

Drainage Planning Details

Subject: This City Residential Development, Ancoats – Rodney Street

Ref: 079056/DPC Rev V02

Date: 10/08/2022

The Planning Application Ref: 134154/VO/2022
Response to draft drainage condition

(a) the development shall not commence until a scheme for the drainage of surface water from the development shall be submitted for approval in writing by the City Council as the Local Planning Authority. This shall include: • Consideration of alternative green SuDS solution (such as SuDS enabled street trees) if practicable. • Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100-year rainfall event with allowance for 45% climate change in any part of a building. • Assessment of overland flow routes for extreme events that is diverted away from buildings (including basements). Overland flow routes need to be designed to convey the flood water in a safe manner in the event of a blockage or exceedance of the proposed drainage system capacity including inlet structures. A layout with overland flow routes needs to be presented with appreciation of these overland flow routes with regards to the properties on site and adjacent properties off site. • Hydraulic calculation of the proposed drainage system. • Construction details of flow control and SuDS elements. (b) The development shall then be constructed in accordance with the approved details, within an agreed timescale.	Pre-Commencement
---	-------------------------

Proposed Drainage:

The proposed drainage system consists of a separate foul and surface water network. Reference should be made to the following drainage design documents:

- RODSTA-CUR-XX-XX-DR-C-92500-P04_Drainage Layout
- RODSTA-CUR-XX-XX-DR-C-92510-P01_Manhole Schedule
- RODSTA-CUR-XX-XX-DR-C-92520-P02_Typical Drainage Details Sheet 1
- RODSTA-CUR-XX-XX-DR-C-92521-P01_Typical Drainage Details Sheet 2
- RODSTA-CUR-XX-XX-DR-C-92522-P01_Typical Drainage Details Sheet 3
- 079056-CUR-XX-XX-DR-C-94700-P03_External Works Layout
- RODSTA-CUR-XX-XX-DR-C-92540-P01_Overland Flow Routes
- Surface Water Calcs – 1, 30, 100 year +45%

With specific reference to the points covered by draft condition:

Consideration of alternative green SuDS solution (such as SuDS enabled street trees) if practicable.

In accordance with the National Planning Policy Framework (NPPF) a sustainable drainage system (SuDS) should be provided unless demonstrated to be inappropriate. The following options have been considered for the site:

Infiltration Systems:

Systems such as infiltration trenches and soakaways were considered as part of the surface water management strategy however, the ground conditions indicate significant depths of made ground across the site and the testing completed to date indicates negligible results for infiltration. Therefore, infiltration systems are not considered suitable for the site.

Green/Blue roofs:

Green/Blue roofs were considered for the site however, they are not considered viable.

Swales, Wetlands and Attenuation Ponds:

Due to the nature of the site and the limited space available, pre-treatment steps and retention systems such as swales, wetlands and ponds are not considered suitable for the site due to their space requirements.

Permeable Paving

Permeable paving has been considered and will be used in various areas across the site.

The hardstanding areas noted as permeable construction will have a variety of permeable surface finishes which will be constructed over a permeable sub-base.

The sub-base construction will provide approximately 30% of its depth as storage capacity which will intercept run-off prior to discharge into the wider drainage system and traditional storage provision on site.

As the sub-base is being used to create voids, it is important that this is not heavily trafficked by construction vehicles prior to completion as this can cause crushing of the stone and affect the ability of water to percolate through the granular material. Areas likely to be subject to continuous overrun during construction will be directed towards a rain garden, where surface falls or connection depths allow.

Rain Gardens and Drained Soft Landscaping

It is currently proposed to include localised rain gardens which will locally drain external paved areas.

The rain gardens will be planted shallow basins constructed over a free draining sub-base.

The rain gardens are proposed in areas where localised run-off from hardstanding can be directed towards the rain gardens. The rain garden will act as a collection facility which will intercept run-off prior to discharge into the wider drainage system and traditional storage provision on site.

Further co-ordination of the detail and capacity is required with the Landscape Architect.

Rainwater Recycling

The extensive planting around the site within the public realm, is located in Manchester, a city well known for its rainfall. Whilst future climate change may well decrease the rainfall or make the weather patterns more sporadic, the plant species selected will be robust, whether native or ornamental.

A percentage of planting will be selected to create 'Rain Gardens' capable of accommodating surges of surface water and periods of dry-spells.

The growing medium will be a minimum of 450mm soil, with a mulch material to suppress weeds and retain moisture.

Inclusion of an extensive irrigation system is not considered necessary and omission of this will remove future liability and maintenance - accidental damage (replanting) or vandalism.

It has been concluded that an irrigation system will be excluded.

We have alternatively looked at the opportunity to introduce rainwater harvesting for the WCs for example, but this would require a large tank to accommodate the necessary demand for each building.

As an example, for Block A there are 116 WCs which would be 6 litres per flush, estimating say 8 uses per day, this would require a 6 m³ storage tank, pump system, header tank, control unit and backup water supply. On this basis, this would not be viable in the current scheme.

SuDS Conclusion

The development is proposing to include:

- Permeable Paving

- Rain gardens

The current scheme utilises a combination of rain gardens and permeable paving across the site to intercept flows prior to entering the drainage system. Refer to Drainage Layout, Drainage Details Drawings and External Works drawings for details.

Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100-year rainfall event with allowance for 45% climate change in any part of a building.

The system has been designed to accommodate the 100-year event with an allowance of 45% climate change. Refer to calculations enclosed in Appendix B.

Assessment of overland flow routes for extreme events that is diverted away from buildings (including basements). Overland flow routes need to be designed to convey the flood water in a safe manner in the event of a blockage or exceedance of the proposed drainage system capacity including inlet structures. A layout with overland flow routes needs to be presented with appreciation of these overland flow routes with regards to the properties on site and adjacent properties off site.

Refer to the Overland Flow Routes drawing enclosed in Appendix A.

Hydraulic calculation of the proposed drainage system.

Refer to calculations enclosed in Appendix B.

Construction details of flow control and SuDS elements

Refer to the Drainage Details drawing enclosed in Appendix A.

Merchant Exchange
17-19 Whitworth Street West
manchester@curtins.com
Manchester
M1 5WG

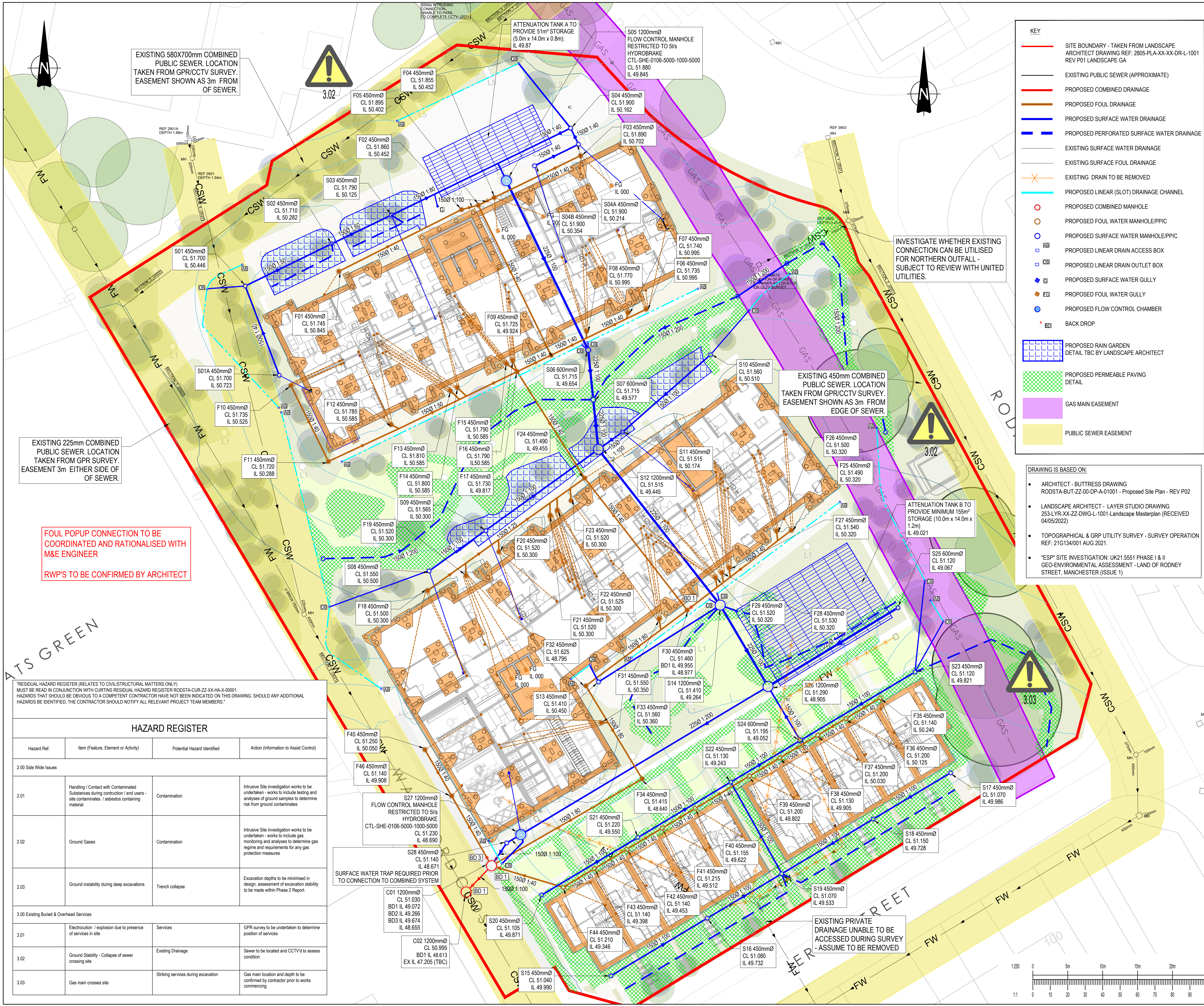
T. 0161 236 2394

www.curtins.com



Appendix A

- RODSTA-CUR-XX-XX-DR-C-92500-P04_Drainage Layout
- RODSTA-CUR-XX-XX-DR-C-92510-P01_Manhole Schedule
- RODSTA-CUR-XX-XX-DR-C-92520-P02_Typical Drainage Details Sheet 1
- RODSTA-CUR-XX-XX-DR-C-92521-P01_Typical Drainage Details Sheet 2
- RODSTA-CUR-XX-XX-DR-C-92522-P01_Typical Drainage Details Sheet 3
- 079056-CUR-XX-XX-DR-C-94700-P03_External Works Layout
- RODSTA-CUR-XX-XX-DR-C-92540-P01_Overland Flow Routes



GENERAL NOTES:

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
- DESIGN BASED ON TOPOGRAPHICAL SURVEY AND CCTV SURVEY INFORMATION AVAILABLE AT THE TIME OF DESIGN.
- ALL EXISTING SEWERS, CONNECTIONS, PIPE SIZES AND INVERT LEVELS TO BE CONFIRMED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS TO ENSURE CONNECTIVITY. ANY VARIANCE FROM THE INFORMATION SHOWN SHOULD BE REPORTED TO THE ENGINEER FOR REVIEW.
- 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.
- ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.
- WHERE EXISTING DRAINAGE IS BEING USED, ALLOWANCES SHOULD BE MADE TO REMEDIATE THIS DRAINAGE IN LINE WITH AVAILABLE CCTV SURVEY INFORMATION. IF NO SURVEY IS AVAILABLE, IT IS ADVISED TO OBTAIN ONE PRIOR TO COMMENCEMENT OF WORKS.
- ALL EXISTING SERVICES TO BE LOCATED PRIOR TO COMMENCEMENT OF ANY DRAINAGE WORKS, AND WHERE NECESSARY PROTECTION OR DIVERSIONS TO BE UNDERTAKEN TO AVOID CONFLICT WITH THE PROPOSED WORK.
- ALL RAINWATER AND FOUL POP UPS LOCATIONS AND SIZES INDICATIVE ONLY AND TO BE CONFIRMED BY THE ARCHITECT AND M&E ENGINEER.
- COVER LEVELS, GULLY POSITIONS, AND BUILDINGS LOCATION ARE APPROXIMATE AND SHALL BE CONFIRMED BY ARCHITECT/ LANDSCAPE ARCHITECT.
- ALL PIPE DIAMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIAMETERS. THESE ARE TO BE CONFIRMED ON A DETAILED CAPACITY CHECK HAS BEEN UNDERTAKEN AT A LATER DESIGN STAGE.
- OUTFALL CONNECTION(S) SUBJECT TO AGREEMENT WITH THE APPROVING AUTHORITY.

KEY

- SITE BOUNDARY - TAKEN FROM LANDSCAPE ARCHITECT DRAWING REF: 2805-PLA-XX-XX-DR-L-1001 REV P01 LANDSCAPE GA
- EXISTING PUBLIC SEWER (APPROXIMATE)
- PROPOSED COMBINED DRAINAGE
- PROPOSED FOUL DRAINAGE
- PROPOSED SURFACE WATER DRAINAGE
- PROPOSED PERFORATED SURFACE WATER DRAINAGE
- EXISTING SURFACE WATER DRAINAGE
- EXISTING SURFACE FOUL DRAINAGE
- EXISTING DRAIN TO BE REMOVED
- PROPOSED LINEAR (SLOT) DRAINAGE CHANNEL
- PROPOSED COMBINED MANHOLE
- PROPOSED FOUL WATER MANHOLE/PPIC
- PROPOSED SURFACE WATER MANHOLE/PPIC
- PROPOSED LINEAR DRAIN ACCESS BOX
- PROPOSED LINEAR DRAIN OUTLET BOX
- PROPOSED SURFACE WATER GULLY
- PROPOSED FOUL WATER GULLY
- PROPOSED FLOW CONTROL CHAMBER
- BACK DROP
- PROPOSED RAIN GARDEN
DETAIL TBC BY LANDSCAPE ARCHITECT
- PROPOSED PERMEABLE PAVING
DETAIL
- GAS MAIN EASEMENT
- PUBLIC SEWER EASEMENT

DRAWING IS BASED ON:

- ARCHITECT - BUTTRESS DRAWING
RODSTA-BUT-ZZ-00-DP-A-01001 - Proposed Site Plan - REV P02
- LANDSCAPE ARCHITECT - LAYER STUDIO DRAWING
253-LYR-XX-ZZ-DWG-L-1001-Landscape Masterplan (RECEIVED 04/05/2022)
- TOPOGRAPHICAL & GRP UTILITY SURVEY - SURVEY OPERATION
REF: 21G134/001 AUG 2021.
- "ESP" SITE INVESTIGATION: UK21.5551 PHASE I & II
GEO-ENVIRONMENTAL ASSESSMENT - LAND OF RODNEY STREET, MANCHESTER (ISSUE 1)

P05	DRAFT STAGE 4 ISSUE	05/08/22	LK	CG
P04	ISSUED FOR PLANNING	09/06/22	LK	CG
P03	STAGE 3 ISSUE	27/05/22	LK	AR
P02	DRAFT STAGE 3 ISSUE	13/05/22	LK	CG
P01	STAGE 2	20/10/21	CG	CG

Rev:	Description:	Date:	By:	Chkd:

ISSUED FOR PLANNING

RODNEY STREET

DRAINAGE LAYOUT

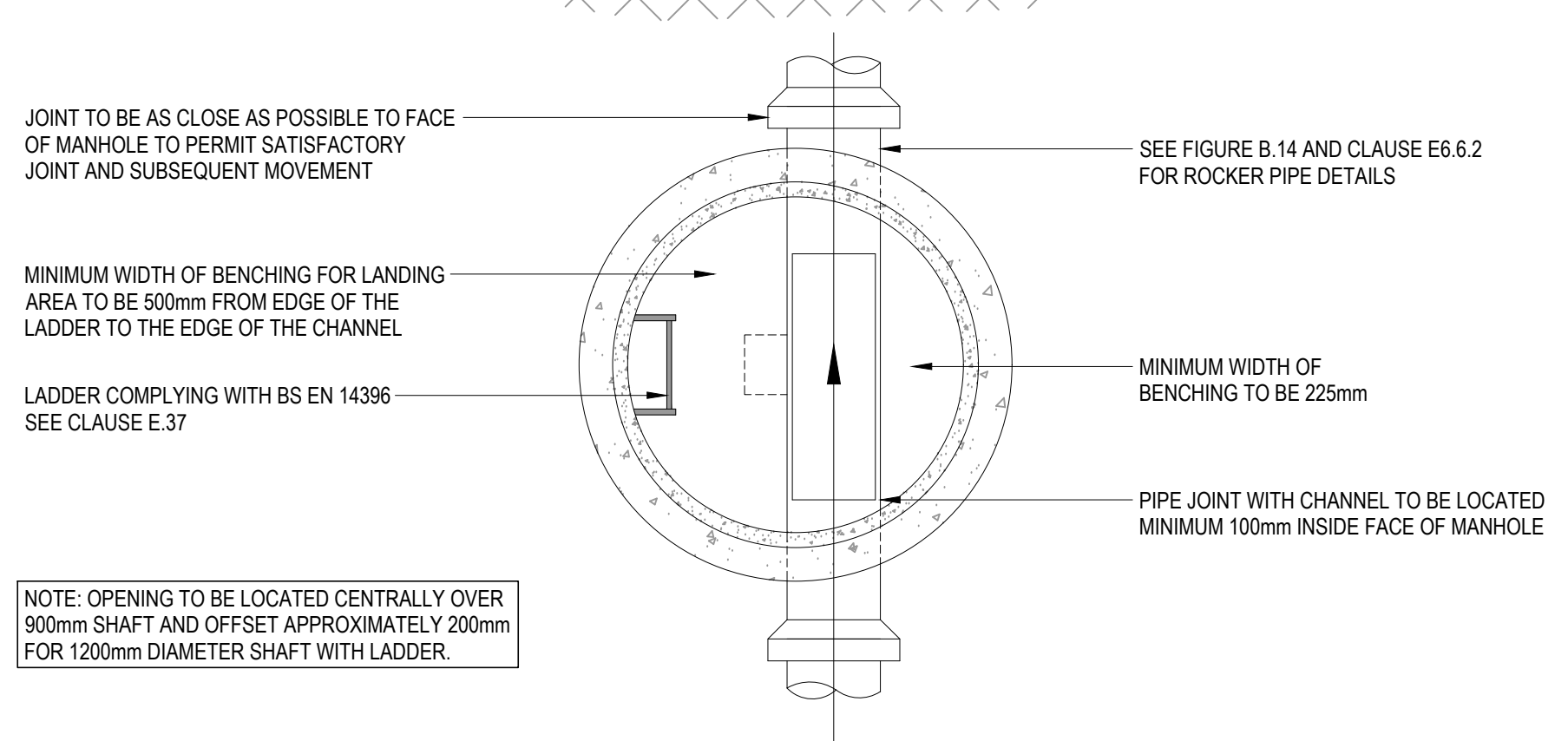
Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	20/10/21	CG	CG	CG

Scale: 1:250

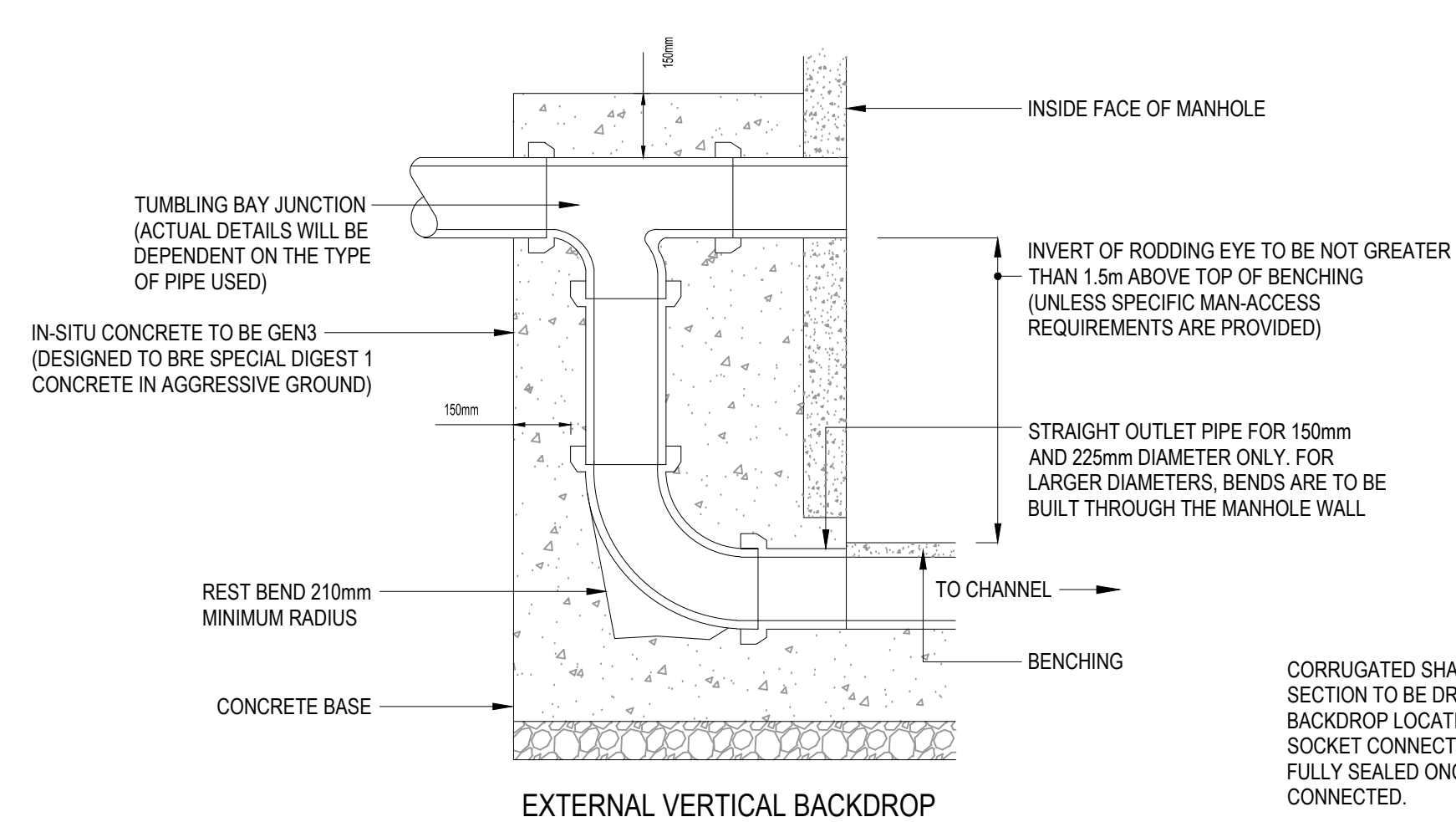
Project No:	Originator:	Volume:	Level:	Type:	Role:	Category/Number:	Rev:
RODSTA-CUR-XX-XX-DR-C-92500							P05

HAZARD REGISTER			
Hazard Ref.	Item (Feature, Element or Activity)	Potential Hazard Identified	Action (Information to Assist Control)
2.00 Side Wide Issues			
2.01	Handling / Contact with Contaminated Substances during construction / end users - site contaminants / asbestos containing material	Contamination	Intrusive Site investigation works to be undertaken - works to include testing and analyses of ground samples to determine risk from ground contaminants
2.02	Ground Gases	Contamination	Intrusive Site investigation works to be undertaken - works to include gas monitoring and analyses to determine gas regime and requirements for any gas protection measures
2.03	Ground instability during deep excavations	Trench collapse	Excavation depths to be minimised in design, assessment of excavation stability to be made within Phase 2 Report.
3.00 Existing Buried & Overhead Services			
3.01	Electrocution / explosion due to presence of services in site	Services	GPR survey to be undertaken to determine position of services
3.02	Ground Stability - Collapse of sewer crossing site	Existing Drainage	Sewer to be located and CCTV'd to assess condition
3.03	Gas main crosses site	Striking services during excavation	Gas main location and depth to be confirmed by contractor prior to works commencing.

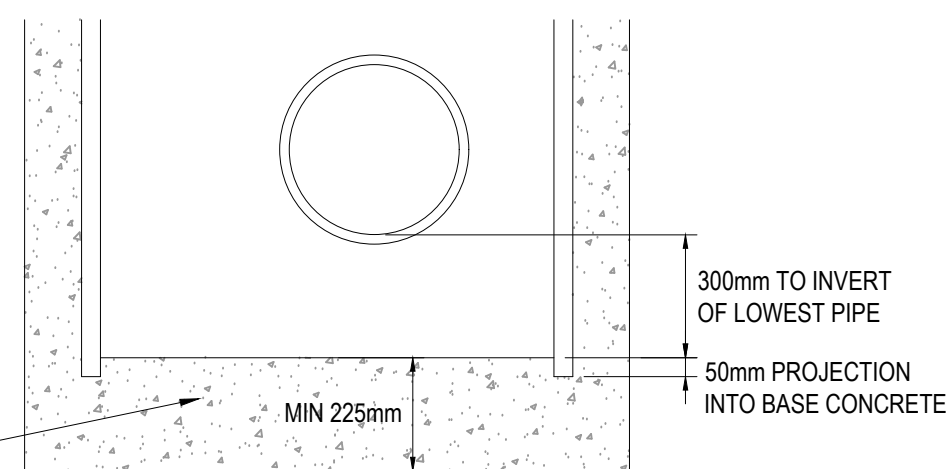
Manhole schedule																	
MH REF	CL (mAOD)	IL (mAOD)	DEPTH TO SOFFIT (m)	DS PIPE DIA (mm)	MH DIA (mm)	MH TYPE	CATCHPIT	COVER SIZE (mm)	COVER CLASS	COVER TYPE	RECESSED	RESTRICTED ACCESS	BACK DROP	Back drop IL (mAOD)	COMMENTS	EASTING	NORTHING
Foul Water																	
F01	51.745	50.845	0.75	150	450	PPIC	N	450X450	D400	DOUBLE SEALED	SUBJECT TO ARCHITECT CONFIRMATION	N	N	N/A	UNRESTRICTED;	385272.829	398983.465
F02	51.860	50.452	1.26	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385286.887	398990.537
F03	51.890	50.702	1.04	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385300.517	398996.721
F04	51.855	50.452	1.25	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385290.631	398991.922
F05	51.895	50.402	1.34	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385288.810	398991.039
F06	51.735	50.995	0.59	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385308.028	398979.116
F07	51.740	50.995	0.60	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385305.954	398978.723
F08	51.770	50.995	0.63	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385301.209	398976.588
F09	51.725	49.924	1.65	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385297.140	398973.846
F10	51.735	50.525	1.06	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385267.328	398970.385
F11	51.720	50.288	1.28	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385271.630	398961.678
F12	51.785	50.585	1.05	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385278.817	398965.904
F13	51.810	50.585	1.08	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385285.616	398969.770
F14	51.800	50.585	1.07	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385286.401	398970.150
F15	51.790	50.585	1.06	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385292.043	398972.884
F16	51.790	50.585	1.06	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385292.744	398973.223
F17	51.730	49.817	1.76	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385293.259	398971.971
F18	51.500	50.300	1.05	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385283.003	398946.897
F19	51.520	50.300	1.07	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385287.390	398948.634
F20	51.520	50.300	1.07	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385291.160	398951.330
F21	51.520	50.300	1.07	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385297.038	398955.532
F22	51.525	50.300	1.08	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385297.857	398956.118
F23	51.520	50.300	1.07	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385299.425	398957.193
F24	51.490	49.455	1.89	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385300.994	398959.764
F25	51.490	50.320	1.02	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385324.658	398953.785
F26	51.500	50.320	1.03	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385322.981	398953.713
F27	51.540	50.320	1.07	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385317.540	398949.472
F28	51.530	50.320	1.06	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385316.720	398948.900
F29	51.520	50.320	1.05	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385315.995	398948.336
F30	51.460	49.955	1.36	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385312.737	398944.640
F31	51.550	50.350	1.05	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385309.529	398943.626
F32	51.625	48.795	2.68	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385301.126	398935.965
F33	51.560	50.360	1.05	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385302.922	398931.748
F34	51.415	48.640	2.63	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385307.588	398925.302
F35	51.140	50.240	0.75	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385334.881	398934.597
F36	51.200	50.125	0.93	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385330.931	398932.238
F37	51.200	50.030	1.02	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385327.686	398930.300
F38	51.130	49.905	1.08	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385323.372	398927.722
F39	51.200	49.802	1.25	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385319.851	398925.620
F40	51.155	49.622	1.38	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385313.647	398921.914
F41	51.215	49.512	1.55	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385309.889	398919.670
F42	51.140	49.453	1.54	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385305.837	398917.249
F43	51.140	49.398	1.59	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385302.092	398915.012
F44	51.210	49.346	1.71	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385298.527	398912.883
F45	51.250	50.050	1.05	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385282.683	398928.66
F46	51.140	49.908	1.08	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385285.752	398923.354
Surface Water																	
S01A	51.700	50.723	0.83	150	450	PPIC	N	450X450	D400	SINGLE SEALED	SUBJECT TO ARCHITECT CONFIRMATION	N	N	N/A	UNRESTRICTED;	385265.987	398971.553
S01	51.700	50.446	1.10	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385262.969	398982.194
S02	51.710	50.282	1.28	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385270.343	398985.812
S03	51.790	50.125	1.52	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385278.825	398989.898
S04B	51.885	50.354	1.38	150	450	PPIC	Y	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385295.245	398995.555
S04A	51.885	50.214	1.52	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385300.285	398998.012
S04	51.900	50.162	1.59	150	450	PPIC	Y	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385299.384	398999.871
S05	51.885	49.845	1.82	225	1200	TYPE B	N	600X600	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385292.83	398993.634
S06	51.774	49.654	1.90	225	600	PPIC	N	600X600	D400			N	N	N/A	UNRESTRICTED;	385301.06	398976.388
S07	51.600	49.577	1.80	225	600	PPIC	N	600X600	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385301.974	398968.751
S08	51.550	50.500	0.90	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385283.171	398949.134
S09	51.570	50.300	1.12	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385289.682	398953.752
S10	51.560	50.510	0.90	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385315.414	398973.908
S11	51.510	50.174	1.19	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385305.324	398965.045
S12	51.514	49.445	1.77	300	1200	TYPE B	N	600X600	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385302.561	398963.059
S13	51.500	50.450	0.90	150	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385298.72	398935.27
S14	51.408	49.264	1.84	300	1200	TYPE B	N	600X600	D400			N	N	N/A	UNRESTRICTED;	385316.529	398945.213
S15	51.040	49.990	0.95	100	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385303.995	398902.745
S16	51.080	49.732	1.25	100	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385315.049	398909.347
S17	51.070	49.986	0.98	100	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385342.939	398925.94
S18	51.140	49.728	1.31	100	450	PPIC	N	450X450	D400			N	N	N/A	UNRESTRICTED;	385334.052	398920.698
S19	51.070	49.533	1.39	150	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385323.584	398914.445
S20	51.100	49.871	1.13	100	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385296.058	398911.999
S21	51.220	49.550	1.57	100	450	PPIC	N	450X450	D400			Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385307.086	398918.586
S22	51.130	49.243	1.74	150	450	PPIC	N	450X450	D400	Y	N	N/A	RESTRICTED ACCESS 350mm DIA MAX;	385317			



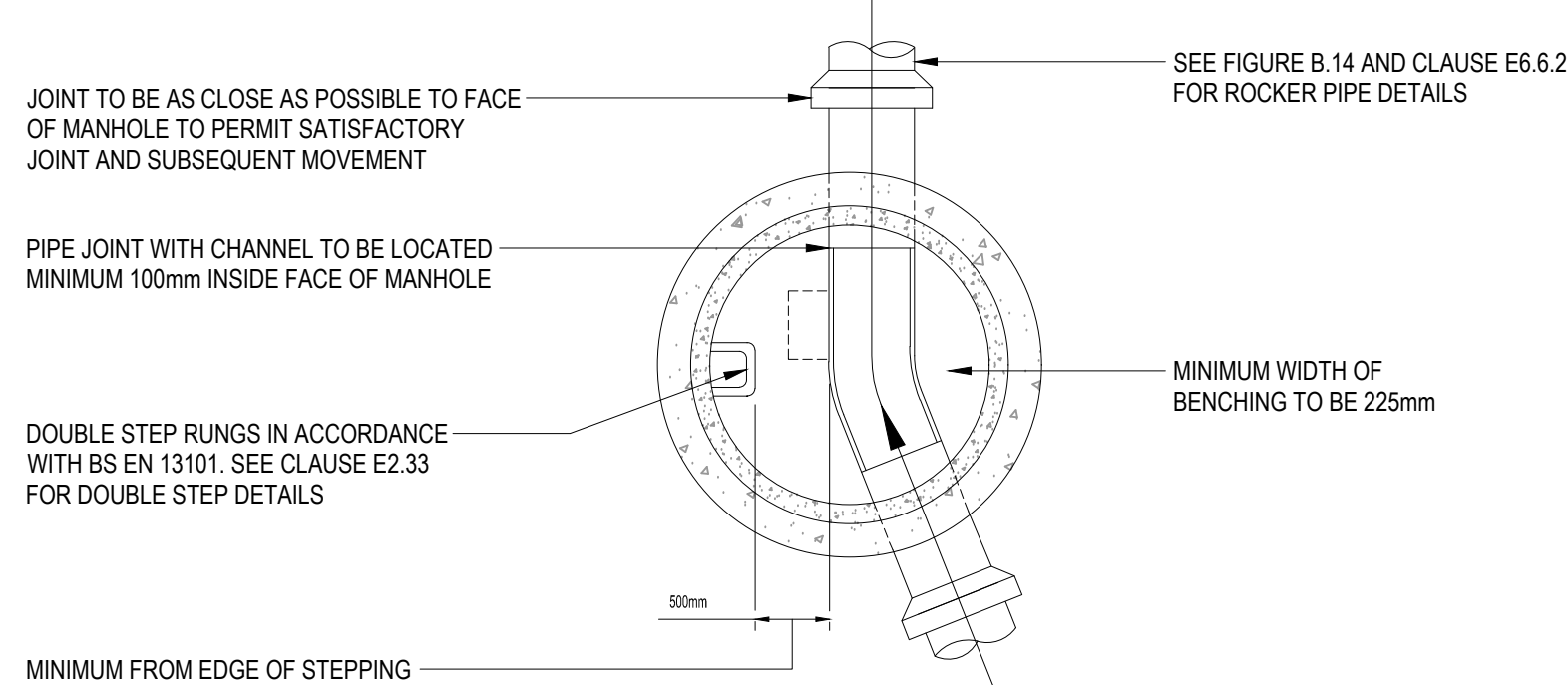
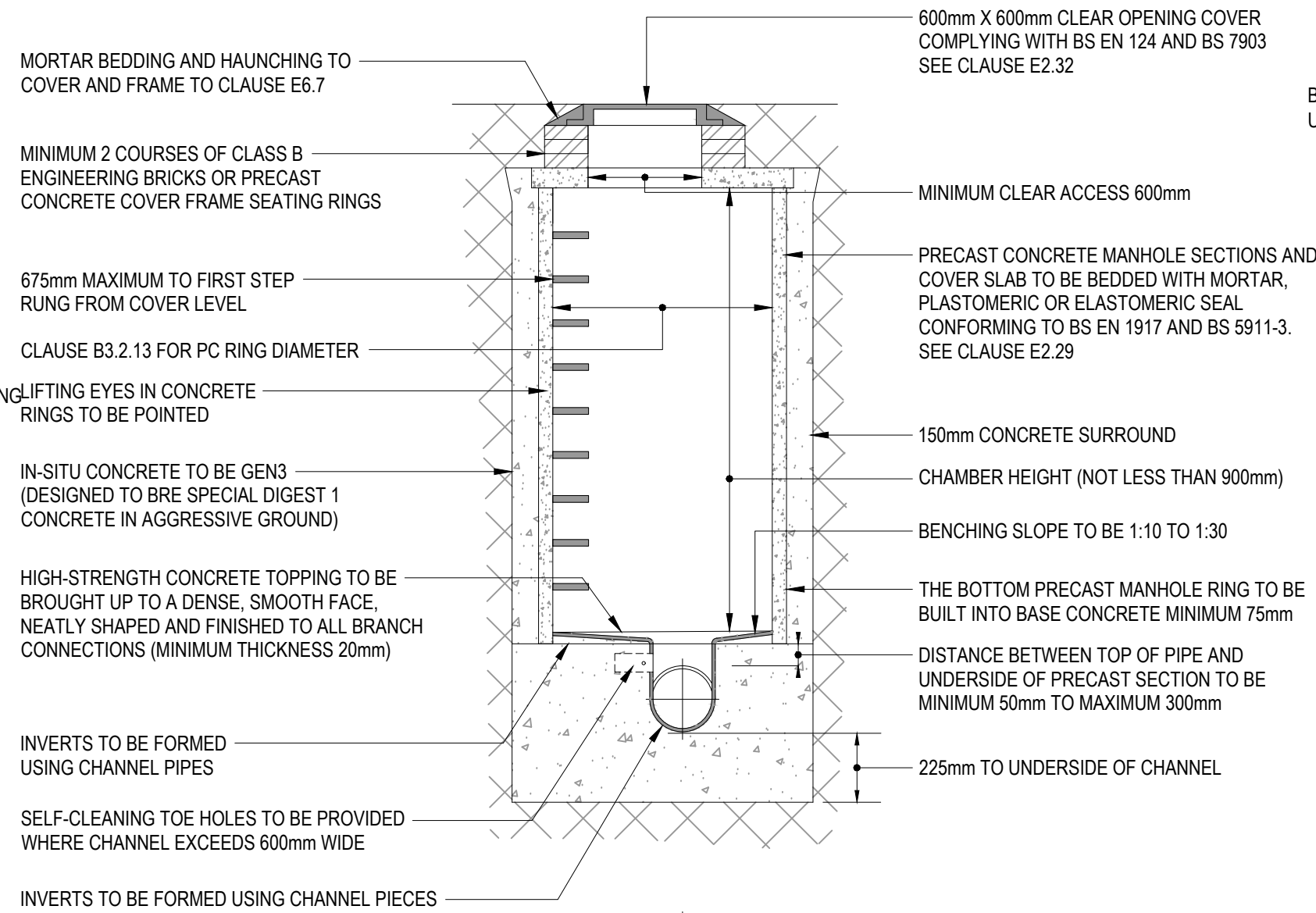
TYPICAL MANHOLE DETAIL - TYPE A1/2
(DEPTH FROM COVER TO SOFFIT OF PIPE 3m TO 6m)



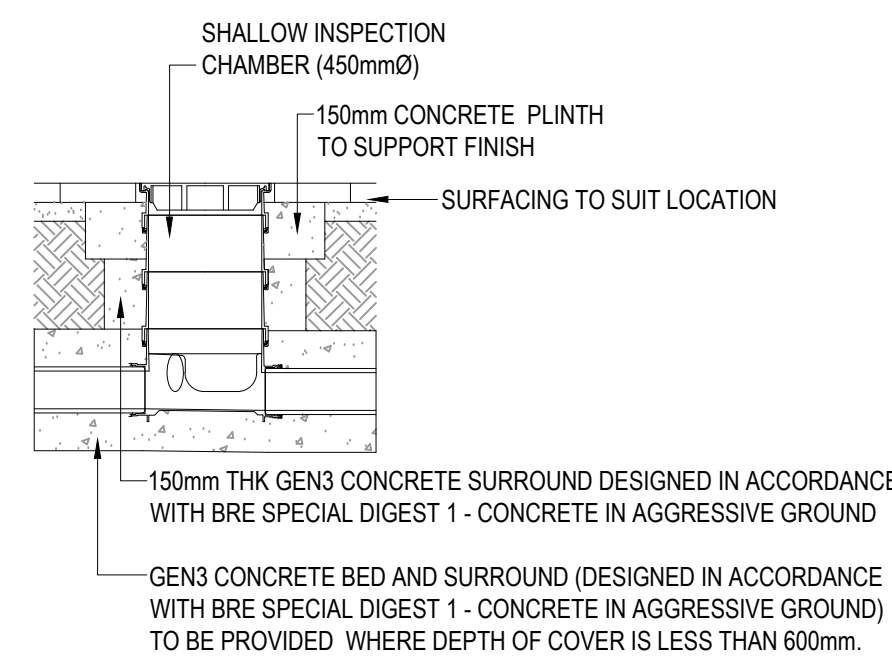
EXTERNAL VERTICAL BACKDROP



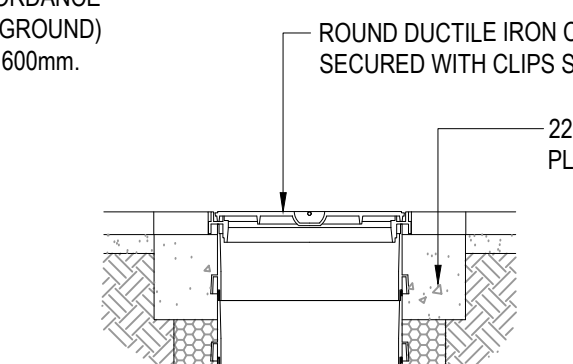
CATCH PIT DETAIL



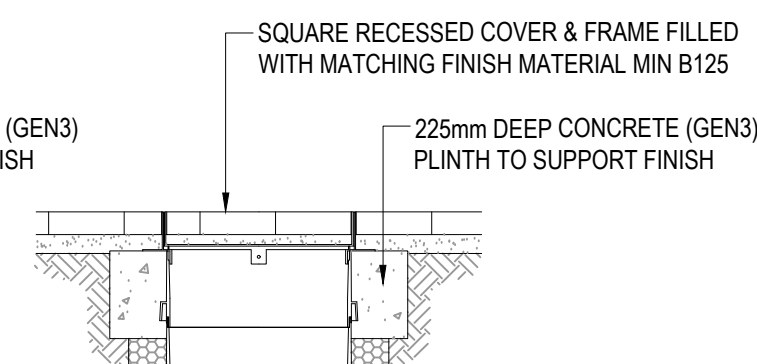
TYPICAL MANHOLE DETAIL - TYPE B
(MAXIMUM DEPTH FROM COVER TO SOFFIT OF PIPE 3.0 m)



SHALLOW INSPECTION CHAMBER
MAX DEPTH 0.6m

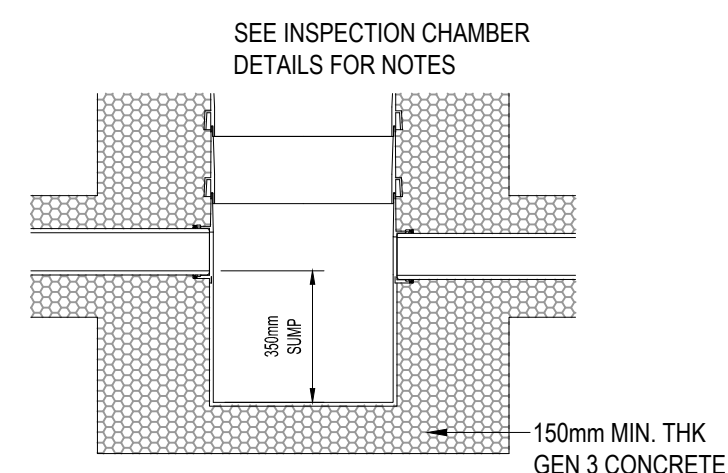


SITED IN HARD LANDSCAPED AREAS
WITH STANDARD ROUND COVER

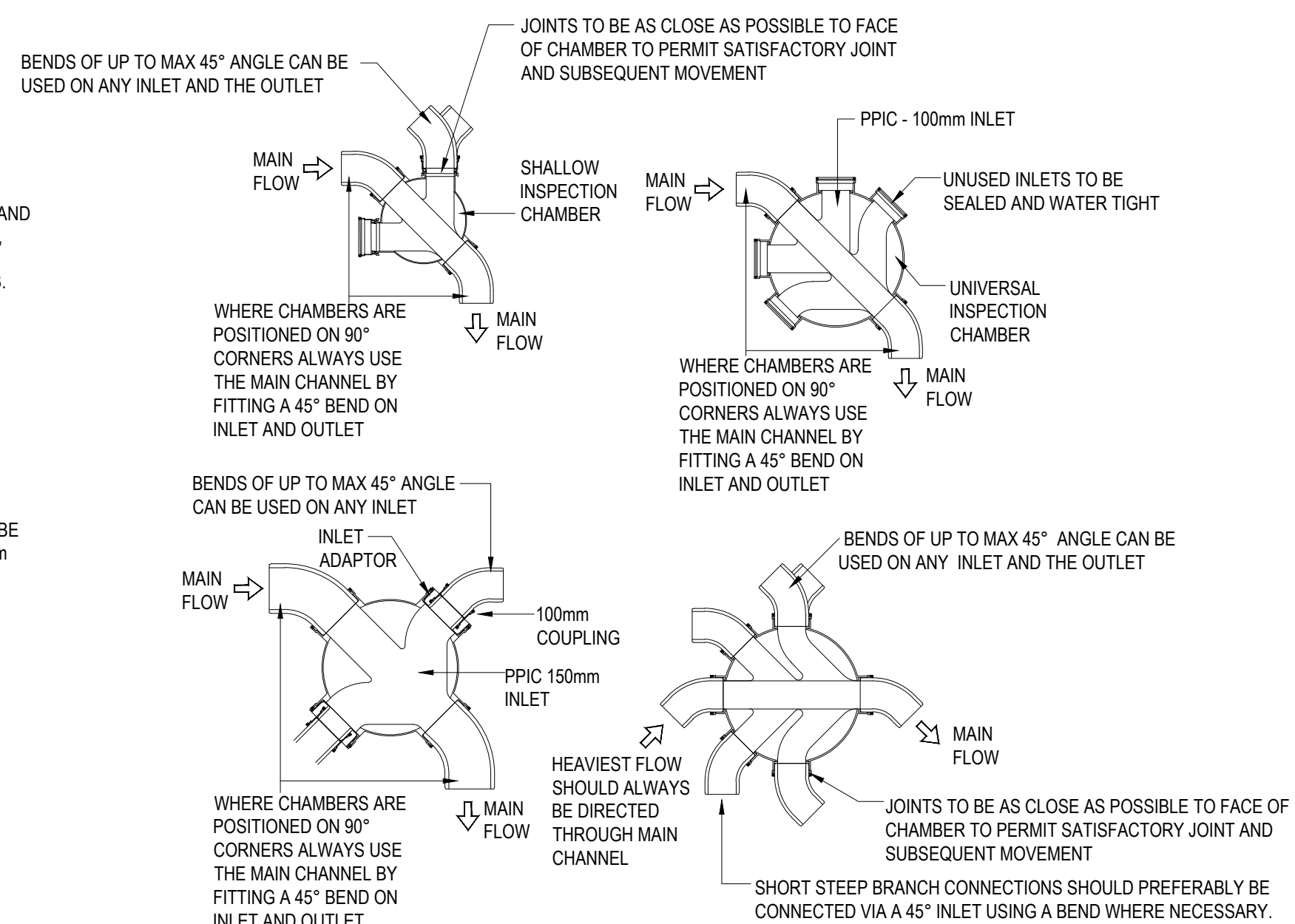


SITED IN HARD LANDSCAPED AREAS
WITH RECESSED COVER

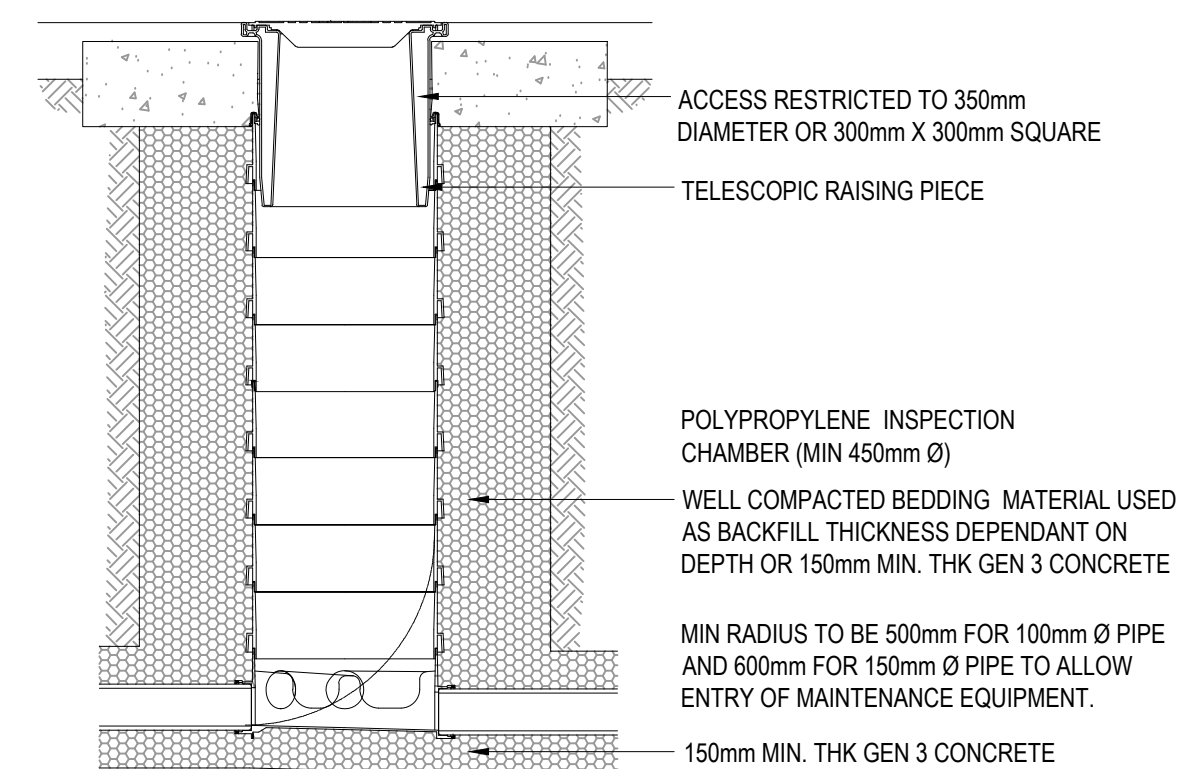
TYPICAL INSPECTION CHAMBER COVER DETAILS



PPIC CATCHPIT BASE
DETAIL



INSPECTION CHAMBER BASE DETAILS



DEEP INSPECTION CHAMBER
DEPTHS BETWEEN 1.2m AND 3.0m

GENERAL NOTES:	
----------------	--

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. 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.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
4. REFER TO DRAWING RODSTA-CUR-XX-XX-DR-C-92530_GENERAL DRAINAGE NOTES.

P02	DRAFT STAGE 4 ISSUE	05/08/22	LK	CG
P01	STAGE 3 ISSUE	31/05/22	LK	CG
Rev:	Description:	Date:	By:	Chkd:



Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 236 2394
manchester@curtins.com
www.curtins.com

Civil & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer
Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Harlow • Leeds • Liverpool • London • Manchester • Nottingham

Status: **SUITABLE FOR INFORMATION** **S2**

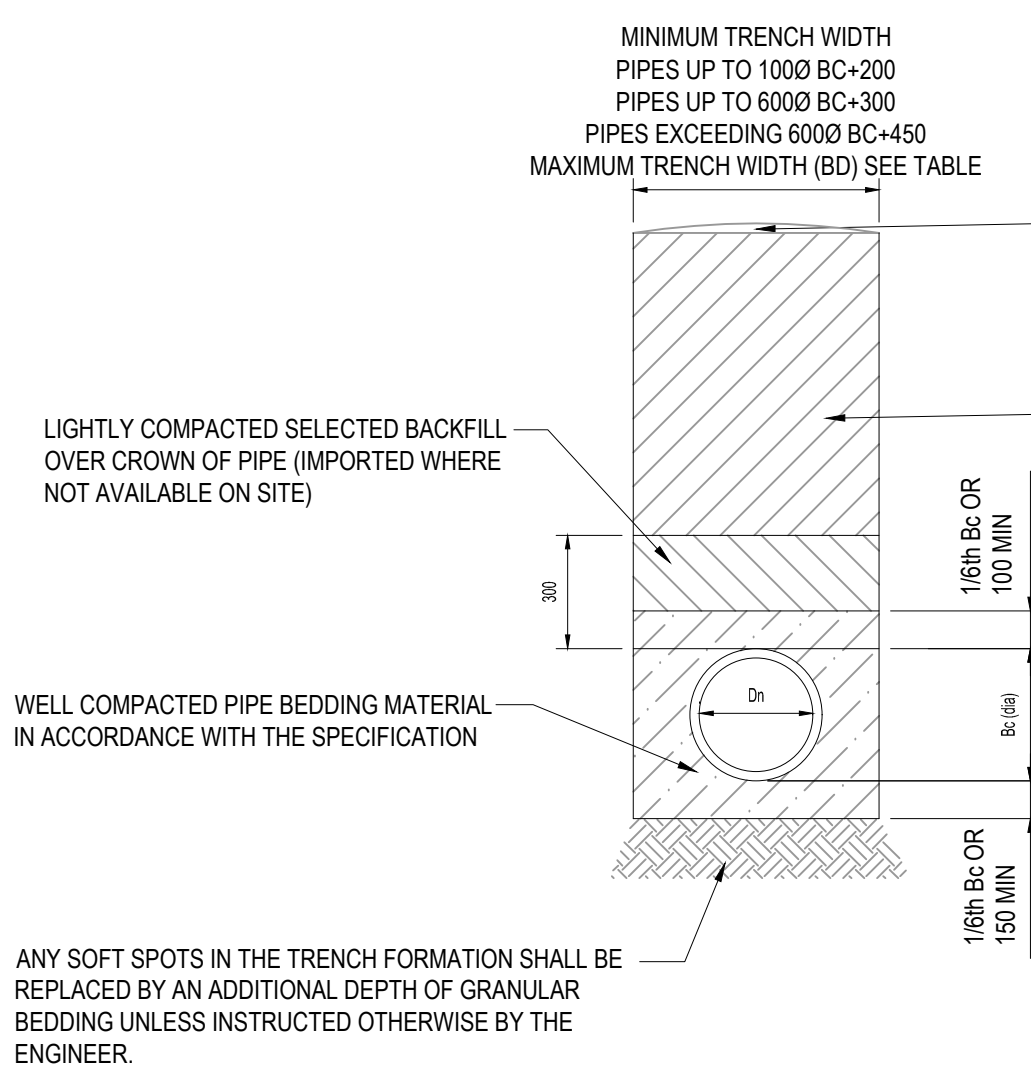
Project: **RODNEY STREET**

Dwg Title:

TYPICAL DRAINAGE DETAILS
SHEET 1

Size:	Date:	Drawn By:	Designed By:	Checked By:			
A1	27/05/22	LK	CG	CG			
Scale: 1:20							
Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:

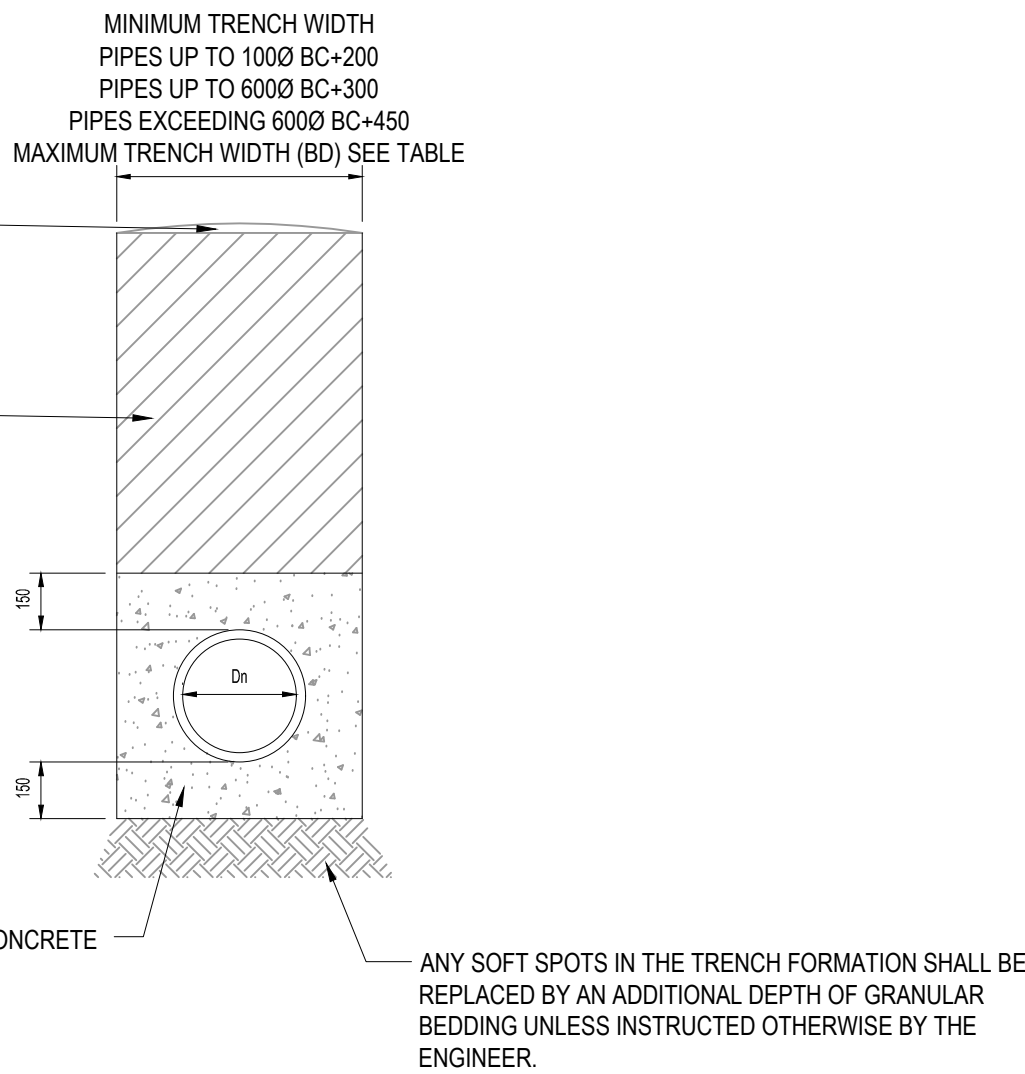
RODSTA - CUR - XX - XX - DR - C - 92520 - P02



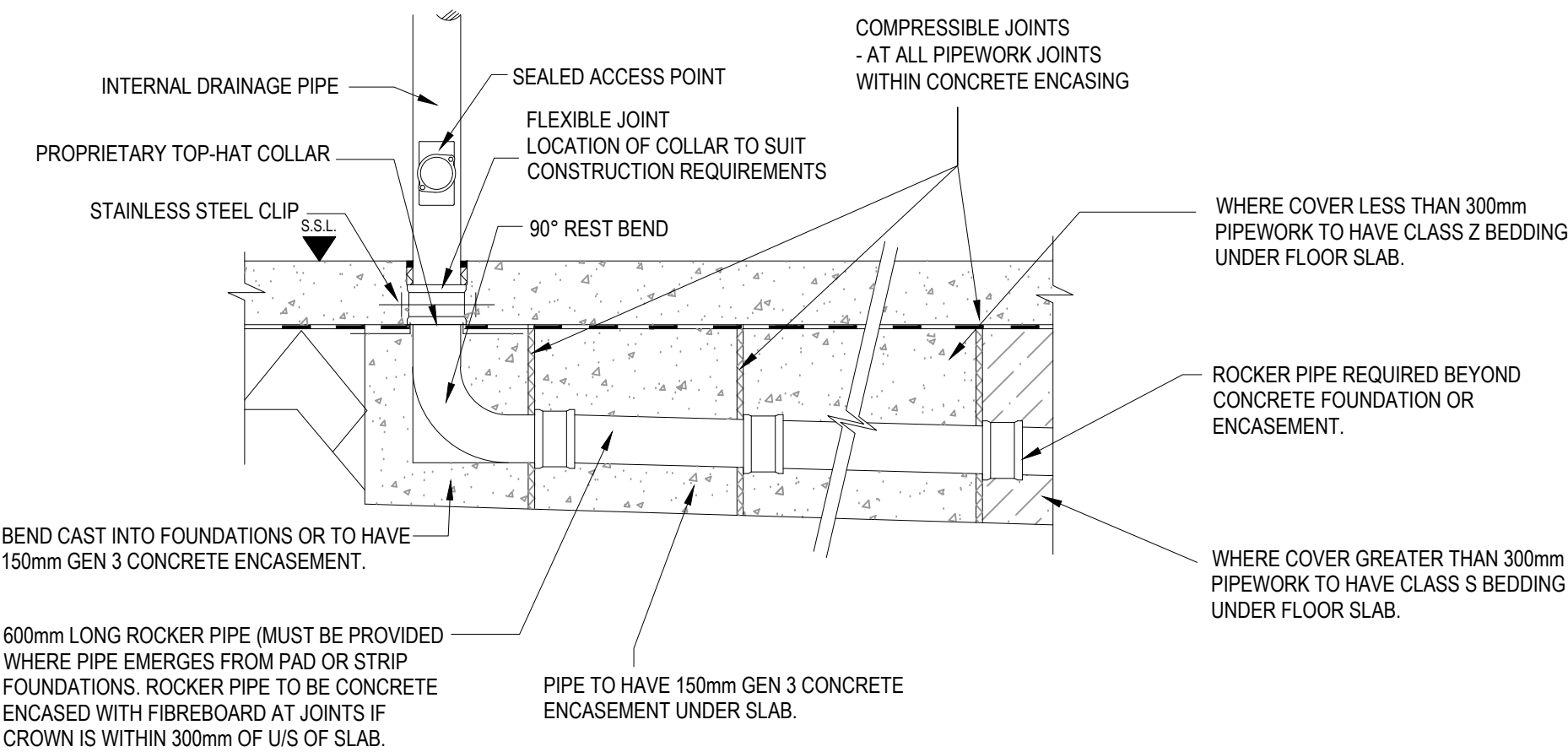
CLASS S - 360° GRANULAR SURROUND PIPE BEDDING DETAIL

THE FLEXIBLE JOINTS IN THE PIPES SHALL BE MAINTAINED AT THE END OF EACH PIPE WITH COMPRESSIBLE SHEET CUT ACCURATELY TO FIT THE PIPE PROFILE TO BREAK THE CONCRETE SURROUND	
Dn	Bd
150	0.6
225	0.7
300	0.85
375	1.05
450	1.15
525	1.25
600	1.35
675	1.45
750	1.50

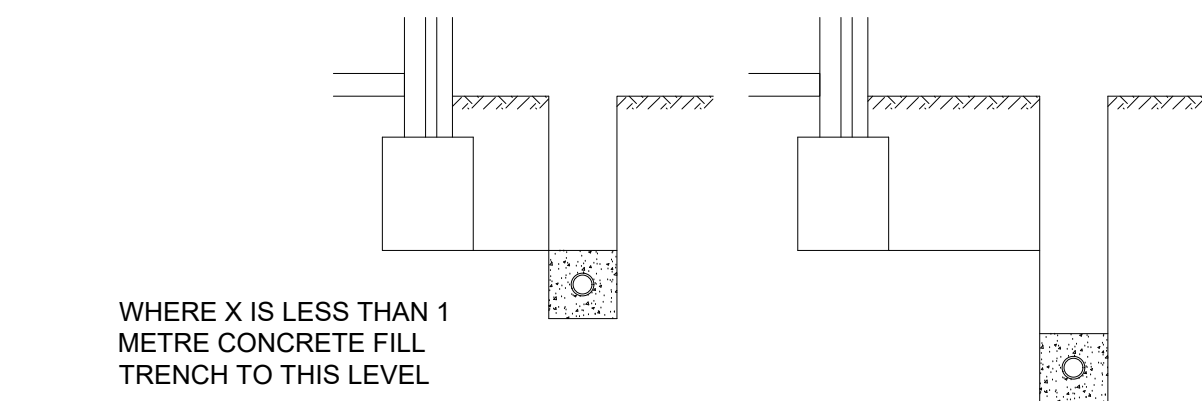
MAXIMUM TRENCH WIDTH



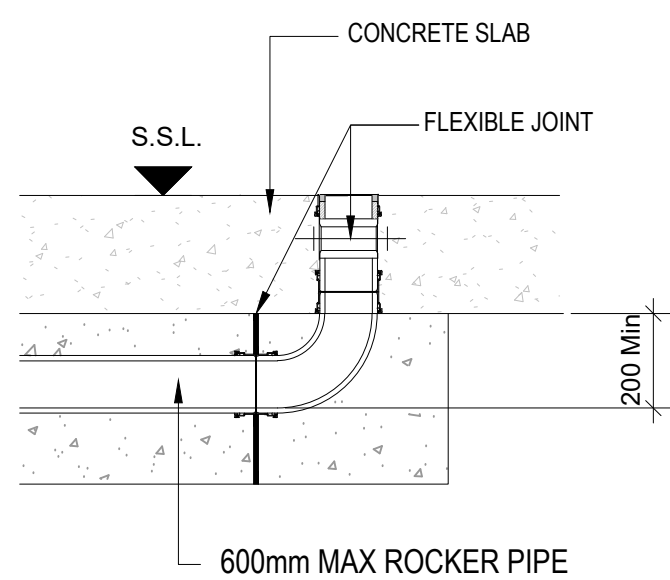
CLASS Z - CONCRETE BED AND SURROUND PIPE BEDDING DETAIL
(COVER < 900mm IN VEHICULAR LOADING AND OPEN FIELD.
COVER < 600mm ELSEWHERE EXCEPT UNDER BUILDINGS.)



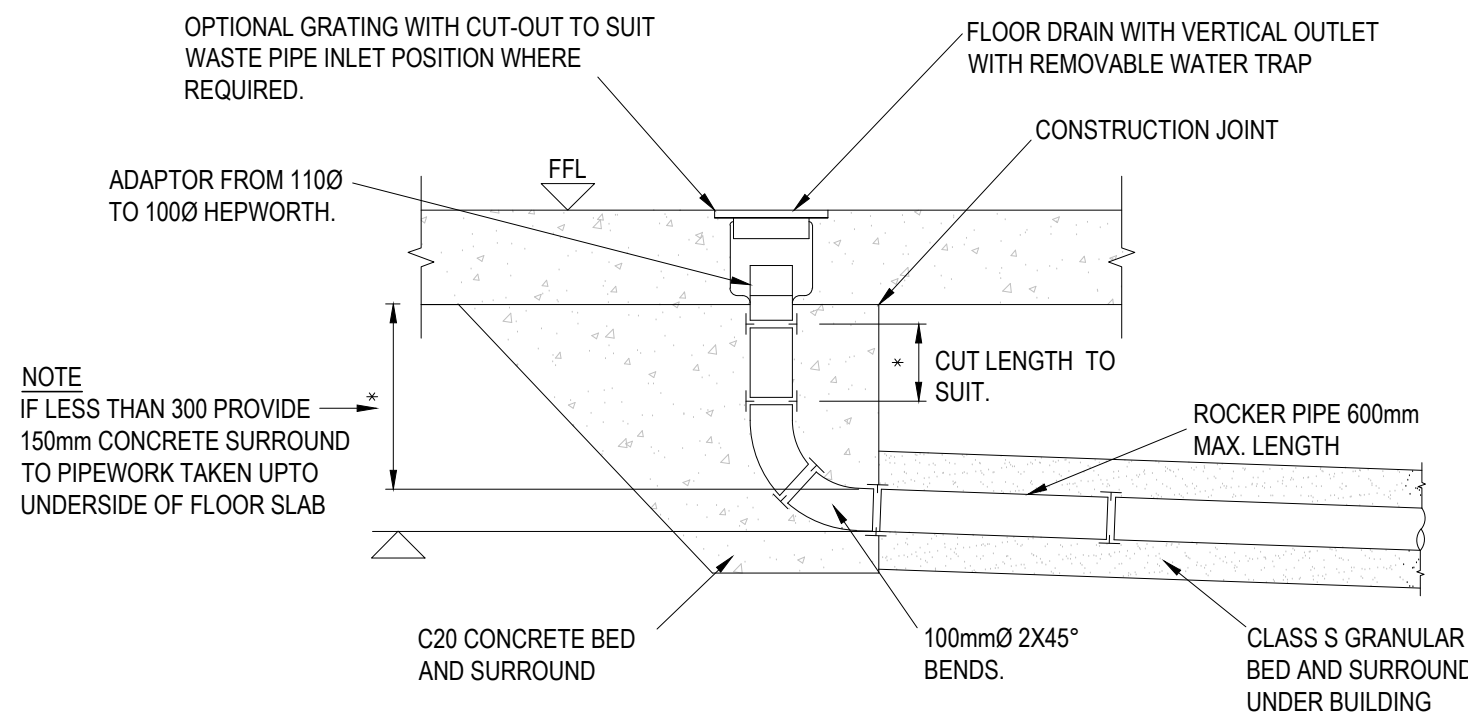
DRAINAGE UNDER BUILDINGS



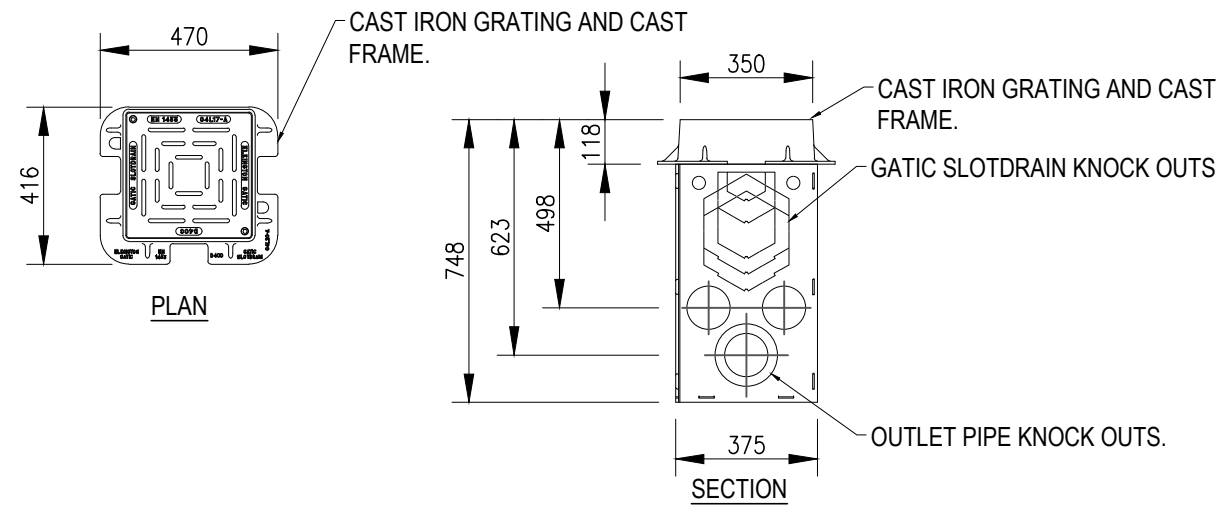
TYPICAL DETAILS WHERE DRAINAGE TRENCH IS DEEPER THAN FOUNDATIONS
(SCALE 1:20)



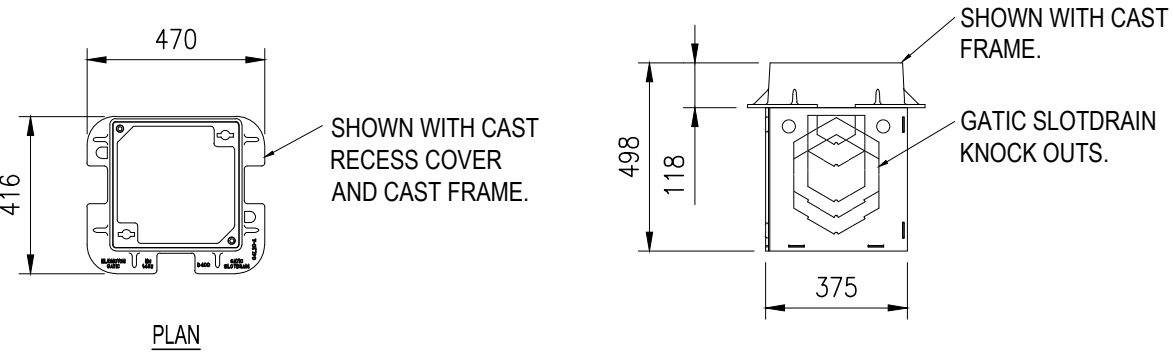
TYPICAL SECTION THROUGH SLAB
(100mmØ downpipe)



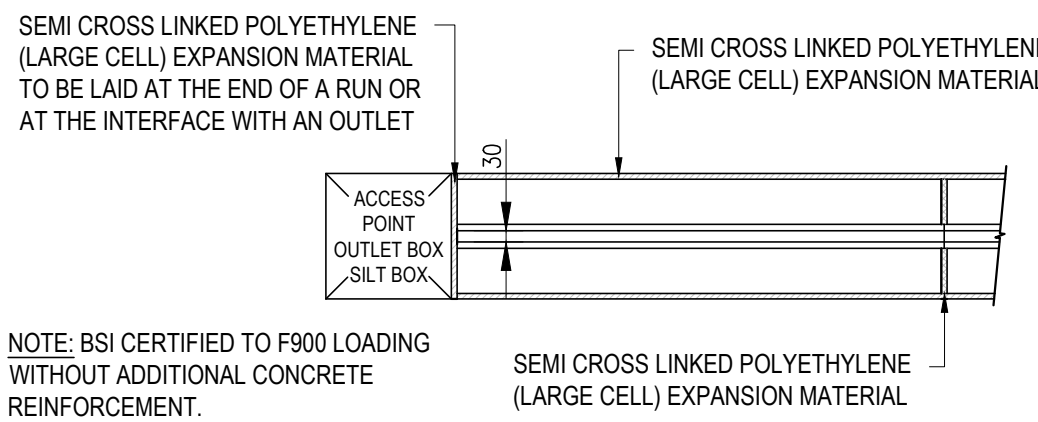
INTERNAL FLOOR DRAIN



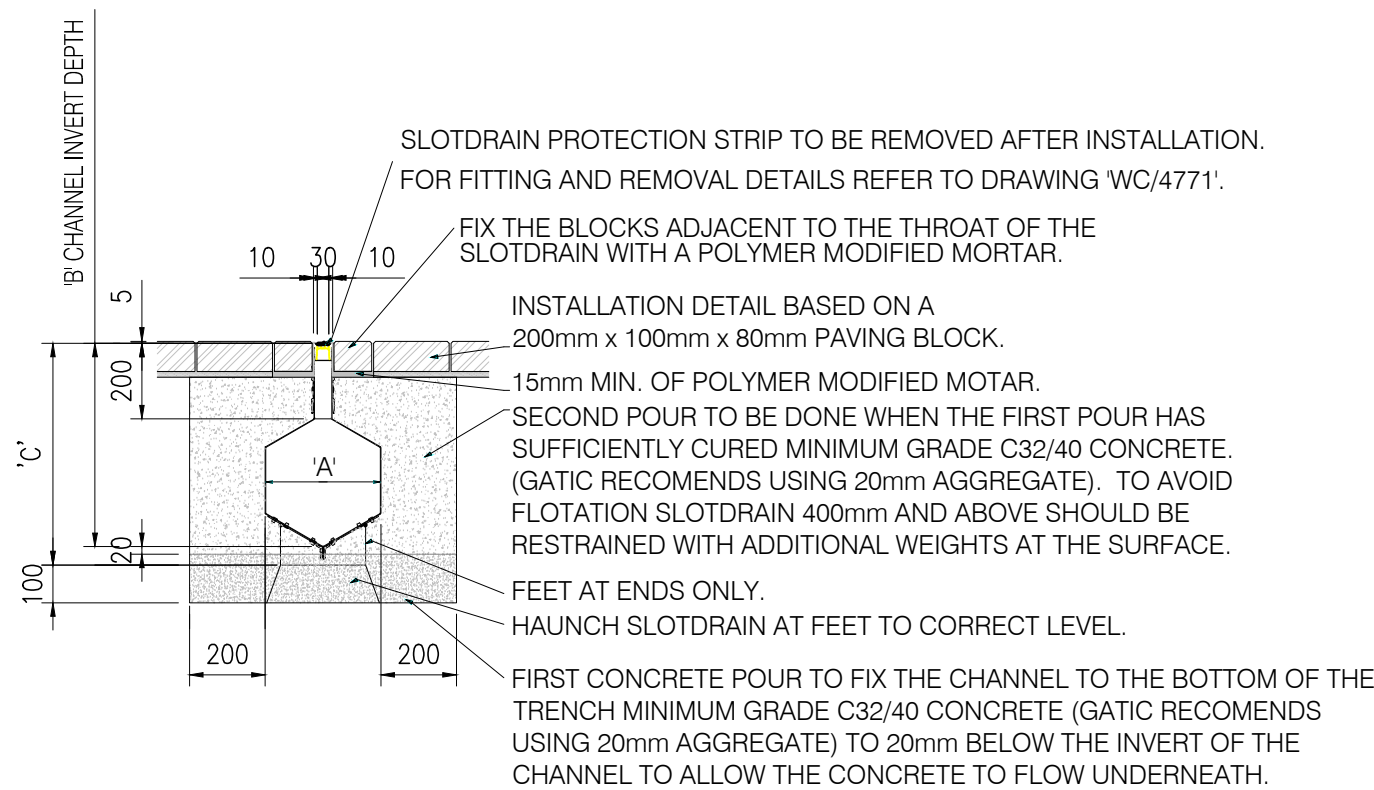
GATIC SLOT DRAIN 350mm OUTLET UNIT
SECTION AND PLAN DETAILS



350 ACCESS BOX
SECTION AND PLAN DETAILS



GATIC PLAN DETAIL



GATIC SLOT DRAIN TREADSAFE BLOCK
PAVING INSTALLATION

CASTSLOT TREADSAFE SLOT DRAIN						
WIDTH 'A'	INVERT 'B'	DEPTH 'C'	C.S.A.	3m PART No.	1m PART No.	500mm PART No.
100	308	357	9098	CAT00001	CAT00009	CAT00017
150	366	415	20325	CAT00002	CAT00010	CAT00018
225	452	501	45014	CAT00003	CAT00011	CAT00019
300	538	587	79311	CAT00004	CAT00012	CAT00020
350	596	645	107867	CAT00005	CAT00013	CAT00021
400	652	712	139608	CAT00006	CAT00014	CAT00022
500	768	828	218267	CAT00007	CAT00015	CAT00023
600	1031	1091	400705	CAT00008	CAT00016	CAT00024

FOR CHANNEL WIDTHS - SEE PLAN

GENERAL NOTES:

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
- 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.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- REFER TO DRAWING RODSTA-CUR-XX-XX-DR-C-92530_GENERAL DRAINAGE NOTES.

P02	DRAFT STAGE 4 ISSUE	05/08/22	LK	CG
P01	STAGE 3 ISSUE	31/05/22	LK	CG
Rev:	Description:	Date:	By:	Chkd:

curtins

Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 235 2394
manchester@curtins.com
www.curtins.com

Civils & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer
Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kentish • Leeds • Liverpool • London • Manchester • Nottingham

Status:	SUITABLE FOR INFORMATION	S2
---------	--------------------------	----

Project:	RODNEY STREET
----------	---------------

Orig Title:	TYPICAL DRAINAGE DETAILS SHEET 2
-------------	-------------------------------------

Size:	Date:	Drawn By:	Designed By:	Checked By:			
A1	27/05/22	LK	CG	CG			
Scale: 1:20							
Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev: