

DRAINAGE

- REFER TO CIVIL AND STRUCTURAL SPECIFICATION REPORT - PART R
- CONTRACTOR SHOULD ENSURE THE LOCAL PLANNING AUTHORITY HAVE APPROVED THE DRAINAGE PROPOSALS PRIOR TO ORDERING MATERIAL OR INSTALLATION

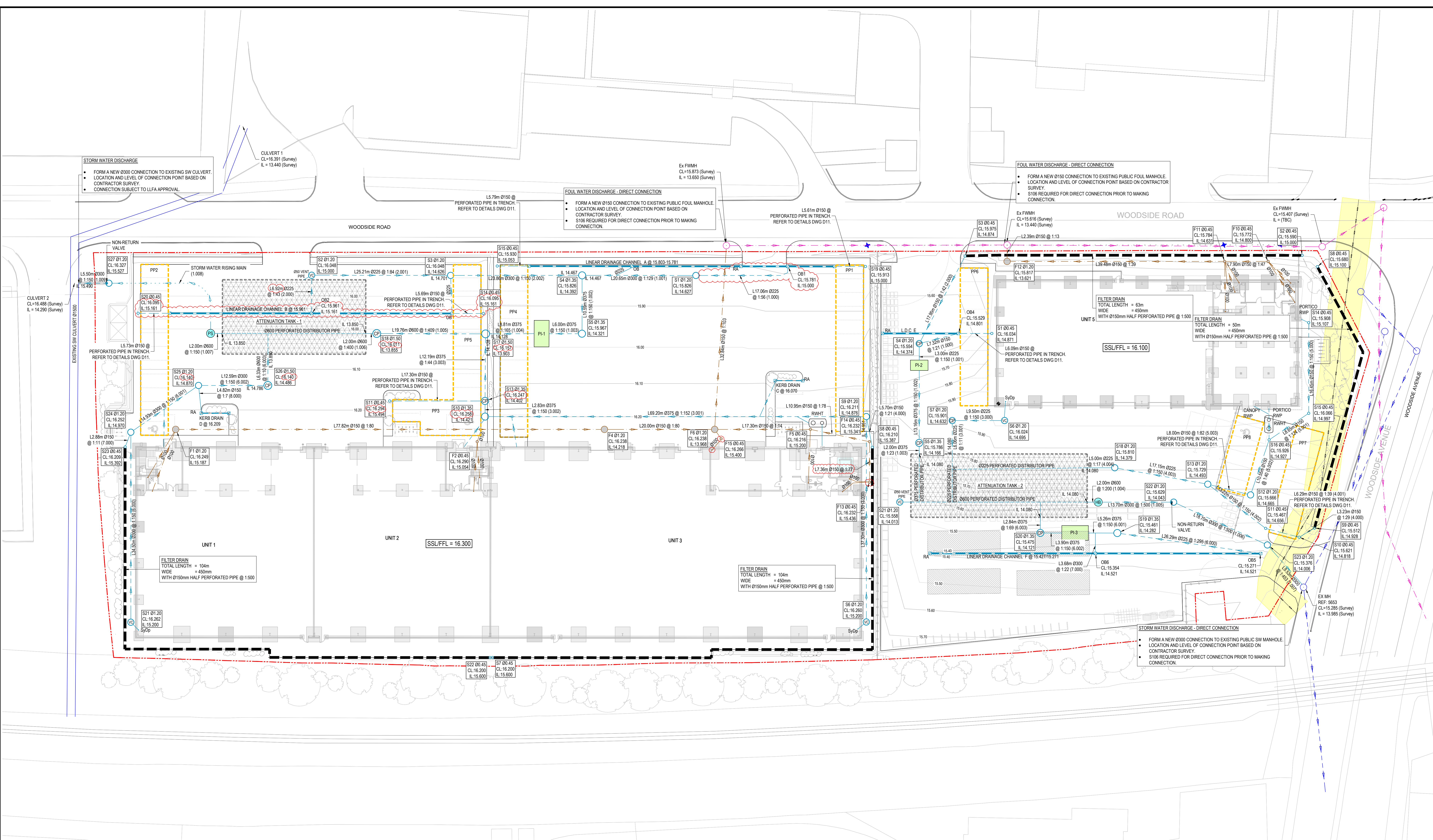
HYDRAULIC DESIGN
3. THE SURFACE WATER NETWORK, FLOW CONTROL AND ATTENUATION HAS BEEN DESIGNED USING MICRODRAINAGE SOFTWARE WITH FSR RAINFALL DATA.

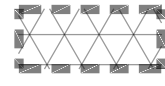
STRATEGY
4. THE NEW DEVELOPMENT DISCHARGE RATE RESTRICTED TO 78.4 L/S. THIS IS BASED ON 50% REDUCTION OF EXISTING RUNOFF RATE. RATES HAVE RECEIVED SOUTHERN WATER APPROVAL VIA PRE-DEVELOPMENT ENQUIRY (REFER TO PARAGON CORRESPONDENCE 204M AND 2024/11/13). SUBJECT TO LLFA PLANNING CONDITION DISCHARGE.

GENERAL NOTES
5. WHERE THIRD PARTY APPROVAL IS REQUIRED THESE ARE NOTED AGAINST EACH DISCHARGE POINT ON THE DRAWING.
6. NO CONNECTION OR DISCHARGE SHOULD BE MADE UNTIL APPROVAL HAS BEEN RECEIVED. CHECK STATUS OF APPLICATION WITH ENGINEER.
7. CONTRACTOR SHOULD INVESTIGATE AND INSTALL FINAL DRAINAGE CONNECTIONS PRIOR TO INSTALLING ANY UPSTREAM DRAINAGE TO AVOID POTENTIAL LEVEL ISSUES.
8. EVERY EFFORT HAS BEEN MADE TO PROVIDE ACCURATE INFORMATION. HOWEVER, THE CONTRACTOR IS ADVISED TO CHECK ACTUAL CONDITIONS (I.E. THE LOCATION, ACCESSIBILITY, UNDERGROUND ROUTE, LEVELS, SIZES, CONDITION OF EXISTING SEWERS) TO BE RE-USED AND/OR CONNECTED INTO.

NEW DRAINAGE
14. INTERNAL FLOOD POINTS ARE LOCATED AND SET OUT BY THE ARCHITECT.
15. TRADITIONAL RAINWATER DOWNPIPES ARE PROVIDED BY THE CLADDING CONTRACTOR AND COORDINATED WITH THE ARCHITECT.
16. PREFERRED LOCATIONS OF SIPHONIC DOWNPIPES ARE SHOWN AND ARE TO BE DESIGNED BY A SPECIALIST. THE WAREHOUSE SHOULD NOT DRAIN THROUGH OFFICE AREAS.
17. DESIGN ASSUMES THAT ALL WORKS ARE NOT TO BE ADOPTED.
18. GRADIENTS OF PIPES ARE AVERAGED. PIPE CONNECTIONS SHOULD BE INSTALLED TO THE STATED INVERT LEVELS.
19. COVER LEVELS OF THE MANHOLES ARE AVERAGED. COVER AND FRAME SHOULD BE SET TO SUIT FINISHED GROUND LEVELS.
20. ALL PIPEWORK WITHIN MANHOLES ARE TO BE LAID SOFFIT TO SOFFIT (I.N.O.), INCLUDING BACKDROP PIPEWORK, WHERE THE RIDDING ACCESS LEVEL IS SPECIFIED.
21. FLAT LATERAL CONNECTION TO BE 135° "Y" JUNCTIONS (IE 45° OBlique JUNCTIONS) RELATIVE TO MAIN RUN. TO BE USED ON FOUL OR SURFACE WATER RUNS. 90° OR 81° SQUARE JUNCTIONS SUITABLE FOR SURFACE WATER CONNECTIONS ONLY.
22. SADDLE CONNECTIONS TO LARGER PIPES SHOULD BE MADE SO THAT THE INVERT LEVEL OF THE SMALLER PIPE DOES NOT ADJOIN BELOW MID HEIGHT OF THE LARGER PIPE.
23. PIPES CROSSING WITHIN 200MM OF EACH OTHER ARE TO BE ISOLATED BY CONCRETE FOR A MINIMUM DISTANCE OF 1M BEYOND CROSSING POINT IN ALL DIRECTIONS.
24. A CCTV DRAINAGE SURVEY TO BE CARRIED OUT ON COMPLETION TO PROVE THE INTEGRITY OF THE AS-BUILT DRAINAGE SYSTEMS.

ANCILLARY ITEMS
25. WHERE PROPOSED CONTRACTOR MUST PROVIDE PROPOSALS FOR SUPPLY OF LINEAR DRAINAGE CHANNELS, KERB DRAINS, INTERCEPTORS, ATTENUATION TANKS, HYDROBRAKE, FILTER UNITS.
26. WHERE PROPOSED ALLOWANCE SHOULD BE MADE FOR POWER SUPPLY TO INTERCEPTORS AND PUMPS AND FOR INSTALLING CONTROL PANELS.
27. R/WHT - RAIN WATER HARVEST TANK. TO BE SPECIFIED BY OTHERS.
28. R/WHT, P.I. PUMP CHAMBER TO BE CONCRETE ENCASED TO SUIT HIGH WATER TABLE.



LINEAR DRAINAGE CHANNEL (LDC) SCHEDULE						
CHANNELS TO BE DESIGNED BY SPECIALIST BASED ON 50mm/hr RAINFALL INTENSITY, A 5yr RETURN PERIOD AND THE FOLLOWING PARAMETERS:						
CHANNEL REFERENCE	LOCATION	AREA DRAINED	LENGTH	GROUND LEVEL BOX	OUTLET	PREFERENCE
1.A	SERVICE YARD	1767m ²	56.00m	(15.803/15.781)	2NO. 2250	D400 SLOOT
1.B	SERVICE YARD	1466m ²	52.00m	(15.961)	2NO. 2250	D400 SLOOT
1.C	CAR PARK	920m ²	4.00m	16.000	1NO. END 1500	D400 KERB DRAIN
1.D	CAR PARK	32m ²	5.00m	(16.209)	1NO. END 1500	D400 KERB DRAIN
1.E	SERVICE YARD	371m ²	14.00m	15.515/15.535	1NO. END 1500	D400 SLOOT
1.F	SERVICE YARD	2656m ²	61.00m	15.427/15.271	2NO. 225/3000	D400 SLOOT
NUMBER & SPACING OF ACCESS BOXES TO BE SPECIFIED BY SUPPLIER. OUTLET BOXES TO BE SILT TRAP DEEP HEAVY DUTY. OUTFALL BOXES TO HAVE SUMP AS FIRST STAGE OF TREATMENT						
FULL RETENTION INTERCEPTOR 1, 2 & 3						PI
AREA DRAINED	FULL RETENTION INTERCEPTOR - 1		FULL RETENTION INTERCEPTOR - 2		PETROL INTERCEPTOR - 3	
SPECIFICATION	P0651 CSC OR SIMILAR		P0151 CSC OR SIMILAR		P0651 CSC OR SIMILAR	
I.L. IN	0375 @ 14.28m		0225 @ 14.35m		0375 @ 14.24m	
I.L. OUT	0375 @ 14.18m		0375 @ 14.25m		0375 @ 14.147m	
ALLOW FOR CONCRETE SURROUND, POWER SUPPLY, CONTROL PANEL, VENTING AND HIGH LEVEL ALARM.						
* TANK REQUIRES LARGER INLET / OUTLET TO SUIT FLOW REQUIREMENTS.						
ATTENUATION TANK - 1 & 2						
AREA DRAINED	SDS TANK - 1		SDS TANK - 2			
SIZE	26.0 x 13.5 x 1.125m (359m ³)		32.0 x 11.5 x 0.750m (276m ³)			
GROUND LEVEL	15.90m-16.062m		15.55m-15.838m			
TANK TOP	14.975m		14.830m			
TANK BASE	13.850m		14.080m			
ALLOW FOR VENTING, BEDDING & SURROUND. MEMBRANE WITH WELDED JOINTS						
ALL CONNECTIONS INTO TANKS TO BE VIA MANHOLE/REDUCERS TO SUIT MIN. 150 PIPE CONNECTION.						

POROUS PAVING	
CONTRIBUTING AREA	PP1 160m ² PP2 160m ² PP3 147m ² PP4 203m ² PP5 199m ² PP6 188m ² PP7 77m ² PP8 66m ²
POROUS PAVEMENT SUBBASE AREA	151m ² 153m ² 92m ² 150m ² 122m ² 126m ² 100m ² 66m ²
SUBBASE STORAGE DEPTH REQUIRE	300mm 300mm 300mm 300mm 300mm 300mm 300mm 300mm
FOR 100YR-40%cc	15.201m 15.381m 15.555m 15.225m 15.381m 14.975m 14.920m 15.094m
BASE LEVEL	
OUTFALL RESTRICTED BY Ø150 PIPE	
SURFACE WATER PUMP	
CONTRACTOR TO OBTAIN DESIGN/QUOTE FROM SUPPLIER BASED ON FOLLOWING PARAMETERS	
CHAMBER CL	16.000m
CHAMBER I.L.	13.537m
DISCHARGE RATE	50.20 l/s
RISEING MAIN 24.5m FROM 13.837m TO 15.527m	
ALLOW FOR A BACK-UP PUMP IN CASE OF MAIN PUMP FAILURE	
HYDROBRAKE - 1	
SUPPLIER	H&I
HYDRO INT OR SIMILAR APPROVED	
CHAMBER DIA	Ø1.50m
CHAMBER CL	15.530m
CHAMBER I.L.	14.070m
DESIGN FLOW	28.20 l/s
DESIGN HEAD	0.750m

