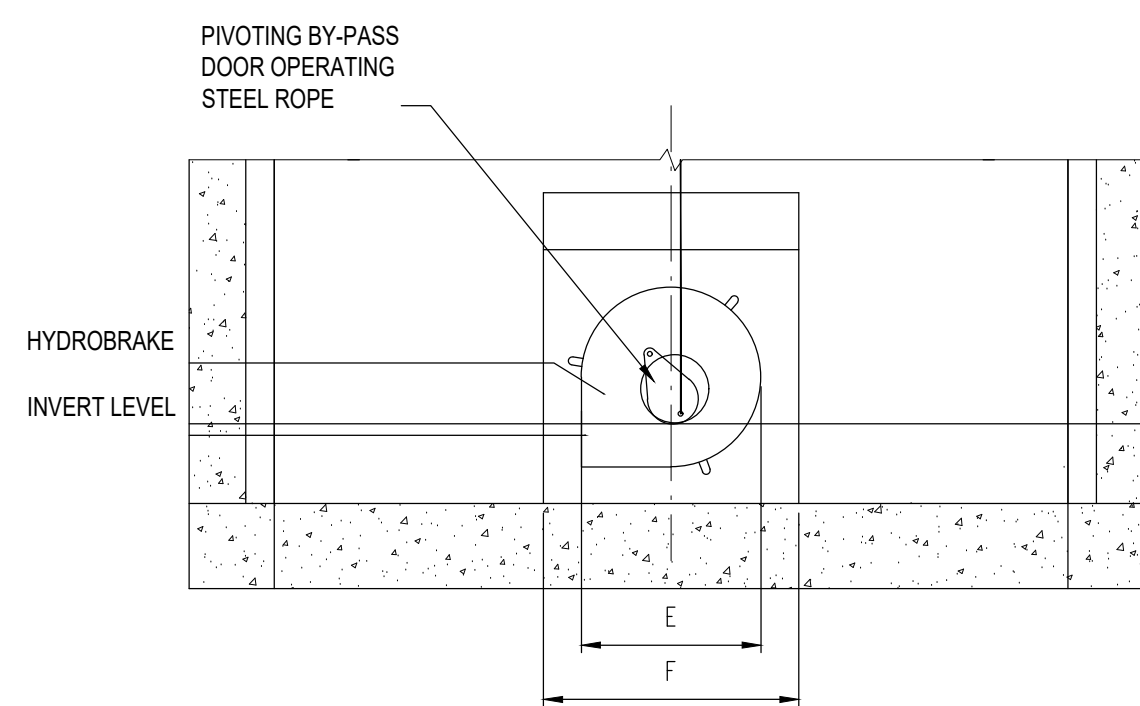
FLOW CONTROL PLAN



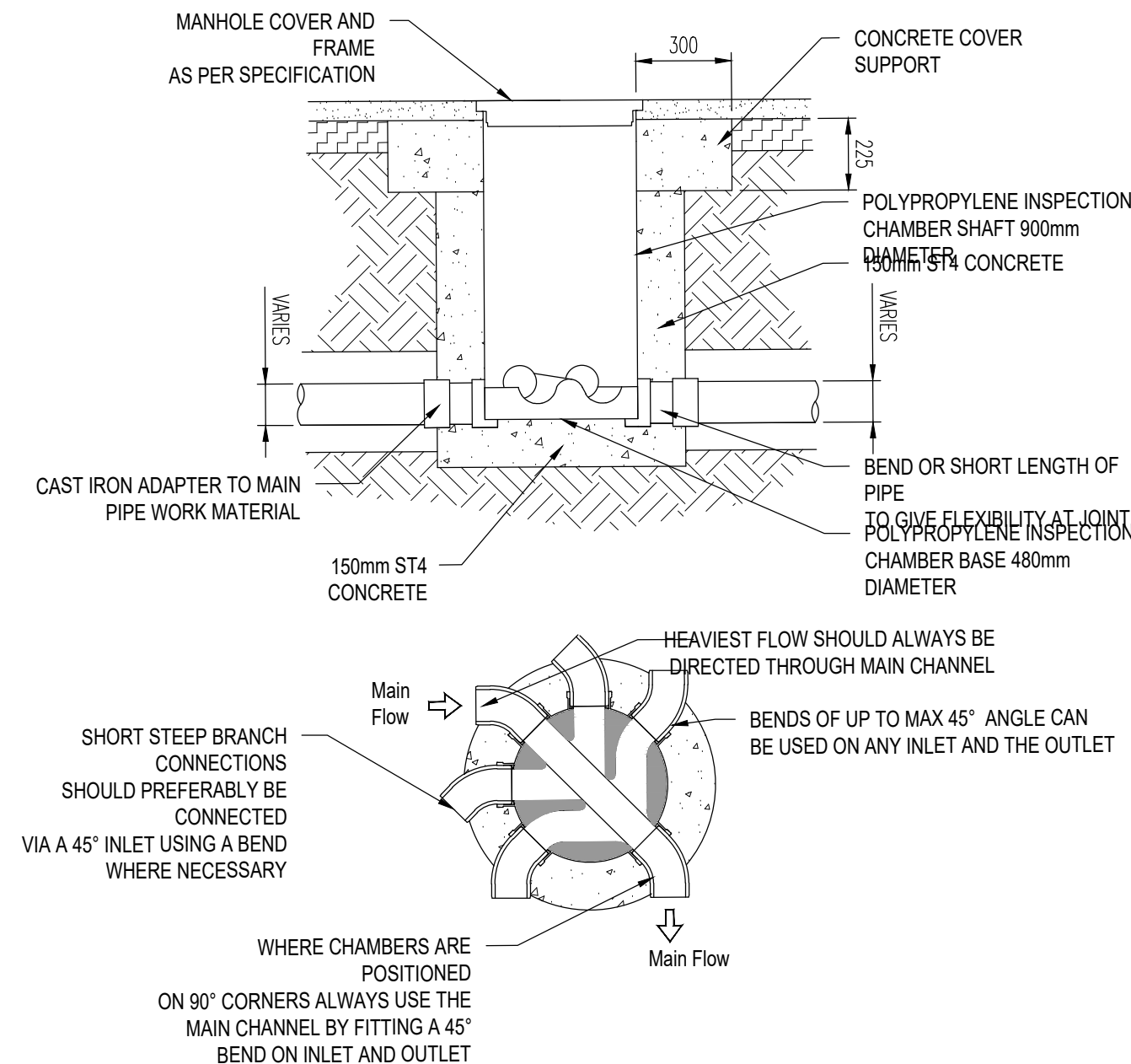
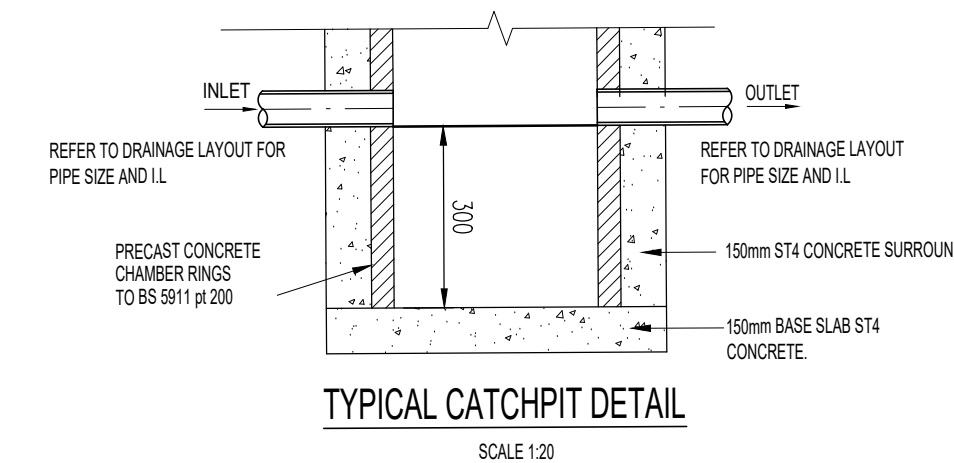
SECTION B-B THROUGH ATTENUATION TANK



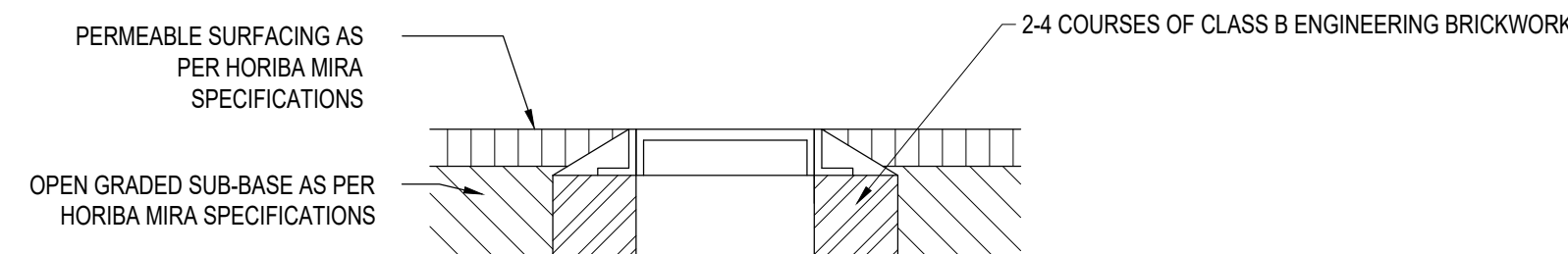
SECTION A-A THROUGH ATTENUATION TANK



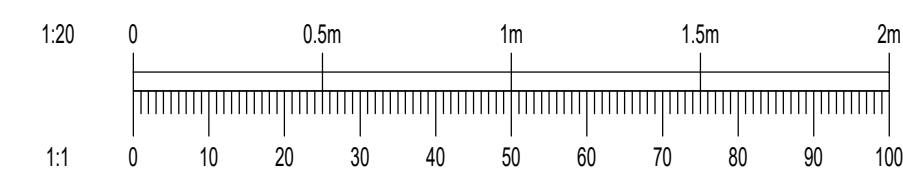
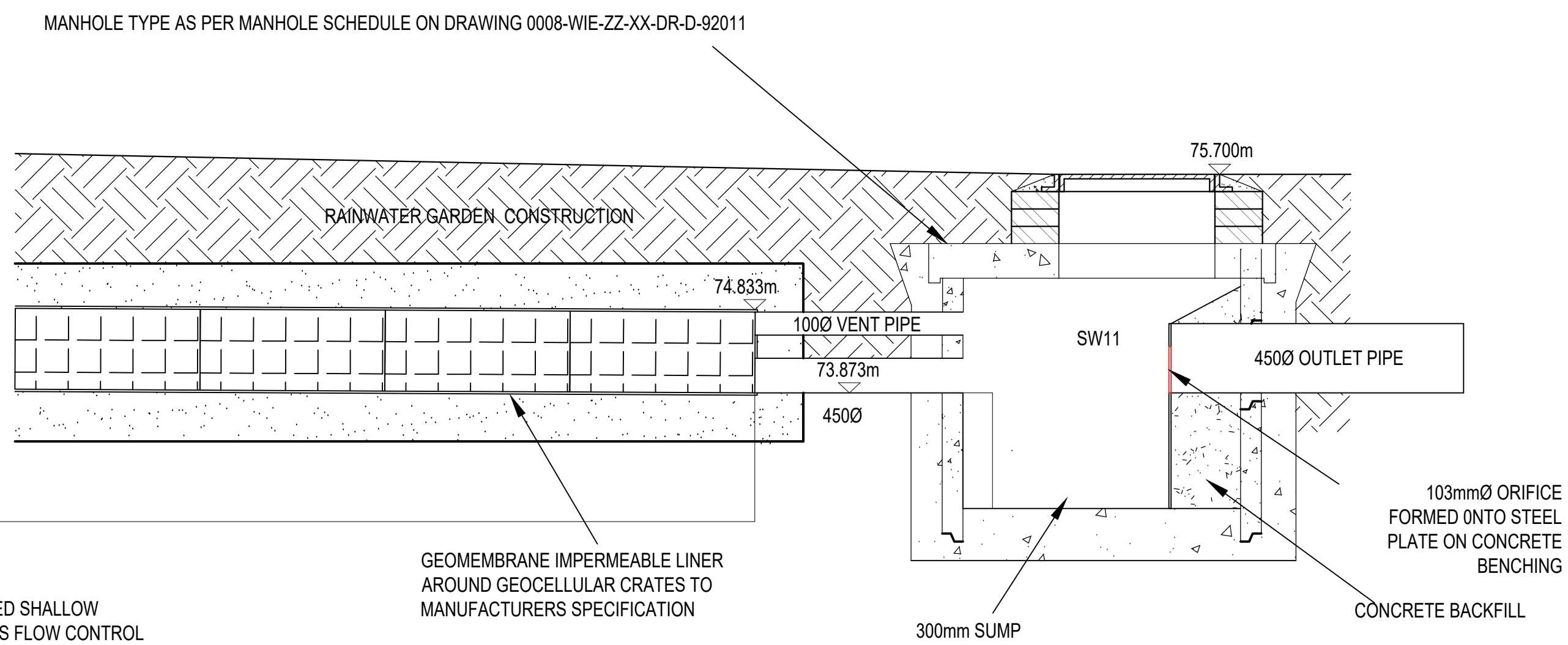
SECTION B-B



TYPICAL POLYPROPYLENE INSPECTION CHAMBER DETAIL PPIC



TYPICAL MANHOLE DETAIL WITHIN STANDARD VERGE



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17. ALL EXTERNAL DRAINAGE TO BE CONCRETE TO BS 5911 OR CLAYWARE TO BS EN 395. PIPES WITHIN PERMEABLE PAVING AND RAINGARDEN TO BE POLYETHYLENE PIPES.
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C01	30.05.24	FIRST ISSUE	AS	SS
Rev	Date	Description	By	Chk

Amendments

Project	HINCKLEY CDC AND ENDOSCOPY
---------	-------------------------------

PROPOSED DRAINAGE DETAILS
SHEET 3 OF 4

Client **DARWIN GROUP**



5th Floor One Cornwall Street Birmingham B3 2DX
t 0121 212 7700
mail@watermangroup.com www.watermangroup.com

Work Stage STAGE 4
Technical Design RIBA

Suitability **STAGE COMPLETE** **A1**

Designed By	AS	Director	SS	Waterman Ref	WIE19849
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Drawn By AS	Date MAY 2024	Scales @ A1 1:20
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Project	Originator	Functional	Spatial	Form	Discipline	Number	Revision

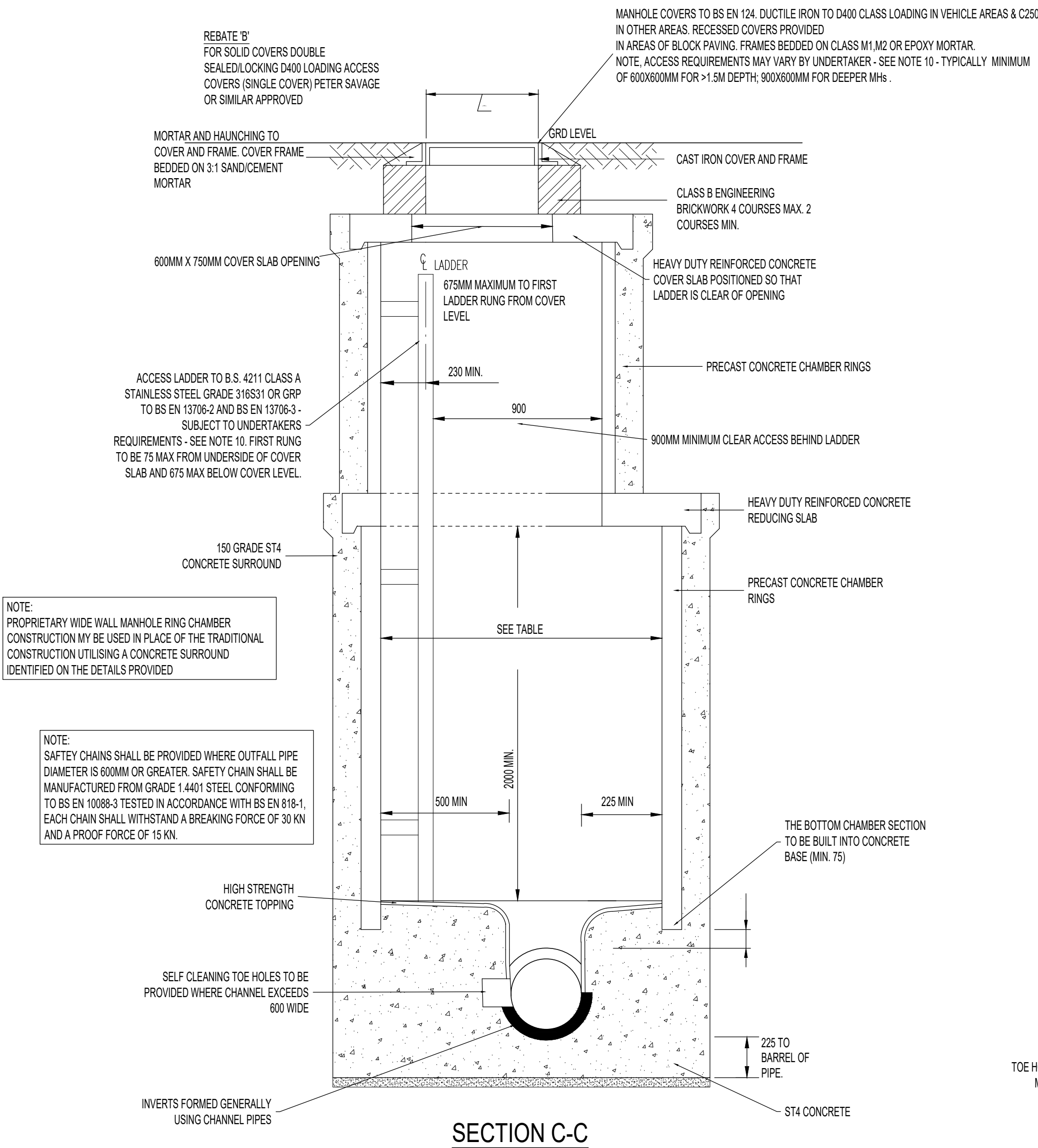
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GENERAL NOTES

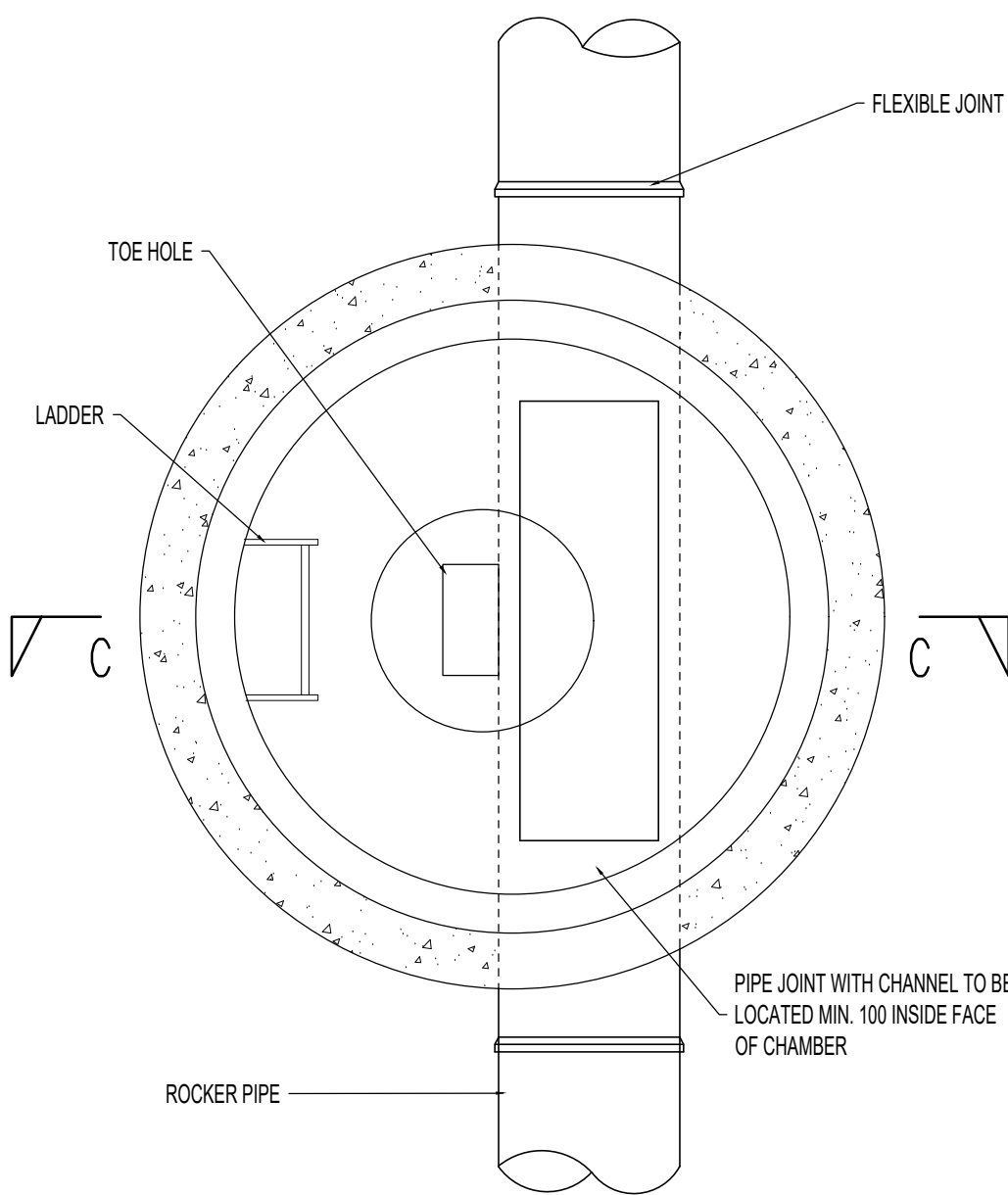
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- FOR INTERNAL DRAINAGE POSITIONS REFER TO ARCHITECTS CURRENT WORKING DRAWINGS.
- ALL BELOW SLAB DRAINAGE TO BE CAST IRON TO BS EN 877. CONTRACTOR'S PREFERENCE OF USING CLAYWARE PIPE IS ACCEPTABLE AND INSTALLATION TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ALL EXTERNAL DRAINAGE TO BE CONCRETE TO BS 5911 OR CLAYWARE TO BS EN 295. PIPES WITHIN PERMEABLE PAVING AND RAINGARDEN TO BE POLYETHYLENE PIPES.
- ROOT BARRIER, TERRAM ROOT GUARD OR SIMILAR APPROVED, TO BE INSTALLED AROUND MANHOLES AND DRAINAGE PIPES WHERE THEY REMAIN IN CLOSE PROXIMITY TO PROPOSED TREES.
- INSTALLATION OF ALL PROPRIETARY PRODUCTS TO BE IN ACCORDANCE WITH MANUFACTURER'S DETAILS.

CD1	30.05.24	FIRST ISSUE	AS	SS
Rev	Date	Description	By	Chk

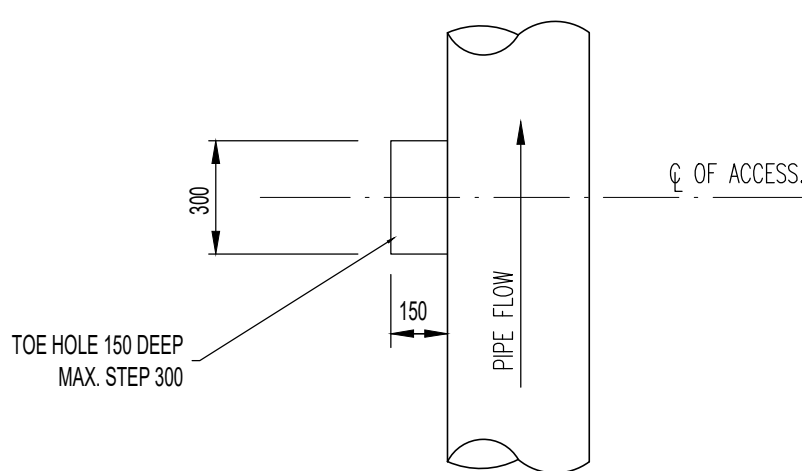
Amendments				
Project		HINCKLEY CDC AND ENDOSCOPY		
Title		PROPOSED DRAINAGE DETAILS SHEET 4 OF 4		
Client		DARWIN GROUP		
 waterman				
5th Floor One Cornwall Street Birmingham B3 2DX t 0121 212 7700 mail@watermangroup.com www.watermangroup.com				
Work Stage		STAGE 4 Technical Design		RIBA
Subsidiary		STAGE COMPLETE		A4
Designed By		AS	Director SS	Waterman Ref WIE19849
Drawn By		AS	Date MAY 2024	Scales @ A1 1:20
Project Originator Functional Spatial Form Discipline Number				Revision
19849-WIE-ZZ-XX-DR-D-92-009				C01



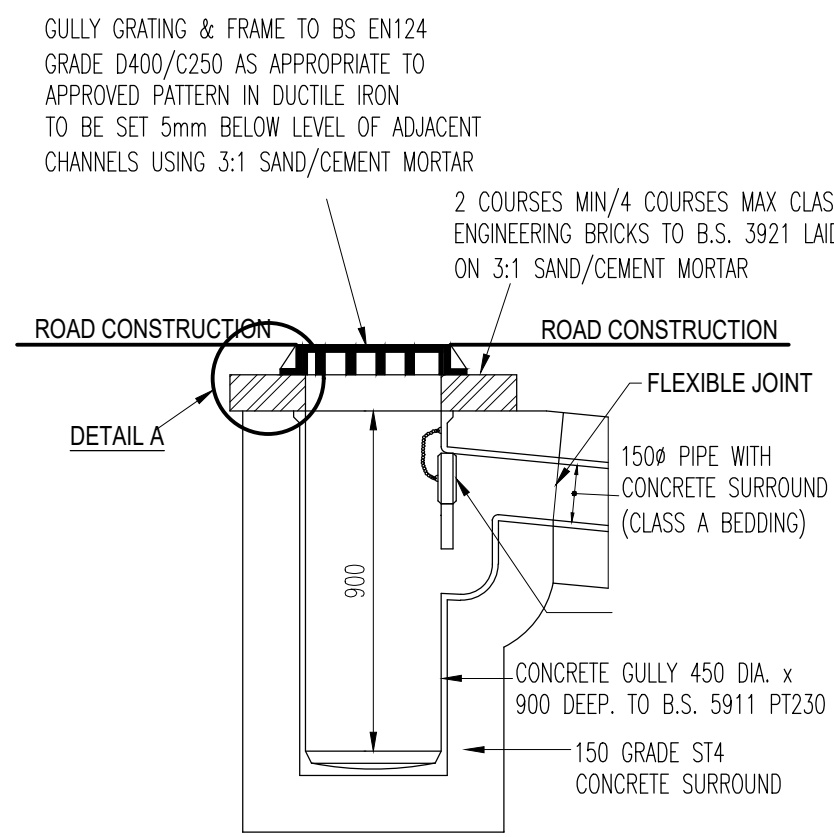
TYPE A1 MANHOLE DETAIL
(3.0m TO 6.0m DEEP)



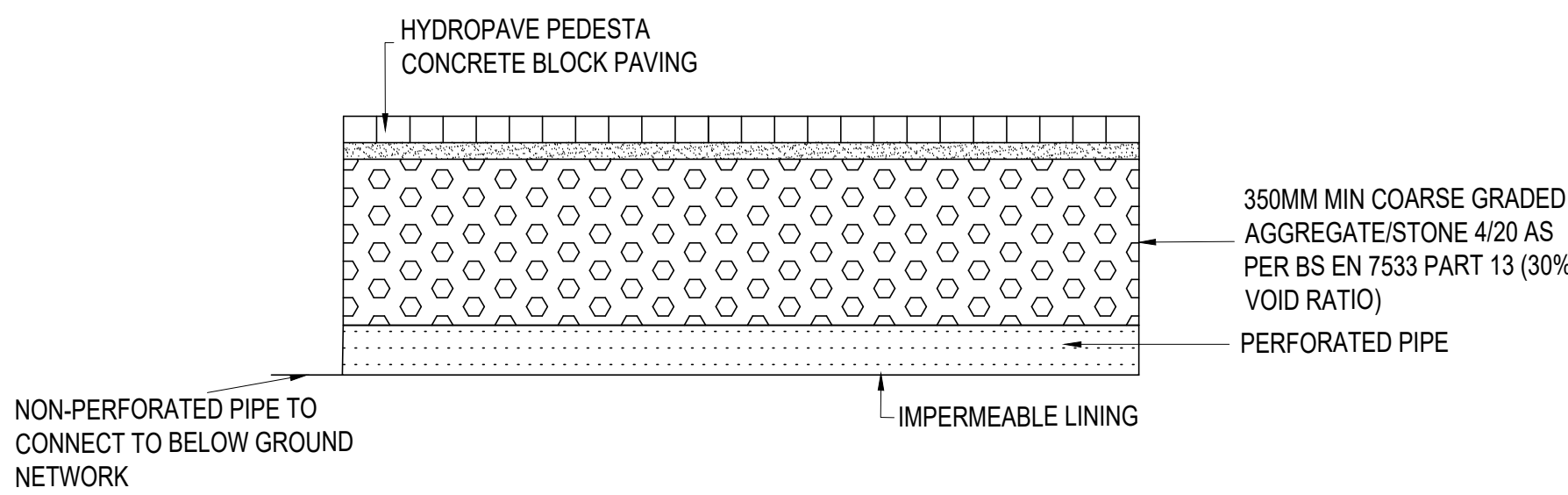
PLAN



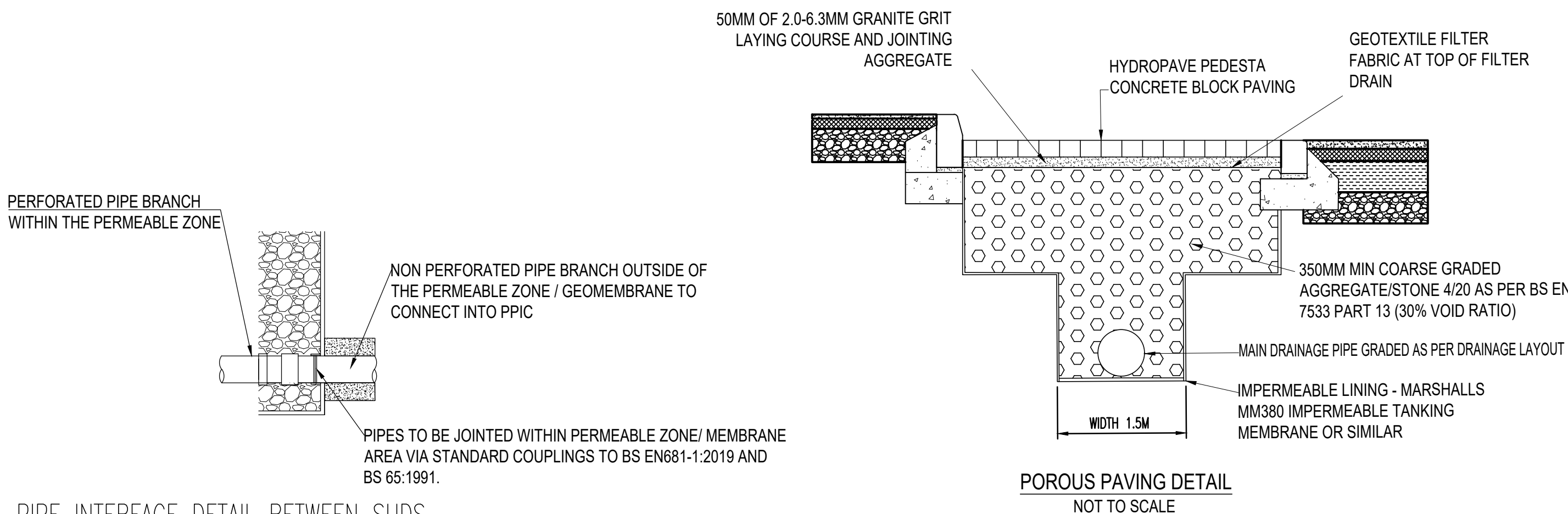
DETAIL OF TOE HOLE



TYPICAL ROAD GULLY (CONCRETE) DETAIL



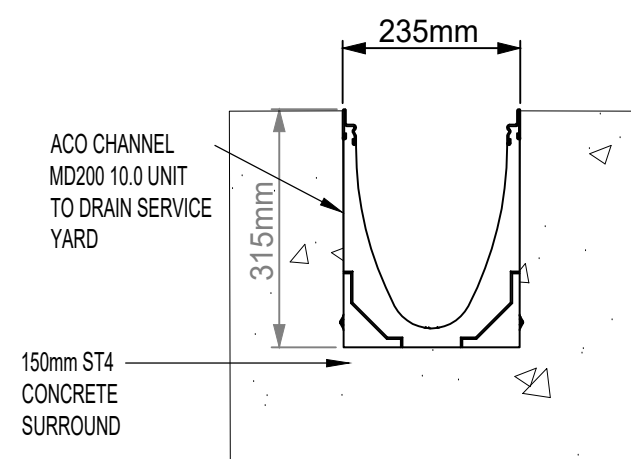
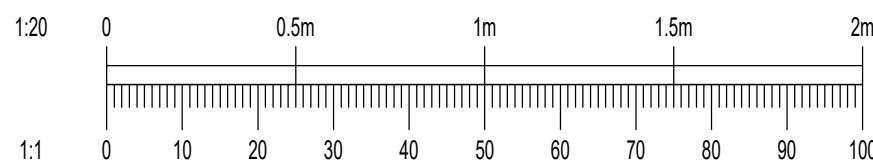
SECTION OF PERMEABLE PAVING DRAINAGE IN CAR PARK AREAS
NOT TO SCALE



PIPE INTERFACE DETAIL BETWEEN SUDS

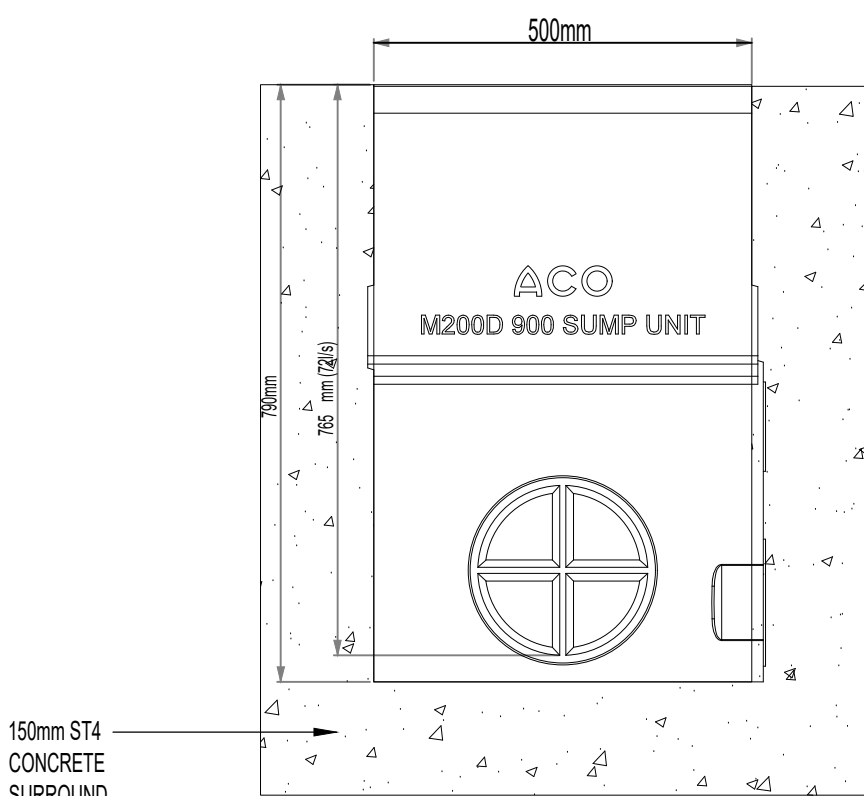
FEATURES

SCALE 1:20



LINEAR DRAINAGE CHANNEL FOR SERVICE YARD

SCALE 1:20



LINEAR DRAINAGE CHANNEL SUMP FOR SERVICE YARD

SCALE 1:20