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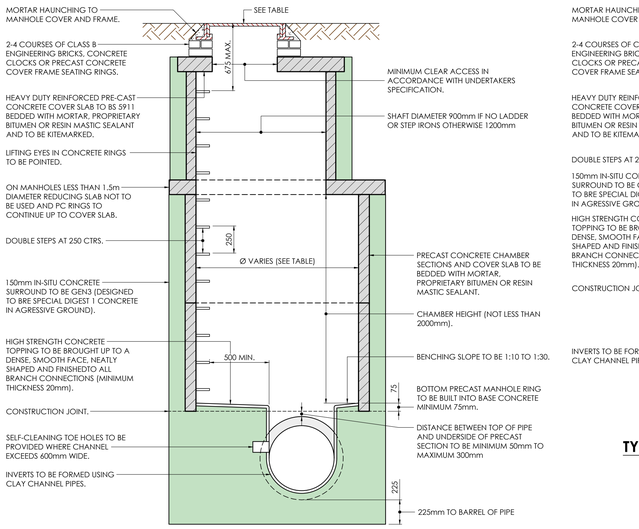
NOTES

DRAINAGE NOTES

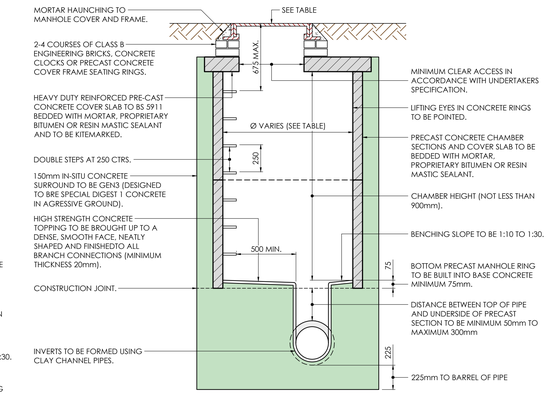
1. ALL BUILDING DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BS EN 752:2008 DRAINAGE AND SEWER SYSTEMS OUTSIDE BUILDINGS, THE CURRENT BUILDING REGULATIONS AND THE LOCAL AUTHORITY BUILDING CONTROL SPECIFICATIONS AND REQUIREMENTS.
2. ANY DRAINAGE TO BE PUT FORWARD FOR ADOPTION EITHER WITHIN THE SITE OR OUTSIDE SHALL BE CONSTRUCTED TO SEWERS FOR ADOPTION LATEST EDITION AND ANY SPECIFIC REQUIREMENTS OF THE ADOPTING SEWERAGE/WATER AUTHORITY.
3. THE LOCATION, SIZE AND DEPTH OF ALL EXISTING DRAINS/SEWERS AND SERVICES SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS ON SITE. ANY DISCREPANCIES FROM THE INFORMATION INDICATED ON THESE DRAWINGS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
4. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND DIVERSION WORKS AS NECESSARY, TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE UTILITY COMPANIES.
5. THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUN OFF INTO EXCAVATIONS AND FROM GROUNDWATER BY MEANS OF SUMPS, PUMPING AND DE WATERING AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS REASONABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS.
6. ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
7. ALL EXISTING DRAINAGE LOCATIONS AND LEVELS ARE TO BE CONFIRMED BY THE CONTRACTOR AND THE ENGINEER NOTIFIED BEFORE ANY DRAIN RUNS ARE CONSTRUCTED.
8. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER SHOULD ANY EXISTING LIVE DRAINAGE BE FOUND WITHIN THE SITE BOUNDARY SERVING ADJACENT PROPERTIES.
9. ALL EXISTING DRAINAGE WITHIN THE SITE NOT REQUIRED FOR THE NEW DEVELOPMENT SHALL BE ABANDONED. DRAINS AND SEWER LESS THAN 1.500m DEEP WHICH ARE IN OPEN GROUND SHOULD AS FAR AS IS PRACTICABLE BE FULLY REMOVED. ALL OTHER PIPES SHOULD BE SEALED AT BOTH ENDS AND AT ANY POINT OF CONNECTION, AND BE GROUT FILLED TO ENSURE THAT RATS CANNOT GAIN ACCESS. LARGER PIPES 225Ø OR ABOVE SHOULD BE GROUT FILLED TO PREVENT SUBSIDENCE OR DAMAGE TO BUILDINGS OR SERVICES IN THE EVENT OF COLLAPSE.
10. ALL MANHOLE/CHAMBER COVER LEVELS ARE APPROXIMATE AND SHALL BE ADJUSTED ON SITE TO SUIT THE PROPOSED FINISHED LEVELS.
11. ALL PIPE CONNECTION FROM DRAINAGE CHANNELS AND GULLIES SHALL BE 150Ø PIPES AT A MINIMUM GRADIENT OF 1:100 WITH CLASS Z BEDDING UNO, ON THE DRAWING.
12. THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS IN LINE WITH CURRENT LEGISLATION WHEN WORKING IN/NEAR CONFINED SPACES, DEEP EXCAVATIONS AND MACHINERY.
13. THE CONTRACTOR SHALL ALLOW FOR OBTAINING ALL APPROVALS FROM THE RELEVANT AUTHORITIES WHEN WORKING IN THE PUBLIC HIGHWAY AND ON THE SEWERAGE SYSTEM.
14. THE CONTRACTOR SHALL SUITABLY PROTECT PEDESTRIANS AND VEHICLES FROM WORKING AREAS.
15. ALL PIPES SHALL BE LAID WITH LEVEL SOFFITS AND ALL MANHOLE/INSPECTION CHAMBER INVERT LEVELS SHOWN ARE FOR THE OUT GOING PIPE (UNLESS OTHERWISE INDICATED IN THE DRAWING). PIPE RUNS SHALL BE LAID TO THE INVERT LEVELS AS DETAILED ON THE CONTRACT DRAWINGS. (NOTE THAT ALL PIPE GRADIENTS INDICATED ON THE DRAWINGS ARE APPROXIMATE).
16. UPON COMPLETION OF THE DRAINAGE WORKS THE CONTRACTOR SHALL CLEAN ALL DRAIN RUNS BY JETTING AND REMOVE ALL DEBRIS FROM SITE. NO DEBRIS SHALL BE PERMITTED TO ENTER THE PUBLIC SEWER AND/OR WATERCOURSE SYSTEM. ONCE THE DRAINAGE SYSTEM HAS BEEN FULLY CLEANED OUT A CCTV CAMERA CONDITION SURVEY SHALL BE UNDERTAKEN TO ALL CONSTRUCTED DRAINAGE AND SEWER PIPES WITH THE FOOTAGE ISSUED TO THE ENGINEER FOR VIEW. THE AS BUILT INVERT AND COVER LEVELS SHALL BE RECORDED BY THE CONTRACTOR AND PASSED ON TO THE ENGINEER FOR REVIEW.

NOTE
NO PLASTIC DRAINAGE TO BE USED. NO GULLY LEADS TO BE LESS THAN 150mm Ø

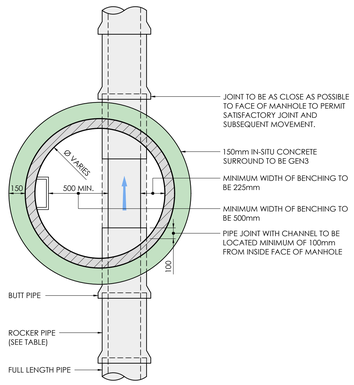
NOTE
ALL IRONWORK TO BE MINIMUM CLASS D400 AND 150mm DEEP FRAMES



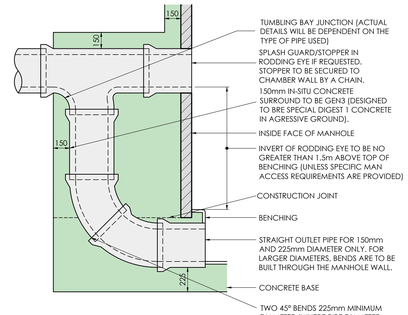
TYPICAL MANHOLE DETAIL
TYPE A - DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE 3m-6m
SCALE 1:20



TYPICAL MANHOLE DETAIL
TYPE B - DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE 3m
SCALE 1:20



TYPICAL MANHOLE DETAIL
TYPE A & B - PLAN VIEW
SCALE 1:20



TYPICAL EXTERNAL VERTICAL BACKDROP DETAIL
SCALE 1:20

MINIMUM CLEAR ACCESS OPENING SIZES AND REQUIREMENTS FOR FITTINGS

	STANDARD ACCESS (SEWER DIAMETER) MANHOLE TYPES A & B ONLY			MANHOLE FITTING REQUIREMENTS (ALL MANHOLE TYPES)			NON-MAN ENTRY CHAMBERS ACCEPTED?
SEWERAGE UNDERTAKER	**150-874**	**875-1074**	**1075 OR GREATER**	**DOUBLE ENCAPSULATED STEP RUNGS**	**SAFTEY CHAINS (MATERIALS)**	**LADDERS (230mm CLEARANCE WALL TO LADDER)**	**FOR SEWER MANHOLES**
ANGLIAN WATER				LESS THAN 3m	600mm OR GREATER (STAINLESS STEEL OR POLYPROPYLENE ROPE)	GREATER THAN 3m	**YES**
UNITED UTILITIES		**600x600**		LESS THAN 3m	525mm OR GREATER (STAINLESS STEEL)	GREATER THAN 3m (STAINLESS STEEL)	
YORKSHIRE WATER				LESS THAN 6m	NO	GREATER THAN 6m	
THAMES WATER				LESS THAN 3m	900mm OR GREATER	GREATER THAN 3m	
SEVERN TRENT WATER				LESS THAN 3m	NO	GREATER THAN 3m	
WELSH WATER				NO	600mm OR GREATER (HOOKS ONLY)	NO	**NO**
NORTHUMBRIAN WATER				LESS THAN 3m	600mm OR GREATER	GREATER THAN 3m	
SOUTHERN WATER		**675x675**		NO	NO	NO	
SOUTH WEST WATER				LESS THAN 3m	375mm OR GREATER	GREATER THAN 3m	
WESSEX WATER				LESS THAN 6m	600mm OR GREATER (HOOKS ONLY)	GREATER THAN 6m	

MANHOLE COVER TYPES

LOCATION	COVER TYPE	NOTES
ACCESS ROAD & SERVICE YARD	CLASS D400	
CAR PARK AREAS - TARMAC	CLASS C250	
CAR PARK AREAS - BLOCK PAVED	CLASS C250	RECESS INFILL TYPE
LANDSCPAED AREAS	CLASS B125	
OFFICE INTERNAL CORE	CLASS C250	RECESS INFILL TYPE
WAREHOUSES	CLASS D400	RECESS INFILL TYPE

ALL MANHOLE COVERS ARE TO BE IN ACCORDANCE WITH BS EN124. INTERNAL MANHOLE COVERS ARE TO BE DOUBLE SEALED AND LOCKABLE WITH EDGINGS TO ARCHITECTS DETAILS (ARCHITECT TO SPECIFY THE INTERNAL COVERS TO SUIT POTENTIAL LOADINGS AND FLOOR FINISHES).
ALL MANHOLE COVERS ARE TO BE AS NOTED ON THE MANHOLE SCHEDULE.

MANHOLE DIAMETERS

DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIAMETER OF MANHOLE (mm)
LESS THAN 375	1200
375-700	1500
750-900	1800
GREATER THAN 900	CONSULT UNDERTAKER

ROCKER PIPE LENGTHS

NOMINAL DIAMETER (mm)	EFFECTIVE LENGTH (mm)
150-600	600
601-750	1000
OVER 750	1250

GRANULAR BEDDING MATERIAL
(ALL AGGREGATES TO TABLE 4 OF BS 882 :1983)

NOMINAL PIPE DIAMETER	SINGLE SIZED	GRADE
150mm	10mm OR 14mm	14mm-5mm
200mm-300mm	10mm, 14mm OR 20mm	14mm-5mm OR 20mm-5mm
375mm-525mm	14mm OR 20mm	14mm-5mm OR 20mm-5mm
GREATER THAN 525mm	14mm, 12mm OR 40mm	14mm-5mm OR 20mm-5mm OR 40mm-5mm

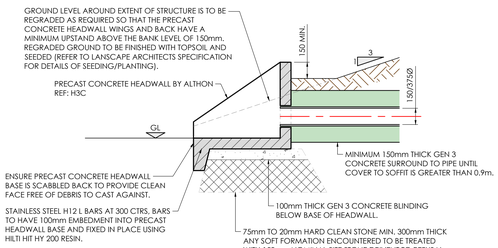
COMPRESSIBLE FILLER TABLE
(BITUMEN IMPREGNATED INSULATING BOARD TO BS 1142: PART 3)

NOMINAL PIPE DIAMETER	THICKNESS OF COMPRESSIBLE FILLER
LESS THAN 450mm	18mm
450mm-1200mm	36mm
GREATER THAN 1200mm	54mm

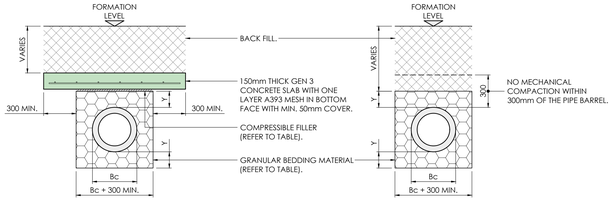
PIPE TRENCH BEDDING NOTES:

Bc = OUTSIDE DIAMETER OF PIPE BARREL.
Y = FOR UNIFORM SOILS: SLEEVE JOINTED PIPES, MIN. 50mm OR 1/6Bc, WHICHEVER IS THE GREATER, SOCKETED PIPE, MIN.100mm OR 1/6Bc, WHICHEVER IS THE GREATER UNDER BARRELS AND NOT LESS THAN 50mm UNDER SOCKETS.

ROCK OR MIXED SOILS CONTAINING ROCK BANDS, BOULDERS, STONES OR OTHER IRREGULAR HARD SPOTS: SLEEVE JOINTED PIPES, MIN. 150mm OR 1/4Bc, WHICHEVER IS THE GREATER, SOCKETED PIPE, MIN. 200mm OR 1/4Bc, WHICHEVER IS THE GREATER UNDER BARRELS AND NO LESS THAN 150mm UNDER SOCKETS.

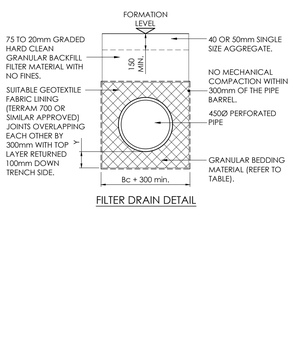


SECTION THROUGH 150/375Ø SURFACE WATER OUTLET PIPE TO POND
SCALE 1:20



TYPICAL PROTECTION DETAIL FOR PIPES LAID AT SHALLOW DEPTHS
SCALE 1:20

CLASS S BEDDING DETAIL
SCALE 1:20



FILTER DRAIN DETAIL

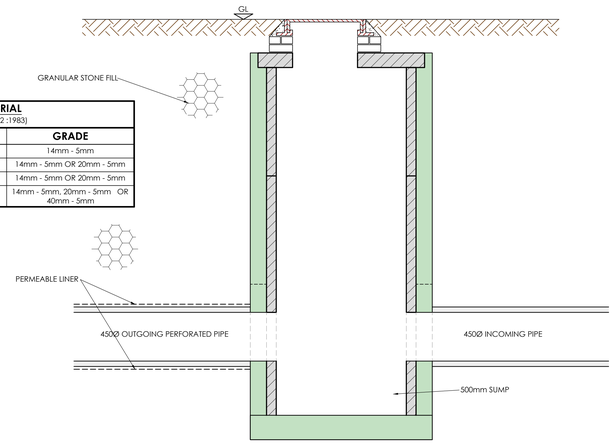
GRANULAR BEDDING MATERIAL
(ALL AGGREGATES TO TABLE 4 OF BS 882 :1983)

NOMINAL PIPE DIA.	SINGLE SIZED	GRADE
150mm	10mm OR 14mm	14mm - 5mm
200mm - 300mm	10mm, 14mm OR 20mm	14mm - 5mm OR 20mm - 5mm
375mm - 525mm	14mm OR 20mm	14mm - 5mm OR 20mm - 5mm
GREATER THAN 525	14mm, 12mm OR 40mm	14mm - 5mm, 20mm - 5mm OR 40mm - 5mm

PIPE TRENCH BEDDING NOTES:

Bc = OUTSIDE DIAMETER OF PIPE BARREL.
Y = FOR UNIFORM SOILS: SLEEVE JOINTED PIPES, MIN. 50mm OR 1/6Bc, WHICHEVER IS THE GREATER, SOCKETED PIPE, MIN.100mm OR 1/6Bc, WHICHEVER IS THE GREATER UNDER BARRELS AND NOT LESS THAN 50mm UNDER SOCKETS.

FOR ROCK OR MIXED SOILS CONTAINING ROCK BANDS, BOULDERS, STONES OR OTHER IRREGULAR HARD SPOTS: SLEEVE JOINTED PIPES, MIN. 150mm OR 1/4Bc, WHICHEVER IS THE GREATER, SOCKETED PIPE, MIN. 200mm OR 1/4Bc, WHICHEVER IS THE GREATER UNDER BARRELS AND NOT LESS THAN 150mm UNDER SOCKETS.



TYPICAL FILTER DRAIN MANHOLE CONNECTION DETAIL
SCALE 1:20

REV	DESCRIPTION	DATE	BY
P03	DRAINAGE NOTES REMOVED & OUTFALL DETAIL UPDATED.	03/08/20	JAC
P02	NOTES ADDED. REVISIONS CLOUDED	31.05.20	RWR
P01	FIRST ISSUE.	12.03.20	JH

Project
ROCKINGHAM PHASE 2A & 2B
HOYLAND

Drawing Title
SECTION 38
STANDARD DRAINAGE DETAILS

INFORMATION ISSUE

Architect

JPG
www.jpg.group
Leeds London Birmingham 0113 263 1155

JPG Project Ref	Scale at A0	Date	Checked	Drawn
4652	AS INDICATED	12.03.20		JH

4652-2 - JPG - SW - 00 - DR - D - 1401 | S2 | P03