DRAINAGE NOTES

1.0 STANDARDS

1.1. ALL WORKS SHALL BE READ IN CONJUNCTION WITH THE CLIENT SPECIFICATIONS AND THESE NOTES ARE INTENDED TO SUPPORT THE SPECIFICATIONS.

1.2. ALL PRIVATE DRAINAGE WORKS SHALL BE IN ACCORDANCE WITH 'THE BUILDING REGULATIONS APPROVED DOCUMENT H' AND BS EN 752.

1.3. ALL WORKS IN OR ADJACENT TO THE PUBLIC HIGHWAY SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE HIGHWAY AUTHORITY. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY LICENCES TO CARRY OUT WORKS WITHIN THE PUBLIC HIGHWAY.

1.4. ALL WORKS TO NEW OR EXISTING PUBLIC SEWERS SHALL BE TO THE APPROVAL OF THE WATER AUTHORITY AND IN ACCORDANCE WITH THE SEWERAGE SECTOR GUIDANCE APPROVED DOCUMENTS.

1.5. DRAINAGE WORKS WHICH ARE TO BE ADOPTED SHALL BE CARRIED OUT IN ACCORDANCE WITH THE ADOPTING SEWERAGE COMPANY'S STANDARD SPECIFICATIONS AND REQUIREMENTS AND THE SEWERAGE SECTOR GUIDANCE APPENDIX C - 'DESIGN AND CONSTRUCTION GUIDANCE V2'. WHERE INCONSISTENCIES OCCUR BETWEEN THE DRAWINGS AND THE ADOPTING SEWERAGE COMPANY'S STANDARD SPECIFICATIONS AND REQUIREMENTS OR THE SEWERAGE SECTOR GUIDANCE, THE ADOPTING AUTHORITY STANDARD SPECIFICATIONS AND REQUIREMENT AND SEWERAGE SECTION GUIDANCE SHALL TAKE PRECEDENCE ON ADOPTABLE WORKS. THE CONTRACTOR SHALL CONFIRM WITH THE ADOPTING SEWERAGE COMPANY'S REQUIREMENTS WITH REGARD TO INSPECTION NOTICES, APPROVALS, PROCEDURES, SUBMISSIONS ETC. IN ADVANCE OF ANY WORKS. THE ABOVE REQUIREMENTS SHALL ALSO APPLY TO AREAS OF WORK ALREADY UNDER THE CONTROL OF THE SEWERAGE COMPANY.

1.6. ALL DRAINAGE WORKS ARE SUBJECT TO ALTERATION PENDING SUBMISSION AND TECHNICAL APPROVAL OF THE SECTION 104 NEW SEWER ADOPTION INCLUDING SEWER DIVERSION AGREEMENTS. ANY WORKS CARRIED OUT PRIOR TO RECEIPT OF APPROVALS ARE AT THE CONTRACTORS OWN RISK.

2.0 GENERALLY

2.1. PRIOR TO COMMENCEMENT OF THE WORKS THE CONTRACTOR SHALL LIAISE WITH ALL RELEVANT AUTHORITIES TO OBTAIN THEIR REQUIREMENTS AND TO OBTAIN APPROVAL FOR HIS METHOD OF WORKING AND WHERE APPROPRIATE HIS INTENDED CHOICE OF MATERIALS.

2.2. REFER TO SITE SURVEY FOR DETAILS OF EXISTING SITE CONDITIONS AND BENCHMARKS.

2.3. PRIOR TO COMMENCEMENT OF THE WORKS THE CONTRACTOR SHALL LIAISE WITH ALL RELEVANT AUTHORITIES TO LOCATE, PROTECT AND WHERE NECESSARY DIVERT ALL EXISTING SERVICES AFFECTED BY THE WORKS.

2.4. ALL EXCAVATIONS SHALL BE KEPT FREE OF STANDING WATER.

2.5. THE CONTRACTOR SHALL ENSURE THE STABILITY OF ALL EXCAVATIONS IS MAINTAINED AT ALL TIMES.

2.6. PRIOR TO COMMENCEMENT OF THE WORKS ALL DRAINAGE OUTFALL POINTS, WHETHER EXISTING SEWER, DRAIN OR WATERCOURSE, SHALL BE VERIFIED ON SITE BY THE CONTRACTOR. IF THE OUTFALL POINT IS FOUND TO BE HIGHER OR SIGNIFICANTLY LOWER THAN SHOWN ON THE DRAWINGS THEN THE CONTRACT ADMINISTRATOR SHALL BE NOTIFIED IMMEDIATELY. (SIGNIFICANT REDESIGN OF DRAINAGE AND LEVELS MAY BE NECESSARY). PRIOR TO COMMENCEMENT OF CONSTRUCTION ON-SITE THE CONTRACTOR SHALL INSTALL ALL OFF-SITE DRAINAGE CONNECTIONS, OR SATISFY HIMSELF THAT THERE ARE NO OBSTRUCTIONS OR OTHER REASONS WHY, THE DRAIN CONNECTIONS CAN NOT BE MADE.

2.7. ALL COVER LEVELS SHOWN ARE APPROXIMATE. EXACT LEVELS OF NEW COVERS AND FRAMES TO BE DETERMINED ON SITE TO MATCH LEVEL AND PROFILE OF FINISHED SURFACE.

2.8. EXACT LOCATION OF GULLIES TO BE DETERMINED ON SITE TO SUIT LOW POINTS. THE CONTRACTOR SHALL ENSURE THAT ALL FINISHED SURFACE ARE LAID TO FALLS THAT ARE SUFFICIENT FOR ALL SURFACE WATER TO DRAIN WITHOUT SURFACE PONDING.

2.9. FOR THE EXACT LOCATION OF SOIL PIPES, STUBSTACKS, W.C.'S AND OTHER DRAINAGE CONNECTIONS REFER TO THE LARGE SCALE ARCHITECTURAL BUILDING PLANS.

2.10. RAINWATER DOWNPIPES THAT DO NOT CONNECT DIRECTLY TO AN ACCESS POINT, SHALL BE FITTED WITH A RODDING ACCESS.

2.11. PRIOR TO COMMENCEMENT OF ANY WORKS THE EXISTING DRAINAGE MUST BE TRACED TO ENSURE THAT NO 'LIVE' CONNECTIONS REMAIN. ANY SUCH CONNECTIONS MUST BE REPORTED TO THE CONTRACT ADMINISTRATOR, PRIOR TO DIVERSION INTO THE NEW DRAINS.

2.12. ALL NEW SERVICE INSTALLATIONS SHALL BE STRICTLY IN ACCORDANCE WITH NJUG RECOMMENDATIONS.

2.13. FINAL ORIENTATION AND POSITION OF FIRST EXTERNAL CHAMBERS RECEIVING CONNECTIONS TO BE DETERMINED ONSITE BY CONTRACTOR.

2.14. FINISHED DRAINAGE CONNECTIONS IE BEND AND STRAIGHT COMBINATIONS ARE TO BE DELIVERED ONSITE TO SUIT EACH CONNECTION.

2.15. DRAINAGE DEPTHS HAVE BEEN KEPT TO A MINIMUM WHERE POSSIBLE, HOWEVER, DEPTHS IN EXCESS OF 2m CANNOT BE AVOIDED. EXCAVATIONS TO BE CARRIED OUT IN ACCORDANCE WITH HSE DOCUMENT HSG150 'HEALTH AND SAFETY IN CONSTRUCTION'.

3.0 PIPEWORK

3.1. UNLESS NOTED OTHERWISE ALL PIPEWORK SHALL BE 100mm DIAMETER LAID TO A FALL OF 1 IN 100 OR STEEPER FOR SURFACE WATER AND 100mm DIAMETER AT 1 IN 40 OR STEEPER FOR FOUL WATER. FOUL DRAINS WITH ONE OR MORE W.C. CONNECTED MAY BE LAID AT 1 IN 80 OR STEEPER.

3.2. UNLESS NOTED OTHERWISE ALL INVERT LEVELS OF EXTERNAL RAIN WATER PIPES TO BE SET 450mm BELOW PROPOSED EXTERNAL GROUND LEVEL.

3.3. UNLESS NOTED OTHERWISE ALL INVERT LEVELS OF INTERNAL RAIN WATER PIPES TO BE SET 450mm BELOW PROPOSED STRUCTURAL SLAB LEVEL.

3.4. UNLESS NOTED OTHERWISE ALL INVERT LEVELS OF INTERNAL FOUL WATER PIPES TO BE SET 450mm BELOW PROPOSED STRUCTURAL SLAB LEVEL.

3.5. UNLESS NOTED OTHERWISE ALL PIPEWORK SHALL BE PVC-U TO BS EN 1401-1 OR STRUCTURED WALL PLASTIC TO BS EN 13476-1 AND KITEMARKED OR AGREEMENT CERTIFIED.

3.6. LATERAL CONNECTIONS MADE AS SADDLE CONNECTIONS TO A MAIN SEWER MUST BE MADE USING STANDARD PRE-FORMED JUNCTIONS.

3.7. ELASTOMERIC JOINT SEALS SHALL BE TYPE WC OR WG, COMPLYING WITH THE RELEVANT PROVISIONS OF BS EN 681-1 OR TPE SEALS COMPLYING WITH BS EN 681-2, AND SHALL BE OBTAINED FROM THE PIPE MANUFACTURER.

3.8. RODDING POINTS SHOULD BE PROVIDED IN THE SVPs TO GIVE ACCESS.

4.0 CONCRETE WORKS

4.1. REFER TO SITE INVESTIGATION REPORT FOR EXISTING GROUND CONDITIONS AND ANY SPECIAL REQUIREMENTS FOR BURIED CONCRETE (SPECIAL REQUIREMENTS FOR BURIED CONCRETE SHALL INCLUDE ALL PRE-CAST AND IN-SITU CONCRETE AND MORTARS). WHERE APPROPRIATE REFER TO CONTAMINATION REPORTS FOR DETAILS OF CHEMICALS AFFECTING CHOICE OF MATERIALS AND OTHER ADDITIONAL REQUIREMENTS. UNLESS OTHERWISE STATED ALL BURIED CONCRETE SHALL BE DESIGNED TO BRE SPECIAL DIGEST 1 - CONCRETE IN AGGRESSIVE GROUND. CONCRETE PIPES AND FILLINGS AND PRECAST CONCRETE UNITS SHALL BE MANUFACTURED FROM CONCRETE WITH A DESIGN CLASS DC-4.

4.2. ALL MORTAR'S SPECIFIED FOR DRAINAGE WORKS SHALL BE CLASS (I) IN ACCORDANCE WITH BS EN 998-1 AND BS EN 998-2, UNLESS OTHERWISE SPECIFIED ON THE DETAIL.

4.3. ALL PRE-CAST AND IN-SITU CONCRETE AND MORTARS USED IN THE CONSTRUCTION OF FOUL DRAINS AND SEWERS SHALL BE MADE FROM SULPHATE RESISTING CEMENT.

4.4. STANDARD CONCRETE MIXES SHALL BE IN ACCORDANCE WITH BS EN 206-1 AND BS 8500, AND SHALL BE USED WITH A 20mm NOMINAL MAXIMUM SIZE OF AGGREGATE AND A SLUMP CLASS S2 FOR A TARGET 70mm.

5.0 MANHOLES / INSPECTION CHAMBERS

5.1. ACCESS FITTINGS, INSPECTION CHAMBERS AND MANHOLES SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN IN THE SEWERAGE SECTOR GUIDANCE APPENDIX C - DESIGN AND CONSTRUCTION GUIDANCE. ACCESS POINTS, INSPECTION CHAMBERS AND MANHOLES SHALL BE CONSTRUCTED FROM PRODUCTS DESIGNED/RATED FOR THE LOCATION IN WHICH THEY ARE TO BE USED. THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS/SUPPLIERS RECOMMENDATIONS.

5.2. ALL COVERS, GRATINGS AND FRAMES TO CHAMBERS, GULLIES, CHANNELS ETC. SHALL BE OF THE CORRECT LOAD CLASS TO SUIT THEIR LOCATION. GRATINGS IN PEDESTRIAN AREAS TO BE DESIGNED FOR PEDESTRIAN USE (I.E. HEEL SAFE).

5.3. ALL INTERNAL MANHOLES / INSPECTION CHAMBER COVERS TO BE DOUBLE SEALED WITH RECESSED AND LOCKABLE COVERS.

5.4. ALL EXISTING CHAMBERS, GULLIES CHANNELS, PIPES AND OTHER DRAINAGE APPARATUS SHALL BE PROTECTED FROM DAMAGE DURING THE WORKS. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO ENSURE THAT NO MATERIAL ENTERS THE DRAINS (OTHER THAN THAT WHICH THEY ARE DESIGNED TO CARRY).

5.5. UNLESS NOTED OTHERWISE ALL DRAINS AND SEWERS TO CONNECT WITH LEVEL SOFFITS. CHAMBER INVERT LEVELS SHOWN ARE TO OUTGOING PIPE.

5.6. INVERT LEVELS AT CATCHPITS RELATE TO INVERT OF OUTGOING PIPE.

5.7. PRECAST CONCRETE MANHOLE UNITS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 1917 AND BS 5911-3 AND SHALL BE MANUFACTURED FROM CONCRETE WITH A DESIGN CHEMICAL CLASS DC-4.

5.8. THERMOPLASTICS MANHOLES AND INSPECTION CHAMBERS SHALL COMPLY WITH BS EN 13598-1 OR BS EN 13598-2.

5.9. PRECAST CONCRETE SLABS AND COVER FRAME SEATING RINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 1917 AND BS 5911-3.

5.10. MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124 AND BS 7903.

5.11. AS A MINIMUM, CLASS D 400 COVERS SHALL BE USED IN CARRIAGEWAYS OF ROADS (INCLUDING PEDESTRIAN STREETS), RECREATIONAL LAND AND PARKING AREAS USED BY UNRESTRICTED TYPES OF ROAD VEHICLES.

5.12. CLASS B 125 SHALL BE USED IN FOOTWAYS, PEDESTRIAN AREAS, DRIVEWAYS SERVING A SINGLE HOUSE AND COMPARABLE LOCATIONS

5.13. CLAY BRICKS TO BE USED IN MANHOLES AND CHAMBERS SHALL BE SOLID, CLASS B ENGINEERING BRICKS COMPLYING WITH THE RELEVANT PROVISIONS OF BS EN 771-1 WITH FREEZE/THAW DESIGNATION F2 AND ACTIVE SOLUBLE SALTS CONTENT DESIGNATION S2.

6.0 PROPRIETARY PRODUCTS

6.1. INSTALLATION OF PROPRIETARY PRODUCTS, SUCH AS CELLULAR TANKS, PUMPS, PETROL INTERCEPTORS, GREASE TRAPS OR FLOW RESTRICTING DEVICES, SHALL BE STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS' SPECIFICATION AND INSTALLATION INSTRUCTIONS. ANY VARIANCE OR CONFLICT BETWEEN SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.

6.2. THE DESIGN AND LOCATION OF FLOW CONTROL DEVICES ARE TO BE AGREED WITH THE SEWERAGE COMPANY.

7. COMPLETION

7.1. ON COMPLETION OF CONSTRUCTION, INTERNAL SURFACES OF SEWERS, MANHOLES AND OTHER ACCESS POINTS SHALL BE THOROUGHLY CLEANSED TO REMOVE ALL DELETERIOUS MATTER, WITHOUT SUCH MATTER BEING PASSED FORWARD INTO EXISTING PUBLIC SEWERS OR WATERCOURSES. THE SEWERS AND MANHOLES SHALL BE MAINTAINED IN A CLEAN AND SERVICEABLE CONDITION UNTIL THEY ARE VESTED AS PUBLIC SEWERS.

7.2. SEWERS UP TO AND INCLUDING 750mm NOMINAL DIAMETER SHALL BE TESTED BY MEANS OF AN AIR OR WATER TEST IN ACCORDANCE WITH THE ADOPTING SEWERAGE COMPANY'S REQUIREMENTS AND SEWER SECTOR GUIDANCE APPENDIX C.

7.3. THE SEWER SHALL BE TESTED BY MEANS OF VISUAL OR CCTV EXAMINATION BY A QUALIFIED AND APPROVED CONTRACTOR IN ACCORDANCE WITH THE 'MODEL CONTRACT DOCUMENT FOR SEWER CONDITION INSPECTION' 2ND EDITION PRIOR TO BEING VESTED BY THE ADOPTING AUTHORITY.

NOTE:
UNTIL TECHNICAL APPROVAL HAS BEEN OBTAINED FROM THE RELEVANT LOCAL AUTHORITIES OR STATUTORY BODIES, IT SHOULD BE UNDERSTOOD THAT ALL DRAWINGS ARE ISSUED AS PRELIMINARY AND NOT FOR CONSTRUCTION. SHOULD THE CONTRACTOR AND / OR EMPLOYER COMMENCE WORK PRIOR TO APPROVAL BEING GIVEN, IT IS ENTIRELY AT THEIR OWN RISK

GENERAL NOTES:
1. DO NOT SCALE FROM THIS DRAWING. ONLY USE FIGURED DIMENSIONS. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ENGINEER
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL ENGINEER'S DRAWINGS AND DETAILS, THE SPECIFICATION FOR THE WORKS, THE RELEVANT ARCHITECT'S DRAWINGS AND ANY OTHER SPECIALIST'S DRAWINGS
3. CIVIL ENGINEERING DESIGN COMPLETED IN THE ABSENCE OF A COMPLETE COMBINED UTILITIES DESIGN AND DRAWINGS. IT IS ASSUMED THAT UTILITIES WILL BE POSITIONED TO SUIT PROPOSED DRAINAGE LAYOUT
4. PROPOSED BOUNDARY LAYOUT AND DETAILS BY OTHERS.
5. SOFT LANDSCAPING LAYOUT,DETAILS AND SPECIFICATION BY OTHERS

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