



**32-34 LAYSTALL STREET,
MANCHESTER,
M1 2JZ.**

DRAINAGE VERIFICATION REPORT

PROJECT No: 240075

VERSION: 01

Document Management

Client: 32-34 Laystall Street, Manchester
Project Name: Laystall Street
Report Title: Drainage Condition Discharge Report
Report No.: 240075-KODA-XX-00-RP-C-001
Issue: 1
Status: Draft

Version Control

Rev	Date	Description	Author	Checked	Approved
01	24.10.25	First Issue	Paul Graveney BEng, CEng, MICE	Kris Clark MEng (Hons) CEng MICE MStructE	Kris Clark MEng (Hons) CEng MICE MStructE

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Koda Engineering Ltd

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1.0 Introduction

In 2020 a planning application was submitted to Manchester City Council for the erection of 9 storey residential building (Use Class C3) comprising 89 residential units (28 x 1 bed and 61 x 2 bed) and conversion of and 3 storey extension to 32-34 Laystall Street for use as offices (Class E) with associated external works following demolition of outrigger and associated structures along with other associated works including access, servicing, landscaping and secure cycle parking at 32-34 Laystall Street, Manchester, M1 2JZ.

Planning approval, Ref: 128911/FO/2020 as granted in February 2022 that included a planning condition relating to the details of the implementation, maintenance and management of the sustainable drainage scheme for the development.

This report has been prepared to support the discharge of this condition; Number 24.

3.0 Drainage Related Planning Condition and Responses

3.1 Planning Conditions

The detailed planning conditions are listed below in *italics* with the KODA Consulting response in Blue beneath.

Condition 24

No part of the residential element permitted shall be occupied until details of the implementation, maintenance and management of the sustainable drainage scheme have been submitted to and approved by the local planning authority. The scheme shall be implemented and thereafter managed and maintained in accordance with the approved details. Those details shall include

- (a) Verification report providing photographic evidence of construction as per design drawings;

With regard to the Laystall Street Project, we confirm that the drainage works have been constructed in accordance with the completed Clancy Consulting drawing packages / specifications and the associated relevant Design standards and codes of practice.

Based on photographs of the works, we are satisfied that the works have been carried out and completed in a professional and skillful manner, in accordance with the various Clancy Consulting drawings, and by the relevant prior planning approval from Manchester City Council in accordance with the Lead Local Flood Authority.

We can confirm that sites drainage scheme, including the attenuation tank and the Hydro Brake flow control chamber have been constructed, and the construction have now been completed in accordance with the Clancy drawings.

Please Refer to Appendix A for the selected photographs which demonstrate the drainage being installed was in accordance with the approved design drawings.

- (b) As built construction drawings if different from design construction drawings;

Refer to Appendix B for a copy of the As Built construction drawings.

- (c) Management and maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime.

Refer to Appendix C for a copy of the Management and Maintenance Plan.

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Appendix A – Construction Photographs



Figure 1: Impermeable Membrane Placed at Base



Figure 2: Geocellular Crates wrapped in Membrane



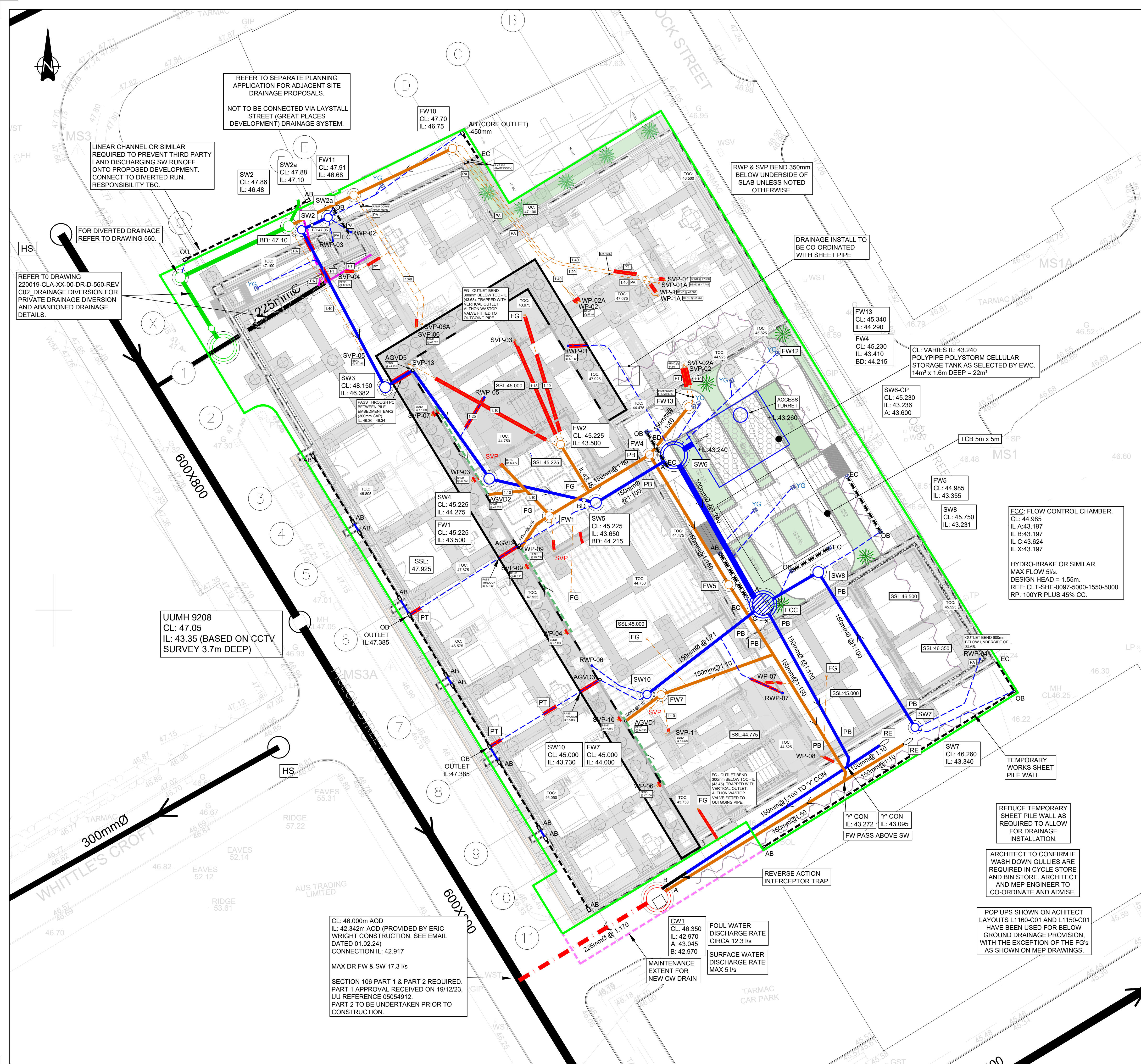
Figure 3: Tank wrapped in Fleece Protection



Figure 4: Access into Tank for Maintenance



Appendix B – Clancy Consulting As-Built Drawings



KEY:

- SITE BOUNDARY
- PUBLIC COMBINED SEWER
- EX PRIVATE COMBINED DRAIN
- PROPOSED FW DRAIN 150mmØ UNO
- PROPOSED SW DRAIN 150mmØ UNO
- PROPOSED CW DRAIN 225mmØ UNO
- POLYPIPE PROPOSED CELLULAR STORAGE TANK.
- PROPOSED FLOW CONTROL CHAMBER
- PROPOSED RAIN WATER PIPE AND 150mm CONNECTION (TBC)
- PROPOSED WASTE/VENT PIPE AND 100mm CONNECTION.
- WASHDOWN GULLY, VERTICAL OUTLET, TRAPPED TYPE. SPECIFICATION BY ARCHITECT.
- ABOVE GROUND VERTICAL DROP POSITION TO PASS DOWN TO BELOW GROUND DRAINAGE SYSTEM. ARCHITECT TO CONFIRM ACCEPTABLE.
- GATIC SLOT DRAIN 100mm CAST/LOT TREADSAFE TYPE. OUTLET, ACCESS BOXES AND END CAPS TO BE PROVIDED. OUTLET PIPE TO MATCH CHANNEL OR 150mm MINIMUM.
- EXISTING DRAINAGE TO BE ABANDONED
- FOUNDATIONS. SEE STRUCTURAL ENGINEERS DRAWINGS.
- PASS THROUGH, PASS ABOVE, PASS BELOW WALL OR FOUNDATION
- ABOVE GROUND DRAINAGE TO BE CO-ORDINATED WITH MEP AND ARCHITECT
- DIVERTED EXISTING DRAINAGE INVERT LEVELS TBC
- BASEMENT AREA (LG). SLAB LEVELS VARY, SEE PLAN.
- AREA IN ABEYANCE.
- CAST IN OR PASSING THROUGH FOUNDATION.
- YARD GULLY WITH GRATING TO LANDSCAPE ARCHITECT'S REQUIREMENTS

GENERAL NOTE:

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING 1-21458/CLA/XX/00/D/504.

DRAWING BASED ON THE FOLLOWING:

EXISTING SURVEY INFORMATION

- UNITED UTILITIES SEWER RECORDS
- TEAM DRAINAGE CITY SURVEY INFORMATION 09.11.2022
- TOPOGRAPHICAL SURVEY (L&M SURVEY SERVICES) - 18.01.21 17E11_2D.

ARCHITECTURAL INFORMATION

- 1383-OMI-XX-LG-DR-A-L1110-C02
- 1383-OMI-XX-00-DR-A-L1100-C02
- 1383-OMI-XX-LG-DR-A-L1160-C01
- 1383-OMI-XX-00-DR-A-L1150-C01

FOUNDATION INFORMATION

- 220019-CLA-XX-FN-DR-S-007
- 220019-CLA-XX-FN-DR-S-008
- 220019-CLA-XX-FN-DR-S-009

MEP INFORMATION

- 220019-HEC-ZZ-GF-DR-M-5201-C07
- 220019-HEC-ZZ-LG-DR-M-5201-C07

C10 22.07.25	FINAL CONSTRUCTION RECORD	SJT	CD	SW
C08 10.04.25	LANDSCAPING LAYOUT UPDATED TO SCHEME RECEIVED 04.04.25	SJT	CD	CD
C08 24.07.24	ADDITIONAL POP UPS ADDED BALCONY DRAIN POSITION AND NWS UPDATED FLOOR GULLY LOCATIONS UPDATED.	CD	CD	SW
C07 18.06.24	SVP-01 & WP-1 CONNECTION UPDATE	CD	CD	SW
C06 18.06.24	DRAINAGE IN COURTYARD UPDATED INCLUDING TANK DRAINAGE	AA	CD	CD
C05 05.06.24	ONLY DRAINAGE SHOWN IN COLOUR FOR JULY EXCEPT FOR SITE BOUNDARY	AA	CD	CD
C04 09.04.24	UPDATED RWP POPUPS IN TO SW2a	AA	CD	CD
C03 21.03.24	CONSTRUCTION ISSUE	AA	CD	CD
C02 13.01.24	REVISED SHEET PILE WALL ADDED AND COMMENTS FROM EWC INCORPORATED WHERE POSSIBLE	AA	CD	CD
C01 10.01.24	CLOUDED AREA FOR CONSTRUCTION ONLY	CD	SW	DS
P8 08.12.23	DRAINAGE UPDATED TO SUIT NEW FOUNDATIONS AND RELOCATED TANK	CD	SW	DS
P7 17.08.23	DRAINAGE WITHIN RIGHT OF ACCESS UPDATED	CD	SW	DS
P6 21.07.23	PRIVATE COMBINED DRAIN ROUTE UPDATED	CD	SW	DS
P5 30.06.23	UPDATED TO SUIT COMMENTS	CD	SW	DS
P4 26.05.23	DRAINAGE UPDATED TO SUIT REVISED BASEMENT PLAN	CD	SW	DS
P3 26.01.23	ATTENUATION REPOSITIONED DRAINAGE UPDATED TO SUIT	CD	DS	DS
P2 11.11.22	STAGE 3	CD	DS	DS
P1 04.11.22	FIRST ISSUE	CD	DS	DS
Rev	Date	Description	By	Check App.

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Client: GREAT PLACES HOUSING GROUP

Project: LAYSTALL STREET DEVELOPMENT MANCHESTER

Office: MANCHESTER

Discipline: CIVIL AND STRUCTURAL

Title: DRAINAGE LAYOUT

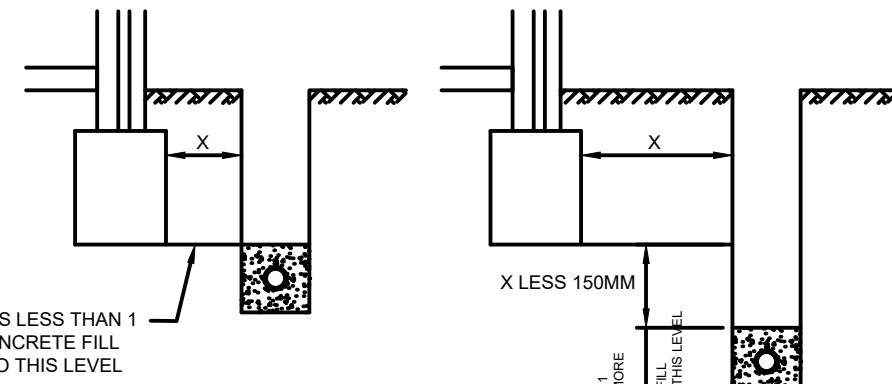
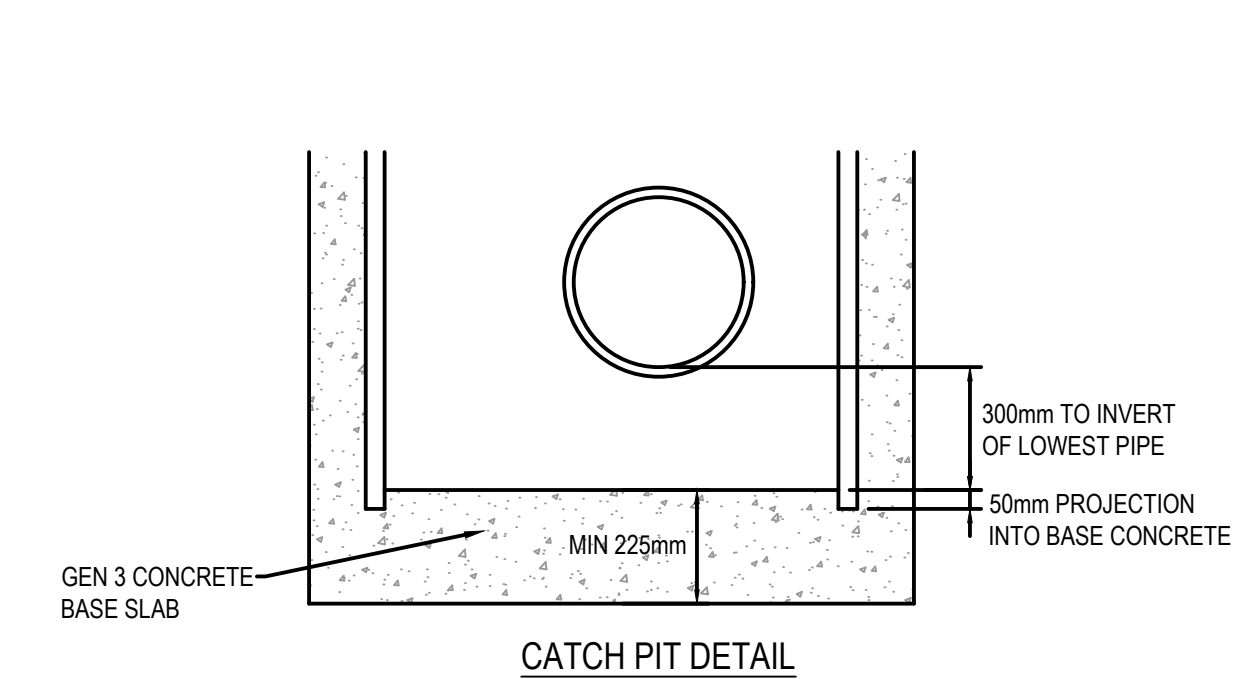
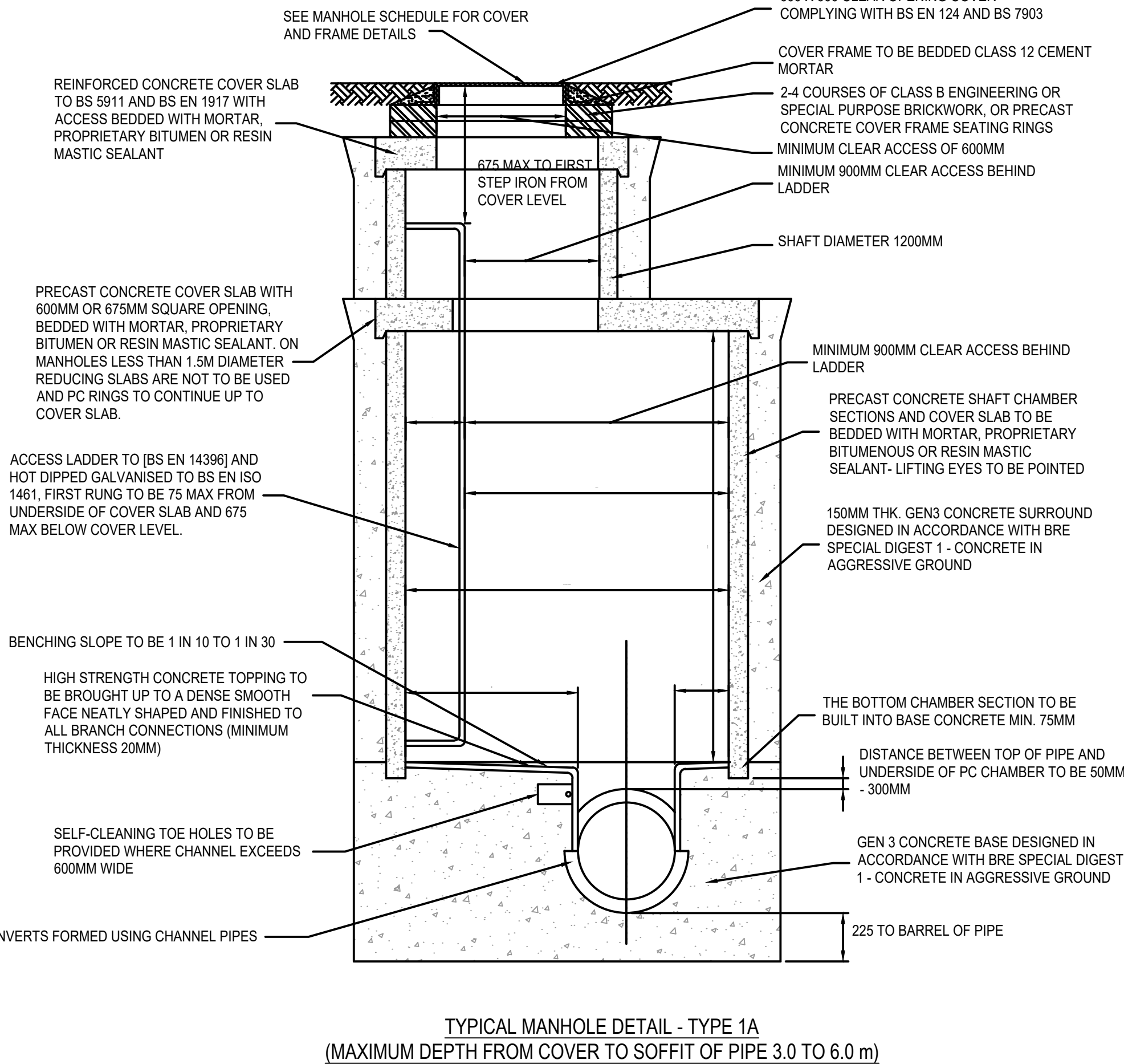
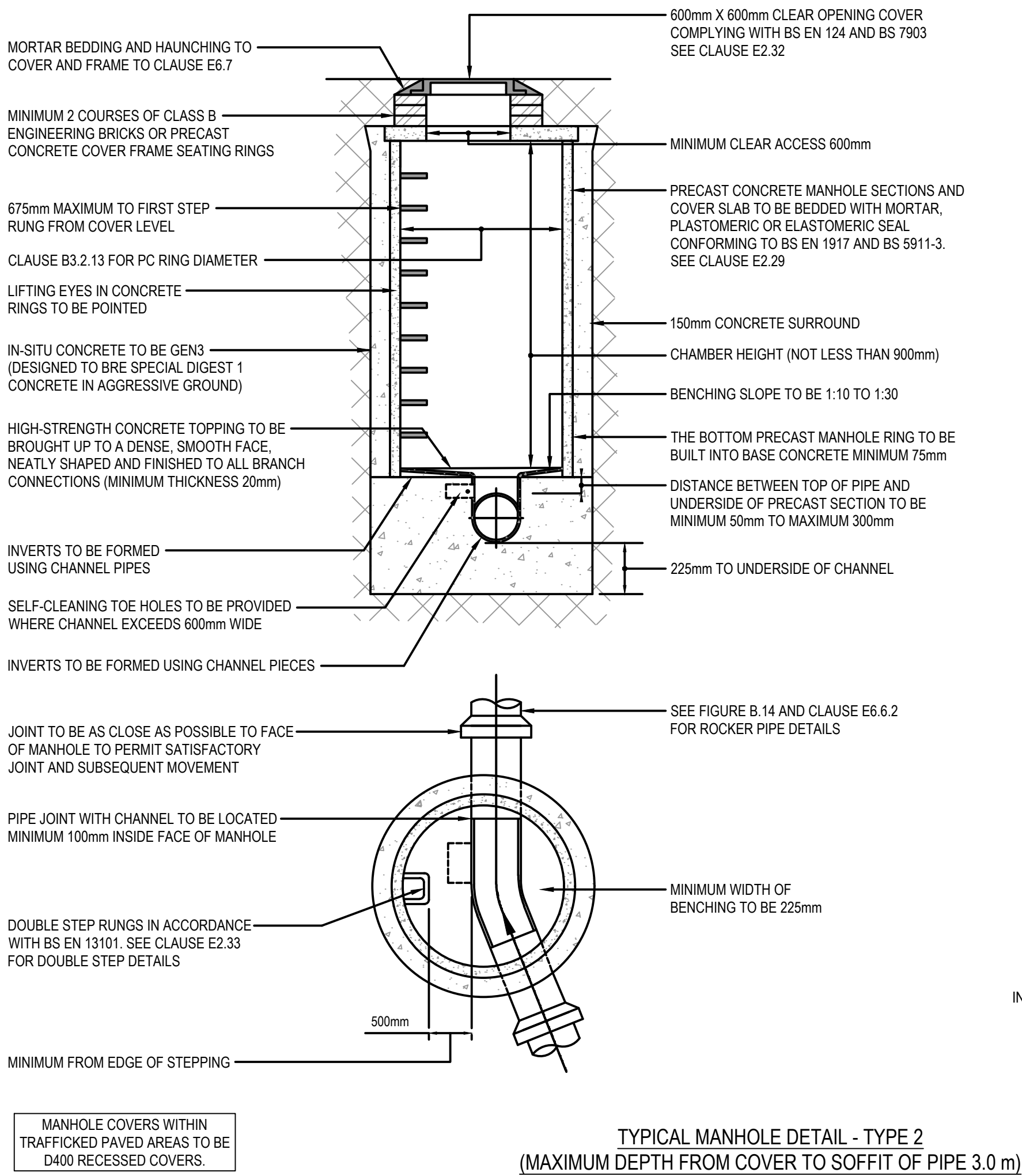
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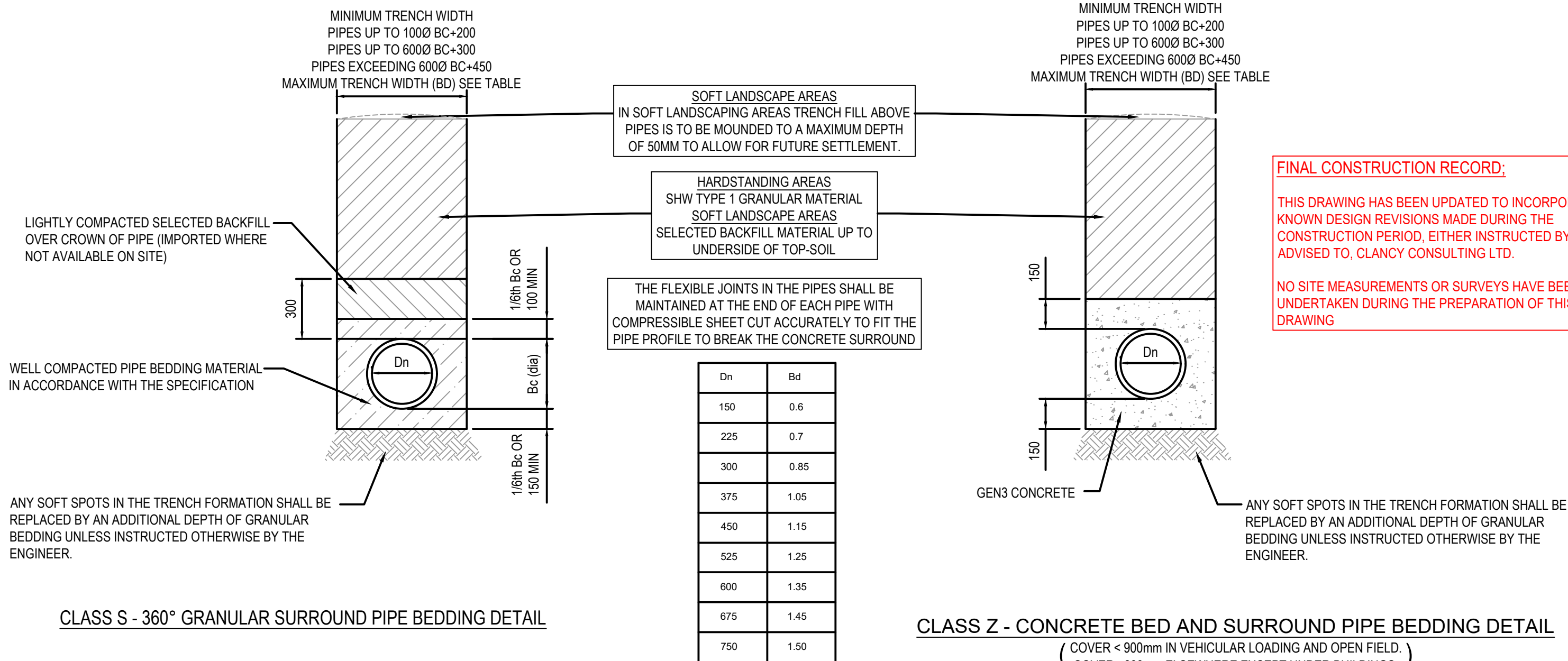
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Job Number	Originator	Building/Zone	Level
220019	CLA	XX	00
Type	Discipline	Drawing No.	Revision
DR	C	500	C10



TYPICAL DETAILS WHERE DRAINAGE TRENCH IS DEEPER THAN FOUNDATIONS



- DRAINAGE NOTES**
- DO NOT SCALE THIS DRAWING.
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 - THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS.
 - ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO COMMENCING ANY WORKS SHOWN.
 - ALL DETAILS TO BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL COUNCILS BUILDING CONTROL, OR ANY OTHER RELEVANT STANDARDS BODY.
 - ALL PROPRIETARY PRODUCT TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS, INSTRUCTIONS AND RECOMMENDATIONS.
- GENERAL NOTES**
- NO WORK SHOULD COMMENCE ON SITE UNTIL WRITTEN APPROVAL IS RECEIVED FROM THE ADOPTING HIGHWAY AUTHORITY, ADOPTING SEWERAGE UNDERTAKERS, ENVIRONMENT AGENCY AND/OR ANY OTHER RELEVANT AUTHORITY. WORKS UNDERTAKEN PRIOR TO APPROVAL ARE AT THE DEVELOPERS RISK AND CLANCY CONSULTING LIMITED WILL NOT BE HELD RESPONSIBLE FOR SUBSEQUENT DELAYS IN APPROVALS, REMEDIAL COSTS OR CLAIMS.
 - ALL INVERT LEVELS OF EXISTING FOLI AND SURFACE WATER SYSTEMS ARE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY ON SITE DRAINAGE WORKS. ANY DISCREPANCY IN LEVELS IS TO BE REPORTED IMMEDIATELY TO CLANCY CONSULTING LIMITED.
 - ALL SEWERS, UNLESS AGREED OTHERWISE STATED, SHALL BE: 150mm DIA TO BE VITRIFIED CLAY. 150mm DIA TO BE VITRIFIED CLAY. 300mm DIA TO BE VITRIFIED CLAY. 300mm DIA AND GREATER TO BE CLASS 120 CONCRETE PIPES.
 - ALL VITRIFIED CLAY PIPES TO BS EN 295-1. ALL CONCRETE PIPES TO BE TO BS EN 1916. ALL CONCRETE MANHOLES TO BE TO BS EN1917.
 - LATERAL CONNECTIONS FROM MAIN SEWERS TO DEMARCATION CHAMBER TO BE 150mm DIA MINIMUM AND CONSTRUCTED TO ADAPTABLE STANDARDS.
 - FIRST PIPE OUT OF MANHOLES TO BE AS SHORT AS PRACTICABLE SO AS TO PROVIDE A FLEXIBLE JOINT AS CLOSE AS POSSIBLE TO THE OUTSIDE FACE OF THE CONCRETE SURROUND AND CONNECTED TO A LENGTH OF ROCKER PIPE.
 - ALL PIPE DIAMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIAMETERS.
 - ALL SEWER WORKS TO COMPLY WITH HRC SEWERS FOR ADOPTION, 6TH EDITION, STVS REQUIREMENTS AND KITE-MARKED (SIMILAR APPROVED WHERE PRACTICABLE) WHERE CONFLICTING DETAILS OCCUR, STVS DETAILS SHALL TAKE PRECEDENCE IN ALL CASES.
 - MANHOLE COVERS SHALL HAVE A CLEAR OPENING IN ACCORDANCE WITH SFA 6TH EDITION AND SHALL BE CLASS D400 TO BS EN 124 WITH 150mm DEEP FRAMES IN VEHICULAR TRAFFICKED AREAS, CLASS 8125 COVERS AND FRAMES TO BE PROVIDED ON ALL OTHER MANHOLES IN LANDSCAPING.
 - FILLED GROUND MUST BE FILLED AND CONSOLIDATED BEFORE ANY SEWER WORKS ARE CARRIED OUT.
 - WATER AUTHORITIES ARE NOT OBLIGED TO ACCEPT FILTER DRINK / LAND DRAINAGE RUN OFF INTO THE PUBLIC SEWER NETWORK OR ADAPTABLE DRAINAGE SYSTEM (DIRECTLY OR INDIRECTLY) AN ALTERNATIVE METHOD OF DISPOSAL OF LAND DRAINAGE RUN OFF WILL THEREFORE BE REQUIRED AND ANY PROPOSALS MUST BE AGREED WITH THE LOCAL AUTHORITY LAND DRAINAGE SECTION.
 - COVER SLABS MUST CARRY THE BS KITEMARK AND SHALL COMPLY WITH BS 5911 PART 3 BS EN 1917:2000. WHERE THE CLEAR OPENING OF THE KITE-MARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME, A LOAD BEARING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN AS SPECIFIED ABOVE. PLEASE REFER TO CONCRETE PIPELINE SYSTEMS ASSOCIATION (CPSA) 'TECHNICAL BULLETIN' ISSUED AUTUMN 2004 FOR KITE-MARKED COVER SLAB OPENING SIZES.
 - SULPHATE RESISTANT CEMENT (C20-0C2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED TO PROVE THAT SUCH PRECAUTIONS ARE NOT REQUIRED.
 - ADAPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.5M FROM KERB FACES AND SERVICE MARGINS.
 - SEWERS MUST HAVE 9M CLEARANCE FROM TREES AND HEDGES OR TO HAVE SUITABLE ROOT PROTECTION IN ACCORDANCE WITH THE SFA 6TH REQUIREMENTS.
 - ALL PIPES TO HAVE CLASS 'S' GRANULAR BED AND SURROUND UNLESS OTHERWISE STATED. BEDDING AND BACKFILL MATERIALS TO CONFORM TO THE REQUIREMENTS OF BS 4000 (TABLE A2) WHERE DEPTH OF COVER TO TOP OF SEWER IS LESS THAN 1.2M IN HIGHWAYS AND VERGES (OR LESS THAN 0.9M IN NON-VEHICULAR ACCESSED AREAS), THEN A CLASS 'Z' BEDDING TO BE USED.
 - ALL SEWER TRENCHES AND BRANCH CONNECTIONS TO BE BACKFILLED WITH SUITABLE MATERIAL IN LAYERS NOT EXCEEDING 225mm UNCONSOLIDATED THICKNESS THEN FULLY COMPACTED.
 - ADAPTABLE SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO A LONGER LENGTH.
 - PLASTIC CHANNEL SECTIONS WILL NOT BE PERMITTED WITHIN MANHOLE CHAMBERS. CLAYWARE CHANNELS SHALL BE USED WITHIN MANHOLES FOR PIPE SIZES UP TO AND INCLUDING 300mm DIAMETER.
 - THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTION AND BENDS.
 - SECTION 163 OF THE HIGHWAYS ACT 1980 REQUIRES PROVISION TO BE MADE TO PREVENT WATER FALLING ONTO THE HIGHWAY FROM PRIVATE DRIVEWAYS OR PROPERTIES. ANY DRAINAGE REQUIREMENTS MUST BE CONNECTED INTO THE PRIVATE SURFACE WATER DRAINAGE SYSTEM.
 - THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING:- (i) ALL OPERATIONS SHOULD BE CARRIED OUT IN ACCORDANCE WITH THE GENERAL HEALTH AND SAFETY POLICY OF THE DEVELOPER AS REQUIRED BY SECTIONS 2 OF THE HEALTH AND SAFETY AT WORK ACT 1974 AND IN PARTICULAR THE CONSTRUCTION (GENERAL PROVISIONS) REGULATIONS. (ii) THE LOCAL AUTHORITY AND UTILITIES COMPANIES ARE TO BE NOTIFIED PRIOR TO COMMENCEMENT OF WORK ON SITE. (iii) PRIOR TO CONSTRUCTION THE ACTUAL POSITIONS AND DEPTHS OF SERVICES LIKELY TO BE AFFECTED BY THE WORKS SHOULD BE ESTABLISHED BY MEANS OF HAND DIG CLOSE LIAISON WITH THE UTILITY COMPANIES. THE CONTRACTOR SHALL IMMEDIATELY ADVISE THE ENGINEER OF ANY SERVICES EXPOSED WHICH MAY AFFECT THE DESIGN. (iv) ALL OPERATIVES WORKING ON THE HIGHWAY WORKS MUST HAVE STREET WORKS ACCREDITATION.
 - THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH CURTINS SPECIFICATION FOR DRAINAGE WORKS AND ANY OTHER SUBSEQUENT ADDITIONS TO THIS LIST.
 - THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT, TEMPORARY AND PERMANENT DIVERSION WORKS, AS NECESSARY TO ALL EXISTING SERVICES.
 - THE CONTRACTOR SHALL ALLOW FOR KEEPING TRENCHES AND EXCAVATIONS AS DRY AS PRACTICABLE BY PUMPING FROM TEMPORARY SUMPS AND DEWATERING AS APPROPRIATE. THE POINT AND METHOD OF DISCHARGE TO BE AGREED WITH THE DRAINAGE AUTHORITY & LPA AND ENVIRONMENT AGENCY.
 - ALL DRAINAGE WORKS ARE TO BE CONSTRUCTED FROM THE OUTFALL TOWARDS THE HEAD OF RUN TO ENSURE THE OUTFALL CAN BE ACHIEVED.

C02	21.03.24	FINAL CONSTRUCTION RECORD	SUT	CD	SW
C01	21.03.24	CONSTRUCTION ISSUE	AA	CD	CD
P3	22.02.24	UPDATED TO SUIT COMMENTS	AA	CD	CD
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P1	11.11.22	FIRST ISSUE	CD	DS	DS
Rev	Date	Description	By	Check	App.

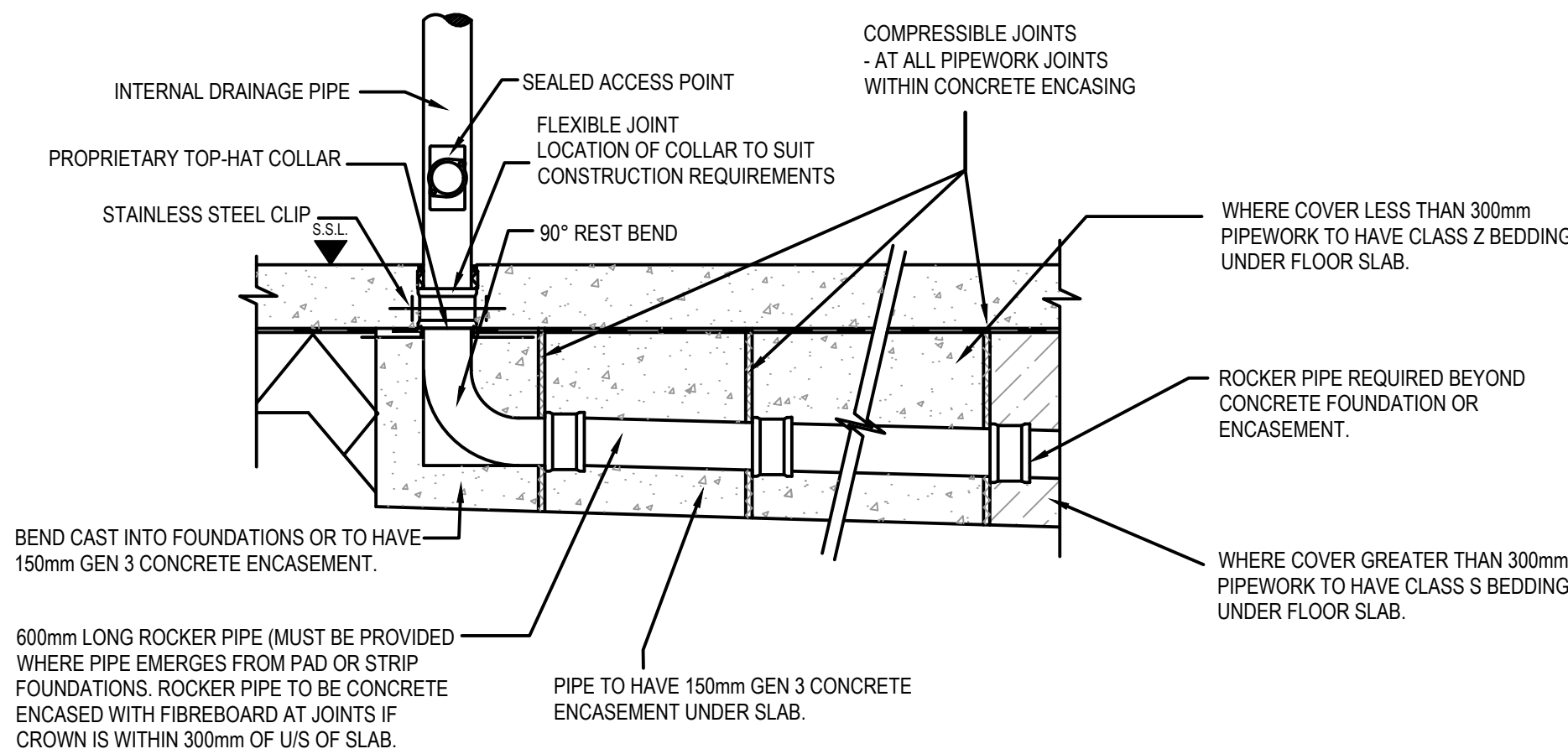
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Client	GREAT PLACES HOUSING GROUP				
Project	LAYSTALL STREET DEVELOPMENT MANCHESTER				
Office	ALTRINCHAM				
Discipline	CIVIL AND STRUCTURAL				
Title	DRAINAGE DETAILS SHEET 1				
Scale @ A1	NTS	Status	FINAL CONSTR		

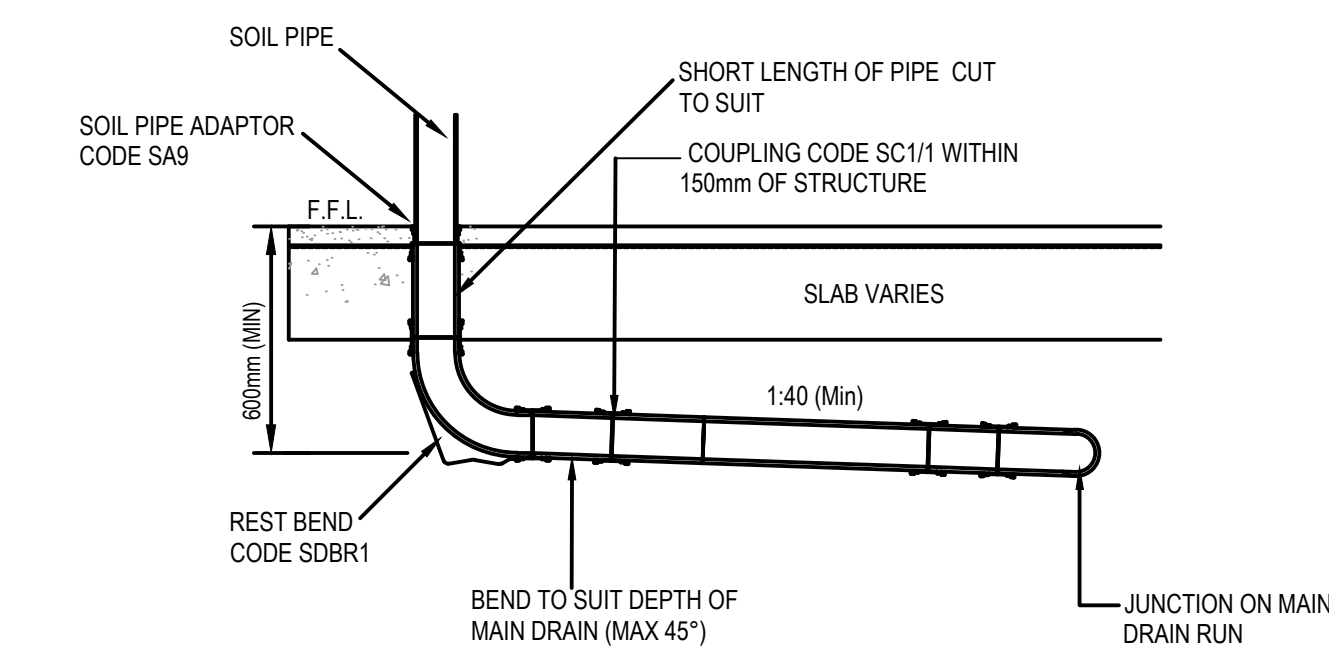


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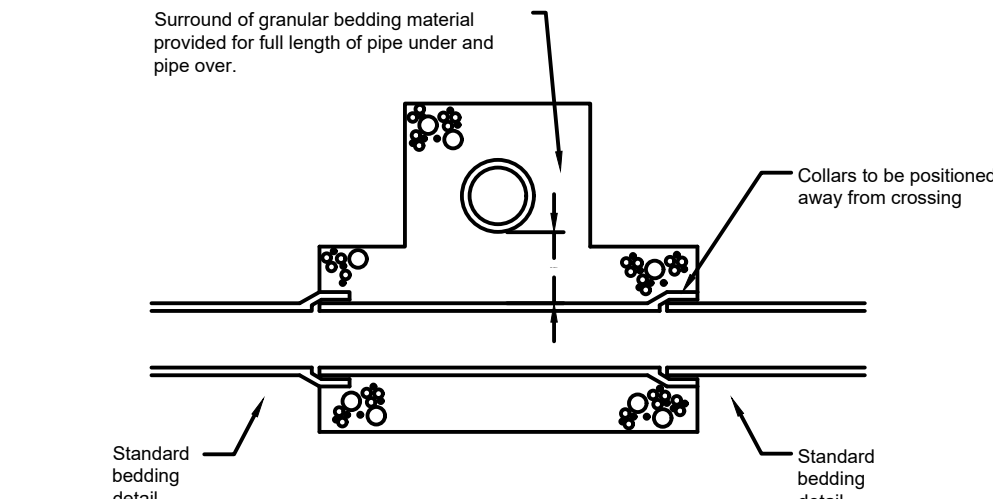
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220019	CLA	XX	00
Type	Discipline	Drawing No.	Revision
DR	C	501	C02



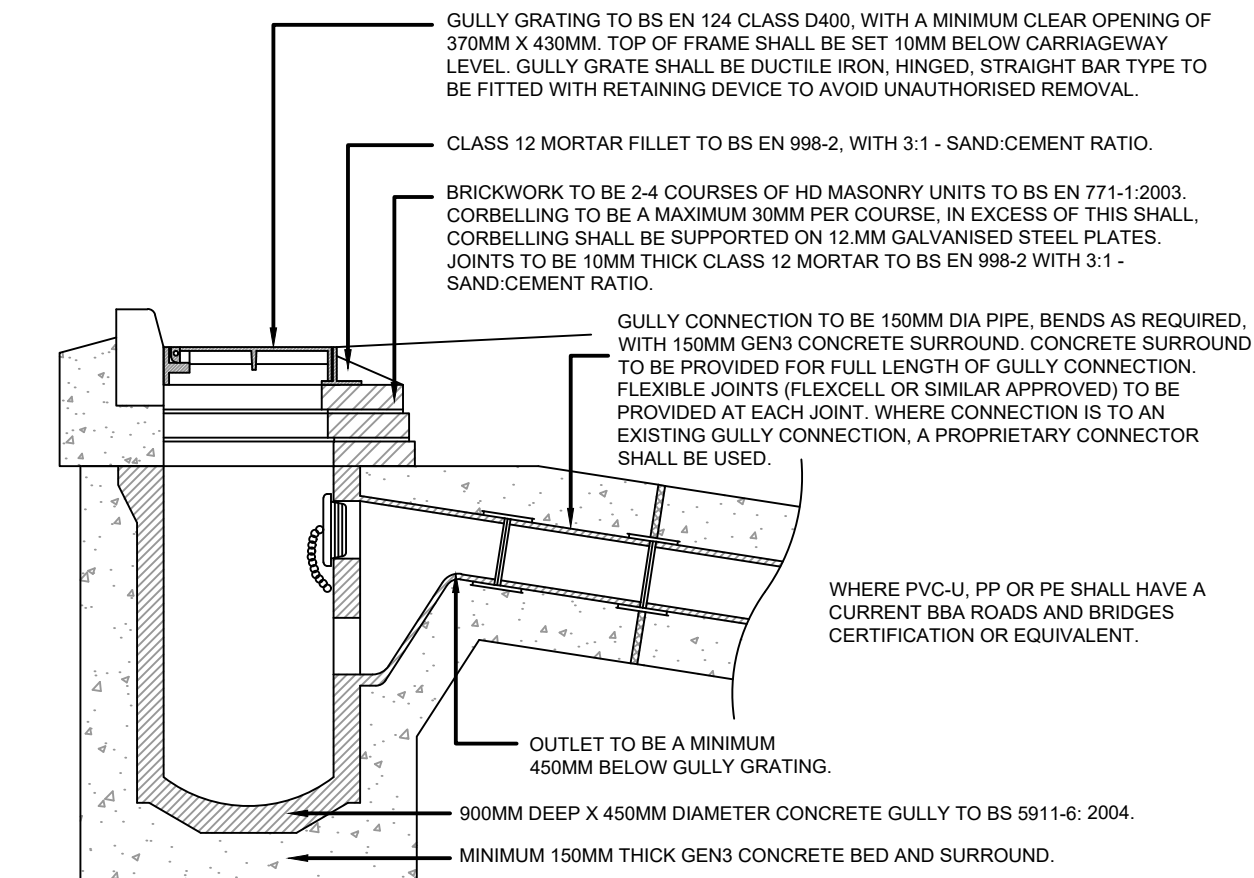
DRAINAGE UNDER BUILDINGS



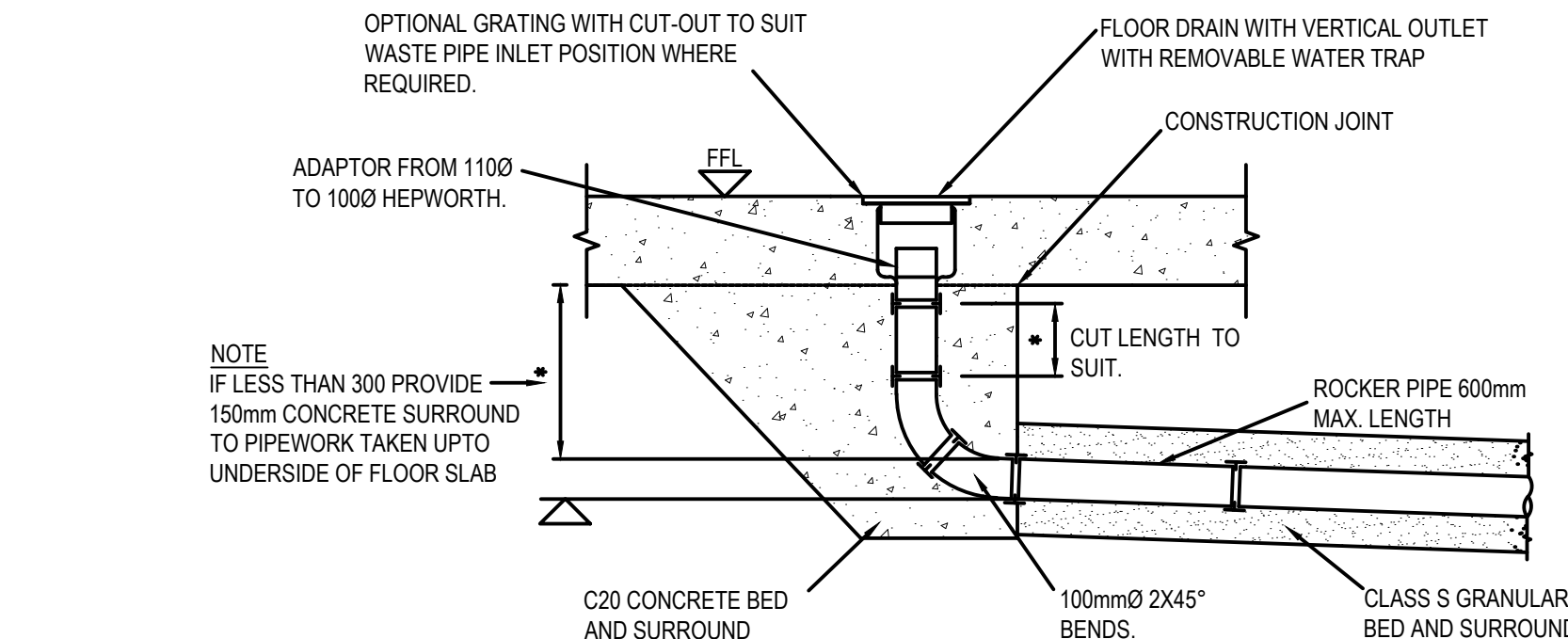
TYPICAL SVP CONNECTION TO MAIN RUN



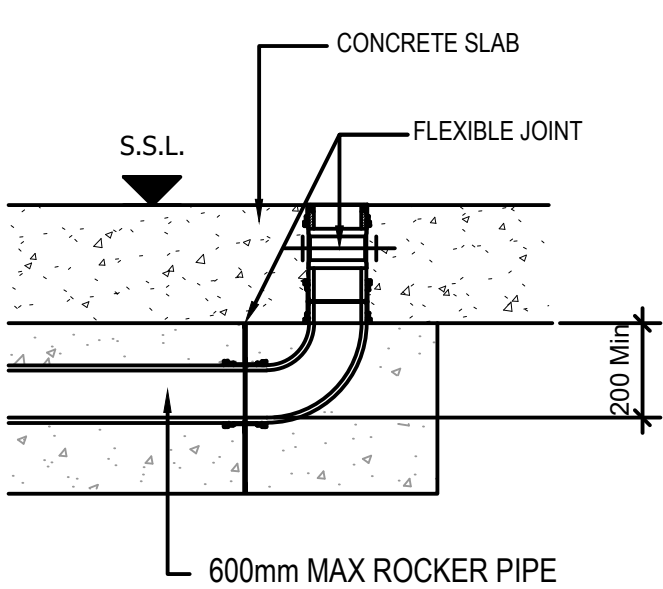
PIPE CROSSINGS DETAIL



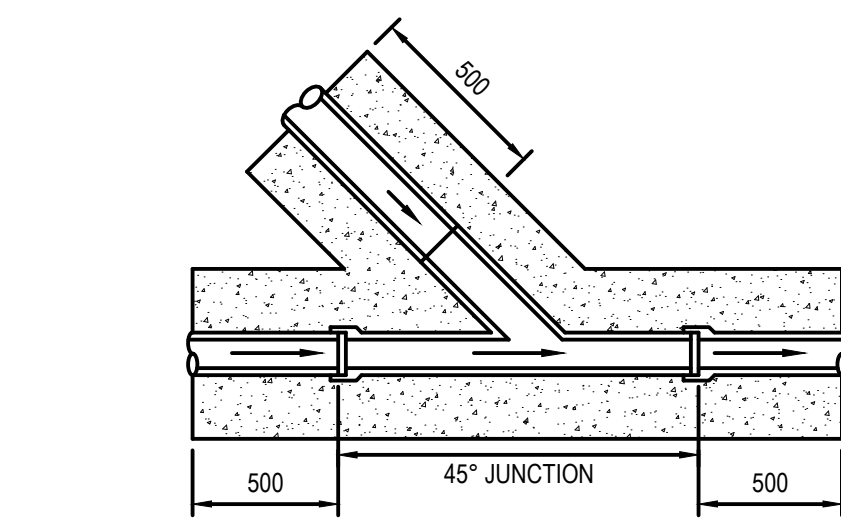
ROAD GULLY (G) DETAIL - TYPE 1



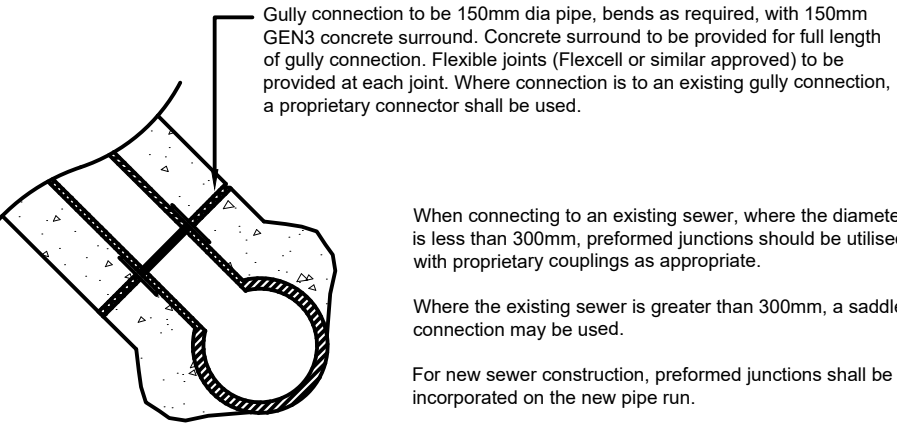
TYPICAL INTERNAL FLOOR DRAIN



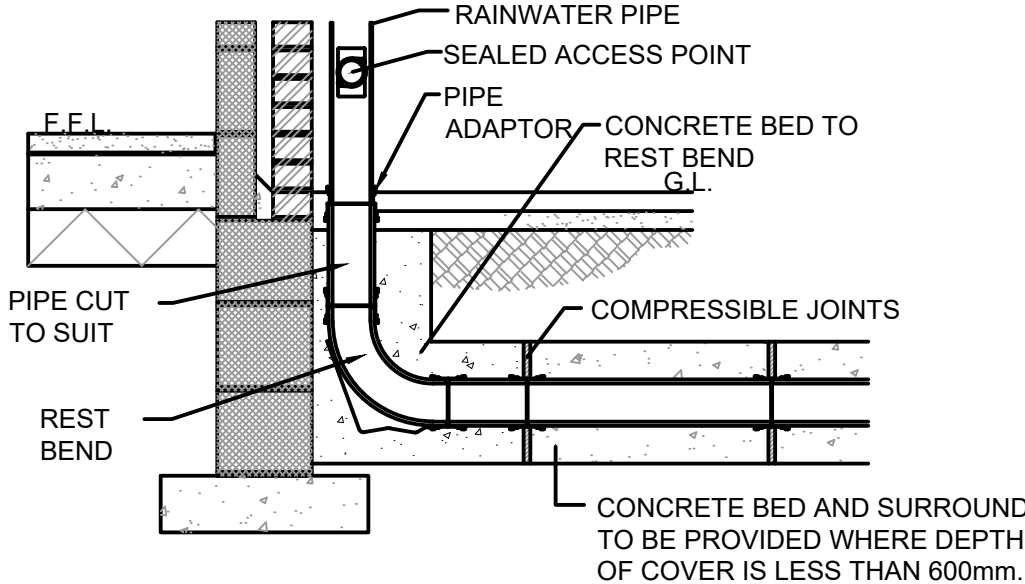
TYPICAL SECTION THROUGH SLAB (100mmØ downpipe)



TYPICAL SADDLE CONNECTION

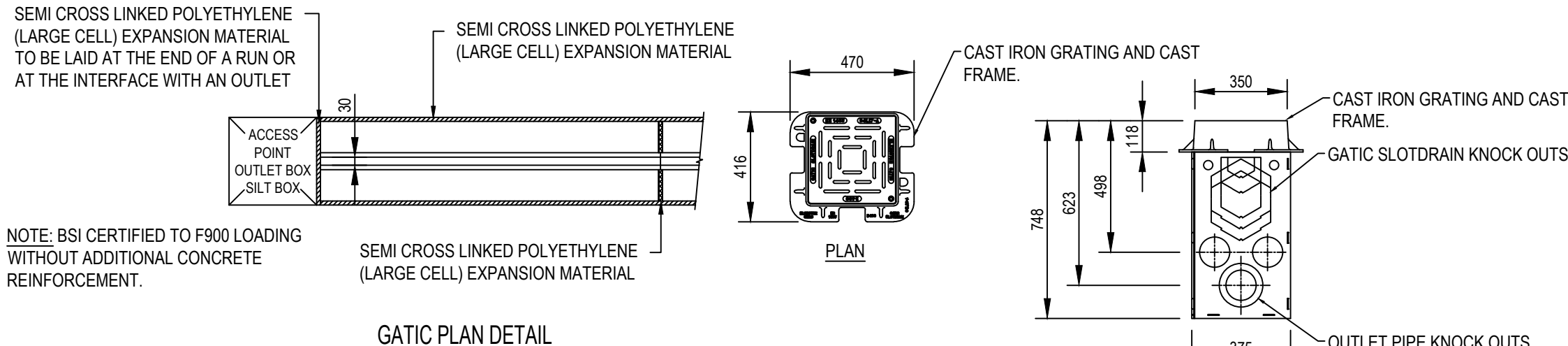


SADDLE CONNECTION TO EXISTING SEWER

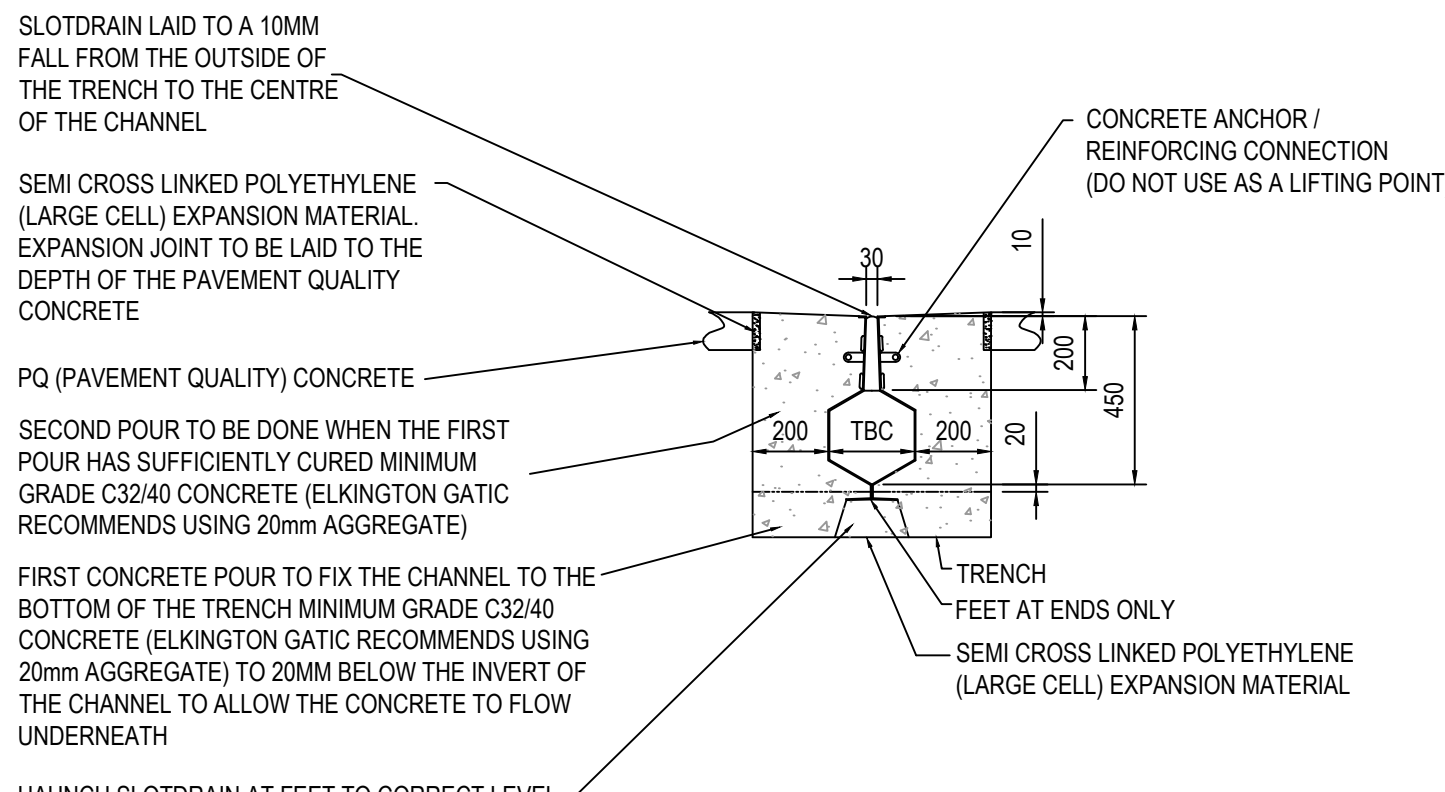


RWP CONNECTION DETAIL

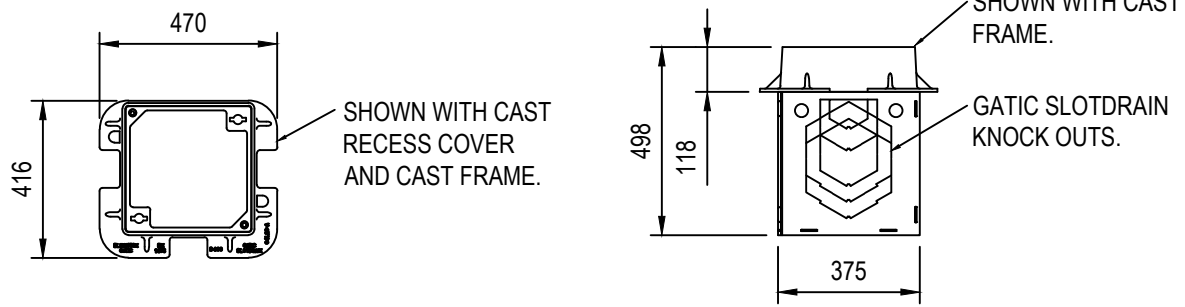
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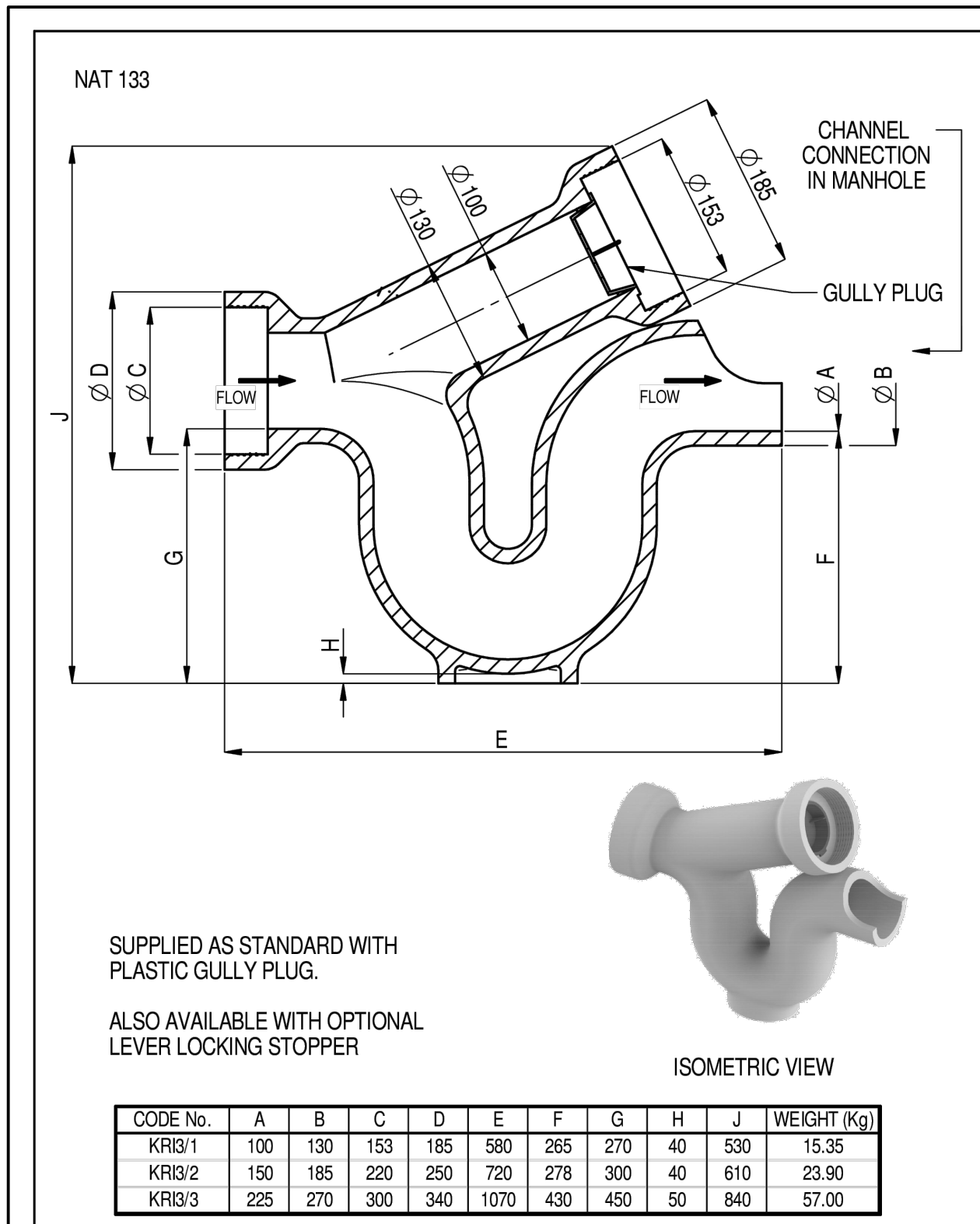
GATIC SLOT DRAIN 350mm OUTLET UNIT SECTION AND PLAN DETAILS NTS



GATIC SLOT DRAIN CASTSLOT CONCRETE INSTALLATION



350 ACCESS BOX SECTION AND PLAN DETAILS NTS



SUPPLIED AS STANDARD WITH PLASTIC GULLY PLUG.

ALSO AVAILABLE WITH OPTIONAL LEVER LOCKING STOPPER

CODE No.	A	B	C	D	E	F	G	H	J	WEIGHT (kg)
KRI3/1	100	130	153	185	580	265	270	40	530	15.35
KRI3/2	150	185	220	250	720	278	300	40	610	23.90
KRI3/3	225	270	300	340	1070	430	450	50	840	57.00

ALL DIMENSIONS IN mm

THIS DRAWING IS THE PROPERTY OF WT KNOWLES & SONS LTD. AND MUST NOT BE USED IN ANY WAY PREJUDICIAL TO THEIR INTERESTS	TITLE - REVERSE ACTION INTERCEPTOR
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WEIGHT =	A4
DRAWN: GB 26-04-10	
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ISSUE: 2 29-08-17	
SCALE: 1:5	
PROJECTION: 1:5	

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 - ALL SEWERS, UNLESS AGREED OTHERWISE STATED, SHALL BE: 150MM DIA TO BE VITRIFIED CLAY. 225MM DIA TO BE VITRIFIED CLAY. 300MM DIA TO BE VITRIFIED CLAY. 375MM DIA AND GREATER TO BE CLASS 120 CONCRETE PIPES.
 - ALL VITRIFIED CLAY PIPES TO BS EN 295-1. ALL CONCRETE PIPES TO BE TO BS EN 1916. ALL CONCRETE MANHOLES TO BE TO BS EN1917.
 - LATERAL CONNECTIONS FROM MAIN SEWERS TO DEMARCATION CHAMBER TO BE 150MM DIA MINIMUM AND CONSTRUCTED TO ADAPTABLE STANDARDS.
 - FIRST PIPE OUT OF MANHOLES TO BE AS SHORT AS PRACTICABLE SO AS TO PROVIDE A FLEXIBLE JOINT AS CLOSE AS POSSIBLE TO THE OUTSIDE FACE OF THE CONCRETE SURROUND AND CONNECTED TO A LENGTH OF ROCKER PIPE.
 - ALL PIPE DIAMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIAMETERS.
 - ALL SEWER WORKS TO COMPLY WITH WRC SEWERS FOR ADOPTION, 6TH EDITION, STVS REQUIREMENTS AND KITE-MARKED OR SIMILAR APPROVED WHERE PRACTICABLE. WHERE CONFLICTING DETAILS OCCUR, STVS DETAILS SHALL TAKE PRECEDENCE IN ALL CASES.
 - MANHOLE COVERS SHALL HAVE A CLEAR OPENING IN ACCORDANCE WITH SFA 6TH EDITION AND SHALL BE CLASS D400 TO BS EN 124 WITH 150MM DEEP FRAMES IN VEHICULAR TRAFFICED AREA. CLASS 8/125 COVERS AND FRAMES TO BE PROVIDED ON ALL OTHER MANHOLES IN LANDSCAPING.
 - FILLED GROUND MUST BE FILLED AND CONSOLIDATED BEFORE ANY SEWER WORKS ARE CARRIED OUT.
 - WATER AUTHORITIES ARE NOT OBLIGED TO ACCEPT FILTER DRAIN / LAND DRAINAGE RUN OFF INTO THE PUBLIC SEWER NETWORK OR ADAPTABLE DRAINAGE SYSTEM (DIRECTLY OR INDIRECTLY). AN ALTERNATIVE METHOD OF DISPOSAL OF LAND DRAINAGE RUN OFF WILL THEREFORE BE REQUIRED AND ANY PROPOSALS MUST BE AGREED WITH THE LOCAL AUTHORITY LAND DRAINAGE SECTION.
 - COVER SLABS MUST CARRY THE BSI KITEMARK AND SHALL COMPLY WITH BS 5911 PART 1/BS EN 1917: 2000. WHERE THE CLEAR OPENING OF THE KITE-MARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME, A LOAD BEARING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN AS SPECIFIED ABOVE. PLEASE REFER TO CONCRETE PIPELINE SYSTEMS ASSOCIATION (CPSA) 'TECHNICAL BULLETIN' ISSUED AUTUMN 2004 FOR KITE-MARKED COVER SLAB OPENING SIZES.
 - SULPHATE RESISTANT CEMENT (C20-02) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED TO PROVE THAT SUCH PRECAUTIONS ARE NOT REQUIRED.
 - ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.8M FROM KERB FACES AND SERVICE LINES.
 - SEWERS MUST HAVE 9M CLEARANCE FROM TREES AND HEDGES OR TO HAVE SUITABLE ROOT PROTECTION IN ACCORDANCE WITH THE SFA 6TH REQUIREMENTS.
 - ALL PIPES TO HAVE CLASS 'S' GRANULAR BED AND SURROUND UNLESS OTHERWISE STATED. BEDDING AND BACKFILL MATERIALS TO CONFORM TO THE REQUIREMENTS OF BS 4000 (TABLE A2). WHERE DEPTH OF COVER TO TOP OF SEWER IS LESS THAN 1.2M IN HIGHWAYS AND VERTICES (OR LESS THAN 0.9M IN NON-VEHICULAR ACCESSED AREAS), THEN A CLASS 'C' BEDDING TO BE USED.
 - ALL SEWER TRENCHES AND BRANCH CONNECTIONS TO BE BACKFILLED WITH SUITABLE MATERIAL IN LAYERS NOT EXCEEDING 225MM UNCONSOLIDATED THICKNESS THEN FULLY COMPACTED.
 - ADOPTABLE SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS.
 - PLASTIC CHANNEL SECTIONS WILL NOT BE PERMITTED WITHIN MANHOLE CHAMBERS. CLAYWARE CHANNELS SHALL BE USED WITHIN MANHOLES FOR PIPE SIZES UP TO AND INCLUDING 300MM DIAMETER.
 - THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTION AND BENDS.
 - SECTION 163 OF THE HIGHWAYS ACT 1980 REQUIRES PROVISION TO BE MADE TO PREVENT WATER FALLING ON OR FLOWING ONTO THE HIGHWAY FROM PRIVATE DRIVEWAYS OR PROPERTIES. ANY DRAINAGE REQUIREMENTS MUST BE CONNECTED INTO THE PRIVATE SURFACE WATER DRAINAGE SYSTEM.
 - THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING:- (i) ALL OPERATIONS SHOULD BE CARRIED OUT IN ACCORDANCE WITH THE GENERAL HEALTH AND SAFETY POLICY OF THE DEVELOPER AS REQUIRED BY SECTIONS 2 OF THE HEALTH AND SAFETY AT WORK ACT 1974 AND IN PARTICULAR THE CONSTRUCTION (GENERAL PROVISIONS) REGULATIONS. (ii) THE LOCAL AUTHORITY AND UTILITIES COMPANIES ARE TO BE NOTIFIED PRIOR TO COMMENCEMENT OF WORK ON SITE. (iii) PRIOR TO CONSTRUCTION THE ACTUAL POSITIONS AND DEPTHS OF SERVICES LIKELY TO BE AFFECTED BY THE WORKS SHOULD BE ESTABLISHED BY MEANS OF HAND DIG. CLOSE LIAISON WITH THE UTILITY COMPANIES. THE CONTRACTOR SHALL IMMEDIATELY ADVISE THE ENGINEER OF ANY SERVICES EXPOSED WHICH MAY AFFECT THE DESIGN. (iv) ALL OPERATIVES WORKING ON THE HIGHWAY WORKS MUST HAVE STREET WORKS ACCREDITATION.
 - THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH CURTINS SPECIFICATION FOR DRAINAGE WORKS AND ANY OTHER SUBSEQUENT ADDITIONS TO THIS LIST.
 - THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT, AND TEMPORARY AND PERMANENT DIVERSION WORKS, AS NECESSARY TO ALL EXISTING SERVICES.
 - THE CONTRACTOR SHALL ALLOW FOR KEEPING TRENCHES AND EXCAVATIONS AS DRY AS APPROPRIATE. THE POINT AND METHOD OF DISCHARGE TO BE AGREED WITH THE DRAINAGE AUTHORITY & LPA AND ENVIRONMENT AGENCY.
 - ALL DRAINAGE WORKS ARE TO BE CONSTRUCTED FROM THE OUTFALL TOWARDS THE HEAD OF RUN TO ENSURE THE OUTFALL CAN BE ACHIEVED.

CO2	22.07.25	FINAL CONSTRUCTION RECORD	SUT	CD	SW
CO1	21.03.24	CONSTRUCTION ISSUE	AA	CD	CD
P3	22.02.24	UPDATED TO SUIT COMMENTS	AA	CD	CD
P2	08.12.23	STAGE 4	CD	SW	CB
P1	11.11.22	FIRST ISSUE	CD	DS	DS
Rev	Date	Description	By	Check	App.

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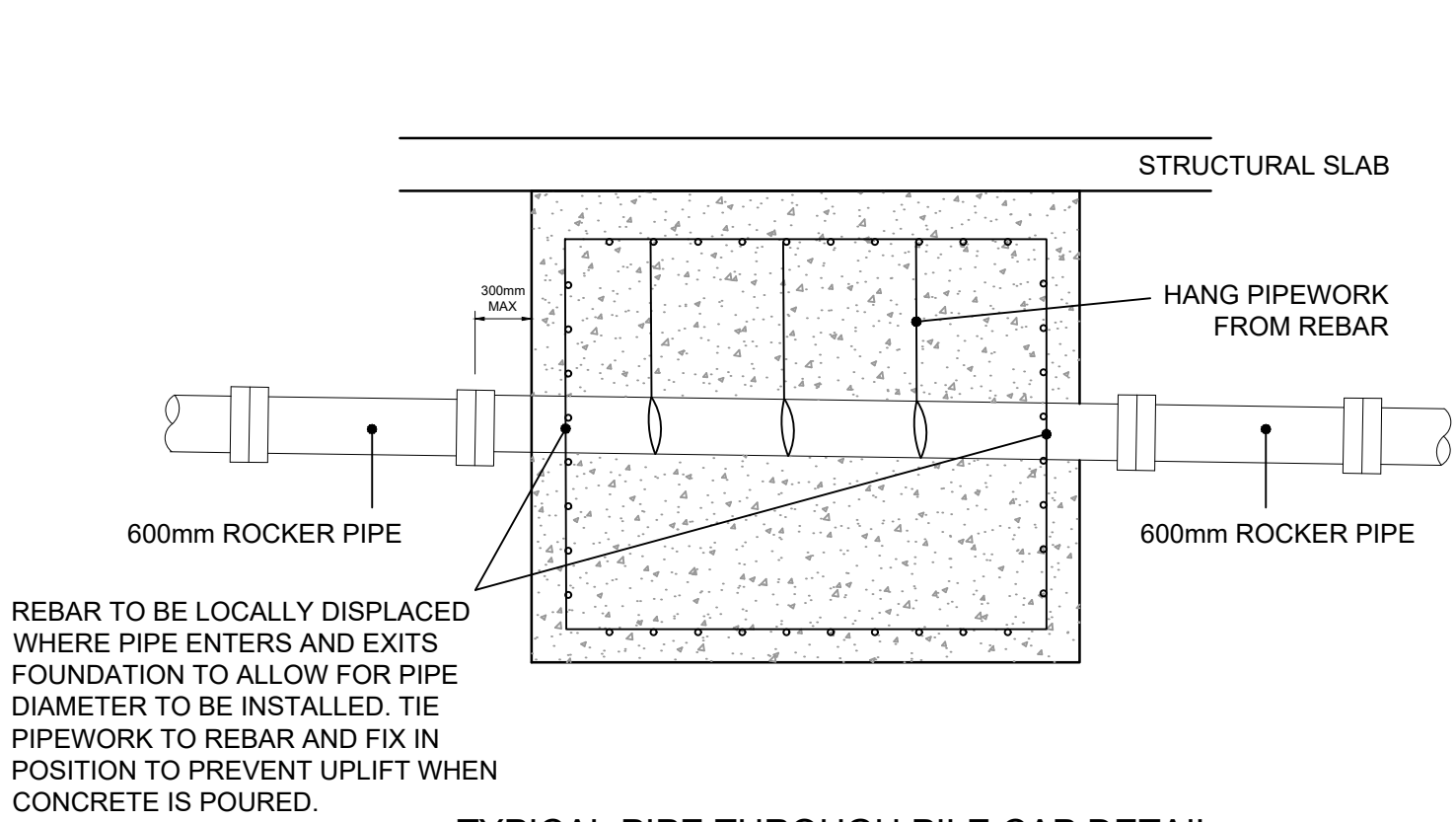
Client	GREAT PLACES HOUSING GROUP
Project	LAYSTALL STREET DEVELOPMENT MANCHESTER
Office	ALTRINCHAM
Discipline	CIVIL AND STRUCTURAL
Title	DRAINAGE DETAILS SHEET 2

Scale @ A1	NTS	Status	FINAL CONSTR
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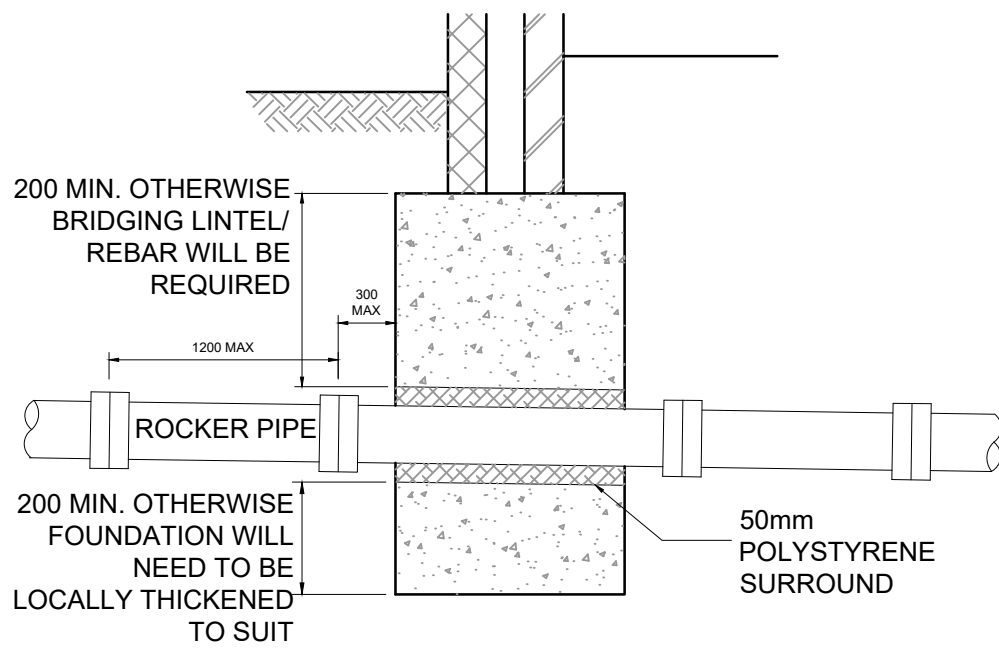


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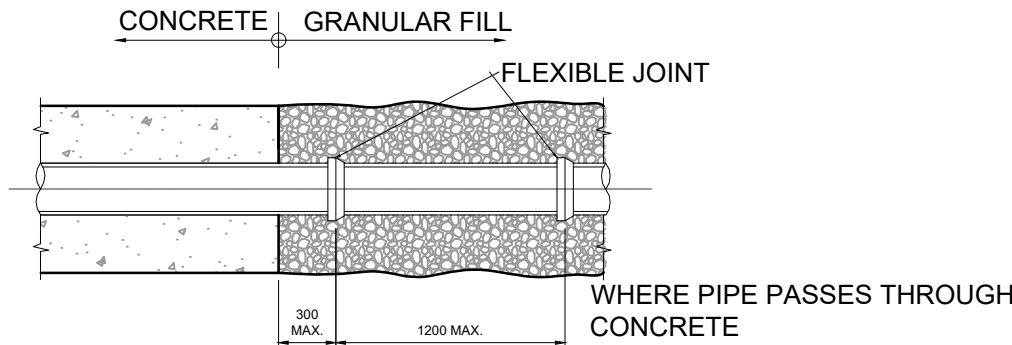
Job Number	Originator	Building/Zone	Level
220019	CLA	XX	00
Type	Discipline	Drawing No.	Revision
DR	C	502	C02



TYPICAL PIPE THROUGH PILE CAP DETAIL

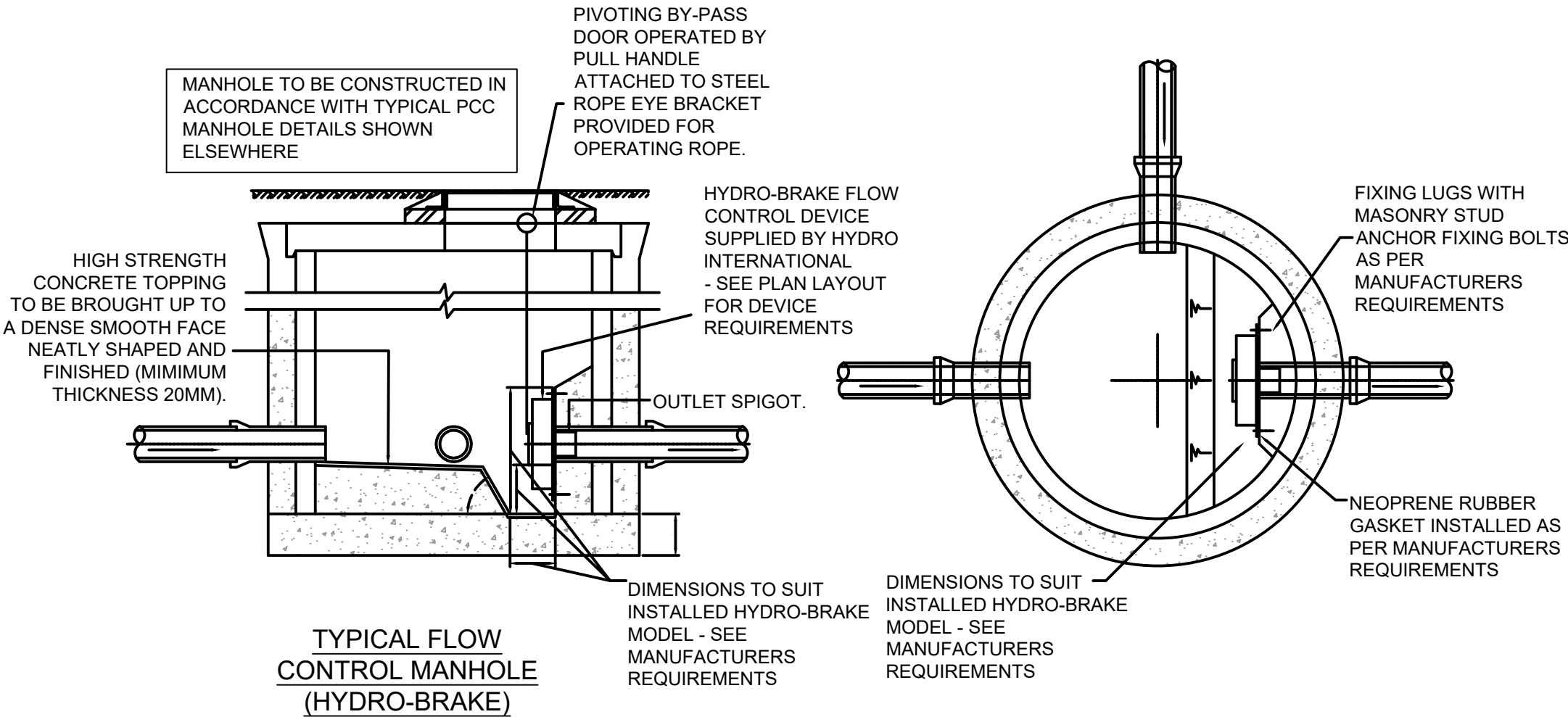


TYPICAL PIPE THROUGH GROUND BEAM DETAIL

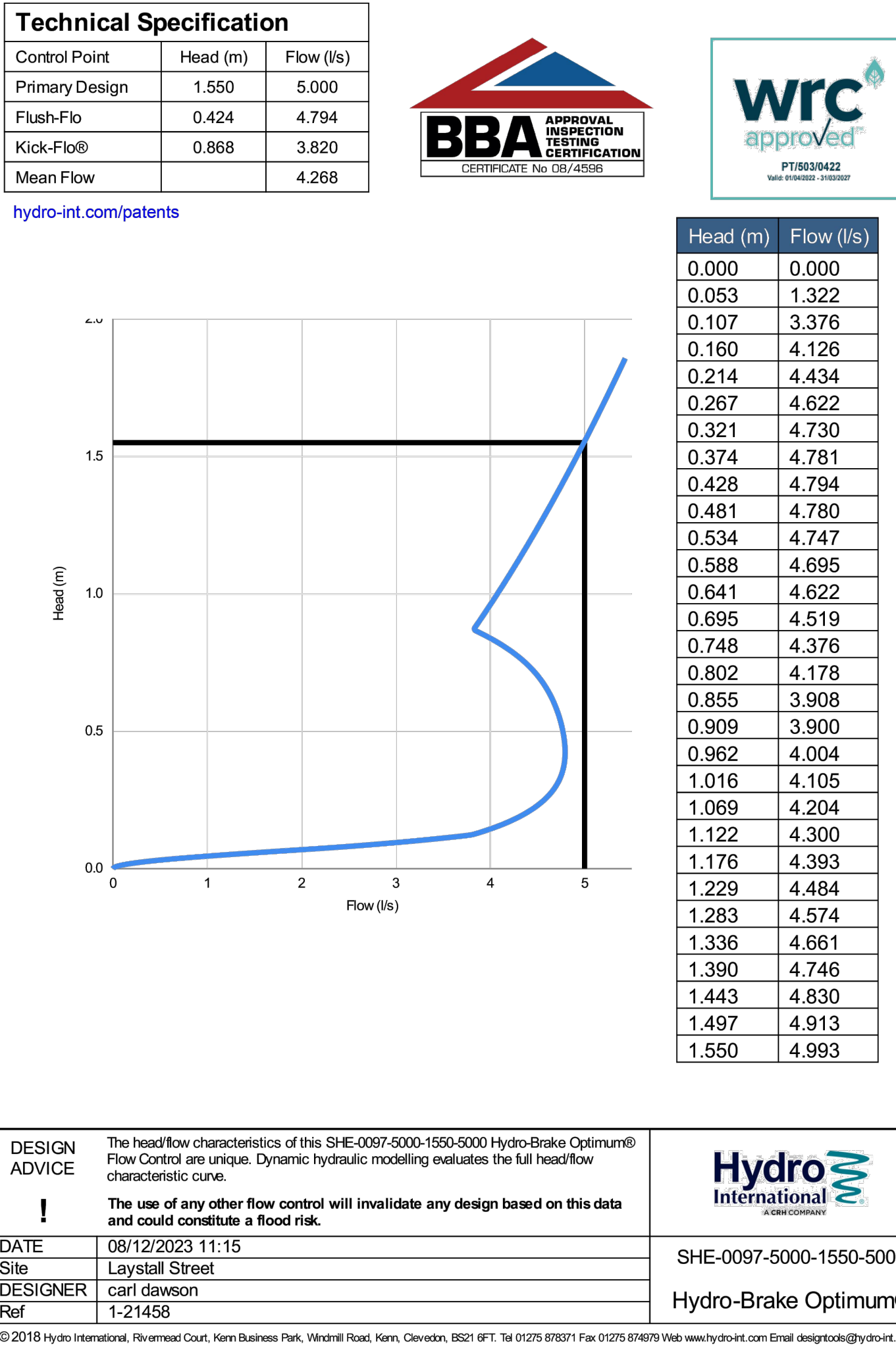
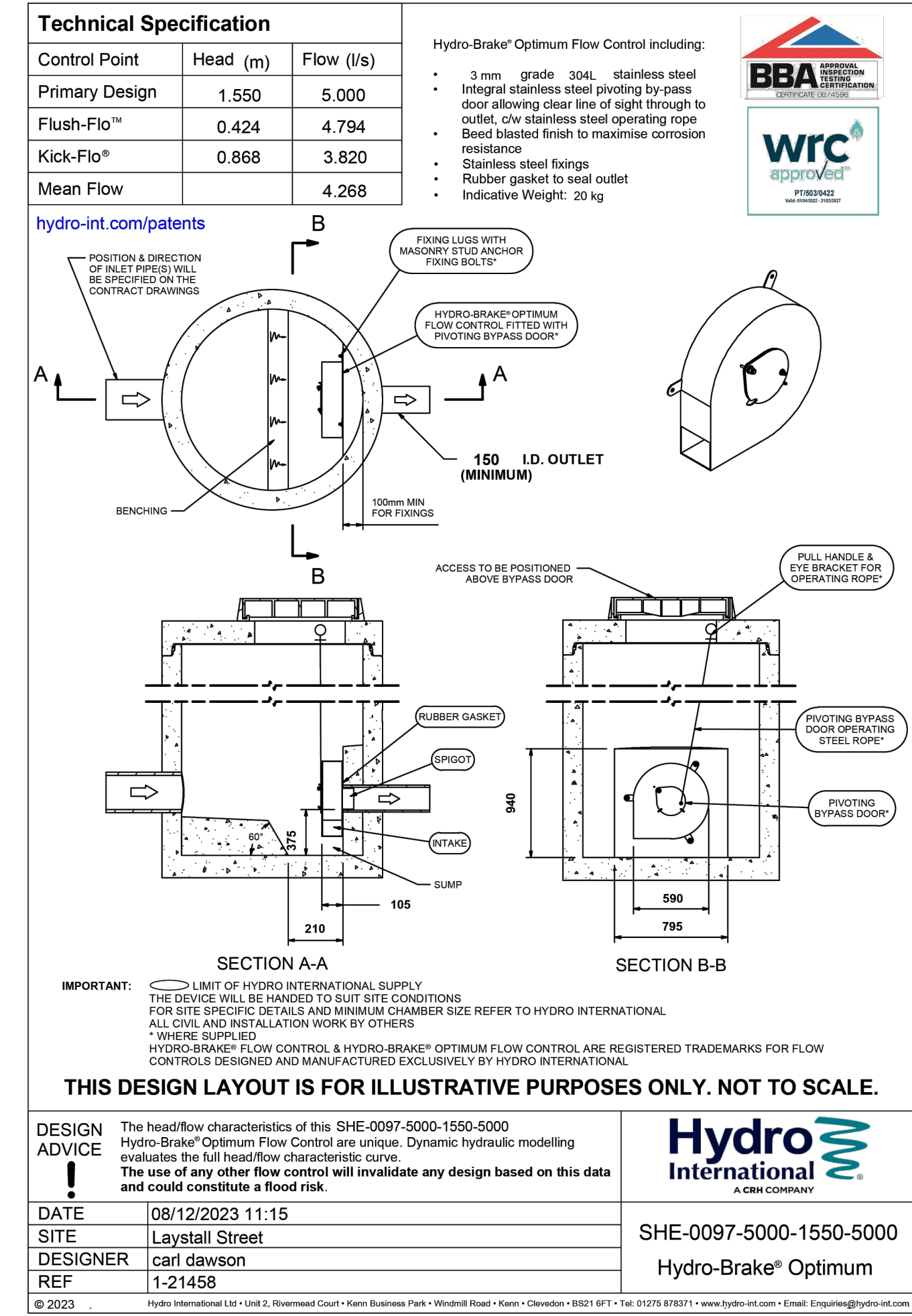


TYPICAL ROCKER PIPE DETAIL

POLYPIPE POLYSTORM PSM1A IS THE CONFIRMED TANK SPECIFICATION. SEE MANUFACTURERS INFORMATION FOR FURTHER DETAILS.



TYPICAL FLOW CONTROL MANHOLE (HYDRO-BRAKE)



FINAL CONSTRUCTION RECORD:

THIS DRAWING HAS BEEN UPDATED TO INCORPORATE ALL KNOWN DESIGN REVISIONS MADE DURING THE CONSTRUCTION PERIOD, EITHER INSTRUCTED BY, OR ADVISED TO, CLANCY CONSULTING LTD.

NO SITE MEASUREMENTS OR SURVEYS HAVE BEEN UNDERTAKEN DURING THE PREPARATION OF THIS DRAWING

C02	22.07.25	FINAL CONSTRUCTION RECORD	SJT	CD	SW
C01	21.03.24	CONSTRUCTION ISSUE	AA	CD	CD
P3	22.02.24	STAGE 4	CD	SW	CB
P2	08.12.23	STAGE 4	CD	SW	CB
P1	11.11.22	FIRST ISSUE	CD	DS	DS
Rev	Date	Description	By	Check	App.

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Client	GREAT PLACES HOUSING GROUP
Project	LAYSTALL STREET DEVELOPMENT MANCHESTER
Office	ALTRINCHAM
Discipline	CIVIL AND STRUCTURAL
Title	DRAINAGE DETAILS SHEET 3
Scale @ A1	NTS
Status	FINAL CONSTR



Job Number	Originator	Building/Zone	Level
220019	CLA	XX	00
Type	Discipline	Drawing No.	Revision
DR	C	503	C02

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. ALL ADOPTABLE DRAINAGE WORKS INCLUDING WORKS TO EXISTING PUBLIC SEWERS TO BE UNDERTAKEN IN ACCORDANCE WITH 'SEWERS FOR ADOPTION 7th EDITION' AND "CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7th EDITION" AND CONSTRUCTED TO THE RELEVANT STATUTORY UNDERTAKERS DETAILS.
3. ALL PRIVATE DRAINAGE WORKS TO BE IN ACCORDANCE WITH CLANCY DRAINAGE SPECIFICATION, "CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7th EDITION", BS EN 752 2017 'DRAIN AND SEWER SYSTEMS OUTSIDE BUILDINGS' AND THE BUILDING REGULATIONS APPROVED 'DOCUMENT H'.
4. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
5. DESIGN BASED ON TOPOGRAPHICAL SURVEY AND CCTV SURVEY INFORMATION AVAILABLE AT THE TIME OF THE DESIGN.
6. OUTFALL CONNECTION(S) SUBJECT TO AGREEMENT WITH THE APPROVING AUTHORITY.
7. ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.
8. COVER LEVELS, GULLY POSITIONS, AND BUILDINGS LOCATION ARE APPROXIMATE AND SHALL BE CONFIRMED BY ARCHITECT/ LANDSCAPE ARCHITECT. CONTRACTOR TO ALLOW FOR ADJUSTMENT TO SUIT AGREED POSITIONS AND FINISHED LEVELS, AND CONFIRM ALL COVER LEVELS ON SITE.
9. ALL INTERNAL DRAINAGE CONNECTIONS ARE PROVIDED TO THE PENETRATION POSITIONS SHOWN ON ARCHITECT AND M&E DRAWINGS. REFER TO DIMENSIONED LOCATIONS AND DIAMETERS ON ARCHITECT'S GROUND FLOOR SETTING-OUT PLANS.
10. ALL UNDERGROUND FOUL DRAINAGE SHOULD BE SUITABLY VENTED AT OR NEAR TO THE HEAD OF RUNS.
11. ALL ACCESS FITTINGS, STACKS, RWP'S AND GULLIES TO BE RODDABLE. ALL TO HAVE LOW LEVEL RODDING ACCESS PLATES UNLESS AN ALTERNATIVE MEANS OF ACCESS IS AGREED. ACCESS POINT TO BE ABOVE ANY GROUND FLOOR CONNECTED APPLIANCE SPILL LEVEL.
12. LARGE ACCESS FITTING REQUIRED ABOVE GROUND WHERE GREATER THAN 12M UP TO 22M TO A JUNCTION. SMALL ACCESS FITTING REQUIRED UP TO 12M TO A JUNCTION.
13. ALL GULLY AND CHANNEL DRAIN OUTLETS AND TERMINATION POINTS TO BE TRAPPED AND RODDABLE. INTERNAL GULLIES AND CHANNEL DRAINS TO BE SPECIFIED BY OTHERS.
14. WHERE NO WC'S ARE CONNECTED UPSTREAM, UNDERSLAB FW DRAINAGE TO BE LAID AT 1:40 MIN. AFTER THE CONNECTION OF AT LEAST 1NO WC, A MIN. FALL OF 1:80 APPLIES.
15. ALL CONNECTIONS FROM POP-UPS TO BE LAID AT A CONSTANT GRADIENT TO JUNCTION/ INSPECTION CHAMBER/ MANHOLE UNLESS NOTED OTHERWISE. ANY ISSUES RELATING TO CLASHES WITH FOUNDATIONS ARE TO BE FORWARDED TO THE ENGINEER, ALLOWING SUFFICIENT TIME FOR AN ALTERNATIVE SOLUTION TO BE PROPOSED.
16. INVERT LEVELS AT MANHOLES/ INSPECTION CHAMBERS TO BE USED TO SET OUT PIPEWORK. PIPE GRADIENTS ARE SHOWN INDICATIVELY ONLY.
17. ALL PIPE DIAMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIAMETERS.
18. ALL PIPWORK, UNLESS AGREED OTHERWISE STATED, SHALL BE:
 - 100mm to 300mm DIA TO BE VITRIFIED CLAY.
 - 375mm DIA AND GREATER TO BE CLASS 120 CONCRETE PIPES.
19. AS AN ALTERNATIVE THE CONTRACTOR MAY USE AN APPROVED UNPLASTICISED POLYVINYL CHLORIDE (PVCU) WITH APPROVAL FROM THE ENGINEER.
20. SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS.
21. THE FIRST PIPE OUT OF MANHOLES TO BE AS SHORT AS PRACTICABLE SO AS TO PROVIDE A FLEXIBLE JOINT AS CLOSE AS POSSIBLE TO THE OUTSIDE FACE OF THE CONCRETE SURROUND AND CONNECTED TO A LENGTH OF ROCKER PIPE.
22. ALL NEW CONNECTIONS INTO EXISTING MANHOLES (OR INTO EXISTING SEWERS) TO BE 'SOFFITS LEVEL' UNLESS OTHERWISE NOTED.

23. ALL ADOPTABLE DRAINAGE PIPES WILL REQUIRE A MINIMUM OF 1200mm COVER, IN ACCORDANCE WITH SEWERAGE UNDERTAKERS REQUIREMENTS. WHERE THIS IS NOT ACHIEVED, IT WILL BE NECESSARY TO AGREE THE BED AND SURROUND DETAIL.
24. ALL PRIVATE DRAINAGE PIPES WITH A COVER OF LESS THAN 600mm IN NON-TRAFFICKED AREAS AND LESS THAN 1200mm IN TRAFFICKED AREAS TO BE BEDDED AND SURROUNDED IN CONCRETE (CLASS Z). COMPRESSIBLE MATERIAL SHALL BE PROVIDED AT EVERY PIPE JOINT. WHERE COVER EXCEEDS THIS DEPTH, PIPES ARE TYPICALLY BEDDED AND SURROUNDED IN CLASS S. REFER TO PIPE EMBEDMENT DETAILS DRAWING FOR SPECIFIC TYPES.
25. WHERE DRAINAGE PIPES ARE LESS THAN 300mm BELOW THE UNDERSIDE OF THE GROUND FLOOR SLAB, CONCRETE ENCASEMENT IS REQUIRED (CLASS Z). COMPRESSIBLE JOINTS ARE TO BE PROVIDED AT EVERY PIPE JOINT WITHIN THE CONCRETE.
26. WHERE PIPES ARE MORE THAN 300mm BELOW THE UNDERSIDE OF THE SLAB, CLASS S BEDDING IS ACCEPTABLE.
27. SULPHATE RESISTANT CEMENT (C20-DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED TO PROVE THAT SUCH PRECAUTIONS ARE NOT REQUIRED.
28. WHERE FOUL SEWERS RUN ABOVE SURFACE SEWERS, CONCRETE PROTECTION MAY BE REQUIRED AT CROSSOVERS TO PREVENT ANY POTENTIAL CONTAMINATION.
29. ALL CONNECTIONS PASSING THROUGH BASES OR EDGE BEAMS TO BE IN SEALED SLEEVES. ALTERNATIVELY CONNECTIONS MAY BE CAST-IN WITH FLEXIBLE JOINTS NOT GREATER THAN 150MM FROM FACE OF CONCRETE.
30. THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION MAY NEED TO BE INCREASED TO ACCOMMODATE THE CONNECTIONS AND BENDS.
31. ALL MANHOLE COVERS IN BLOCK/SLAB AND EXTERNAL PAVING AREAS TO HAVE RECESSED COVERS OF THE APPROPRIATE GRADE TO ACCEPT ARCHITECT'S PAVING PROPOSAL.
32. ALL INTERNAL COVERS TO HAVE MECHANICALLY JOINTED CORNERS AND DOUBLE SEALED WITH RECESSED TRAY TO ALLOW FOR FINISHES.
33. UNLESS NOTED OTHERWISE IN THE MANHOLE SCHEDULE, ALL MANHOLE, GULLY AND CHANNEL COVERS (IRONWORK) SHOULD BE THE FOLLOWING SPECIFICATION:
 - B125 LOAD CLASS IN PEDESTRIAN AREAS
 - D400 LOAD CLASS IN VEHICULAR AREAS.
34. ALL PROPRIETARY PRODUCTS TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS, INSTRUCTIONS AND RECOMMENDATIONS.
35. PRIOR TO ANY DRAINAGE WORKS, CONTRACTOR TO CONFIRM INVERT LEVELS FOR CONNECTION POINTS AND PROVIDE THIS INFORMATION TO THE ENGINEER.
36. CONTRACTOR TO MAKE ALLOWANCE FOR REMEDIATION WORKS TO EXISTING DRAINAGE (I.E. DAMAGED PIPEWORK ETC) TO REMAIN.
37. DRAINAGE LAYOUT SUBJECT TO FORMAL RECEIPT OF ACCEPTANCE OF DRAINAGE STRATEGY BY THE LLFA AND UNITED UTILITIES.
38. WHERE DRAINAGE IS TO BE PASSED THROUGH WALLS OR FOUNDATION, APPROPRIATE WATER PROOFING REQUIRED I.E. WATER BARS AND/OR PUDDLE FLANGE.
39. BELOW GROUND DRAINAGE THAT PASSES INTERNAL TO ABOVE GROUND DRAINAGE TO BE CO-ORDINATED WITH MEP ENGINEER.
40. ARCHITECT OR LANDSCAPE ARCHITECT TO CONFIRM MANHOLE COVER TYPES WITHIN BASEMENT AND EXTERNAL AREAS. ALLOW FOR RECESSED TYPE IN EXTERNAL AREAS TO RECEIVE PAVING FINISHES. ALL INTERNAL MANHOLES TO BE DOUBLE SEALED AND LOCKING TYPE.
41. ARCHITECT OR LANDSCAPE ARCHITECT TO CONFIRM MANHOLE COVER TYPES WITHIN BASEMENT AND EXTERNAL AREAS. ALLOW FOR RECESSED TYPE IN EXTERNAL AREAS TO RECEIVE PAVING FINISHES. ALL INTERNAL MANHOLES TO BE DOUBLE SEALED AND LOCKING TYPE.

MANHOLE SCHEDULE													
MH REF	CL (mAOD)	IL (mAOD)	DEPTH TO SOFFIT (m)	DS PIPE DIA (m)	MH DIA (mm)	MH TYPE	COVER SIZE (mm)	COVER CLASS	RECESSED	RESTRICTED ACCESS	BACK DROP	COMMENTS	EASTING NORTHING
SURFACE WATER													
SW1 - OMITTED													
SW2a	47.880	47.100	0.630	0.150	600	PPIC	600X600	B125	Y	Y		NON ENTRY	384965.175 398271.728
SW2	47.860	46.480	1.230	0.150	600	PPIC	600X600	B125	Y	Y	BD: 47.05	BACKDROP	384963.712 398271.042
SW3	48.150	46.382	1.618	0.150	600	PPIC	600X600	B125	Y	Y		INTERNAL. DOUBLE SEALED AND LOCKING TYPE.	384968.329 398262.335
SW4	45.225	44.275	0.800	0.150	600	PPIC	600X600	C250	N	N		NON ENTRY	384974.082 398257.278
SW5	45.225	43.650	1.425	0.150	600	PPIC	600X600	C250	N	Y	BD: 44.215	NON ENTRY	384979.980 398255.946
SW6A - OMITTED													
SW6	45.230	43.236	1.694	0.300	1200	PCC	600X600	C250	Y	N		CATCHPIT	384984.294 398258.573
SW7	46.260	43.340	2.770	0.150	600	PPIC	600X600	D400	N	Y		NON ENTRY	384997.621 398243.533
SW8	45.750	43.231	2.369	0.150	600	PPIC	600X600	C250	Y	Y		NON ENTRY	384992.274 398252.120
SW10	45.000	43.730	1.120	0.150	600	PPIC	600X600	B125	Y	Y		NON ENTRY	384982.806 398245.350
SW11 - OMITTED													
FCC	44.985	43.197	1.638	0.150	1200	PCC	600X600	C250	Y	N		FLOW CONTROL CHAMBER	384989.233 398250.328
SW9 - OMITTED													
FOUL WATER DIVERSION													
FW1	45.225	43.500	1.575	0.150	450	PPIC	450X450	C250	N	Y		NON ENTRY	384977.395 398255.223
FW2	45.225	43.500	1.575	0.150	450	PPIC	450X450	C250	N	Y		NON ENTRY	384978.022 398259.167
FW3 - OMITTED													
FW4	45.230	43.410	1.670	0.150	450	PPIC	450X450	C250	Y	Y	BD: 44.215	NON ENTRY	384982.947 398258.599
FW5	44.985	43.355	1.480	0.150	450	PPIC	450X450	C250	Y	Y		NON ENTRY	384987.325 398251.420
FW6 - OMITTED													
FW7	45.000	44.000	0.850	0.150	450	PPIC	450X450	B125	N	N		NON ENTRY	384983.579 398245.339
FW8 - OMITTED													
FW9 - OMITTED													
FW10	47.700	46.750	0.800	0.150	450	PPIC	450X450	B125	N	N		NON ENTRY	384972.047 398275.539
FW11	47.910	46.680	1.080	0.150	450	PPIC	450X450	B125	N	Y		NON ENTRY	384966.603 398272.955
FW12 - OMITTED													
FW13	45.340	44.290	0.900	0.150	450	PPIC	450X450	C250	Y	N		NON ENTRY	384985.120 398261.259
COMBINED WATER													
CW1	46.350	42.970	3.155	0.225	1200	PCC	600X600	D400	N	N		DS IL TBC.	384983.374 398234.071
NON ENTRY - REDUCER CAP REQUIRED AND FITTED TO SHAFT, PPIC - POLYPROPYLENE INSPECTION CHAMBER, PCC - PRECAST CONCRETE.													

C08 22.07.25	FINAL CONSTRUCTION RECORD	SJT	CD	SW
C08 24.07.24	SW9 & FW9 OMITTED	CD	CD	SW
C04 19.06.24	SW6A OMITTED	AA	CD	CD
C03 09.04.24	SW2a ADDED AND SW3 COORDINATES UPDATED	AA	CD	CD
C02 21.03.24	CONSTRUCTION ISSUE	AA	CD	CD
C01 15.02.24	SW7, SW9, FW9 AND CW1 ISSUED FOR CONSTRUCTION ONLY	AA	CD	CD
P3 08.12.23	STAGE 4	CD	SW	DS
P2 30.06.23	UPDATED TO SUIT COMMENTS	CD	SW	DS
P1 26.05.23	FIRST ISSUE	CD	SW	DS
Rev	Date	Description	By	Check App.

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Client	GREAT PLACES HOUSING GROUP		
Project	LAYSTALL STREET DEVELOPMENT MANCHESTER		
Office	ALTRINCHAM		
Discipline	CIVIL AND STRUCTURAL		
Title	DRAINAGE NOTES AND MANHOLE SCHEDULE		
Scale @ A1	NTS	Status	FINAL CONSTRN



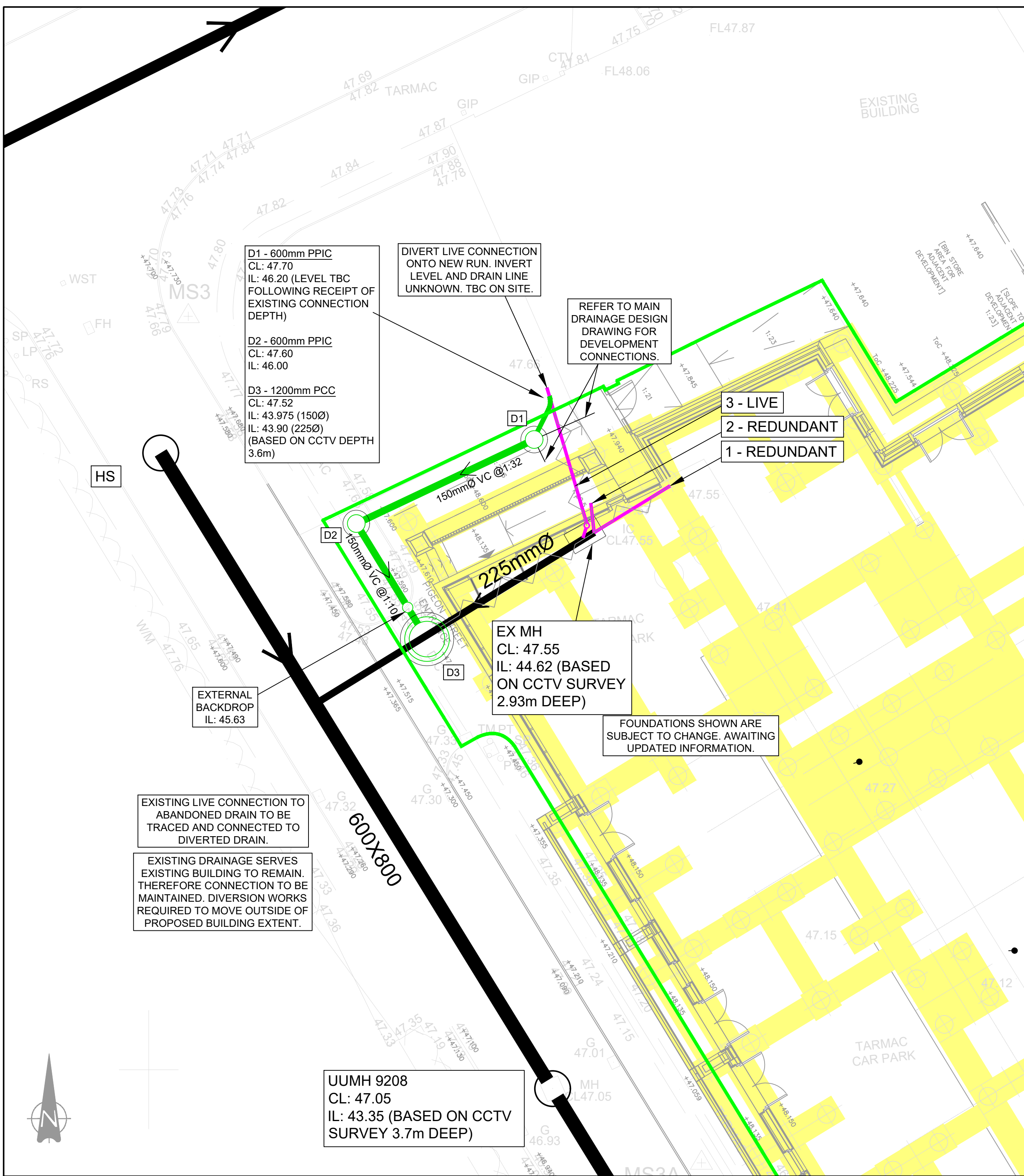
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Job Number	Originator	Building/Zone	Level
220019	CLA	XX	00
Type	Discipline	Drawing No.	Revision
DR	C	504	C06

FINAL CONSTRUCTION RECORD:

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NO SITE MEASUREMENTS OR SURVEYS HAVE BEEN UNDERTAKEN DURING THE PREPARATION OF THIS DRAWING



KEY:

- SITE BOUNDARY
- PUBLIC COMBINED SEWER
- EX PRIVATE COMBINED DRAIN
- EXISTING DRAINAGE TO BE ABANDONED
- FOUNDATIONS
- 225mmØ DIVERTED DRAINAGE

- GENERAL NOTES:**
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
 - ALL ADOPTABLE DRAINAGE WORKS INCLUDING WORKS TO EXISTING PUBLIC SEWERS TO BE UNDERTAKEN IN ACCORDANCE WITH "SEWERS FOR ADOPTION 7th EDITION" AND "CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7th EDITION" AND CONSTRUCTED TO THE RELEVANT STATUTORY UNDERTAKERS DETAILS.
 - ALL PRIVATE DRAINAGE WORKS TO BE IN ACCORDANCE WITH CURTINS DRAINAGE SPECIFICATION, "CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7th EDITION", BS EN 752 2017 'DRAIN AND SEWER SYSTEMS OUTSIDE BUILDINGS' AND THE BUILDING REGULATIONS APPROVED DOCUMENT H.
 - DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
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 - OUTFALL CONNECTION(S) SUBJECT TO AGREEMENT WITH THE APPROVING AUTHORITY.
 - ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.
 - COVER LEVELS, GULLY POSITIONS, AND BUILDINGS LOCATION ARE APPROXIMATE AND SHALL BE CONFIRMED BY ARCHITECT/ LANDSCAPE ARCHITECT. CONTRACTOR TO ALLOW FOR ADJUSTMENT TO SUIT AGREED POSITIONS AND FINISHED LEVELS, AND CONFIRM ALL COVER LEVELS ON SITE.
 - INVERT LEVELS AT MANHOLES/ INSPECTION CHAMBERS TO BE USED TO SET OUT PIPEWORK. PIPE GRADIENTS ARE SHOWN INDICATIVELY ONLY.
 - ALL PIPE DIAMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIAMETERS.
 - ALL PIPWORK, UNLESS AGREED OTHERWISE STATED, SHALL BE:
 - 100mm to 300mm DIA TO BE VITRIFIED CLAY.
 - 375mm DIA AND GREATER TO BE CLASS 120 CONCRETE PIPES.
 - AS AN ALTERNATIVE THE CONTRACTOR MAY USE AN APPROVED UNPLASTICISED POLYVINYL CHLORIDE (PVCU) WITH APPROVAL FROM THE ENGINEER.
 - SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS.
 - THE FIRST PIPE OUT OF MANHOLES TO BE AS SHORT AS PRACTICABLE SO AS TO PROVIDE A FLEXIBLE JOINT AS CLOSE AS POSSIBLE TO THE OUTSIDE FACE OF THE CONCRETE SURROUND AND CONNECTED TO A LENGTH OF ROCKER PIPE.
 - ALL NEW CONNECTIONS INTO EXISTING MANHOLES (OR INTO EXISTING SEWERS) TO BE 'SOFFITS LEVEL' UNLESS OTHERWISE NOTED.
 - ALL ADOPTABLE DRAINAGE PIPES WILL REQUIRE A MINIMUM OF 1200mm COVER, IN ACCORDANCE WITH SEWERAGE UNDERTAKERS REQUIREMENTS. WHERE THIS IS NOT ACHIEVED, IT WILL BE NECESSARY TO AGREE THE BED AND SURROUND DETAIL.
 - ALL PRIVATE DRAINAGE PIPES WITH A COVER OF LESS THAN 600mm IN NON-TRAFFICKED AREAS AND LESS THAN 1200mm IN TRAFFICKED AREAS TO BE BEDDED AND SURROUNDED IN CONCRETE (CLASS Z). COMPRESSIBLE MATERIAL SHALL BE PROVIDED AT EVERY PIPE JOINT. WHERE COVER EXCEEDS THIS DEPTH, PIPES ARE TYPICALLY BEDDED AND SURROUNDED IN CLASS S. REFER TO PIPE EMBEDMENT DETAILS DRAWING FOR SPECIFIC TYPES.
 - THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION MAY NEED TO BE INCREASED TO ACCOMMODATE THE CONNECTIONS AND BENDS.
 - ALL MANHOLE COVERS IN BLOCK/SLAB AND EXTERNAL PAVING AREAS TO HAVE RECESSED COVERS OF THE APPROPRIATE GRADE TO ACCEPT ARCHITECT'S PAVING PROPOSAL.
 - UNLESS NOTED OTHERWISE IN THE MANHOLE SCHEDULE, ALL MANHOLE, GULLY AND CHANNEL COVERS (IRONWORK) SHOULD BE THE FOLLOWING SPECIFICATION:
 - B125 LOAD CLASS IN PEDESTRIAN AREAS
 - D400 LOAD CLASS IN VEHICULAR AREAS.
 - ALL PROPRIETARY PRODUCTS TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS, INSTRUCTIONS AND RECOMMENDATIONS.
 - PRIOR TO ANY DRAINAGE WORKS, CONTRACTOR TO CONFIRM INVERT LEVELS FOR CONNECTION POINTS AND PROVIDE THIS INFORMATION TO THE ENGINEER.
 - CONTRACTOR TO MAKE ALLOWANCE FOR REMEDIATION WORKS TO EXISTING DRAINAGE (I.E. DAMAGED PIPEWORK ETC) TO REMAIN.
 - ARCHITECT OR LANDSCAPE ARCHITECT TO CONFIRM MANHOLE COVER TYPES WITHIN BASEMENT AND EXTERNAL AREAS. ALLOW FOR RECESSED TYPE IN EXTERNAL AREAS TO RECEIVE PAVING FINISHES. ALL INTERNAL MANHOLES TO BE DOUBLE SEALED AND LOCKING TYPE.
 - REFER TO DRAINAGE DETAILS DRAWING FOR FURTHER INFORMATION.

FINAL CONSTRUCTION RECORD:

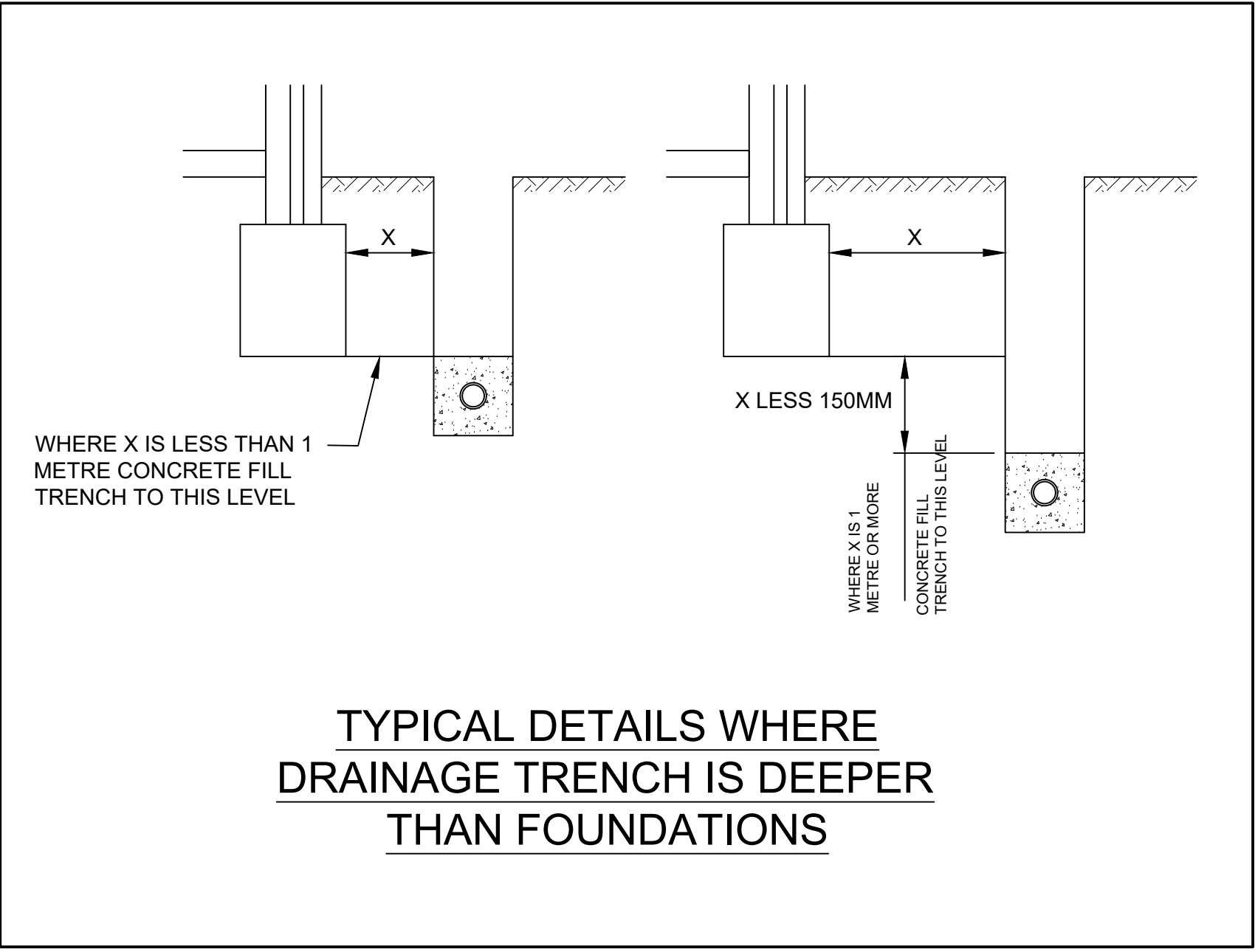
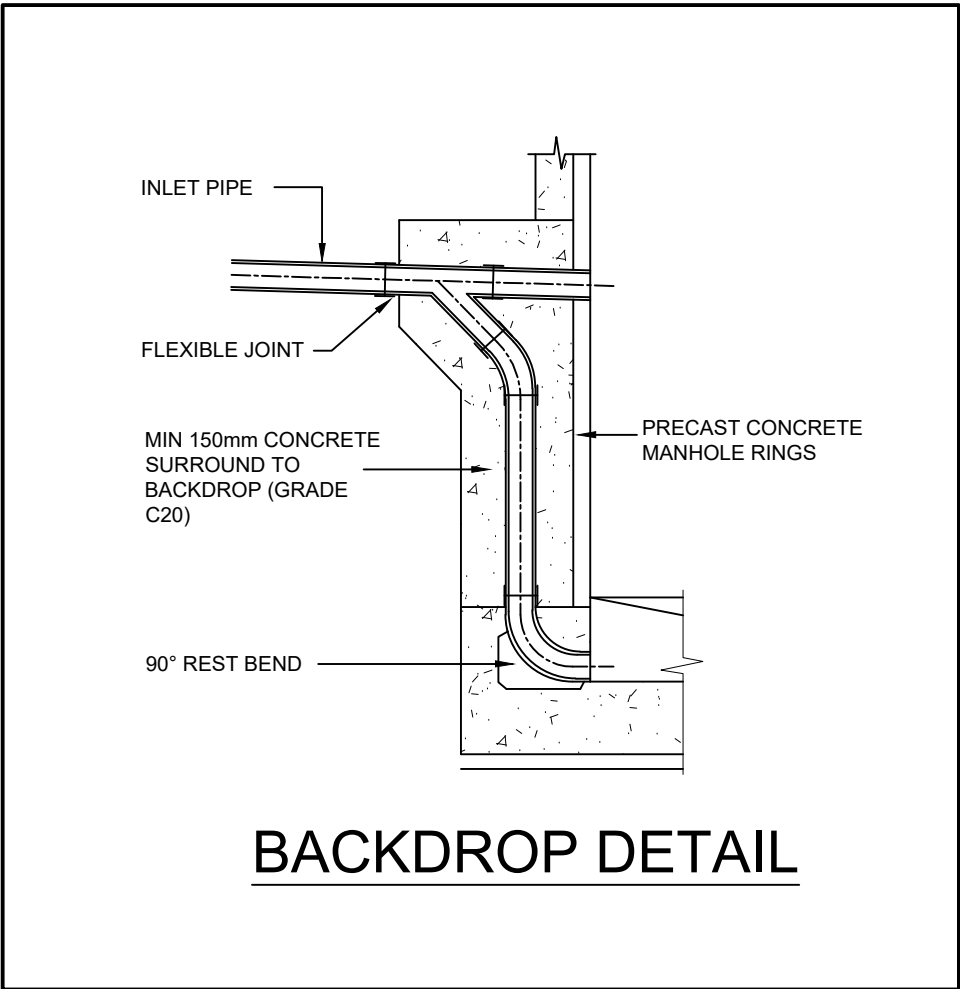
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ONLY DIVERTED DRAINAGE FOR CONSTRUCTION.

FOR FURTHER DRAINAGE DETAILS
REFER TO DRAWINGS 501 AND 502

MANHOLE SCHEDULE												
MH REF	CL (mAOD)	IL (mAOD)	DEPTH TO SOFFIT (m)	DS PIPE DIA (m)	MH DIA (mm)	MH TYPE	COVER SIZE (mm)	COVER CLASS	RECESSED	RESTRICTED ACCESS	BACK DROP	COMMENTS
D1	47.700	46.200	1.350	0.150	600	PPIC	600X600	B125	TBC	Y	N	NON ENTRY
D2	47.600	46.000	1.450	0.150	600	PPIC	600X600	B125	TBC	Y	N	NON ENTRY
D3	47.520	43.900	3.395	0.225	1200	PCC	600X600	D400	TBC	N	YES - IL: 45.63	NON ENTRY
NON ENTRY - REDUCER CAP REQUIRED AND FITTED TO SHAFT, PPIC - POLYPROPYLENE INSPECTION CHAMBER, PCC - PRECAST CONCRETE.												



C04 22.07.25	FINAL CONSTRUCTION RECORD	SJT	CD	SW
C03 08.01.24	PIPE SIZES UPDATED	AA	CD	CD
C02 17.11.23	GRADIENTS TO PIPES ADDED	AA	CD	CD
C01 10.11.23	CONSTRUCTION ISSUE	CD	DS	DS
Rev	Date	Description	By	Check

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Client	GREAT PLACES HOUSING GROUP			
Project	LAYSTALL STREET DEVELOPMENT MANCHESTER			
Office	ALTRINCHAM			
Discipline	CIVIL AND STRUCTURAL			
Title	DIVERTED DRAINAGE EARLY WORKS INTALLATION			
Scale @ A1	1-100	Status	CONSTRUCTION	



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Job Number	Originator	Building/Zone	Level
220019	CCL	XX	00
Type	Discipline	Drawing No.	Revision
DR	C	560	C04



Appendix C – Management & Maintenance Plan

Outline Drainage Maintenance Operations

This section is intended to give an overview of the operation and maintenance for the drainage features included with the drainage strategy and in relation to typical details. 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.

Drainage components are indicated on Clancy Consulting Ltd Drainage General Arrangement drawing 220019-CLA-XX-00-DR-D-500

All drainage items included within this document are private and not offered for adoption.

Client to confirm the details of person/company responsible for maintenance of drainage items. Details to be added to the below table.

Name	Company	Contact number and email

Components

The following components have been included within the drainage design for the proposed development:

- Manhole and Inspection Chambers
- Catchpit Chambers
- Linear Drains
- Gullies
- Pipework
- Geocellular Attenuation Tank
- Vortex Flow Control Units

A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented.

It is assumed that the maintenance of the drainage network will be the responsibility of an on-site facilities management team.

A copy of the final construction drainage layout should be provided in the final Operations and Maintenance Manual.

The surface water network has been designed to accommodate the 1 in 100 year storm rainfall event plus an allowance for climate change particular to the requirements of the site. It may be that the exceedance flows above the 1 in 30 year storm rainfall event are stored within the site partially above ground, on non-habitable external landscaping, parking or other space. 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.

It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.

Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.

Long-term management practices include monthly sweeping of external paved areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilised during storm events and transported to the drainage system.

During the winter months, drainage features such as gullies and channels should be cleared of ice, snow, debris or litter.

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 the filter drains and the upstream/downstream chambers.

Should any oil or fuel spillages occur, these are to be cleaned up locally to prevent contaminants being washed into the surface water system by rainfall. Spillages such as these should not be washed into the drainage system.

Manholes and Inspection Chambers

Description

Manholes providing rodding and jetting access to pipe work.

Normally manholes, in similarity to inspection chambers, are designed for access by operatives. Manholes must only be accessed after a risk assessment, and the implementation of a safe system of work, which identifies the specific risk to confined space.

Maintenance Issues

It is not likely that Manholes will present maintenance issues. However, they allow both the access to the drainage infrastructure and allow visual inspection from the surface of any key maintenance issues.

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Remove covers and ensure that there are no blockages. Inspect and ascertain any parts that are not operating correctly and resolve.	For 3 months after installation
	Check covers do not need repairing.	Monthly
	Check drainage is running freely by inspecting manholes and inspection chambers.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Suction sweeping and cleansing (to Water Jetting Association standards) and CCTV where appropriate.	2 – 4 Years
Remedial maintenance	• Silt removal • Inlet/outlet repair • Erosion repairs • System recovery following a pollution event • Manhole Cover replacement • Repairs to brickwork or concrete • Chancel repair	When required (tasks to repair problems due to wear, damage or vandalism)

Catchpits

Description

Catchpits are similar to manholes, however, they include a sump to the base which is designed to capture silt and prevent it reaching other parts of the drainage network. Catchpits provide a useful location to remove silt for drainage networks. Catchpits must only be accessed after a risk assessment, and the implementation of a safe system of work, which identifies the specific risk to confined space.

Maintenance Issues

If the silt captured in catchpits does not get removed regularly it will cause silt to move downstream to other part of the drainage network, some of which may be difficult to access, or totally inaccessible.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Remove manhole covers and ensure that there are no blockages. Inspect and identify any parts that are not operating correctly and resolve. Inspect silt storage in sump. Remove silt as appropriate using subcontractor with vacuum extraction plant.	For 3 months after installation
	Check covers do not need repairing. Repair/replace as required.	Monthly
	Inspect catchpits to ensure that the drainage is running freely, and free of debris. Inspect silt storage in sump. Remove silt as appropriate using subcontractor with vacuum extraction plant.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Suction sweeping and cleansing (to Water Jetting Association standards) and CCTV where appropriate. Resolve any chamber structural defects, or any defects that could reduce the free flow of water.	2 – 4 Years
Remedial maintenance	• Silt removal • Inlet/outlet repair • Erosion repairs • System recovery following a pollution event • Manhole Cover Replacement • Repairs to brickwork or concrete	When required (tasks to repair problems due to wear, damage or vandalism)

Linear Drains

Description

Surface Water is drained over impermeable sections towards grated, or slot-type linear drains at low points and water is carried to below ground pipework.

Maintenance Issues

Linear drains could get blocked by silt or debris, causing flooding.

Linear drains frequently include silt traps at outlets which can cause siltation of downstream drainage infrastructure if the appropriate maintenance is not undertaken.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Inspect linear drains to make sure that there are no blockages at surface level. Remove covers to outflow boxes and check for blockages or siltation. Inspect and identify any parts that are not operating correctly and resolve.	For 3 months after installation
	Inspect linear drains to make sure that there are no blockages at surface level.	Monthly
	Remove covers to outflow boxes and check for blockages or siltation.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Jetting of linear drains and suction vacuuming of outlet boxes (to Water Jetting Association standards) and CCTV where appropriate.	1 – 2 Years
Remedial maintenance	• Silt removal • Inlet/outlet repair • Erosion repairs • System rehabilitation following a pollution event • Linear drain cover replacement • Chancel repair • Ensure that impermeable surfaces surrounding linear drains have not settled below top of linear drain level, causing ponding	When required (tasks to repair problems due to wear, damage or vandalism)

Gullies

Description

Surface Water is drained over impermeable areas towards grated gullies at low points and water is carried to below ground pipework.

Maintenance Issues

Gullies can become blocked by silt or debris, causing flooding.

Gullies include integral silt traps which can cause siltation of downstream drainage infrastructure if the appropriate maintenance is not undertaken.

Gullies frequently include a trapped outlet which prevents liquids lighter than water (ie oil and fuel) departing the gully. If silt and light liquids do not get removed regularly silt and oil will move downstream to other areas of the drainage network, some of which may be difficult to access, or totally inaccessible.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Inspect to ensure that there are no blockages at surface level, and that the outfall is operating efficiently.	For 3 months after installation
	Inspect and identify any parts that are not operating correctly and resolve.	
	Check that there are no blockages at surface level.	Monthly
	Remove covers to check for blockages or siltation.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Remove oil and silt using specialist vacuum extraction plant.	1 – 2 Years
Remedial maintenance	- Silt removal - Inlet/outlet repair - Erosion repairs - System rehabilitation following a pollution event - Cover replacement - Structural failure of gully pot - Ensure that impermeable surfaces surrounding linear drains have not settled below top of gully cover level, causing ponding	When required (tasks to repair problems due to wear, damage or vandalism)

Pipework

Description

Below ground drainage pipework connects drainage inlets (gullies, linear drains etc) to manholes as well as providing connections between manholes.

Maintenance Issues

Pipes could become blocked by silt, debris fat, grease, or collapse. In addition, it's possible for pipe joints to become displaced or for roots to grow from the surrounding ground into the pipes.

These factors can cause a reduction in, or loss of, the hydraulic capability of the pipes which could cause flooding to land and buildings.

Defects in pipes could cause a reduction in stability to ground underlying foundations, thus, causing settlement and damage to buildings and external surfaces.

The material of pipes and associated couplings can be damaged if aggressive liquids are passed through the pipes.

It is recommended that trees are not planted within 3m of pipes to reduce the risk of root ingress.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Inspect and identify any parts that are not operating correctly and resolve.	For 3 months after installation.
	Monitor working of drainage at ground level. The indications damaged pipework's may include localised flooding or emission of smells.	Monthly
	Remove manholes covers to check for blockages.	Every 6 months
Occasional maintenance	CCTV pipework, clean to WRC Sewer Jetting Code of Practice. Resolve issues as appropriate.	1 – 2 Years
Remedial maintenance	- Silt removal. - Fat and Grease removal. - Erosion repairs. - Joint displacement. - Structural failure, cracking or collapse. - System rehabilitation following a pollution event.	When required (tasks to repair problems due to wear, damage or vandalism)

Geocellular Attenuation Storage

Description

Attenuation storage tanks are used to create a below-ground space for the temporary storage of surface water before infiltration, controlled release or use. Geocellular storage crates are advantageous as they allow for spatial versatility as opposed to in situ concrete tanks.

Maintenance Issues

For Geocellular attenuation tanks typical issues relate to the build-up of silt within the tank, causing a decrease in capacity over time.

Maintenance Regime

Schedule	Action Required	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. Take remedial action as appropriate	For 3 months after installation, then annually.
	Remove debris from the catchment surface (where it may cause a risk to performance)	Monthly
	For systems where rainfall infiltrate into the tank from above, check surface of filter for blockage by sediment, algae or other matter. Remove blockage and replace surface infiltration medium as appropriate.	Annually
	Remove Sediment from pre-treatment structures and/or internal forebays.	Annual, or as needed
Remedial Actions	Repair/rehabilitate inlets, outlets, overflows and vents.	As needed
Monitoring	Check all inlets, outlets, vents and overflows to ensure that they are working as designed.	Annually
	Survey inside of tank for sediment build-up and remove as appropriate.	Every 5 years or as needed.

Vortex Flow Controls

Description

Vortex controls, often called Hydrobrakes, are installed in some manholes to limit the rate of flow. Vortex controls are normally constructed in steel and installed in a manhole with a sump.

Maintenance Issues

Vortex controls could become blocked by debris, plastic bags or other sheet material. If silt is allowed to build up in the sump the operation of the device could be impeded causing flooding upstream.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Check manufacturer's specification. Inspect and identify any parts that are not operating, consult supplier and remediate as required.	For 3 months after installation
	Monitor working of drainage at ground level. Where localised flooding occurs, check the condition of all system elements.	Monthly
	Remove manholes covers to check for blockages. Remove sediment from pre-treatment structures, gullies, catchpits etc.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Clean to WRC Sewer Jetting Code of Practice. Resolve issues as appropriate.	1 – 2 Years
Remedial maintenance	Inspect, and remedy to ensure that the features are in fully working order.	As required (tasks to repair problems due to wear, damage or vandalism).