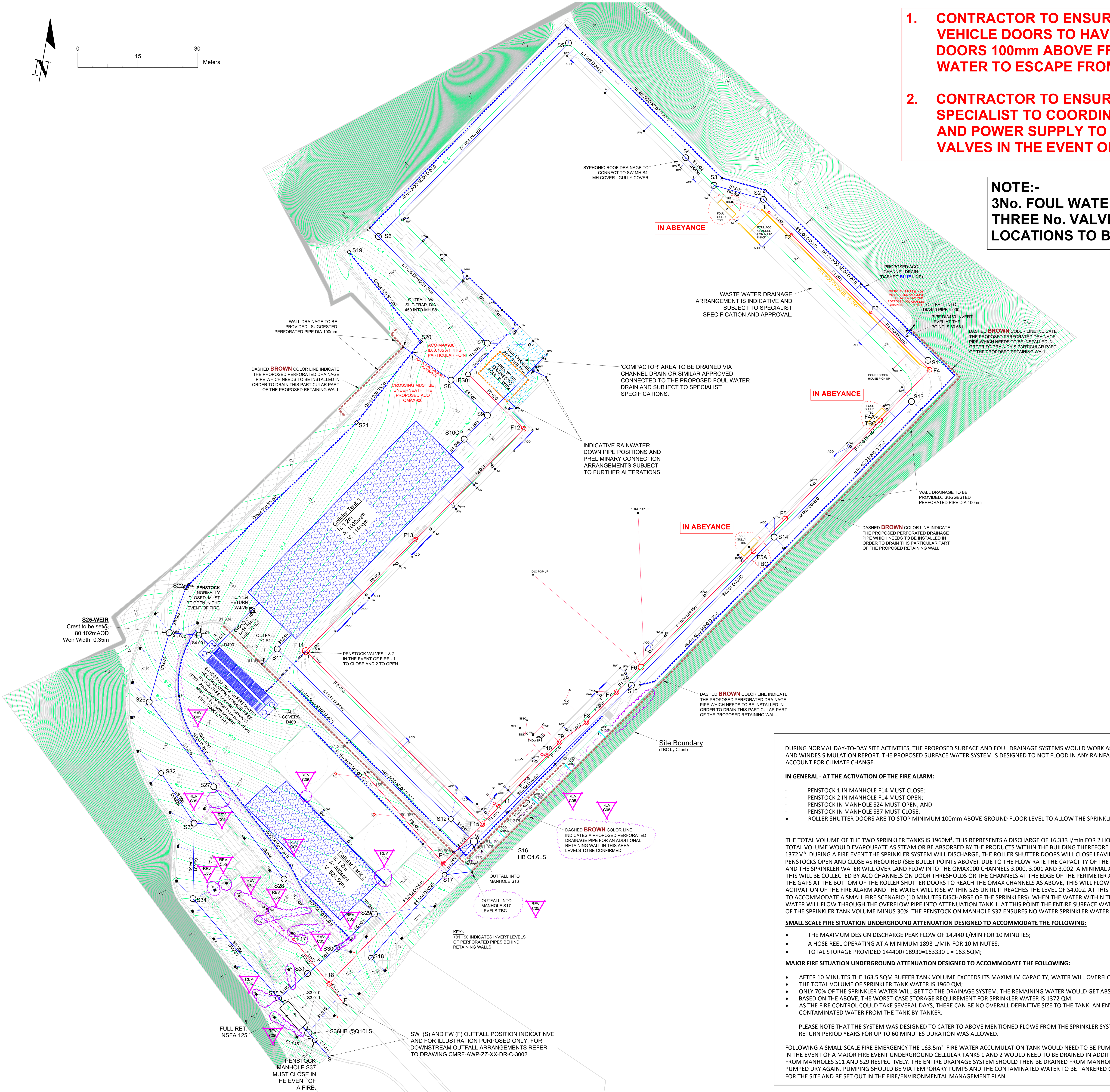

1. CONTRACTOR TO ENSURE IN THE EVENT OF FIRE VEHICLE DOORS TO HAVE FAIL SAFE DEVICE TO STOP DOORS 100mm ABOVE FFL IN ORDER TO ALLOW FIRE WATER TO ESCAPE FROM THE BUILDING.

2. CONTRACTOR TO ENSURE FULL LIASON WITH M&E SPECIALIST TO COORDINATE EMERGENCY OPERATION AND POWER SUPPLY TO PENSTOCK MANHOLES / VALVES IN THE EVENT OF FIRE.

NOTE:-
3No. FOUL WATER GULLIES REQUIRED FOR THREE No. VALVE ROOMS.
LOCATIONS TO BE CONFIRMED BY ARCHITECT.

NOTES:

1. CONTRACTORS MUST VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK ON DRAWINGS.
2. ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERING DRAWINGS AND CALCULATIONS ASSOCIATED WITH THIS PROJECT.
4. ALL ADOPTABLE DRAINAGE WORKS ARE TO BE CARRIED OUT TO THE REQUIREMENTS AND FULL SATISFACTION OF LOCAL WATER AUTHORITY.
5. ALL BUILDING DRAINAGE TO BE INSTALLED AND TESTED IN COMPLIANCE WITH THE BUILDING REGULATIONS 2000 DRAINAGE AND WASTE DISPOSAL APPROVED DOCUMENT H 2002 EDITION.
6. ALL COMPONENTS AND MATERIALS ARE TO BE MANUFACTURED AND SUPPLIED IN ACCORDANCE WITH THE RELEVANT BRITISH STANDARDS, AND LAID AND BACKFILLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND THE RELEVANT BRITISH STANDARDS.
7. THE CONTRACTOR SHALL, BEFORE COMMENCING THE WORKS, VERIFY ALL SITE AND SETTING OUT DIMENSIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TRUE AND PROPER SETTING OUT OF THE WORKS AND FOR THE CORRECTNESS OF THE POSITION, LEVELS, DIMENSIONS, AND ALIGNMENT OF ALL PARTS OF THE WORKS.
8. WINDES SIMULATION RESULTS AVAILABLE ON REQUEST.
9. BD - BACK DROP; CP - SILT CATCH PIT; HB - HYDRO-BRAKE; A - STORAGE TANK AREA; h - HEIGHT; V - VOLUME; DIA - DIAMETER; CL - COVER LEVEL; IL - INVERT LEVEL; sqm - SQUARE METER; qm - QUBIC METER; m - METER; Full Ret. - FULL RETENTION; MIN. - MINIMUM; S - ACO SUMP; G - GULLY; RW - APPROXIMATE LOCATION OF RAINWATER DOWN-PIPE; S1 - SURFACE WATER MANHOLE NUMBER; F1 - FOUL WATER MANHOLE NUMBER; S1.000 - SURFACE WATER DRAIN NUMBER; F1.000 - FOUL WATER DRAIN NUMBER; DIA-9 ACO QMAX 900.
9. ALL LATERAL RUNS MIN. DIA150;
10. PLAN MUST READ WITH DRAWING CMRF - AWP - ZZ - XX - DR - C - 3001 (LATEST REVISION).

Rev	Description	Date	By	Chk	App
C05	DRAINAGE AMENDED SHOWN CLOUDED	05.09.22	IGD	RP	MB
C04	INLINE /W LATEST SITE L'OUT & GR'D LEVELS	04.08.22	IGD	RP	MB
C03	FIRE WATER ACCUMULATION TANK AMENDED	07.06.22	IGD	RP	MB
C02	NON RETURN VALVE ADDED. FIND REV NOTE 02	20.05.22	IGD	RP	MB
C01	FOR CONSTRUCTION	09.05.22	IGD	RP	MB
P17	PENSTOCK MANHOLES CONFIRMED. NOTES AMENDED.	21.03.22	IGD	RP	MB
P16	PENSTOCK MANHOLE S37 ADDED. ACO CHANNEL TO RECPTION HALL MOVED. ACO CHANNEL TO WORKSHOP ADDED. COMPACTOR AREA CHANNELS CONFIRMED. PENSTOCKS REMOVED FROM MANHOLES S35 &S36. FIRE EVENT PENSTOCK NOTES AMENDED. PI ORIENTATION AMENDED MANHOLES S35 AND S36 WITH PIPE RUN S1.015 & S3.019 MOVED TO SUIT. NOTES UPDATED. MH F16 MOVED. ACO CHANNEL ADDED ADJACENT SPRINKLER TANKS. GULLIES ADDED TO SPRINKLER TANK BASES. FOUL GULLY CONNECTIONS ADDED TO VALVE CHAMBERS WITH MANHOLES F4A AND F5A IN ABEYANCE TO BE CONFIRMED.	17.03.22	IGD	RP	MB
P15	ACO CHANNEL AND FW DRAINAGE POP UP POSITIONS AND MANHOLES CONFIRMED. RETAINING WALL DRAINAGE PIPES ADDED.	31.01.22	IGD	MB	MB
P14	SW & FW DRAINAGE UPDATED.	21.09.21	RP	MB	MB
P13	SW & FW DRAINAGE UPDATED.	09.08.21	RP	MB	MB
P12	SW & FW DRAINAGE UPDATED.	19.07.21	RP	MB	MB
P11	SW & FW DRAINAGE UPDATED.	13.07.21	RP	MB	MB
P10	SW & FW DRAINAGE UPDATED.	23.06.21	RP	MB	MB
P09	SW & FW DRAINAGE UPDATED.	13.05.21	RP	MB	MB
P08	SW & FW DRAINAGE UPDATED.	13.05.21	RP	MB	MB
P07	FW MAINS UPDATED.	17.02.21	RP	MB	MB
P06	SW & FW LATERALS ADDED. ANNOTATION UPD.	12.02.21	RP	MB	MB
P05	MH S32 ANNOTATION UPDATED	09.02.21	RP	MB	MB
P04	DRAINAGE UPDATED. SCHEDULES ADDED	04.02.21	RP	MB	MB
P03	DRAINAGE UPDATED	10.11.20	IGD	MB	MB
P02	DRAINAGE UPDATED	22.10.20	IGD	MB	MB
P01	FIRST ISSUE	09.10.20	IGD	MB	MB

DURING NORMAL DAY-TO-DAY SITE ACTIVITIES, THE PROPOSED SURFACE AND FOUL DRAINAGE SYSTEMS WOULD WORK AS INDICATED ON THE LATEST DRAWING CMRF - AWP - ZZ - XX - DR - C - 3000 AND WINDES SIMULATION REPORT. THE PROPOSED SURFACE WATER SYSTEM IS DESIGNED TO NOT FLOOD IN ANY RAINFALL EVENT FOR UP TO 100 YEARS RETURN PERIOD, INCLUDING 40% TO ACCOUNT FOR CLIMATE CHANGE.

IN GENERAL - AT THE ACTIVATION OF THE FIRE ALARM:

- PENSTOCK 1 IN MANHOLE F14 MUST CLOSE;
- PENSTOCK 2 IN MANHOLE F14 MUST OPEN;
- PENSTOCK IN MANHOLE S24 MUST OPEN; AND
- PENSTOCK IN MANHOLE S37 MUST CLOSE.
- ROLLER SHUTTER DOORS ARE TO STOP MINIMUM 100mm ABOVE GROUND FLOOR LEVEL TO ALLOW THE SPRINKLER WATER TO ESCAPE THE BUILDING.

THE TOTAL VOLUME OF THE TWO SPRINKLER TANKS IS 1960M^3, THIS REPRESENTS A DISCHARGE OF 16,333 l/min FOR 2 HOURS (FIGURES PROVIDED BY ARGUS FIRE). IT HAS BEEN ADVISED 30% OF THE TOTAL VOLUME WOULD EVAPOURATE AS STEAM OR BE ABSORBED BY THE PRODUCTS WITHIN THE BUILDING THEREFORE ON SITE STORAGE REQUIRED FOR 70% OF TOTAL SPRINLER TANK VOLUME, 1372M^3. DURING A FIRE EVENT THE SPRINKLER SYSTEM WILL DISCHARGE, THE ROLLER SHUTTER DOORS WILL CLOSE LEAVING A MINIMUM 100mm GAP AT THE BOTTOM OF THE DOORS AND THE PENSTOCKS OPEN AND CLOSE AS REQUIRED (SEE BULLET POINTS ABOVE). DUE TO THE FLOW RATE THE CAPACITY OF THE ACO CHANNEL DRAINS AT THE ROLLER SHUTTER DOORS WILL BE EXCEEDED AND THE SPRINKLER WATER WILL OVER LAND FLOW INTO THE QMAX900 CHANNELS 3.000, 3.001 AND 3.002. A MINIMAL AMOUNT OF WATER MAY ESCAPE OUT OF THE CLOSED PEDESTRIAN DOORS, THIS WILL BE COLLECTED BY ACO CHANNELS ON DOOR THRESHOLDS OR THE CHANNELS AT THE EDGE OF THE PERIMETER ACCESS ROAD. THE MAJORITY OF THE SPRINKLER WATER WILL FLOW OUT THE GAPS AT THE BOTTOM OF THE ROLLER SHUTTER DOORS TO REACH THE QMAX CHANNELS AS ABOVE, THIS WILL FLOW INTO S3.003 TO S25. THE PENSTOCK IN S24 WILL HAVE OPENED AT ACTIVATION OF THE FIRE ALARM AND THE WATER WILL RISE WITHIN S25 UNTIL IT REACHES THE LEVEL OF S4.002. AT THIS POINT THE WATER WILL BEGIN TO FILL THE BUFFER TANK 4.000 DESIGNED TO ACCOMMODATE A SMALL FIRE SCENARIO (10 MINUTES DISCHARGE OF THE SPRINKLERS). WHEN THE WATER WITHIN THE TANK EXCEEDS 10MINUTES DISCHARGE OR AN IL OF 79.621m AOD THE WATER WILL FLOW THROUGH THE OVERFLOW PIPE INTO ATTENUATION TANK 1. AT THIS POINT THE ENTIRE SURFACE WATER DRAINAGE SYSTEM WILL BE USED TO PROVIDE THE REQUIRED STORAGE OF THE SPRINKLER TANK VOLUME MINUS 30%. THE PENSTOCK ON MANHOLE S37 ENSURES NO WATER SPRINKLER WATER COLLECTED BY THE SURFACE WATER SYSTEM CAN ESCAPE THE SITE.

SMALL SCALE FIRE SITUATION UNDERGROUND ATTENUATION DESIGNED TO ACCOMMODATE THE FOLLOWING:

- THE MAXIMUM DESIGN DISCHARGE PEAK FLOW OF 14,440 L/MIN FOR 10 MINUTES;
- A HOSE REEL OPERATING AT A MINIMUM 1893 L/MIN FOR 10 MINUTES;
- TOTAL STORAGE PROVIDED 144400+18930=163330 L = 163.5QM;

MAJOR FIRE SITUATION UNDERGROUND ATTENUATION DESIGNED TO ACCOMMODATE THE FOLLOWING:

- AFTER 10 MINUTES THE 163.5 SQM BUFFER TANK VOLUME EXCEEDS ITS MAXIMUM CAPACITY, WATER WILL OVERFLOW TO THE ATTENUATION TANK LOCATED UPSTREAM OF 1.010;
- THE TOTAL VOLUME OF SPRINKLER TANK WATER IS 1960 QM;
- ONLY 70% OF THE SPRINKLER WATER WILL GET TO THE DRAINAGE SYSTEM. THE REMAINING WATER WOULD GET ABSORBED BY THE PRODUCT OR TURNS TO STEAM;
- BASED ON THE ABOVE, THE WORST-CASE STORAGE REQUIREMENT FOR SPRINKLER WATER IS 1372 QM;
- AS THE FIRE CONTROL COULD TAKE SEVERAL DAYS, THERE CAN BE NO OVERALL DEFINITIVE SIZE TO THE TANK. AN ENVIRONMENTAL MANAGEMENT PLAN COULD BE REQUIRED TO REMOVE CONTAMINATED WATER FROM THE TANK BY TANKER.

PLEASE NOTE THAT THE SYSTEM WAS DESIGNED TO CATER TO ABOVE MENTIONED FLOWS FROM THE SPRINKLER SYSTEM. DURING THE DESIGN PROCESS, MAXIMUM RAINFALL OF UP TO 1YR RETURN PERIOD YEARS FOR UP TO 60 MINUTES DURATION WAS ALLOWED.

FOLLOWING A SMALL SCALE FIRE EMERGENCY THE 163.5m^3 FIRE WATER ACCUMULATION TANK WOULD NEED TO BE PUMPED OUT USING A TEMPORARY PUMP AND TANKERED OFF SITE. IN THE EVENT OF A MAJOR FIRE EVENT UNDERGROUND CELLULAR TANKS 1 AND 2 WOULD NEED TO BE DRAINED IN ADDITION TO THE 163.5m^3 BUFFER TANK. TANKS 1 AND 2 SHOULD BE DRAINED FROM MANHOLES S11 AND S29 RESPECTIVELY. THE ENTIRE DRAINAGE SYSTEM SHOULD THEN BE DRAINED FROM MANHOLE S36. THE DRAINAGE SYSTEM SHOULD BE FLUSHED OUT AND THEN PUMPED DRY AGAIN. PUMPING SHOULD BE VIA TEMPORARY PUMPS AND THE CONTAMINATED WATER TO BE TANKERED OFF SITE. THE ABOVE SHOULD FORM PART OF THE DISASTER RECOVERY PLAN FOR THE SITE AND BE SET OUT IN THE FIRE/ENVIRONMENTAL MANAGEMENT PLAN.

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Project: COVENTRY MRF

Client: CLEGG GROUP

Drawing: PROPOSED SURFACE AND FOUL WATER DRAINAGE ARRANGEMENTS

Role: CIVIL

Drawing Status: FOR CONSTRUCTION

Job. no. 44295 | Scale@ A1: 1/500 | Rev. C05

Project	Originator	Volume	Level	Type	Role	Number
CMRF	AWP	ZZ	XX	DR	C	3000