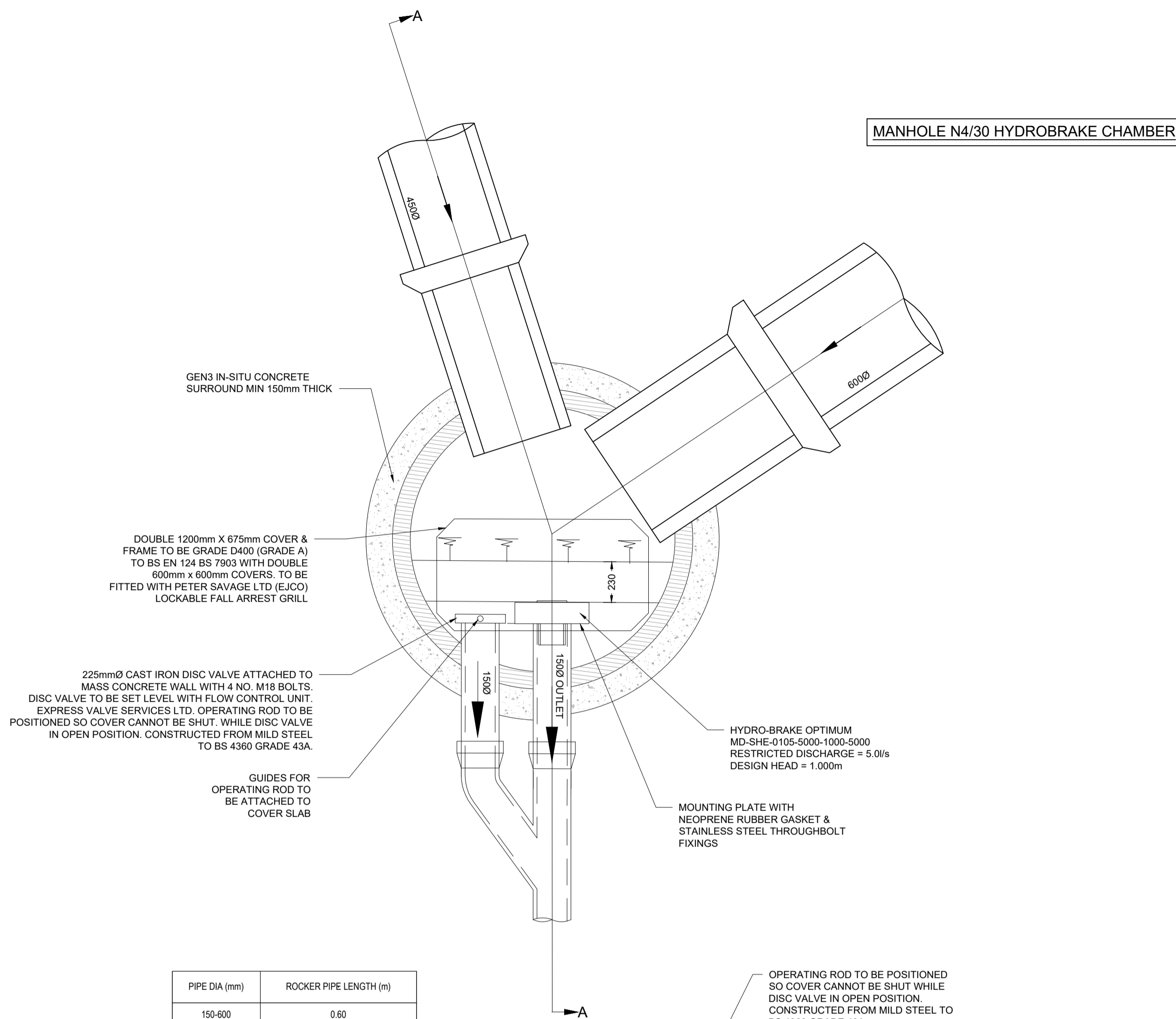


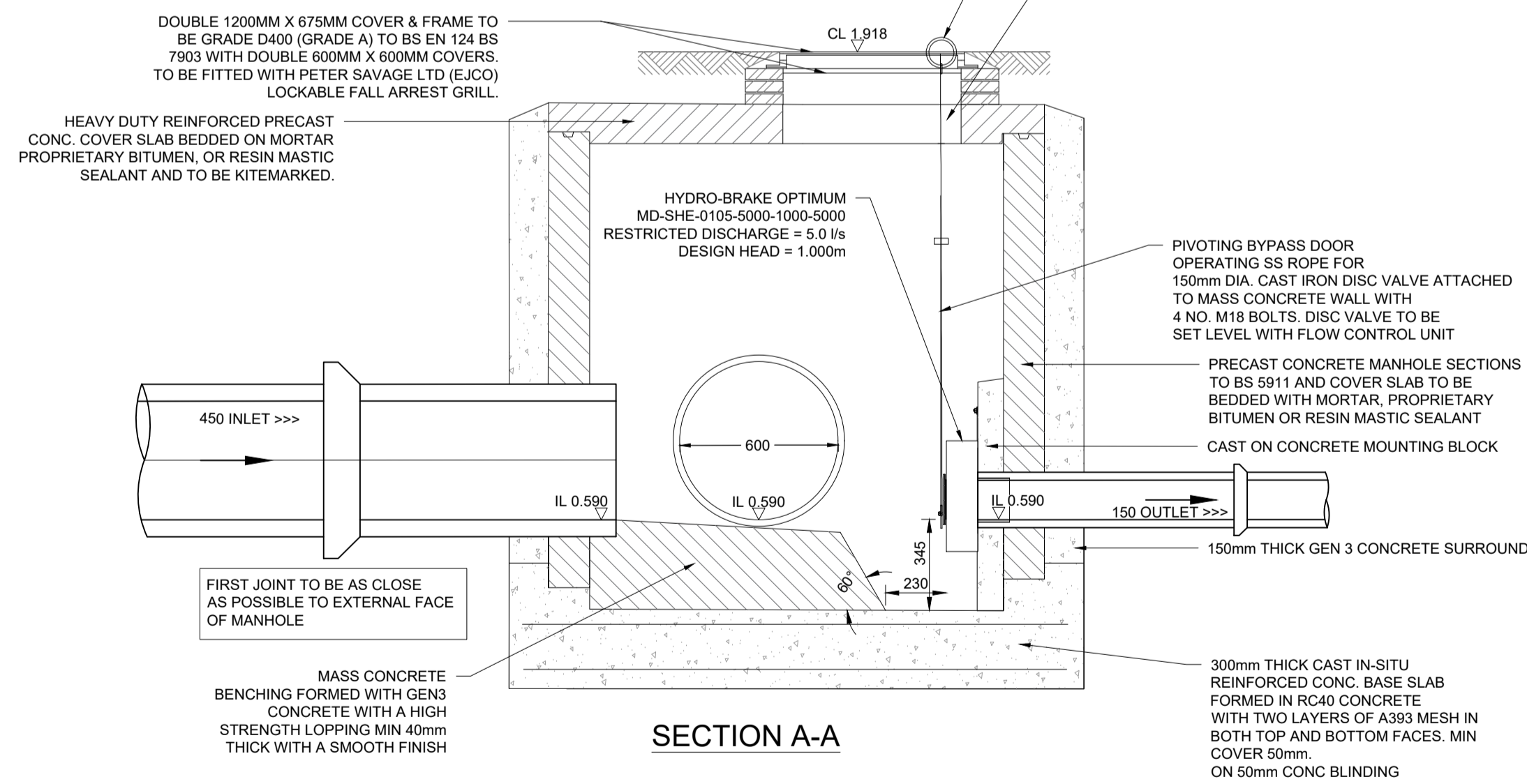


MANHOLE N4/30 HYDROBRAKE CHAMBER



PIPE DIA (mm)	ROCKER PIPE LENGTH (m)
150-600	0.60
600-750	1.00
>750	1.25

PLAN



SECTION A-A

CONCRETE NOTES:

- DESIGNED CONCRETE:**
- ALL DESIGNED CONCRETE TO CONFORM TO BS 8500-2 STRUCTURAL CONCRETE.
 - COMPRESSIVE STRENGTH CLASS - C45/55
 - MAXIMUM WATER CEMENT RATIO - 0.35
 - MINIMUM CEMENT CONTENT - 380 Kg/m³
 - CEMENT COMBINATION TYPE - CEM I-SRD
 - MAXIMUM AGGREGATE SIZE - 20mm
 - CONSISTENCY CLASS - TO BE AGREED ON SITE
 - COVER TO CONCRETE - 55mm (MINIMUM)
- DESIGNATED CONCRETE:**
- ALL DESIGNATED CONCRETE TO CONFORM TO BS 8500-2
 - BLINDING CONCRETE:
 - DESIGNATION - GEN 3
 - CEMENT TYPE - CEM I-SRD
 - MAXIMUM AGGREGATE SIZE - 20mm
 - CONSISTENCY CLASS - TO BE AGREED ON SITE
- PRECAST CONCRETE**
- PRECAST CONCRETE MANHOLES TO BE IN ACCORDANCE WITH BS EN 1917:2002 AND BS 5911-3:2022. PRECAST CONCRETE RINGS AND COVER SLABS TO BE JOINTED WITH CEMENT MORTAR.
 - ALL CONCRETE PIPES TO BE CLASS 120 TO BS EN 1916/BS 5911-1:2021.
 - ALL CONCRETE MANHOLES TO BE IN ACCORDANCE WITH BS 1917/BS EN 5911-3:2022.
 - INSITU AND PRECAST CONCRETE UNITS SHALL HAVE SULPHATE RESISTING PORTLAND CEMENT TO BS EN 191-1/BS EN 197-5, UNLESS AGREED OTHERWISE WITH THE ADOPTING AUTHORITY.
 - NOMINAL COVER TO ALL REINFORCEMENT TO BE 50mm (UNLESS NOTED OTHERWISE).
 - ALL HIGH YIELD REINFORCEMENT (H BARS) TO BE GRADE 500.
 - BOTTOM STEEL REINFORCEMENT TO BE SUPPORTED ON 50x50x50mm DEEP CONCRETE BLOCKS OR SIMILAR, WIRED TO THE REINFORCEMENT.
 - TYING WIRE TO BE STAINLESS STEEL.
 - SPACING OF REINFORCEMENT TO BE ADJUSTED LOCALLY AS REQUIRED IN PARTICULAR TO AVOID HOLES, POCKETS, SOCKETS, RECESSES AND HOLDING DOWN BOLTS.
 - ALL EXPOSED EDGES TO HAVE 20x20mm CHAMFER.

DRAINAGE DETAIL NOTES:

- ALL SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH MCHW CC 500 DRAINAGE. ANY OTHER RELEVANT SECTIONS OF MCHW, AND THE RELEVANT BRITISH/EUROPEAN STANDARDS/REQUIREMENTS AND KITEMARKED, INCLUDING BS EN 476, AND BS EN 752.
- THE NOTES ARE INTENDED TO AUGMENT DRAWINGS AND SPECIFICATIONS, WHERE CONFLICT OF REQUIREMENTS EXIST THE ORDER OF PRECEDENCE SHALL BE AS SHOWN IN THE SPECIFICATION. OTHERWISE THE STRICTEST PROVISION SHALL GOVERN.
- ALL WORKS TO BE UNDERTAKEN IN COMPLIANCE WITH BS 8000 FOR WORKMANSHIP ON BUILDING SITES.
- ABBREVIATIONS:
 - MH = MANHOLE
 - CL = COVER LEVEL
 - IL = INVERT LEVEL
 - SW = SURFACE WATER
 - CONC = CONCRETE
 - TWINWALL = 'STRUCTURED WALL' PIPE
 - DWG = DRAWING
- THE CONTRACTOR MUST ENSURE THAT THE WHOLE WORKS COMPLY BOTH WITH THE SPECIFICATION AND THE DRAWINGS WHICH ARE SUBJECT TO APPROVAL BY THE RELEVANT AUTHORITIES.
- IF ANY DISCREPANCIES EXIST BETWEEN THE SPECIFICATION AND THE DRAWINGS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
- THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE AUTHORITY PRIOR TO COMMENCEMENT OF EACH STAGE OF THE WORK FOR THEIR REPRESENTATIVE TO CARRY OUT INSPECTION TO ENSURE COMPLIANCE WITH THEIR SPECIFICATION AND APPROVED DETAILS. IF ANY SUCH REQUESTS OR INSTRUCTIONS CAUSE CONFLICT WITH THE SPECIFICATION THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.
- WHERE COVER TO PIPE SOFFIT IS LESS THAN 1.2m TO FINISHED GROUND LEVEL, PIPE PROTECTION IS REQUIRED IN THE FORM OF A REINFORCED CONCRETE PROTECTION SLAB, EXCEPT WHERE THE PIPE FORMS PART OF A FILTER DRAIN, IN WHICH CASE A CONCRETE SLAB SHOULD NOT BE PROVIDED.
- MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124-2 TO 6:2015 AND BS 7903. MANHOLE COVERS AND FRAMES TO BE OF A NON-ROCKING DESIGN WITH CUSHION INSERTS AND KITEMARKED. LOAD CLASS D400 TO BE USED IN VEHICULAR TRAFFICKED AREAS. ALL COVERS TO BE BADGED 'SW' MANHOLE COVER SLABS AND ACCESS TO BE IN ACCORDANCE WITH THE BRITISH PRECAST DRAINAGE ASSOCIATION TECHNICAL GUIDE.
- ROAD GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124-1 TO 6:2015, BS EN 5911-6:2021 AND BS 7903. TO BE OF A NON-ROCKING DESIGN WITH LEFT HANDED CAPTIVE HINGE ACCESS AND BE KITEMARKED. LOAD CLASS D400 GRATES TO BE USED IN VEHICULAR TRAFFICKED AREAS. WITH A 450mm GRATE AND FRAME. MINIMUM AREA OF WATERWAY TO BE 900cm².
- ALL PLASTIC PIPEWORK TO BE TWINWALL 'STRUCTURED WALL' PIPES. PIPES AND FITTINGS TO BE COMPLIANT WITH BS EN 13476-1. ALL PIPES SHALL BE SMOOTH BORE. WHERE PIPEWORK IS WITHIN FILTER DRAIN, PIPE TO BE PERFORATED.
- NO MECHANICAL COMPACTION OF FILL MATERIAL WITHIN 300mm OF THE CROWN OF ANY PIPE.
- MORTAR TO COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 998-2:2016 AND PD 6678:2005.
- COVER AND FRAME BEDDING MORTAR TO COMPLY WITH THE DMRB CD 534, AND ANY RELEVANT PROVISIONS OF THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAYS WORKS.
- ALL PERMEABLE GEOTEXTILE TO COMPLY WITH BS EN 12322, CC 500/WSR001, AND SECTION 10 OF CQC 101.

NOTES:

- THESE NOTES ARE INTENDED TO AUGMENT DRAWINGS AND SPECIFICATIONS, WHERE CONFLICT OF REQUIREMENTS EXIST THE ORDER OF PRECEDENCE SHALL BE AS SHOWN IN THE SPECIFICATION. OTHERWISE THE STRICTEST PROVISION SHALL GOVERN.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERS AND ARCHITECTS DRAWINGS.
- DRAWINGS NOT TO BE SCALED. ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR. ANY DISCREPANCIES TO BE NOTIFIED TO THE ENGINEER AND FURTHER INSTRUCTIONS OBTAINED BEFORE WORK IS COMMENCED.
- ALL LEVELS ARE AOD (ABOVE ORDNANCE DATUM) UNO.

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Project:	M181 Southern Junction - Phase 2, B1450 Spur and East Roundabout				
Client:	North Lincolnshire Council				
Drawing:	Temporary Phase - Hydrobrake Manhole Detail				
Role:	CIVIL ENGINEER				
Drawing Status:	FOR REVIEW & COMMENT			Suitability Code:	S3
Job. no.	53335	Scale@ A1:	1:20	Rev.	P01
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