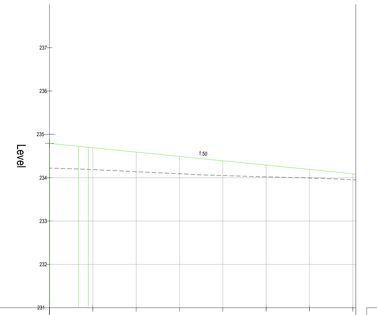
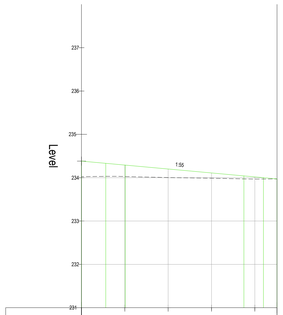


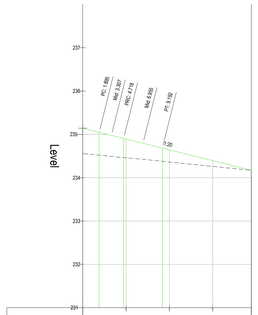
Chainage	00.000	05.000	10.000	15.000	20.000	25.000	30.000	34.355
Existing Levels	234.222	234.187	234.138	234.081	234.043	234.033	233.993	233.945
Proposed Levels	234.790	234.690	234.590	234.490	234.390	234.290	234.190	234.093
Horizontal Geometry		R: 4.000 L: 1.115	L = 30.869					
Vertical Geometry		G = 2.000% L = 30.340						
Surface Water CL								
Surface Water IL								
Surface Water Details								
Foul Water CL								
Foul Water IL								
Foul Water Details								

SD1 - LONGSECTION
SCALE: H 1:250,V 1:50. DATUM: 231.000



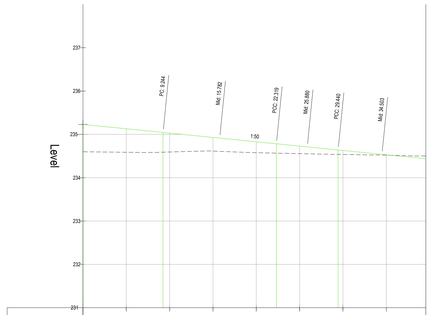
Chainage	00.000	05.000	10.000	15.000	20.000	22.583
Existing Levels	234.023	234.027	234.033	233.987	233.968	233.972
Proposed Levels	234.383	234.292	234.201	234.110	234.019	233.972
Horizontal Geometry		R: 4.000 L: 2.802	L = 13.695		R: 4.000 L: 2.246	=1.572
Vertical Geometry		G = 1.820% L = 22.583				
Surface Water CL						
Surface Water IL						
Surface Water Details						
Foul Water CL						
Foul Water IL						
Foul Water Details						

SD2 - LONGSECTION
SCALE: H 1:250,V 1:50. DATUM: 231.000



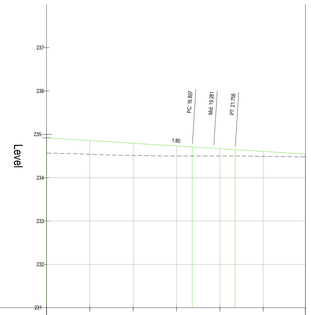
Chainage	00.000	05.000	10.000	15.000	19.620
Existing Levels	234.053	234.459	234.362	234.260	234.170
Proposed Levels	235.142	234.862	234.643	234.383	234.170
Horizontal Geometry		R: 4.000 L: 2.823	R: 12.000 L: 4.474	L = 10.257	
Vertical Geometry		G = 4.997% L = 19.450			
Surface Water CL					
Surface Water IL					
Surface Water Details					
Foul Water CL					
Foul Water IL					
Foul Water Details					

SD3 - LONGSECTION
SCALE: H 1:250,V 1:50. DATUM: 231.000



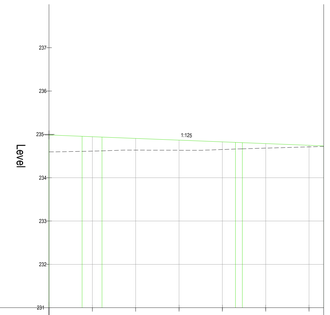
Chainage	00.000	05.000	10.000	15.000	20.000	25.000	30.000	35.000	38.905
Existing Levels	234.988	234.887	234.787	234.614	234.570	234.555	234.536	234.520	234.500
Proposed Levels	235.229	235.129	235.029	234.929	234.829	234.729	234.629	234.529	234.438
Horizontal Geometry		L = 9.244		R: 35.000 L: 13.075		R: 35.000 L: 7.121		R: 268.874 L: 10.125	
Vertical Geometry				G = 0.200% L = 39.565					
Surface Water CL									
Surface Water IL									
Surface Water Details									
Foul Water CL									
Foul Water IL									
Foul Water Details									

SD4 - LONGSECTION
SCALE: H 1:250,V 1:50. DATUM: 231.000



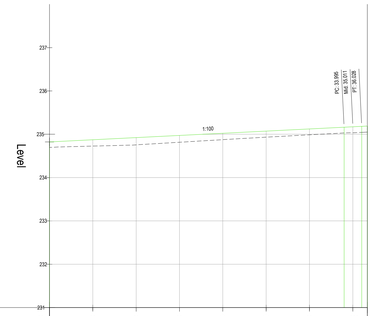
Chainage	00.000	05.000	10.000	15.000	20.000	25.000	28.861
Existing Levels	234.988	234.540	234.514	234.500	234.500	234.492	234.480
Proposed Levels	234.919	234.837	234.794	234.732	234.689	234.637	234.546
Horizontal Geometry		L = 16.807		R: 16.000 L: 4.949	L = 6.105		
Vertical Geometry				G = 1.250% L = 28.861			
Surface Water CL							
Surface Water IL							
Surface Water Details							
Foul Water CL							
Foul Water IL							
Foul Water Details							

SD5 - LONGSECTION
SCALE: H 1:250,V 1:50. DATUM: 231.000



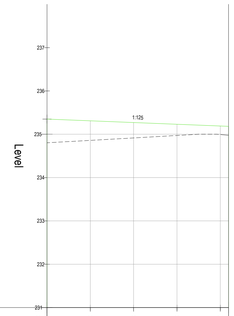
Chainage	00.000	05.000	10.000	15.000	20.000	25.000	30.000	33.821
Existing Levels	234.988	234.887	234.613	234.556	234.533	234.500	234.482	234.751
Proposed Levels	234.897	234.847	234.797	234.747	234.697	234.647	234.597	234.547
Horizontal Geometry		L = 0.821	R: 6.000 L: 2.256	L = 15.399		R: 6.000 L: 2.256	L = 9.382	
Vertical Geometry				G = 0.800% L = 31.681				
Surface Water CL								
Surface Water IL								
Surface Water Details								
Foul Water CL								
Foul Water IL								
Foul Water Details								

SD6 - LONGSECTION
SCALE: H 1:250,V 1:50. DATUM: 231.000



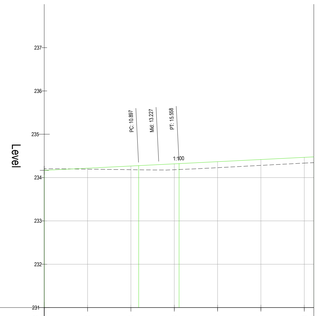
Chainage	00.000	05.000	10.000	15.000	20.000	25.000	30.000	35.000	36.671
Existing Levels	234.666	234.727	234.796	234.915	234.974	234.932	234.987	235.055	235.003
Proposed Levels	234.833	234.873	234.923	234.973	235.023	235.073	235.123	235.173	235.190
Horizontal Geometry			L = 33.995					R: 2.000 L: 2.643	
Vertical Geometry		G =1.000% L =36.671							
Surface Water CL									
Surface Water IL									
Surface Water Details									
Foul Water CL									
Foul Water IL									
Foul Water Details									

SD7 - LONGSECTION
SCALE: H 1:250,V 1:50. DATUM: 231.000



Chainage	00.000	05.000	10.000	15.000	20.004
Existing Levels	234.663	234.669	234.615	234.572	234.592
Proposed Levels	234.300	234.316	234.276	234.235	234.180
Horizontal Geometry			L = 20.954		
Vertical Geometry		G = 0.800% L = 20.954			
Surface Water CL					
Surface Water IL					
Surface Water Details					
Foul Water CL					
Foul Water IL					
Foul Water Details					

SD8 - LONGSECTION
SCALE: H 1:250,V 1:50. DATUM: 231.000



Chainage	00.000	05.000	10.000	15.000	20.000	25.000	30.100
Existing Levels	234.304	234.195	234.182	234.181	234.229	234.282	234.346
Proposed Levels	234.187	234.217	234.267	234.317	234.367	234.417	234.488
Horizontal Geometry		L = 10.887		R: 15.000 L: 4.661	L = 15.548		
Vertical Geometry				G =1.000% L =31.106			
Surface Water CL							
Surface Water IL							
Surface Water Details							
Foul Water CL							
Foul Water IL							
Foul Water Details							

SD9 - LONGSECTION
SCALE: H 1:250,V 1:50. DATUM: 231.000

GENERAL SAFETY NOTES:

1. WHERE THE BASE (ROAD BASE) HAS BEEN USED AS A TEMPORARY RUNNING SURFACE DURING THE CONTRACT IT SHALL BE THOROUGHLY CLEANED AND POWER WASHED AS NECESSARY. AFTER DRYING AND IMMEDIATELY BEFORE THE BINDER COURSE IS LAID A TACK COAT OF BITUMEN EMULSION CLASS A1-40 OR K1-40 TO BS434 SHALL BE APPLIED AT A RATE OF 0.35-0.55 LITRES/SQ METER.
2. ALL RADIUS KERBS WITH A RADIUS OF 12m OR LESS SHALL BE FORMED WITH PROPRIETARY RADIUS KERBS.

HEALTH & SAFETY

6. CONTRACTOR SHOULD BE AWARE OF GENERAL CONSTRUCTION RISKS TO PREVENT SLIPS, TRIPS AND FALLS AND TAKE NECESSARY PRECAUTIONS WITHOUT SPECIAL INSTRUCTION.

ROADS DRAINAGE

12. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE
13. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
14. CONNECTIONS TO EXISTING SEWERS TO BE MADE BY APPROVED CONTRACTOR ONLY.
15. CONTRACTOR TO MAKE OPERATIVES AWARE OF ASSOCIATED DANGERS TO HEALTH SUCH AS LEPTOSPIROSIS (WEILS DISEASE) AND RECOMMENDED PRECAUTIONS. ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING TO BE PROVIDED AS REQUIRED.
16. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.

PIPES & CABLES

17. CONTRACTOR TO OBTAIN ALL SERVICE RECORDS PRIOR TO WORKS COMMENCING.
18. SERVICE RECORDS TO BE REFERRED TO PRIOR TO WORK COMMENCING. CONTRACTOR TO PROCEED WITH CAUTION AND SERVICES TO BE LOCATED BY HAND DIG AND PROTECTED ACCORDINGLY.

EXCAVATIONS

9. CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.
10. CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.
11. CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.

DRAINAGE NOTES

1. ALL ADOPTABLE DRAINAGE WORKS AND MATERIALS TO BE IN ACCORDANCE WITH "CODE FOR ADOPTION", THE RELEVANT BRITISH/EUROPEAN AND NORTHUMBRIAN WATER'S STANDARDS/REQUIREMENTS/ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED.
2. MANHOLE COVERS SHALL MUST HAVE A CLEAR OPENING OF 600MM AND SHALL BE CLASS D400 TO BS EN 124 WITH 150MM DEEP FRAMES IN HIGHWAYS.
3. FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF NORTHUMBRIAN WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.
4. ALL ADOPTABLE SEWERS TO BE KITEMARKED (CERTIFIED TO WIS 4-35-01 AND BS/EN/ISO/9).
5. PLASTIC CHANNEL SECTIONS IN MANHOLES ARE NOT ACCEPTABLE AND THE WATER AUTHORITY PREFER CLAYWARE CHANNEL IN MANHOLES. PLASTIC CHANNELS ARE DIFFICULT TO SET IN CONCRETE BECAUSE THEY FLOAT AND A SATISFACTORY FINISH CANNOT BE OBTAINED ON THE BENCHING.
6. SULPHATE RESISTANT CEMENT (C25/C32) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
7. THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.5M FROM KERB FACES AND SERVICE MARKING.
8. SEWERS TO BE LAID 5 METRES CLEARANCE FROM TREES AND HEDGES.
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 900MM IN NONE VEHICULAR ACCESS AREAS) THEN A CLASS 'Z' BEDDING/CONCRETE SURROUNDS SHOULD BE PROVIDED.
10. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-09-02 (TABLE A2).
11. 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.
12. ALL PRIVATE DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING REGULATIONS 2010 EDITION.
13. CONTRACTOR TO ESTABLISH POSITION SIZE AND DEPTH OF ALL EXISTING SEWERS AND SERVICES PRIOR TO COMMENCEMENT ON SITE.
14. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT, AND TEMPORARY AND PERMANENT DIVERSION WORKS, AS NECESSARY TO ALL EXISTING SERVICES.
15. THE CONTRACTOR SHALL ALLOW FOR ALL TRAFFIC MANAGEMENT IN CONNECTION WITH ROAD AND SEWER WORKS.
16. THE CONTRACTOR SHALL ALLOW FOR KEEPING SEWER TRENCHES AND EXCAVATIONS AS DRY AS PRACTICABLE BY PUMPING FROM TEMPORARY SUMPS AND DEWATERING AS APPROPRIATE. THE POINT AND METHOD OF DISCHARGE TO BE AGREED WITH THE DRAINAGE AUTHORITY.
17. FOR PIPE SPECIFICATION PLEASE REFER TO ADDITIONAL NOTES.
18. VITRIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN295 AND BS 65 RESPECTIVELY AND BE KITEMARKED. ALL PIPES SHALL BE EXTRA STRENGTH TO BS OR EQUIVALENT BS EN295 PIPE CRUSHING STRENGTH.
19. STRUCTURED WALL PLASTIC PIPES TO WIS 4-35-01 MAY BE USED FOR FOUL & SURFACE WATER DRAINAGE, SUBJECT TO ADOPTING AUTHORITY APPROVAL.
20. PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE KITEMARKED. CONCRETE PIPES TO BE CLASS 120 UNLESS NOTED OTHERWISE.
21. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN124 AND BE OF A NON-ROCKING DESIGN WITH CAPTIVE HINGE ACCESS AND BE KITEMARKED. LOAD CLASS D400 FOR ROADS AND SERVICE YARD AREAS. CLASS C250 TO BE USED IN CAR PARKING AREAS.
22. BACKFILLING AND REINSTATEMENT TO TRENCHES IN PUBLIC HIGHWAYS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ADOPTING AUTHORITY. ALL TRENCHES SHALL BE TAMPED IN THE ABSENCE OF SUCH. IN ACCORDANCE WITH THE REQUIREMENTS OF "THE STREET WORKS (NORTHERN IRELAND) ORDER 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.
23. ALL TRADITIONAL RAINWATER PIPE DOWN COMERS TO DISCHARGE TO TRAPPED GULLIES.
24. ALL ROAD GULLIES ARE TO BE TRAPPED GULLIES.
25. ALL GULLY LEADS TO BE 150mm DIAMETER.
26. ALL REDUNDANT EXISTING DRAINAGE TO BE GRUBBED UP OR GROUTED. ANY EXISTING LIVE DRAINAGE SHOULD BE REPORTED TO THE ENGINEER AND RECONNECTED.
27. ALL ROAD GULLIES & LEADS TO BE CLEARED OF DEBRIS UPON COMPLETION OF WORKS.
28. 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.
29. 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.
30. CONTRACTOR TO APPLY FOR SEWER PERMITS AND ROAD OPENING PERMITS AS NECESSARY FROM THE ADOPTING AUTHORITY PRIOR TO COMMENCING WORKS.
31. ADOPTABLE PLASTIC SEWER PIPES TO BE LAID IN MAXIMUM 3M LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS.
32. WHERE PLASTIC PIPES ARE INSTALLED PRIOR TO GETTING APPROVAL THEN A LIGHT LINE CCTV SURVEY AND REPORT ARE REQUIRED PRIOR TO APPROVAL.
33. WHERE A B125 COVER AND FRAME HAS BEEN APPROVED, THIS MUST NOT BE COATED IN PLASTIC AND MUST HAVE LIFTING EYES SUITABLY SIZED TO ACCOMMODATE STANDARD LIFTING KEYS. SCREW DOWN COVERS ARE NOT ACCEPTABLE.
34. THERE SHOULD BE ENOUGH CLEARANCE TO ACCOMMODATE THE BEDDING FOR BOTH PIPES. APPROX 300MM + Ø CROSSOVER IS NEAR THE ROCKER THEN THE CLEARANCE NEEDED MAY BE INCREASED.
35. THE MINIMUM CRUSHING STRENGTH FOR CLAY PIPES SHOULD BE AS FOLLOWS : 100MM DIA. 40kNM, 150MM DIA. 40kNM, 225MM DIA. 40kNM AND 300MM DIA. 72kNM. THE MINIMUM CRUSHING STRENGTH FOR CONCRETE PIPES SHOULD BE : (CLASS 120 TO EN 1916/BS5911-1:2002). PLASTIC PIPES SHOULD CONFORM TO : WIS 4-35-01 AND BS EN13476.

DESIGN NOTES:

1. ALL WORKS TO COMPLY WITH CURRENT VERSION OF THE FOLLOWING DOCUMENTS:
   - DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB)
   - SPECIFICATION FOR HIGHWAY WORKS (SHW)
   - LOCAL AUTHORITY DESIGN GUIDE AND SPECIFICATION
2. PRIOR TO COMMENCING WORKS THE CONTRACTOR SHOULD INVESTIGATE AND LOCATE AS NECESSARY ALL EXISTING UTILITY SERVICES AND ASSESS THE IMPACT WITHIN THE NEW ACCESS AND DISCUSS REQUIREMENTS FOR DIVERSION/DIVERSION AND PROTECTION WITH THE RELEVANT UNDERTAKER.
3. ALL WORKS WITHIN THE PUBLIC HIGHWAY TO MEET LOCAL AUTHORITY REQUIREMENTS. CONTRACTOR TO APPLY FOR ROAD OPENING NOTICES ETC AS REQUIRED.
4. CBR VALUE NOT AVAILABLE. ROAD CONSTRUCTION DETAIL SUBJECT TO CONFIRMATION OF CBR VALUES. CONTRACTOR TO ALLOW FOR LAB TESTS TO BE UNDERTAKEN IN AGREEMENT WITH LOCAL AUTHORITY HIGHWAY ENGINEER PRIOR TO WORKS COMMENCING.
5. PROPOSED LEVELS HAVE BEEN BASED ON THE EXISTING TOPOGRAPHICAL SURVEY PROVIDED BY THE CLIENT.
6. TOPO SURVEY TO LOCAL GRID.
7. PROPOSED DRAWING BASED ON THE LATEST ARCHITECTURAL LAYOUT PROVIDED BY THE CLIENT.
8. SLOPES GREATER THAN 1 IN 6 MAY REQUIRE STABILISATION. GEOTECHNICAL ENGINEER TO BE CONTACTED TO CONFIRM REQUIREMENTS

DRAINAGE NOTES:

1. ALL PIPES 100Ø UNLESS OTHERWISE STATED.
2. ALL PRIVATE TO ADOPTABLE CONNECTIONS 100Ø UNLESS OTHERWISE STATED.
3. ALL IPNCS IN TRAFFICKED AREAS TO HAVE D400 COVERS & CONCRETE SURROUND.
4. ALL INTERNAL PLOT DRAINAGE REQUIRES CONFIRMATION PRIOR TO CONSTRUCTION.
5. CONTRACTOR TO CONFIRM MH COVER & INVERT LEVEL OF PROPOSED CONNECTION POINT PRIOR TO CONSTRUCTION. ANY VARIATION TO BE REPORTED TO ENGINEER.
6. 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.
7. 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.
8. ALL STUB PIPES ARE TO BE CAPPED.
9. ALL PIPES CONNECTIONS TO BE SOFFIT TO SOFFIT UNLESS STATED OTHERWISE. REFER TO MANHOLE SCHEDULES FOR FURTHER INFORMATION.
10. ALL PLOT DRAINS & DRAINS TO CONNECT BACK INTO PLOT DRAINAGE.
11. STONE FILLED LINE DRAINS REQUIRED IN BACK GARDENS WHERE FALLING TOWARDS PROPERTY
12. FLOOD DEFENSE WORKS APPLICATION OR EQUIVALENT TO BE MADE TO THE LOCAL AUTHORITY PRIOR TO CARRYING OUT ANY WORKS TO THE EXISTING WATERCOURSE.

PIPE MATERIALS

- **150-225Ø: UPVC PIPES TO BE BSI KITEMARKED AND CERTIFIED TO WIS 4-35-01 & BS/EN14376.**
- **300-825Ø: CONCRETE PIPES TO BE BSI KITEMARKED, CLASS 120 CONCRETE & CERTIFIED TO BS5911 & 1916.**
- **900Ø-OWMM/SOS: COMPOSITE STEEL REINFORCED PIPE (AQUASPIRA) TO BE BSI KITEMARKED & CERTIFIED TO BS/EN13476.**

KEY

- EXISTING LEVELS
- PROPOSED LEVELS
- PROPOSED ADOPTED SW
- PROPOSED ADOPTED FW

SUBJECT TO LOCAL AUTHORITY & WATER AUTHORITY APPROVAL

Date	Revisions	Drawn	Checked	Rev
05.02.24	FIRST ISSUE	RL	AE	1

Dwg Status: SCHEMATIC

NORTH EAST
0191 2585632

YORKSHIRE
0113 535 3500

RWO
CONSULTING ENGINEERS
WWW.RWO.GROUP
INFO@RWO.GROUP

Client: AMETHYST HOMES

Project: REGENTS PARK, PHASE 6

Title: ROAD LONGSECTIONS
SHEET 3

DO NOT SCALE	Scale @ A0: 1:250	Drawn: RL	Checked: AE	Date: 05.02.24
Job No: 21134	Dwg No: D302			Rev: 1