

- DRAINAGE NOTES**
1. ALL ADAPTABLE DRAINAGE WORKS AND MATERIALS TO BE IN ACCORDANCE WITH "SEWERS FOR ADOPTION" 6TH EDITION. THE RELEVANT BRITISH EUROPEAN AND YORKSHIRE WATERS STANDARDS REQUIREMENTS ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED.
 2. FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF YORKSHIRE WATERS BEFORE ANY SEWER WORKS ARE CARRIED OUT.
 3. ALL ADAPTABLE SEWERS TO BE KITEMARKED (CERTIFIED TO WIS 4-35-01 AND BS EN 13476).
 4. PLASTIC CHANNEL SECTIONS IN MANHOLES ARE NOT ACCEPTABLE AND THE WATER AUTHORITY PREFER CLAYWARE CHANNELS IN MANHOLES. PLASTIC CHANNELS ARE DIFFICULT TO SET IN CONCRETE BECAUSE THEY FLOAT AND A SATISFACTORY FINISH CANNOT BE OBTAINED ON THE BENCHING.
 5. THE WATER AUTHORITY IS NOT OBLIGED TO ACCEPT FILTER DRAIN AND DRAINAGE RUN-OFF INTO THE PUBLIC SEWER NETWORK OR ADAPTABLE DRAINAGE SYSTEM (DIRECTLY OR INDIRECTLY). AN ALTERNATIVE METHOD OF DISPOSAL OF THE LAND DRAINAGE RUN-OFF WILL THEREFORE BE REQUIRED AND YOU WILL HAVE TO LAISE WITH THE LOCAL AUTHORITY. LAND DRAINAGE SECTION WITH REGARD TO THE DISPOSAL OF THE FILTER DRAIN AND DRAINAGE RUN-OFF.
 6. SULPHATE RESISTANT CEMENT (C20-C22) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
 7. THE ADAPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.5M FROM KERB FACES AND SERVICE MARGINS.
 8. SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES (PLEASE ALSO REFER TO FIGURE 2.3 ON PAGE 33 IN "SEWERS FOR ADOPTION" 6TH EDITION FOR RESTRICTIONS ON TREE PLANTING ADJACENT TO SEWERS).
 9. SEWERS TO BE LAID IN CLASS "S" BEDDING (150MM GRANULAR BED AND SURROUND) WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2M IN HIGHWAYS AND VERGES OR LESS THAN 0.6M IN NON HIGHWAY ACCESS AREAS. THEN A CONCRETE SLAB SHOULD BE PROVIDED ABOVE GRANULAR BED AND SURROUND.
 10. CLASS 2 BEDDING DETAIL SHALL BE PROVIDED WHERE COVER TO THE PIPE BARREL IS LESS THAN 1.2M IN VEHICULAR TRAFFICKED AREAS AND 0.9M ELSEWHERE. TO ALL ROAD GULLY CONNECTIONS AND IN AREAS OF DEEP ROOTING VEGETATION.
 11. WHERE CLASS 2 TRENCH BEDDING DETAIL IS USED, THE CONCRETE BED AND SURROUND SHALL BE DISCONTINUED AT EACH PIPE JOINT OVER THE FULL CROSS SECTION BY MEANS OF A SHAPED COMPRESSIBLE FILLER.
 12. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-35-01 (TABLE A2).
 13. THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTIONS AND BENDS.
 14. ALL PRIVATE DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING REGULATIONS 2002 EDITION.
 15. CONTRACTOR TO ESTABLISH POSITION SIZE AND DEPTH OF ALL EXISTING SEWERS AND SERVICES PRIOR TO COMMENCEMENT ON SITE.
 16. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT, AND TEMPORARY AND PERMANENT DIVERSION WORKS, AS NECESSARY TO ALL EXISTING SERVICES.
 17. THE CONTRACTOR SHALL ALLOW FOR ALL TRAFFIC MANAGEMENT IN CONNECTION WITH ROAD AND SEWER WORKS.
 18. THE CONTRACTOR SHALL ALLOW FOR KEEPINGS SEWER TRENCHES AND EXCAVATIONS AS DRY AS PRACTICABLE BY PUMPING FROM TEMPORARY PUMPS AND DEWATERING AS APPROPRIATE. THE POINT AND METHOD OF DISCHARGE TO BE AGREED WITH THE DRAINAGE AUTHORITY.
 19. FOR PIPE SPECIFICATION PLEASE REFER TO ADDITIONAL NOTES.
 20. VITRIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 2526 AND BS 85 RESPECTIVELY AND BE KITEMARKED. ALL PIPES SHALL BE EXTRA STRENGTH TO BS 85 OR EQUIVALENT BS EN 2526 PIPE CRUSHING STRENGTH.
 21. STRUCTURED WALL PLASTIC PIPES TO WIS 4-35-01 MAY BE USED FOR FOUL & SURFACE WATER DRAINAGE SUBJECT TO ADOPTING AUTHORITY APPROVAL.
 22. PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 9111 AND BE KITEMARKED. CONCRETE PIPES TO BE CLASS 30 UNLESS NOTED OTHERWISE.
 23. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124 AND BE OF A NON ROCKING DESIGN WITH CAPTIVE WEDGE ACCESS AND BE KITEMARKED. LOAD CLASS D400 FOR ROADS AND SERVICE YARD AREAS. CLASS C20 TO BE USED IN CAR PARKING AREAS.
 24. BACKFILLING AND REINSTATEMENT TO TRENCHES IN PUBLIC HIGHWAYS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE ADOPTING AUTHORITY. OR, IN THE ABSENCE OF SUCH, IN ACCORDANCE WITH THE REQUIREMENTS OF THE STREET WORKS REGULATIONS 1992 AND RELEVANT PROVISIONS OF H.A.U.C. "SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS" JUNE 1992. BOTH UNDER SECTION 71 OF THE NEW ROADS AND STREET WORKS ACT 1991.
 25. ALL TRADITIONAL RAINWATER TRENCHES TO DISCHARGE TO TRAPPED GULLIES.
 26. ALL SIPHONIC DRAINAGE DOWN CORNERS TO MANUFACTURER SPECIFICATION.
 27. ALL ROAD GULLIES ARE TO BE TRAPPED GULLIES.
 28. ALL GULLY LEADS TO BE 150mm DIAMETER.
 29. ALL REDUNDANT EXISTING DRAINAGE TO BE GRUBBED UP OR GROUDED. ANY EXISTING LIVE DRAINAGE SHOULD BE REPORTED TO THE ENGINEER AND RECONNECTED.
 30. ALL ROAD GULLIES & LEADS TO BE CLEARED OF DEBRIS UPON COMPLETION OF WORKS.
 31. THE CONTRACTOR MUST ENSURE THAT ANY OF THE EXISTING DRAINAGE WHICH IS LIVE IS KEPT CLEAR OF DEBRIS AND SHOULD ALLOW FOR JETTING THROUGH THE NEW & EXISTING DRAINAGE UPON COMPLETION.
 32. CONTRACTOR TO TAKE MEASURES TO PROTECT HIS OPERATIVES WITH RESPECT TO THE PRESENCE OF GAS IN SEWER TRENCHES AND MANHOLES THROUGH THE USE OF GAS MONITORING EQUIPMENT AND BREATHING APPARATUS AS REQUIRED.
 33. CONTRACTOR TO APPLY FOR SEWER PERMITS AND ROAD OPENING PERMITS AS NECESSARY FROM THE APPROPRIATE AUTHORITIES, PRIOR TO COMMENCING WORKS.
 34. ADAPTABLE PLASTIC SEWER PIPES TO BE LAID IN MAXIMUM 3m LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS.
 35. WHERE PLASTIC PIPES ARE INSTALLED PRIOR TO GETTING APPROVAL THEN A LIGHT LINE CCTV SURVEY AND REPORT ARE REQUIRED PRIOR TO APPROVAL.

- DRAINAGE STRATEGY:**
1. PROPOSED SURFACE WATER DRAINAGE TO BE RESTRICTED TO 4hrs SUBJECT TO AGREEMENT FROM SCOTTISH WATER.
 2. SURFACE WATER ATTENUATION FOR 1 IN 200YR STORAGE EVENT EQUATES TO 66.5m³ OF CELLULAR STORAGE TANK.
 3. PROPOSED FOUL DRAINAGE TO FREELY DISCHARGE INTO EXISTING COMBINED DRAINAGE SUBJECT TO AGREEMENT FROM SCOTTISH WATER.
 4. ALL TRIPS HAVE BEEN ASSUMED AND ARE SUBJECT TO CONFIRMATION FROM ARCHITECT.
 5. ALL FOUL POP-UPS HAVE BEEN ASSUMED AND ARE SUBJECT TO CONFIRMATION FROM ARCHITECT.
 6. ALL DRAINAGE TO BE PRIVATE AND MAINTAINED BY A THIRD PARTY MANAGEMENT COMPANY.

- DRAINAGE NOTES:**
1. ALL PIPES 1000 UNLESS OTHERWISE STATED.
 2. ALL PIPES IN TRAFFICKED AREAS TO HAVE D400 COVERS & CONCRETE SURROUND.
 3. ALL INTERNAL PLOT DRAINAGE REQUIRES CONFIRMATION PRIOR TO CONSTRUCTION. CONTRACTOR TO CONFIRM MH COVER & INVERT LEVEL OF PROPOSED CONNECTION POINT PRIOR TO CONSTRUCTION. ANY VARIATION TO BE REPORTED TO ENGINEER.
 4. THE INVERT LEVEL OF THE EXISTING SEWERS ARE TO BE VERIFIED PRIOR TO COMMENCEMENT OF ANY DRAINAGE WORKS. ANY DISCREPANCY MUST BE NOTIFIED TO THE ENGINEER.
 5. EXISTING MANHOLES TO BE MODIFIED TO ACCOMMODATE THE PROPOSED LATERAL CONNECTIONS. CONTRACTOR TO APPLY TO THE WATER AUTHORITY FOR THE SECTION 106 APPROVAL. TO MAKE THE CONNECTIONS. PIPES ARE TO BE LAID WITH COMMON INVERT LEVELS.
 6. ALL STUB PIPES ARE TO BE CAPPED.
 7. ALL PIPES CONNECTIONS TO BE SOFFIT TO SOFFIT UNLESS STATED OTHERWISE. REFER TO MANHOLE SCHEDULE FOR FURTHER INFORMATION.
 8. FLOOD DEFENSE WORKS APPLICATION OR EQUIVALENT TO BE MADE TO THE LOCAL AUTHORITY PRIOR TO CARRYING OUT ANY WORKS TO THE EXISTING WATERCOURSE.

SUBJECT TO LOCAL AUTHORITY APPROVAL

Date	Revisions	SB	RWO	1
23.05.19	FIRST ISSUE			

PRELIMINARY

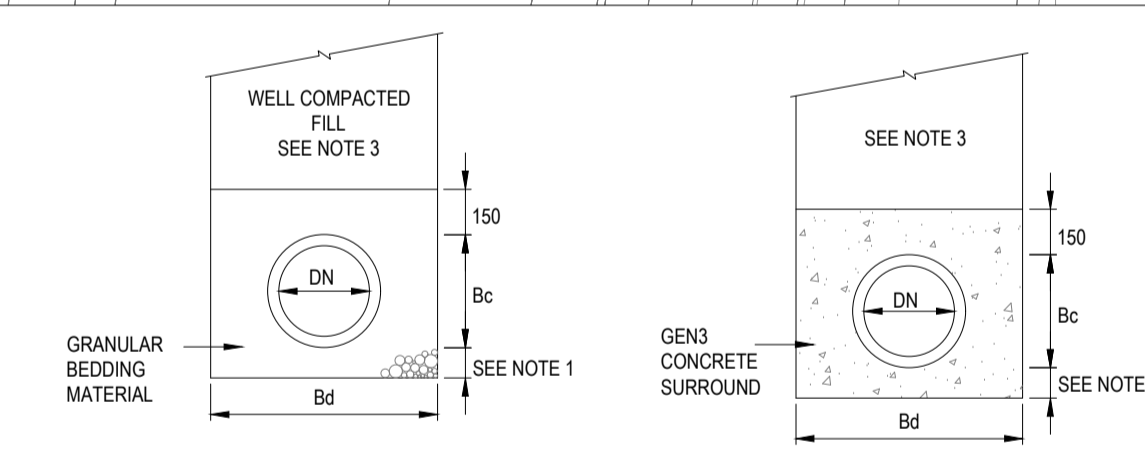
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Client: **STANTON BROOKS ESTATES LTD**

Project: **BIRKENSHAW STREET**

Title: **PROPOSED DRAINAGE PLAN**

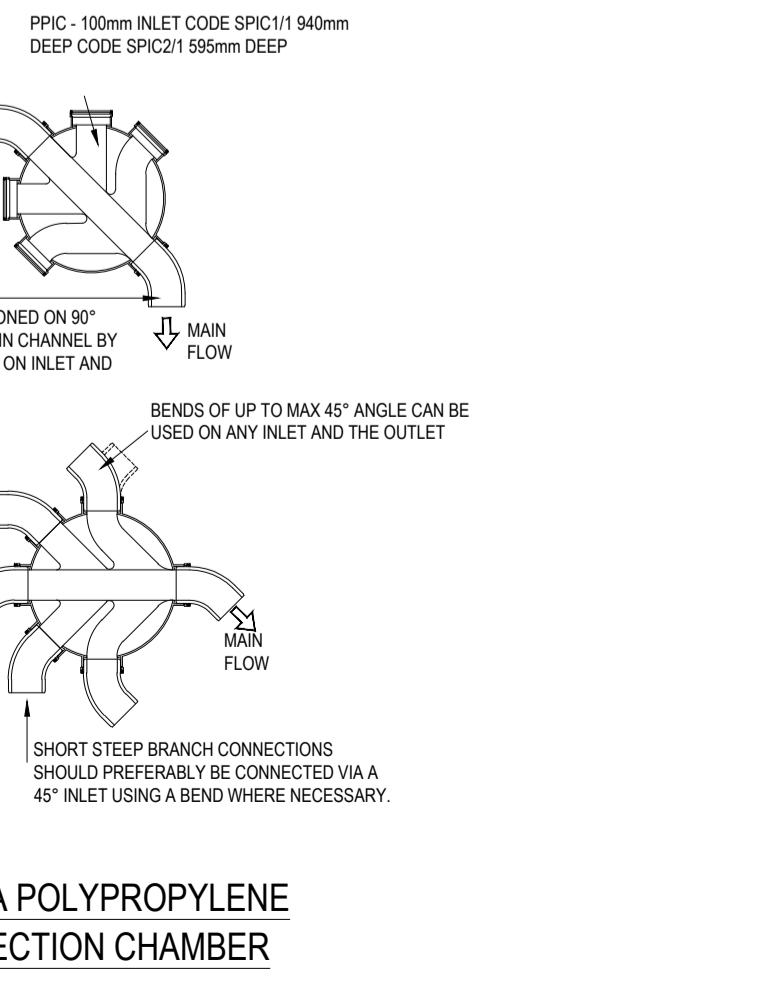
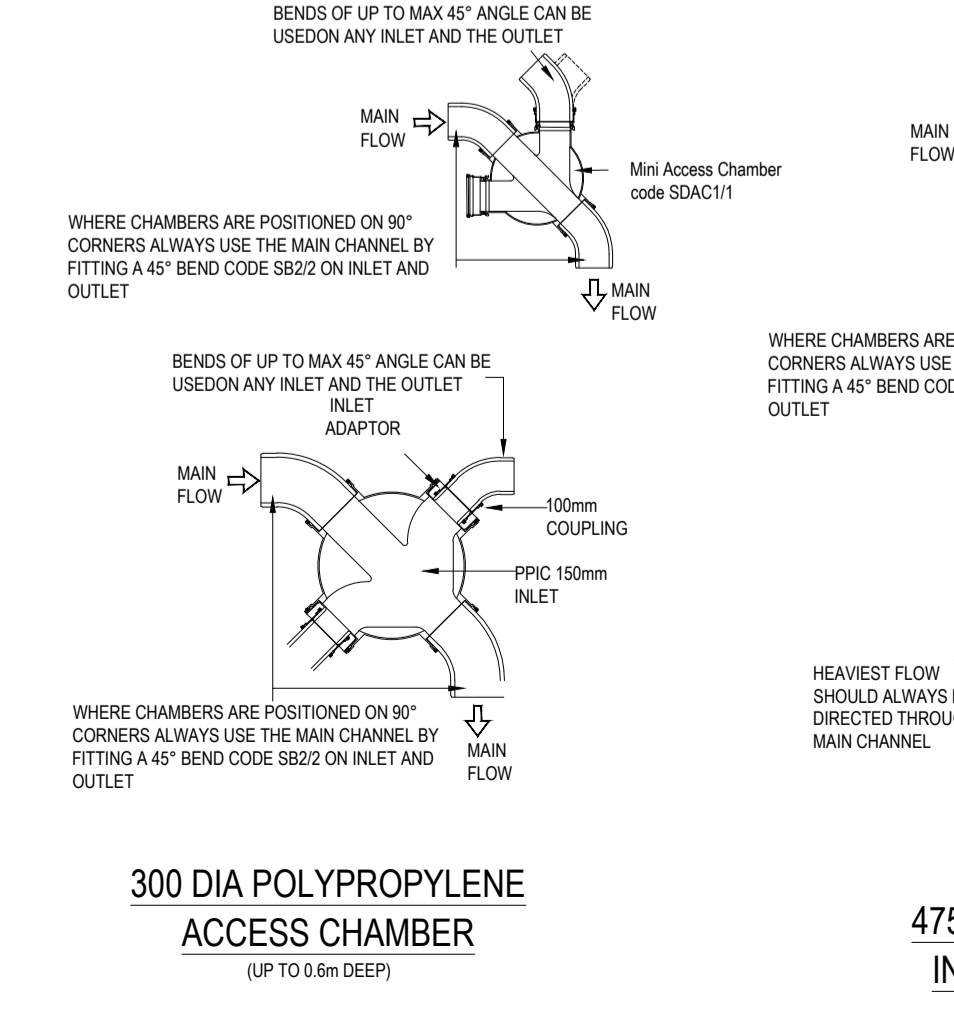
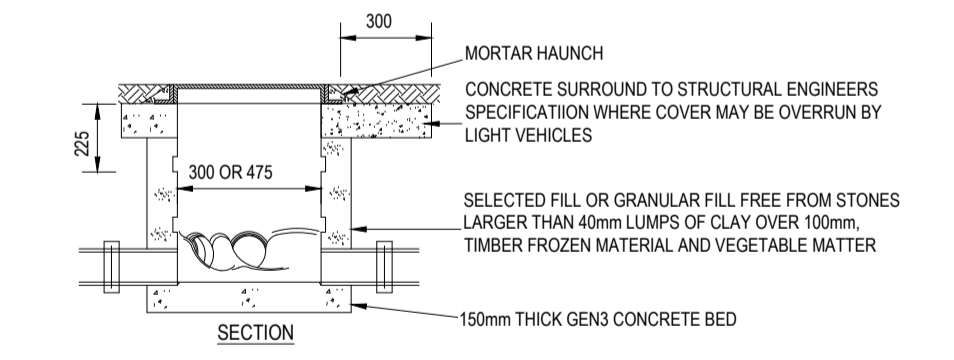
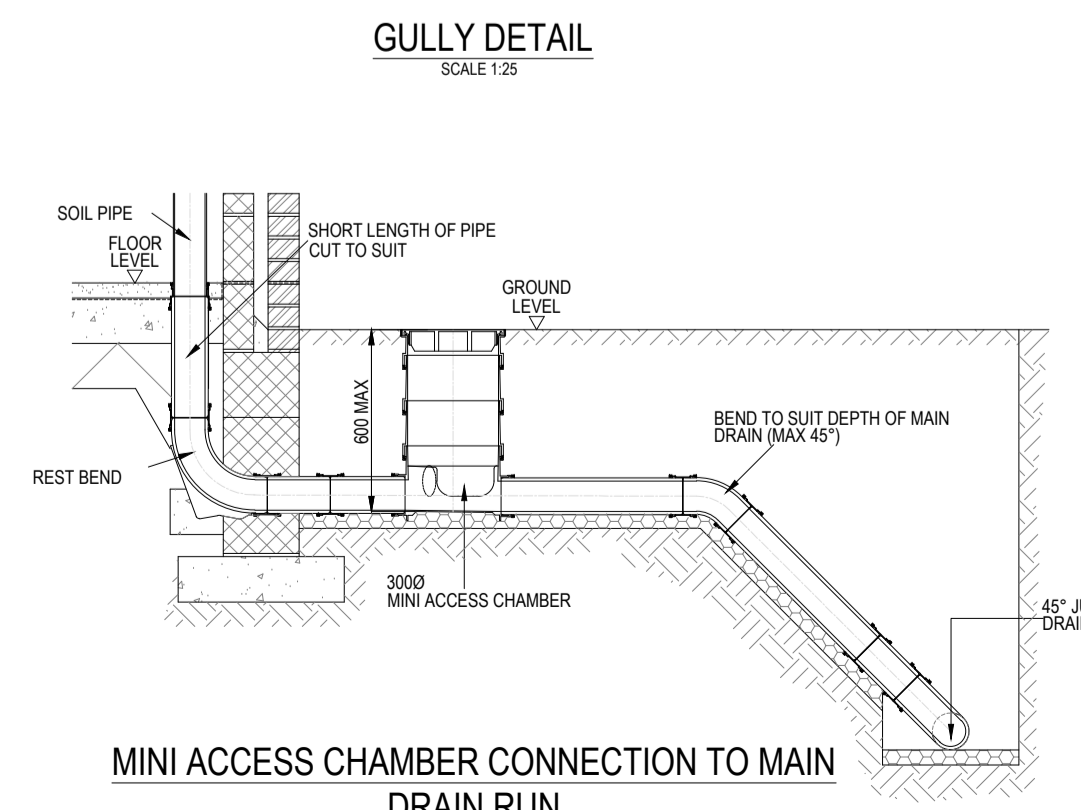
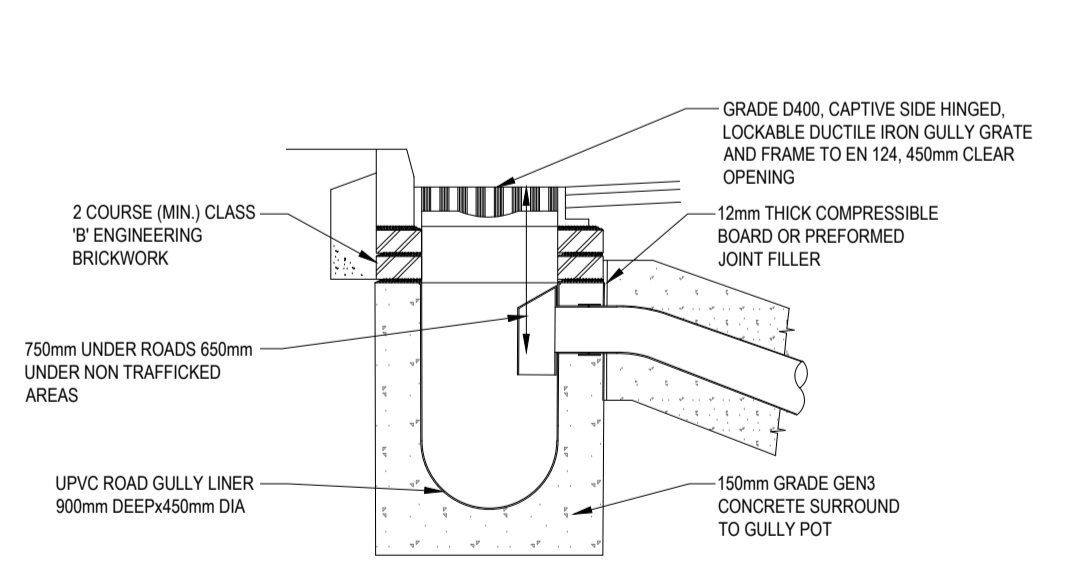
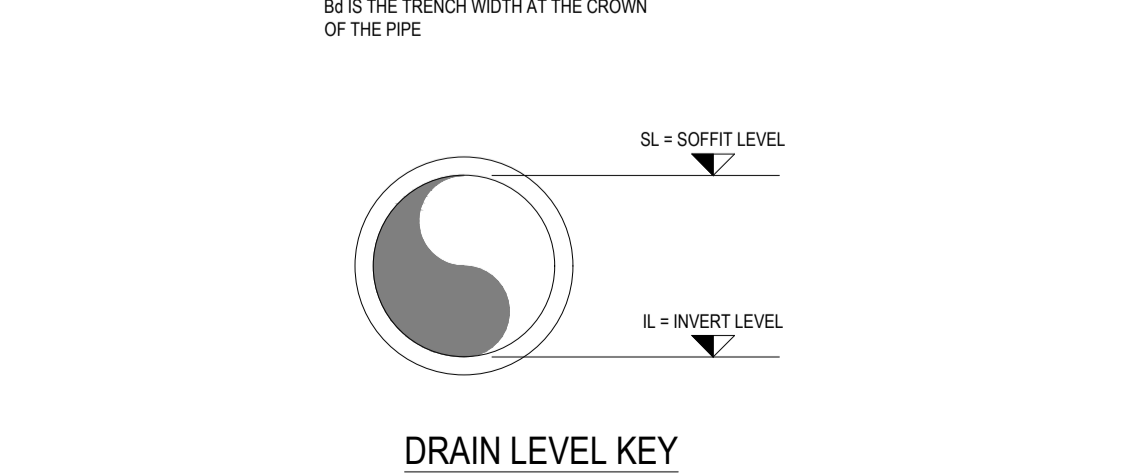
DO NOT SCALE	Scale @ A1: 1:250	Drawn SB	Checked RWO	Date 23.05.19
Job No	18242	Dwg No	D200	Rev 1



1. THIS DIMENSION TO BE 16 Bc OR 150mm WHICHEVER IS THE GREATER, OR IN THE CASE OF ROCK, OR WHERE IRREGULAR HARD SPOTS MAY OCCUR, THE DIMENSION IS TO BE 14 Bc OR 200mm WHICHEVER IS THE GREATER, BUT IN ANY CASE NOT LESS THAN 50mm UNDER THE SOCKETS.
2. SELECTED BACKFILL IS TO BE FREE FROM VEGETABLE MATTER, RUBBISH AND FROZEN SOIL, AND IS TO EXCLUDE STONES AND LUMPS RETAINED ON 40mm SIEVE, HAND COMPACTED IN LAYERS NOT EXCEEDING 150mm.
3. WHERE PIPELINES RUN UNDER PAVED/TRAFFICKED AREAS, BACKFILL TO THE TRENCH TO BE D.O.T. TYPE 1 SUB-BASE, CONSOLIDATED IN 150mm LAYERS UP TO THE UNDERSIDE OF THE PAVEMENT CONSTRUCTION.

CLASS S BEDDING **CLASS Z BEDDING**

NOMINAL SIZE OF PIPE DN(mm)	RECOMMENDED OVERALL TRENCH WIDTH Bc(m)	PIPE BEDDING REQUIREMENT (mm)
150	0.60	10 OR 14 NOM. SINGLE SIZE OR 14 TO 5 GRADED
225	0.70	10, 14 OR 20 NOM. SINGLE SIZE OR 14 TO 5 GRADED
300	0.85	



KEY

- SITE BOUNDARY
- EXC/MWH CL 0.000 IL 0.000 EXISTING ADOPTED COMBINED WATER
- 1500 1:150 --- PROPOSED PRIVATE SURFACE WATER
- SW/C CL 0.000 IL 0.000 PROPOSED PRIVATE SURFACE WATER PPIC
- PROPOSED PRIVATE SW ACCESS CHAMBER (3000)
- PROPOSED PRIVATE RAINWATER PIPE
- PROPOSED PRIVATE GULLY
- 1500 1:150 --- PROPOSED PRIVATE FOUL WATER
- FW/C CL 0.000 IL 0.000 PROPOSED PRIVATE FOUL WATER PPIC
- PROPOSED PRIVATE FW ACCESS CHAMBER (3000)