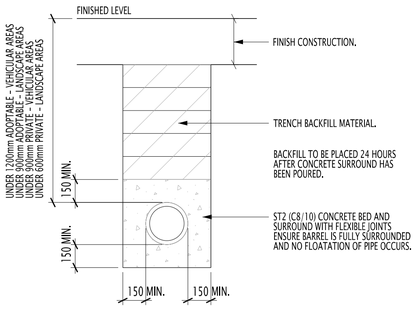
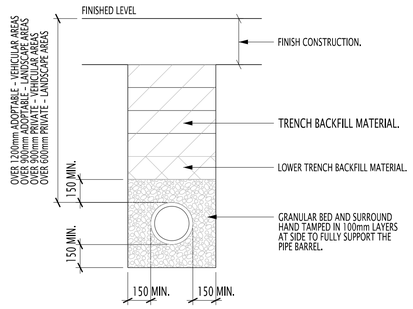


CLASS Z



CLASS S

TYPICAL PIPE BEDDING DETAILS

TRENCH BACKFILL MATERIAL

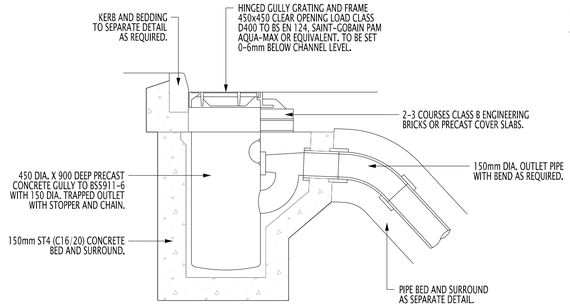
WELL COMPACTED SELECTED FILL MATERIAL (150mm LAYERS) FREE FROM STONES AND LUMPS OF CLAY RETAINED ON A 40MM SIEVE AND FREE FROM TIMBER, ORGANIC MATTER, FROZEN MATERIAL AND ALL OTHER DELETERIOUS MATERIALS. COMPLIANT WITH CLASS 1, 2 OR 3 MATERIAL TO TABLE 6/1 OF THE SPECIFICATION FOR HIGHWAY WORKS VOLUME 1 SERIES 600 TABLE 6/1 AND COMPACTED IN ACCORDANCE WITH TABLE 6/4 AND CLAUSE 612.
ALTERNATIVELY CLASS 6F1 OR 6F2 MAY BE UTILISED.

LOWER TRENCH BACKFILL MATERIAL

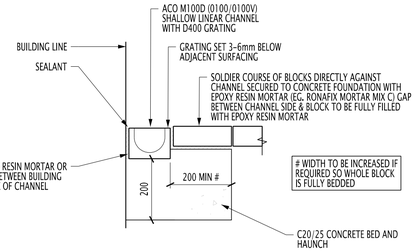
150MM OF LIGHTLY COMPACTED SELECTED FILL MATERIAL FREE FROM STONES AND LUMPS OF CLAY RETAINED ON A 40MM SIEVE AND FREE FROM TIMBER, ORGANIC MATTER, FROZEN MATERIAL AND ALL OTHER DELETERIOUS MATERIALS. COMPLIANT WITH CLASS 8 MATERIAL TO TABLE 6/1 OF THE SPECIFICATION FOR HIGHWAY WORKS VOLUME 1 SERIES 600 TABLE 6/1 AND COMPACTED BY HAND.

GRANULAR BED AND SURROUND MATERIAL

	GRANULAR MATERIAL SIZE	
PIPE SIZE (mm)	SINGLE SIZE (mm)	COARSE GRADED (mm)
100/110	10	N/A
150/160	10 or 14	14/5
161 to 300	10 or 14 or 20	14/5 or 20/5
301 to 550	14 or 20	14/5 or 20/5
ABOVE 551	14 or 20 or 40	14/5 or 20/5 or 40/5

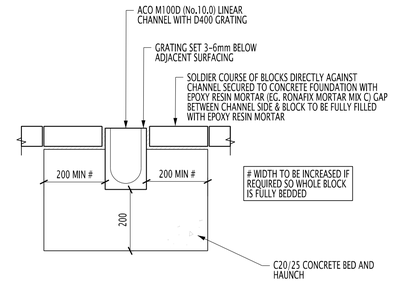


ROAD GULLY DETAIL



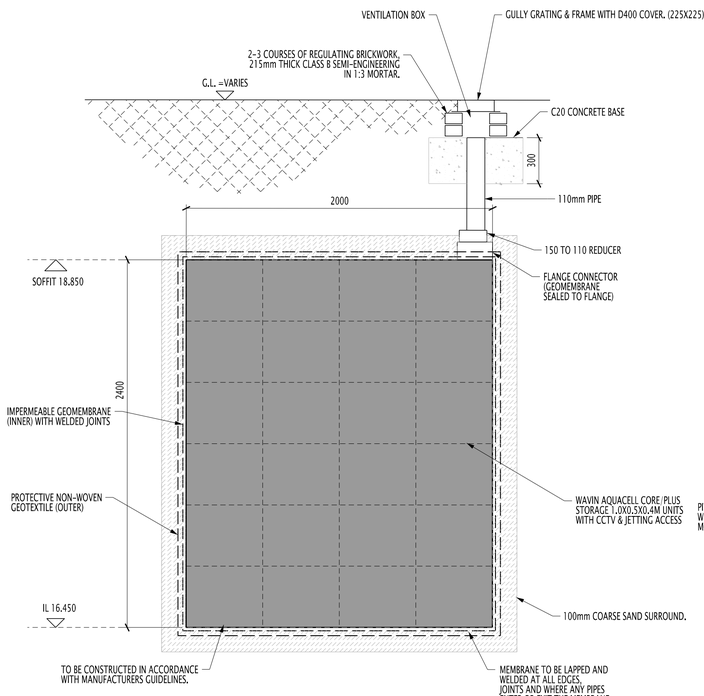
CHANNEL DRAIN AGAINST BUILDING

SCALE 1:10



CHANNEL DRAIN ACROSS ENTRANCE

SCALE 1:10



BACKFILL SPECIFICATION

NON TRAFFICKED AREAS: CAN BE BACKFILLED WITH SELECTED DUG MATERIAL FREE FROM SHARP MATERIALS OR GRAVEL ABOVE 75MM DIAMETER. TO BE COMPACTED TO 90% MAXIMUM DRY DENSITY.
A MINIMUM OF 300MM WORKING SPACE WILL BE REQUIRED AROUND THE UNITS TO ALLOW COMPACTION.

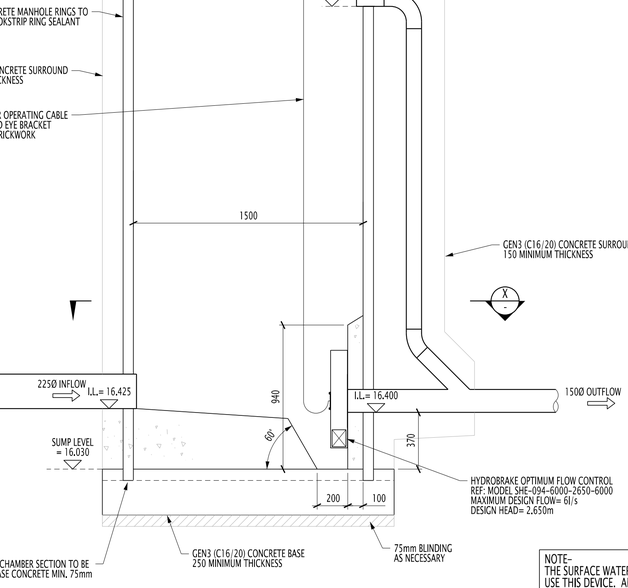
TRAFFICKED AREAS: TO BE BACKFILLED WITH TYPE 1 OR TYPE 2 MATERIAL AS DEFINED IN THE SPECIFICATION FOR HIGHWAY WORKS TABLE 6/1 OR 8/1 AND TAKING INTO ACCOUNT THE RECOMMENDED MAXIMUM ROLLER WEIGHT.

NOTES

300G PROTECTIVE NON-WOVEN GEOTEXTILE SUITABLE IN MOST SITUATIONS, WHERE SOILS EXHIBIT A HIGH DEGREE OF FINES OR CONTAMINATION CONTRACTOR SHOULD SEEK FURTHER ADVICE.

THE USE OF A ROBUST GEOMEMBRANE NO LESS THAN 1MM IN THICKNESS IS RECOMMENDED TO ENSURE THE INTEGRITY OF THE UNITS.

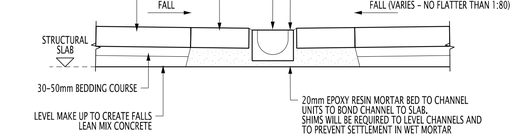
ATTENUATION TANK DETAIL



SECTION THROUGH HYDROBRAKE MANHOLE

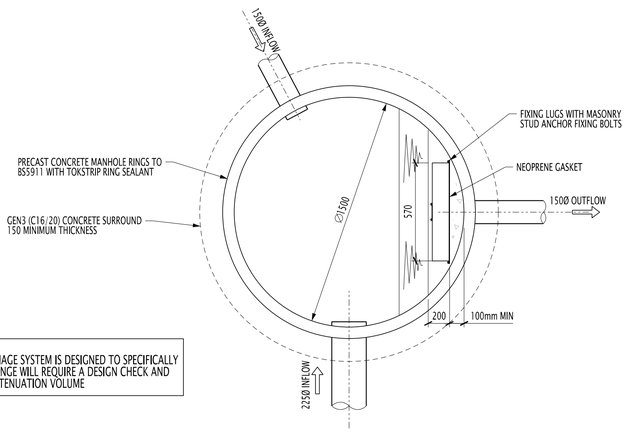
ALTERNATIVELY PRECAST HUDROBRAKE CHAMBER MAY BE UTILISED

NOTE-
THE SURFACE WATER DRAINAGE SYSTEM IS DESIGNED TO SPECIFICALLY USE THIS DEVICE. ANY CHANGE WILL REQUIRE A DESIGN CHECK AND POTENTIAL INCREASE IN ATTENUATION VOLUME

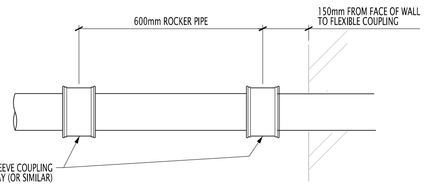


LINEAR CHANNEL DETAIL OVER BASEMENT

SCALE 1:10



SECTION X HYDROBRAKE MANHOLE



TYPICAL ROCKER PIPE DETAIL

NOTES
UNLESS STATED OTHERWISE, THIS DRAWING IS TO BE REFERRED TO FOR SERVICES WORKS ONLY.

THE CONTRACTOR IS TO CHECK ALL DIMENSIONS AND EXISTING AND PROPOSED LEVELS PRIOR TO THE START OF WORKS, AND ANY ERRORS REPORTED TO THE ENGINEERS.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE LATEST ARCHITECTS AND STRUCTURAL ENGINEERS DRAWINGS.

NOTES

1. THE CONTRACTOR MUST CHECK THE SIZE, LOCATION AND LEVELS OF ALL DRAINAGE OUTFALLS PRIOR TO CONSTRUCTION OF ANY DRAINAGE, UNLESS OTHERWISE AGREED, TO ENSURE THE PROPOSED DESIGN MAY BE ACHIEVED.
2. ALL PRIVATE DRAINAGE WORKS TO BE IN ACCORDANCE WITH PART H OF THE CURRENT BUILDING REGULATIONS AND BS EN 752.
3. ALL ADOPTABLE DRAINAGE WORKS ARE TO BE IN ACCORDANCE WITH SEWERS FOR ADOPTION AND THE REQUIREMENTS OF THAMES WATER.
4. ALL DRAINAGE CONNECTIONS TO THE PUBLIC SEWER NETWORK ARE SUBJECT TO THE APPROVAL OF THAMES WATER UNDER SECTION 106 OF THE WATER INDUSTRY ACT AND SUBJECT TO ANY CONDITIONS THEY MAY APPLY.
5. ALL DRAINAGE CONNECTIONS TO THE PUBLIC SEWER ARE TO BE INSPECTED BY THAMES WATER AS REQUIRED.
6. ALL ADOPTABLE DRAINAGE TO BE EITHER:
   A. CONCRETE PIPES AND FITTINGS WITH FLEXIBLE JOINTS COMPLYING WITH THE RELEVANT REQUIREMENTS OF BS EN 1916 AND BS 5911.
   B. VITRIFIED CLAY PIPES AND FITTINGS WITH FLEXIBLE MECHANICAL JOINTS COMPLYING WITH THE REQUIREMENTS OF BS EN 295 AND BS 65 (SURFACE WATER ONLY).
   C. DUCTILE IRON PIPES, FITTINGS AND JOINTS COMPLYING WITH THE RELEVANT PROVISIONS OF BS EN 598.
7. ALL PRIVATE DRAINAGE TO BE EITHER:
   A. CONCRETE PIPES AND FITTINGS WITH FLEXIBLE JOINTS COMPLYING WITH THE RELEVANT REQUIREMENTS OF BS EN 1916 AND BS 5911.
   B. VITRIFIED CLAY PIPES AND FITTINGS WITH FLEXIBLE MECHANICAL JOINTS COMPLYING WITH THE REQUIREMENTS OF BS EN 295 AND BS 65 (SURFACE WATER ONLY).
   C. DUCTILE IRON PIPES, FITTINGS AND JOINTS COMPLYING WITH THE RELEVANT PROVISIONS OF BS EN 598.
   D. UNPLASTICISED PVC PIPES, JOINTS AND FITTINGS COMPLYING WITH THE RELEVANT CLAUSES OF BS 4460 AND BS EN 1401-1.
8. ALL DRAINAGE BENEATH BUILDINGS AND CAST INTO FOUNDATIONS TO BE DUCTILE IRON PIPES, FITTINGS AND JOINTS COMPLYING WITH THE RELEVANT PROVISIONS OF BS EN 598.
9. TRANSITION IN PIPE MATERIALS TO BE MADE AT NEAREST CHAMBER OR ROCKER PIPE WHERE IT PASSES THROUGH FOUNDATIONS.
10. ALL RWP LOCATIONS AND SIZES TO BE VERIFIED AND SET OUT BY THE ARCHITECT AND M&E CONSULTANT.
11. ALL FOUL DRAINAGE 'POP-UP' LOCATIONS AND SIZES TO BE VERIFIED AND SET OUT BY THE ARCHITECT AND M&E CONSULTANT.
12. ALL FOUL GULLY LOCATIONS AND SIZES TO BE VERIFIED AND SET OUT BY THE ARCHITECT AND M&E CONSULTANT.
13. ALL FOUL DRAINAGE FLOW RATES ARE TO BE PROVIDED BY THE M&E CONSULTANT TO VERIFY SIZE OF BELOW GROUND DRAINAGE.
14. WHERE DRAINAGE LATERALS CONNECT DIRECT TO THE BELOW GROUND SYSTEM VIA PREFORMED JUNCTIONS RODDING ACCESS IS TO BE PROVIDED. THIS IS TO BE VIA REMOVABLE TRAPS IN GULLIES OR ACCESS PIPES IN VERTICAL PIPEWORK ABOVE GROUND.
15. WHERE FOUL, SURFACE WATER OR OTHER DRAINAGE PIPES CROSS AND THERE IS LESS THAN 100MM OF CLEARANCE SHORT LENGTHS OF BOTH RUNS ARE TO BE ENCASED IN CONCRETE.
16. FOR MANHOLE SCHEDULES REFER TO CNM DRAWING 150-CNM-Z3-00-DR-P-1013

Rev	Revision Note	Revision Date	Drawn By	Checked By
P2.1	ISSUED FOR STAGE 4	13.07.18	DTE	MLS
P1.01	ISSUED FOR STAGE 3	08.09.17	DTE	MLS
P1	PRELIMINARY STAGE 3 - ISSUED FOR COSTING	16.09.16	DTE	MLS

Contract

150 HOLBORN

TYPICAL GROUND LEVEL DRAINAGE DETAILS

Architect

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CDE Status		CDE Code
STAGE 4 - FOR TENDER		D2
Drawn By: DTE	Checked By: MLS	
Project: 1036010	Scale @ A1: 1:20	

Drawing No.

150-CNM-Z0-ZZ-DR-P-1010

P1 P1.01 P2.1