

GENERAL PROJECT NOTES

- THIS DRAWING HAS BEEN DEVELOPED USING INFORMATION PROVIDED TO RAMBOLL BY A NUMBER OF THIRD PARTIES. RAMBOLL CAN ACCEPT NO RESPONSIBILITY FOR THE ACCURACY OF THE INFORMATION SHOWN AND DERIVED FROM THIRD-PARTY INFORMATION
- PHASING INFORMATION FOR CONSTRUCTION WORKS IS UNKNOWN AT THIS STAGE AND THE BELOW GROUND DRAINAGE DESIGN IS SUBJECT TO CHANGE SUBJECT TO RECEIPT OF THIS INFORMATION
- PLANNING CONDITIONS ARE IMPOSED ON THIS SCHEME IN ACCORDANCE WITH RAMBOLL DRAINAGE STRATEGY DOCUMENT 16200002943-RAM-05-XX-RP-D-0001.
- EXISTING DRAINAGE INFORMATION HAS BEEN TAKEN FROM PREVIOUS SURVEY INFORMATION. THIS INFORMATION HAS BEEN COLLABORATED ACROSS MULTIPLE SURVEYS AND THEREFORE ALLOWANCE WILL NEED TO BE MADE FOR SURVEY OF CONNECTION POINTS AND POSSIBLE REMEDIAL WORKS TO THE EXISTING MANHOLES FOR NEW CONNECTIONS.
- NO ALLOWANCE HAS BEEN MADE FOR DIVERSION OF ANY EXISTING DRAINAGE WHICH IS UNKNOWN AND MAY PASS THROUGH OUR SITE.
- GROUNDWATER IS EXPECTED TO BE ENCOUNTERED DURING EXCAVATION WORKS FOR DRAINAGE, SERVICES AND FOUNDATIONS WITHIN THE BASEMENT. THE DRAINAGE STRATEGY THEREFORE ASSUMES INFILTRATION IS NOT POSSIBLE AS A VIABLE SURFACE WATER DRAINAGE METHOD.

DESIGN LIMITATIONS AND ASSUMPTIONS

- NO ALLOWANCE HAS BEEN MADE FOR POSITIVELY DRAINING FIREFIGHTING LIFT SHAFTS OR COLLECTION OF FIRE FIGHTING WATER. IT IS ASSUMED THAT ANY SHAFT PROTECTION MEASURES WILL BE PROVIDED ABOVE GROUND (I.E. RAISED THRESHOLDS/CHANNELS ACROSS ENTRANCES)
- ANY REQUIREMENT FOR CRANE BASES BE COORDINATED AROUND THE EXISTING AND PROPOSED DRAINAGE AT THE NEXT STAGE

PROPOSED DRAINAGE DESIGN NOTES

GENERAL:

- ALL DRAINAGE WORKS CARRIED OUT IN ACCORDANCE WITH SEWER SECTOR GUIDANCE (SSG-FORMALLY SFA) BS EN 752: 2017, BUILDING REGULATIONS PART H, RELEVANT WATER AUTHORITY STANDARDS, LOCAL COUNCIL STANDARDS AND HEALTH AND SAFETY POLICIES
- CONCRETE FOR GENERAL DRAINAGE WORKS DESIGNATED MIX G1 3 TO BS 8500 - 1:2006, BS EN 206 - 1:2013 AND ENGINEERS' SPECIFICATION
- WHERE BELOW GROUND PIPE JUNCTIONS CONNECT AT AN OBLIQUE ANGLE, CONNECTIONS ARE TO BE INSTALLED AS PER THE OBLIQUE JUNCTION ARRANGEMENT DETAIL TO PREVENT FUTURE BLOCKAGES
- PIPES ARE NOT DESIGNED FOR CONSTRUCTION TRAFFIC; CONTRACTOR WILL TAKE NECESSARY PRECAUTIONS TO PROTECT PIPES DURING CONSTRUCTION. EXISTING DRAINAGE WHICH IS TO REMAIN IN THE PROPOSED WORKS TO BE PROTECTED AT ALL TIMES.
- IT IS ASSUMED THAT ALL ABOVE GROUND DRAINAGE CONNECTIONS ARE ROADABLE AND VENTED FROM ABOVE GROUND. PUBLIC HEALTH ENGINEER TO CONFIRM ABOVE GROUND VENTING
- NO REQUIREMENT FOR A POSITIVE DRAINAGE CONNECTION HAS BEEN MADE FROM ANY FIRE FIGHTING LIFT SHAFT INTO THE BELOW GROUND DRAINAGE NETWORK. IT IS ASSUMED WATER WILL BE PREVENTED FROM ENTERING THE LIFT SHAFT BY ABOVE GROUND MEANS I.E. RAISED THRESHOLDS.
- ON SITE SURFACE WATER DRAINAGE HAS BEEN DESIGNED UP TO AND INCLUDING THE 1 IN 100 YEAR STORM EVENT PLUS 40% CLIMATE CHANGE. EXCEEDANCE FLOWS ARE DIRECTED AWAY FROM THE BUILDING WITHIN THE PROPOSED LEVELS DESIGN.

MANHOLES & INSPECTION CHAMBERS:

- ALL MANHOLES TO BE TRADITIONAL PRECAST CONCRETE CHAMBERS IN ACCORDANCE WITH BS 5911 - 3:2002, BS EN 1917:2002 AND TO BE KITEMARKED OR CE MARKED
- POLYPROPYLENE INSPECTION CHAMBERS TO BE IN ACCORDANCE WITH BS17518 OR BS EN 13599-1 OR AGREEMENT CERTIFIED
- ALL MANHOLE COVERS TO BE RECESSED IN PAVED AREAS AND SET SQUARE TO THE BUILDING OR KERB LINE. REFER TO SCHEDULES FOR LOAD CLASS AND SIZING
- ALL FOUL MANHOLE COVERS TO BE DOUBLE SEALED, LOCKABLE AND RECESSED TO ALLOW INFILL OF INTERNAL OR EXTERNAL FINISHES TO SUIT ARCHITECTURAL REQUIREMENTS.
- BOTH THE COMBINED OUTFALL AND THE SURFACE WATER CONNECTION TO THE COMBINED SYSTEM ARE TO BE FITTED WITH NON-RETURN VALVES TO PREVENT SURCHARGE INTO THE ONSITE DRAINAGE SYSTEMS.

PIPE BEDDING:

- FOR PIPES WITH MORE THAN 1200mm COVER BELOW EXTERNAL GROUND LEVEL TO HAVE CLASS S SURROUND U.N.O. IN ACCORDANCE WITH BUILDING REGULATIONS DOCUMENT H
- FOR PIPES WITH LESS THAN 1200mm COVER TO CROWN PIPE BEDDING TO BE CLASS Z SURROUND OR PROTECTIVE COVER SLAB U.N.O. IN ACCORDANCE WITH BUILDING REGULATIONS DOCUMENT H
- PIPES LOCATED BENEATH GROUND FLOOR BUILDING SLAB WITH LESS THAN 300mm COVER FROM THE UNDERSIDE OF THE SLAB TO CROWN OF PIPE TO HAVE CLASS Y CONCRETE SURROUND

PIPEWORK:

- ALL SURFACE WATER PIPES TO BE HDPE STRUCTURED WALL TO BS EN 1401-1, KITEMARKED, AGREEMENT CERTIFIED OR CE MARKED U.N.O.
- ALL DOMESTIC FOUL WATER PIPES TO BE VITRIFIED CLAY TO BS EN 295-1:1991/BS 65 AS APPROPRIATE, KITEMARKED, AGREEMENT CERTIFIED OR CE MARKED U.N.O.
- ALL PERFORATED PIPES TO BE PVC-U WRAPPED IN GEOTEXTILE TO BS 4962
- RISING MAIN TO BE DESIGNED BY PUMP SPECIALIST AND MEP CONTRACTOR
- ANY DRAIN WHICH IS TO BE CAST INTO, OR THROUGH, A FOUNDATION OR RETAINING WALL IS TO BE DUCTILE CAST IRON OR TO BE SLEEVED THROUGH STRUCTURE USING A LARGER DIAMETER HDPE SLEEVE PROVIDING AT LEAST 50mm CLEARANCE AROUND THE PIPES.
- LOCATIONS OF CAST IN DRAINAGE ARE INDICATED BY A * ON THE GENERAL ARRANGEMENT DRAWINGS
- ALL FOUL BRANCH CONNECTIONS TO BE DN100 AT 1:40 MINIMUM GRADIENT U.N.O.
- ALL SURFACE WATER BRANCHES TO BE DN150 AT 1:80 MINIMUM GRADIENT U.N.O.
- ROOT PROTECTION BARRIERS TO BE INSTALLED WHERE DRAINAGE TRENCHES ARE WITHIN 5m OF EXISTING OR PROPOSED TREES. DETAIL TO LANDSCAPE ARCHITECTS SPECIFICATION.
- ALL SURFACE WATER FROM ROOFS TO BE STORED WITHIN BLUE ROOF SYSTEM. REFER TO MEP DESIGN INFORMATION FOR BLUE ROOF DESIGN. MAXIMUM DISCHARGE INTO THE BELOW GROUND SYSTEM FROM THE BLUE ROOF IS TO BE 7.5 l/s.
- SURFACE WATER FROM THE BASEMENT SHALL BE DISCHARGED VIA TRAPPED GULLIES AND PASS THROUGH AN OIL SEPARATOR PRIOR TO DISCHARGE.

CONSULTATIONS / APPROVALS

- FOUL / STORM CONNECTION TO EXISTING PUBLIC SEWERS HAVE BEEN AGREED IN PRINCIPLE WITH THE LEAD LOCAL COUNCIL AUTHORITY & UNITED UTILITIES. A SECTION 106 AGREEMENT WITH UNITED UTILITIES IS REQUIRED FOR FORMAL CONNECTION.
- BELOW GROUND DRAINAGE ATTENUATION SYSTEMS ARE DESIGNED FOR 1 IN 100 YEAR STORM EVENT PLUS 40% CLIMATE CHANGE.
- MAXIMUM SURFACE DISCHARGE TO EXISTING SEWER OUTSIDE OF SITE BOUNDARY AT 7.5 l/s.
- FOUL WATER DISCHARGE FROM SITE INTO THE FOUL PUBLIC SEWER SHALL BE UNRESTRICTED.

REFERENCE DRAWINGS AND DOCUMENTS

- ANY DISCREPANCIES IN DIMENSIONS OR DETAILS ON OR BETWEEN DRAWINGS SHOULD BE DRAWN TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.
- THE INFORMATION USED TO PRODUCE THE DRAINAGE DRAWINGS ARE AS FOLLOWS: IF ANY INFORMATION WITHIN THESE DRAWINGS CHANGES THE BELOW GROUND DRAINAGE IS ALSO SUBJECT TO CHANGE:
 - LANDSCAPE ARCHITECTS LAYOUT BY PLANIT
PL1471.1-PLA-XX-00-DR-L-0004
 - BASEMENT LAYOUT BY JMA
MN2A-JMA-MB-B1-DR-A-022199
 - ABOVE GROUND DRAINAGE BY CUNDALL
MN2A-CDL-ZZ-B1-DR-P-10990
 - BASEMENT FOUNDATION PLAN BY RAMBOLL
MN2A-RAM-MB-B1-DR-S-000980
- FOR PROPOSED DRAINAGE LAYOUT REFER TO DRAWING SERIES
RAM-XX-ZZ-DR-D-10100
- FOR DRAINAGE SCHEDULES REFER TO DRAWING
RAM-XX-XX-DR-D-10200
- FOR DRAINAGE DETAILS REFER TO DRAWING SERIES
RAM-XX-ZZ-DR-D-10400

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Notes

THESE NOTES ARE BASED ON THE USE OF EXPERIENCED AND COMPETENT CONTRACTORS CARRYING OUT THE WORK USING AN APPROVED SAFE METHOD OF WORKING

KEY TO HEALTH AND SAFETY SYMBOLS

-  INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION
-  INDICATES A RESIDUAL RISK FOR INFORMATION
-  INDICATES A RESIDUAL RISK REQUIRING A PROHIBITIVE ACTION
-  INDICATES A RESIDUAL RISK AS A WARNING

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION						
NOTES BELOW ARE ADDITIONAL TO HAZARDS/RISKS NORMALLY ASSOCIATED WITH THIS TYPE OF WORK. FOR DETAILS REFER TO: RAM-XX-XX-RA-D-00001		P01	STAGE 3 ISSUE	01/04 2022	CO LS	CK
		Rev	Description	Date	By CHK	App
CONSTRUCTION (INCLUDING DEMOLITION AND REMOVAL OF EXISTING STRUCTURAL COMPONENTS)						
A1	 	SERVICES (IDENTIFIED AND UNIDENTIFIED) ARE PRESENT WITHIN AND ADJACENT TO THE REDLINE BOUNDARY.				
A2	 	LIVE GAS MAIN IDENTIFIED WITHIN THE SITE BOUNDARY.				
B1	 	DEEP EXCAVATIONS WILL BE REQUIRED FOR THE CONSTRUCTION OF THE EXTERNAL DRAINAGE ATTENUATION.				
B2		COMBINED WATER CONNECTION TO EXISTING DRAINAGE. DEEP EXCAVATIONS REQUIRED FOR CONNECTION.				
B3		GROUND WATER LIKELY TO BE ENCOUNTERED ON SITE DURING CONSTRUCTION OF ATTENUATION.				
B4		ALL BELOW GROUND DRAINAGE LOCATED WITHIN BASEMENT IS APPROXIMATELY 4m BELOW GROUND FLOOR LEVEL.				
OPERATIONS, MAINTENANCE						
D1		MANHOLES LOCATED WITHIN INTERNAL SPACES AT BASEMENT LEVEL.				
D2		ACCESS TO ATTENUATION REQUIRED FOR MAINTENANCE.				
D3		ACCESS TO OIL SEPARATOR REQUIRED FOR MAINTENANCE.				
D4		ACCESS TO PUMP STATIONS REQUIRED FOR MAINTENANCE.				
DISMANTLING / DEMOLITION (FUTURE)						
NO SIGNIFICANT RESIDUAL RISK IDENTIFIED						
REFER TO GENERAL NOTES AND THE PRINCIPAL CONTRACTOR FOR MORE INFORMATION ABOUT THE RISKS ASSOCIATED WITH THIS WORK.						
		Drawing No:		Rev:		
		RAM-XX-ZZ-DR-D-10001		P01		