LEGEND	
REF	DESCRIPTION
	INDICATIVE SITE BOUNDARY
	PROPOSED SITE SURFACE WATER DRAINAGE
	PROPOSED SITE FOUL WATER DRAINAGE NETWORK
	EXISTING UNITED UTILITIES SURFACE WATER SEWER
	EXISTING UNITED UTILITIES COMBINED SEWER
	EXISTING UNITED UTILITIES FOUL WATER SEWER
	ASSUMED EXISTING CULVERTED WATERCOURSE TO BE GRUBBED UP AND BACKFILLED
	PROPOSED CULVERT DIVERSION ROUTE
	6m EASEMENT TO PROPOSED DIVERTED CULVERT
	ATTENUATION TANK
	PROPOSED PERMEABLE PAVING/ SUB-BASE ATTENUATION SYSTEM. ALLOW FOR PERFORATED CONCRETE KERBS AND FLOW CONTROL CHAMBERS FOR EACH SYSTEM. SYSTEMS TO BE LINED WITH IMPERMEABLE MEMBRANE DUE TO CONTAMINATION RISK.

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RENAISSANCE, ARCHITECTS, LANDSCAPE ARCHITECTS AND BUILDING SERVICES ENGINEERS DRAWINGS.
2. THE FINAL CONNECTION TO THE PUBLIC SEWER IS SUBJECT TO UNITED UTILITIES APPROVAL AND IS TO BE IN ACCORDANCE WITH THIER AGREED DETAILS.
3. ALL BELOW GROUND DRAINAGE WORKS TO BE IN ACCORDANCE WITH RELEVANT BUILDING REGULATIONS AND SEWER SECTOR GUIDANCE APPENDIX C- DESIGN AND CONSTRUCTION GUIDANCE. IF DISCREPANCIES ARE NOTED BETWEEN SSG AND DRAWINGS THESE SHOULD BE BROUGHT TO THE ATTENTION OF RENAISSANCE FOR REVIEW.
4. RWPs, SVPs, SSs AND FLOOR GULLEYS ARE TO HAVE RODDABLE ACCESS POINTS ABOVE GROUND FLOOR TO BUILDING SERVICES DETAILS.
5. PERMEABLE PAVING SYSTEMS AND FLOW CONTROL DEVICES ARE TO BE TO SUPPLIERS DESIGN AND DETAILS. INSTALLATION IS TO BE IN ACCORDANCE WITH THE SUPPLIERS REQUIREMENTS.
6. SEWERS TO BE LAID IN CLASS S BEDDING (150mm DIA GRANULAR BED AND SURROUND). WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2m IN HIGHWAYS OR VERGES, OR LESS THAN 0.9m IN PEDESTRIAN AREAS, THEN A 150mm DIA CONCRETE SLAB SHOULD BE PROVIDED ABOVE THE GRANULAR BED AND SURROUND.REFER TO DETAILS SHEETS.
7. THE CONTRACTOR IS TO UNDERTAKE A FULL CCTV SURVEY AT COMPLETION OF THE PROJECT TO DEMONSTRATE THAT THE DRAINAGE IS CLEAN ANY DEFECTS ARE TO BE CORRECTED BY THE CONTRACTOR PRIOR TO HANDOVER OF THE SYSTEM TO THE CLIENT.
8. THE CONTRACTOR IS TO KEEP A RECORD SET OF THE AS INSTALLED DRAINAGE ON SITE AND PROVIDE THIS TO RENAISSANCE UPON COMPLETION OF THE WORKS TO ALLOW FOR PRODUCTION OF A 'FINAL CONSTRUCTION' ISSUE DRAWING.
9. DURING THE WORKS ALTERATIONS TO THE DRAINAGE LAYOUT ARE TO BE MARKED UP BY THE CONTRACTOR AND AGREED WITH RENAISSANCE IN WRITING.
10. THE CHAMBER SIZE OF PCC MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTIONS AND BENDS.
11. MANHOLE COVERS ARE TO BE IN ACCORDANCE WITH BS EN 124 FOR THE RATING INDICATED IN THE MANHOLE SCHEDULE. THE CONTRACTOR IS TO SUBMIT DETAILS FOR THE PROPOSED MANHOLE COVERS TO THE ENGINEER AND LANDSCAPE ARCHITECT FOR REVIEW PRIOR TO INSTALLATION.
12. ALL INTERNAL COVERS TO BE RECESSED AND TRIPLE SEALED
13. COVER SLABS MUST CARRY THE BSI KITEMARK. WHERE THE CLEAR OPENING OF THE KITEMARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME, A LOAD BEARING REDUCING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN TO REQUIRED SIZE.
14. ALL SEWERS TO BE BSI KITEMARK (CERTIFIED TO WIS 4-35-01)
15. ALL CONCRETE PIPES TO BE TO ES EN 1916 CLASS 120 (54kN/m).
16. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENTS OF THE WATER INDUSTRY SPECIFICATION 4-08092 (TABLE A2).
17. IF PLASTIC PIPES ARE TO BE USED THEN THE FOLLOWING MUST APPLY: A BSI KITEMARK (CERTIFIED TO BS EN 13476-1 AND WIS 4-35-01) B PIPES LESS THAN OR EQUAL TO 500mm DIA C BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENTS OF THE WATER INDUSTRY SPECIFICATION 4-08092 (TABLE A2)
18. THE MINIMUM CRUSHING STRENGTH FOR CLAY PIPES SHOULD BE AS FOLLOWS: 100mm DIA. 40kN/m, 150mm DIA DIA. 40kN/m, 225mm DIA. 45kN/m AND 300mm DIA. 72kN/m.
19. 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.
20. SULPHATE RESISTANT CEMENT (C20-DC3) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
21. SEWER PIPES TO BE LAID IN MAXIMUM 3 METER LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER PIPES. AND THIS IS AGREED BY THE CONTRACTOR WITH THE PIPE MANUFACTURER.
22. ALL FOUL AND SURFACE WATER BELOW GROUND SYSTEMS ARE TO BE VENTED WITHIN THE ABOVE GROUND DRAINAGE TO THE BUILDING SERVICES ENGINEERS DETAILS
23. ALLOW FOR ALL THE EXISTING SURFACE WATER DRAINAGE ON SITE TO BE GRUBBED UP AND BACKFILLED. ANY CONNECTIONS FROM THE SITE TO THE PUBLIC SEWER TO THE SITE ARE TO BE CAPPED AND GROUTED.

INDICATIVE GRAVITY CONNECTION INTO U/I COMBINED WATER SEWER - INVERT LEVEL UNKNOWN AND IS TBC WITH UCTV SURVEY. APPROX MIN INVERT LEVEL REQUIRED TO FORM GRAVITY CONNECTION: 66.500m

CONNECTION TO SURFACE WATER SEWER NOT FEASIBLE DUE TO INVERT LEVEL OF 69.15m

CONNECTION TO 300mm PRIVATE CULVERTED WATERCOURSE

ALLOWABLE RATE OF DISCHARGE: 13.6l/s

PROPOSED VORTEX SEPARATOR - DOWNSTREAM DEFENDER OR EQUIVALENT TO PROVIDE WATER TREATMENT PRIOR TO DISCHARGE TO THE SEWER NETWORK

INDICATES EXTENT OF SCRUB AREA TO BE REPLACED FOLLOWING INSTALLATION OF DRAINAGE NETWORKS THROUGH ROUTE TO AVOID TREE ROOT PROTECTION ZONES.

ASSUMED ALIGNMENT OF EXISTING CULVERTED WATERCOURSE. STATUS AND LOCATION TBC VIA SITE SURVEYS.

REFER TO DRAINAGE DETAILS SHEET FOR DETAIL OF CHANNEL DRAIN AT BOTTOM OF SERVICE YARDS.

CULVERTED WATERCOURSE TO BE DIVERTED SUBJECT TO LLFA APPROVAL.

PROPOSED FOUL WATER CONNECTION INTO EXISTING 150 DIAMETER UNITED UTILITIES FOUL WATER SEWER VIA NEW MANHOLE CONNECTION INTO EXISTING MANHOLE. DEPTH TO BE CONFIRMED PRIOR TO CONSTRUCTION.

POTENTIAL APPROX. LOCATION OF INCOMING 225mm DIA. CULVERTED WATERCOURSE AT CIRCA 500mm DEPTH. STATUS AND LOCATION TO BE DETERMINED VIA SITE SURVEY TO SUIT LLFA REQUIREMENTS.

ADDITIONAL MANHOLES TO ALLOW FOR FURTHER POSSIBLE DRAINAGE CONNECTIONS VIA 'POP UPS'

PROPOSED FOUL WATER CONNECTION INTO EXISTING 150 DIAMETER UNITED UTILITIES FOUL WATER SEWER VIA NEW MANHOLE CONNECTION. DEPTH TO BE CONFIRMED PRIOR TO CONSTRUCTION.

POTENTIAL APPROX. LOCATION OF INCOMING 225mm DIA. CULVERTED WATERCOURSE AT CIRCA 500mm DEPTH. STATUS AND LOCATION TO BE DETERMINED VIA SITE SURVEY TO SUIT LLFA REQUIREMENTS

P04	STAGE 4 ISSUE	22.04.26	JAB	PC
P03	MEP & SPACIAL COORDINATION OF NETWORKS	10.12.25	JAB	PC
P02	REVISED IN-LINE WITH ARCHITECT COMMENTS	21.11.25	JAB	PC
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Project:
MANCHESTER BUSINESS PARK

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BELOW GROUND DRAINAGE GENERAL ARRANGEMENT

Status:
STAGE 4

Size:	Date:	Drawn by:	Designed by:	Checked by:
A0	APR 26	JAB	JAB	PC

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