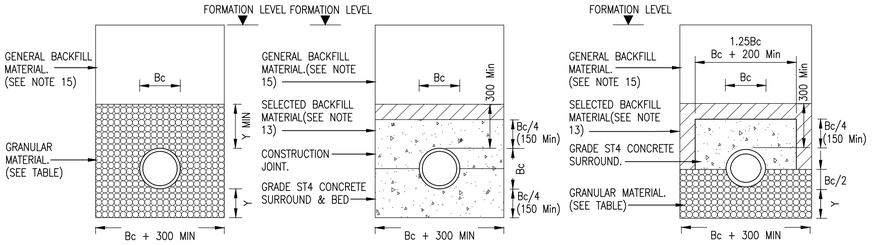


CLASS S DETAIL

(SEE NOTES 13 & 15)

CLASS Z DETAIL

(SEE NOTES 11, 13 & 15)

CLASS A DETAIL

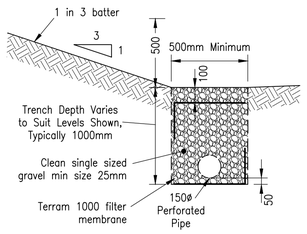
(SEE NOTES 11, 13 & 15)

CLASS T DETAIL

CLASS Q DETAIL

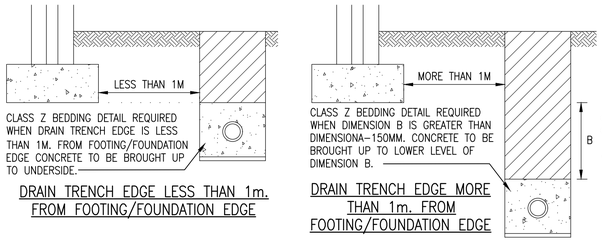
(COVER TO PIPES <1.2M) PLASTIC PIPES SHALL COMPLY WITH WIS 4-35-01 AND SHALL BE KITEMARKED)

LAND DRAIN DETAIL TO BE PROVIDED IN LOCATIONS SHOWN ON DRAINAGE LAYOUT DRAWING.



TYPICAL SECTION THROUGH INFILTRATION TRENCH

(Scale 1:20)

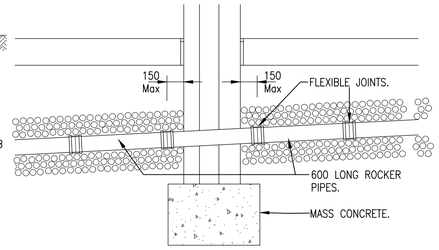


DRAIN TRENCH EDGE LESS THAN 1m. FROM FOOTING/FOUNDATION EDGE

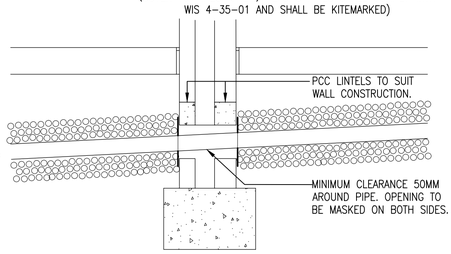
DRAIN TRENCH EDGE MORE THAN 1m. FROM FOOTING/FOUNDATION EDGE

BEDDING DETAIL IN VICINITY OF FOOTINGS/FOUNDATIONS

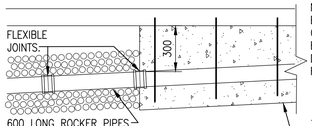
NOTE:- THIS IS A TYPICAL DETAIL TO BE CROSS REFERENCED WITH 3E STRUCTURAL DRAWINGS



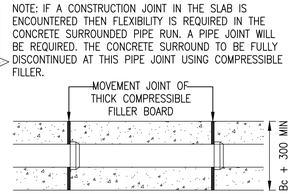
DRAIN PASSING THROUGH WALL BUILT IN DETAIL



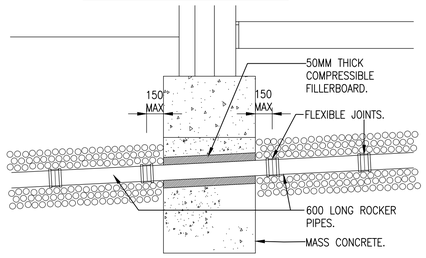
DRAIN PASSING THROUGH WALL NOT BUILT IN DETAIL



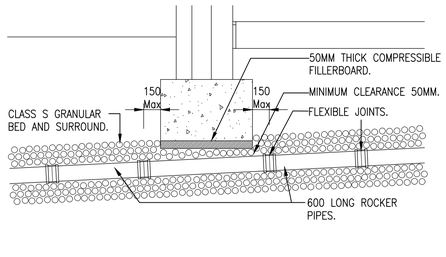
CONCRETE PROTECTION TIEING IN DETAIL



JOINTS FOR CONCRETE ENCASED PIPES



DRAIN PASSING UNDER FOUNDATION THROUGH MASS CONCRETE FILL



DRAIN PASSING UNDER FOUNDATION FILLERBOARD PROTECTION DETAIL

NOTES –

1. This drawing is to be read in conjunction with all relevant 3E, architect and M&E consultants drawings and project specifications.
2. All building drainage works shall be carried out in accordance with the relevant parts of BS EN 752 'Drains and Sewer Systems Outside Buildings', the current building regulations and the local authority building control specifications and requirements.
3. All insitu and precast concrete products shall comply with class DS1 requirements for sulphate exposure in accordance with BRE Special Digest 1, Concrete in Aggresive Ground (2001) Part 1: Table 2.
4. All precast concrete products shall comply with the relevant provisions of BS 5911 and be Kitemarked. All precast concrete pipes shall be class 120 and comply with the requirements of note 3 above.
5. All 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 65 or equivalent BS EN295 pipe crushing strength and be of a sleeved system.
6. All u-PVC pipes and fittings shall comply with WIS 4-35-01 and shall be kitemarked.
7. Manhole covers and frames shall comply with the relevant provisions of BS EN214, have 600x600 clear openings unless otherwise specified and be of non-rocking design without cushion inserts and be Kitemarked. Load class D400 in trafficked areas and load class B125 in footways, landscaped and pedestrian areas. where required, covers shall be recessed to receive the architects specified finish.
8. Gully grates and frames shall comply with the relevant provisions of BS EN:124 and be of non-rocking design with captive hinge access and be Kitemarked. Load class D400 in industrial estate roads and areas carrying regular heavy traffic and load class C250 in estate roads and car parking areas. In all road locations, the grate shall be hinged on the side of the traffic direction (left hand opening).
9. All external rigid pipework shall be laid with a class S pipe bedding detail with 1.2m minimum cover to the pipe barrel under vehicular trafficked areas, 0.9m cover under fields and 0.6m cover under footways/gardens. Where cover is less than that stated, a class A pipe bedding detail shall be used on pipes 225dia and larger, for pipes less than 225dia use a class Z pipe bedding detail. Under buildings a class S pipe bedding detail shall be used. Where there is less than 300mm between the barrel of the pipe and the underside of the structural floor slab, the pipe shall be cast integral with the floor slab with 150mm minimum concrete surround with vertical reinforcement tied into the slab.
10. All u-PVC pipework shall be laid with a class T pipe bedding detail with 1.2m minimum cover to the pipe barrel under vehicular trafficked areas, 0.9m cover under fields and 0.6m cover under footways/gardens. Where cover is less than that stated a class Q pipe bedding detail shall be used.
11. Where concrete protection is required to pipework, the concrete shall be discontinued at each pipe joint over the full cross section of the concrete by means of a shaped compressible filler.
12. Where two pipelines cross with less than 300mm cover, surround each pipe with a full concrete bed and surround (class Z detail) for not less than 1m centered on the crossing and extended as required to within 150mm of the nearest flexible joint.
13. Selected backfill material shall consist of uniform soil, free from stones larger than 40mm, clay lumps larger than 75mm, tree roots, contaminated material. Selected backfill material is to be placed in layers not exceeding 150mm thickness. Should the excavated material be unsuitable or weather conditions affect the materials stability, then a suitable hard granular material shall be used.
14. No mechanical compaction of fill material shall be permitted within 300mm above the barrel/crown of the pipe.
15. General backfill to drainage trenches in vehicular trafficked areas above the pipe bedding detail, shall be suitably selected material (in accordance with BS 8301 clause 5.7.6.1.) and be placed in layers not exceeding 225mm, each layer compacted to form a stable trench backfill, should the material be unsuitable or weather conditions affect the materials stability, then a hard granular material shall be used up to formation level.
16. All separators shall be in accordance with the environment agency document PPG3.
17. All below ground plastic/grp tanks shall be installed in accordance with the manufacturers instructions. They shall be provided with sufficient concrete surround to counter floatation and shall have a wall thickness adequate to resist the highest ground water level which could be encountered at their location.
18. All excavations in areas of high water tables and granular materials with high sand/silt contents shall be wrapped with a suitable geotechnical filter membrane to prevent migration of sands/silts. Full height clay stanks across trenches and/or at manhole locations at 25m intervals to restrict water movement along the excavation shall be provided.
19. Where utility/land drainage trenches etc cross over drainage trenches, the contractor shall construct an impermeable barrier to prevent groundwater infiltrating into the drainage trench.
20. Non-man entry access chambers shall comply with the relevant provisions of BS EN 752-3.

GRANULAR BEDDING MATERIAL

(all aggregates to table 3 of BS 882 :1992)

NOMINAL PIPE DIA (mm)	SINGLE SIZED (mm)	GRADED (mm)
150	10 or 14	14 to 5
200 to 300	10, 14 or 20	14 to 5 ot 20 TO 5
375 to 525	14 or 20	14 to 5 ot 20 to 5
Greater than 525	14, 20 or 40	14 to 5, 20 to 5 or 40 to 5

COMPRESSIBLE FILLER TABLE

(bitumen impregnated insulating board to BS 1142: Part 3)

NOMINAL PIPE DIA (mm)	THICKNESS OF COMPRESSIBLE FILLER (mm)
Less than 450	18
450 to 1200	36
Greater than 1200	54

TRENCH WIDTHS

PIPE I.D	OVERALL TRENCH WIDTH
100	550
150	600
225	700
300	850
375	1050
450	1150
525	1200
600	1350
675	1450
750	1500
825	1600
900	1900
1050	2100
1200	2300
1350	2500
1500	2700
1800	3100

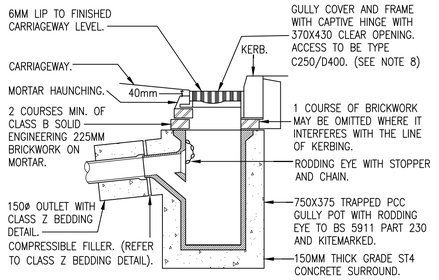
NOTES

A) BC = OUTSIDE DIAMETER OF PIPE BARREL.

B) Y = FOR UNIFORM SOILS: SLEEVE JOINTED PIPES, MIN. 50MM OR 1/6BC, WHICHEVER IS THE GREATER. SOCKETED PIPE, MIN. 100MM OR 1/6BC, WHICHEVER IS THE GREATER UNDER BARRELS AND NOT LESS THAN 50MM UNDER SOCKETS. FOR ROCK OR MIXED SOILS CONTAINING ROCK BANDS, BOULDERS, STONES OR OTHER IRREGULAR HARD SPOTS: SLEEVE JOINTED PIPES, MIN. 150MM OR 1/4BC, WHICHEVER IS THE GREATER. SOCKETED PIPE, MIN. 200MM OR 1/4BC, WHICHEVER IS THE GREATER UNDER BARRELS AND NOT LESS THAN 150MM UNDER SOCKETS.

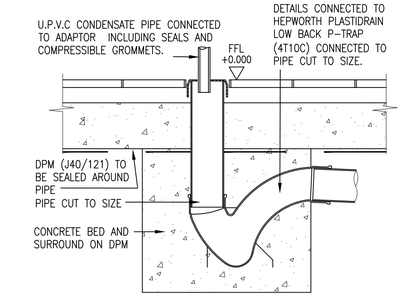
RIGID PIPE TRENCH BEDDING DETAILS

MINIMUM RECOMMENDED TRENCH WIDTHS FOR PIPES IN POOR GROUND CONDITIONS	
NOM PIPE DIA (mm)	MIN TRENCH WIDTH (mm)
150	450
225	525
300 And above	Two times nom. diameter

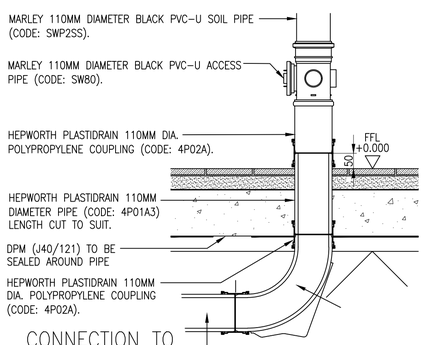


TYPICAL ROAD GULLY DETAIL

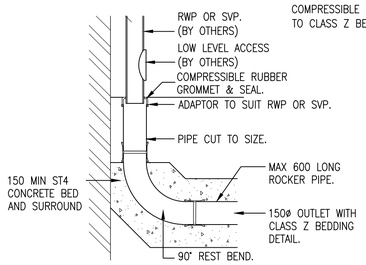
(375 x 750mm not adopted)



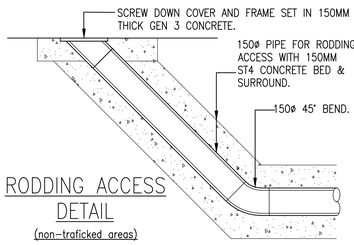
CONDENSATE DRAIN DETAIL



CONNECTION TO SVP DETAIL

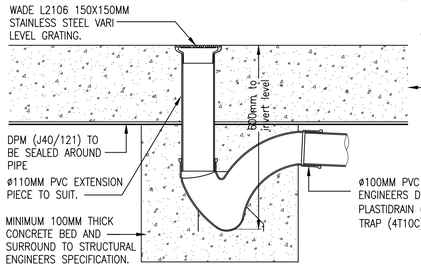


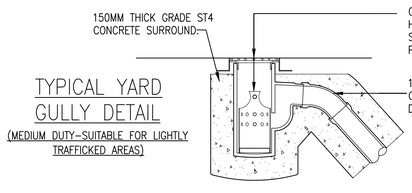
TYPICAL EXTERNAL RWP OR SVP CONNECTION DETAIL



RODDING ACCESS DETAIL

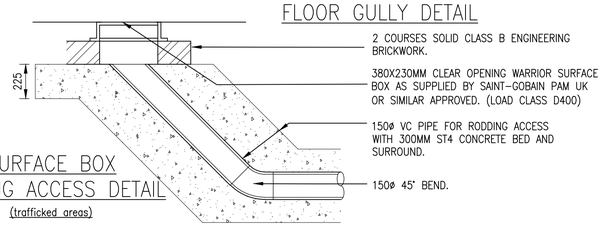
(non-trafficked areas)





TYPICAL YARD GULLY DETAIL

(MEDIUM DUTY-SUITABLE FOR LIGHTLY TRAFFICKED AREAS)



FLOOR GULLY DETAIL

SURFACE BOX RODDING ACCESS DETAIL

(trafficked areas)

GRANULAR BEDDING MATERIAL

Extract from Table A2 WIS 1994 4-08-02

(all aggregates to table 3 of bs 882 :1992)

NOMINAL PIPE DIA (mm)	SINGLE SIZED (mm)	GRADED (mm)
100	10	Not permitted
110 to 150	10 or 14	14 to 5 graded
160 to 300	10, 14 or 20	Either 20 to 5 graded or 14 to 5 graded
310 to 500	14 or 20	Either 20 to 5 graded or 14 to 5 graded
Over 550	14, 20 or 40	Either 40 to 5 graded or 20 to 5 graded or 14 to 5 graded

THE FOLLOWING UPVC PIPES ARE ACCEPTABLE FOR USE

UPONOR ULTRA DRAIN	110 & 160 (O.D.)
HEPWORTH PLASTIDRAIN	110 & 160 (O.D.)
WAVIN OSMA DRAIN	110 & 160 (O.D.)
WAVIN OSMA ULTRA RIB	150 & 225 (I.D.)
MARLEY SOLID WALL	110 & 160 (O.D.)
MARLEY QUANTUM	150 & 225 (I.D.)
POLYPIPE RIDGISEWER	150 & 225 (I.D.)
POLYPIPE UNDERGROUND DRAIN	110 & 160 (O.D.)

PLASTIC PIPE (u-PVC) TRENCH BEDDING DETAILS

REV	DATE	DESCRIPTION	DRW	CHK
P01	2022-06-16	INITIAL ISSUE	ST	JM

GENERAL NOTES –

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT 3E, ARCHITECTS AND M&E ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DRAWINGS NOT TO BE SCALED. ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER AND FURTHER INSTRUCTIONS OBTAINED BEFORE WORK IS COMMENCED.

HEALTH & SAFETY

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

ROADS & DRAINAGE

4. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE.
5. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
6. CONNECTIONS TO EXISTING SEWERS TO ONLY BE MADE BY THE RELEVANT WATER AUTHORITY APPROVED CONTRACTOR.
7. 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.
8. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.

PIPES & CABLES

9. ALL EXISTING SERVICE RECORDS TO BE OBTAINED FROM THE M&E CONSULTANT.
10. THE CONTRACTOR SHOULD BE AWARE OF AND REFER TO ALL THE RELEVANT SERVICE RECORDS PRIOR TO ANY WORK COMMENCING. ALL NECESSARY PERMISSIONS AND PROTECTION MEASURES TO BE IN PLACE PRIOR TO ANY EXCAVATION WORKS. FOR THE AVOIDANCE OF DOUBT ANY DISCREPANCIES SHOULD BE REPORTED TO THE M&E AND CIVIL CONSULTANTS IMMEDIATELY. THE CONTRACTOR SHOULD PROCEED WITH CAUTION AND LOCATE ALL SERVICES BY HAND DIG ONLY.

EXCAVATION/FILL

11. CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.
12. CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.
13. CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.
14. ALL FILL MATERIAL, COMPACTION METHOD AND TESTING REGIME TO BE IN ACCORDANCE WITH THE CURRENT 3E CONSULTING ENGINEERS EARTHWORKS SPECIFICATION.

Note for Contractors

This 3E drawing should be considered along with the risk information contained in the CDM Pre Construction Information. This information will include details of the SIGNIFICANT risks which 3E have identified which may arise from constructing the designs shown on this drawing. A competent Contractor should be aware of the typical risks associated with doing this work.

Note for Workers

DO NOT START YOUR WORK unless you know the Risks and Controls relating to the work on this drawing (including SAFE SEQUENCES OF WORK and EQUIPMENT).

STOP

Do not issue copies of parts of this drawing without the above Note for Workers (unless you are sure that the Workers can undertake the work safely).

Client
Aldi Stores Ltd.

Project Title
Aldi - New Hey Road, Huddersfield

Project Address
Proposed Aldi Store
Huddersfield Road
Mirfield

Drawing Title
Typical Drainage Details Sheet 2

Job No.	Originator	Zone	Level	Type	Role
79-E????	3EC	XX	XX	DR	C

System Classification	Drawing No.	Suitability	Revision
SS_50_35_08	-0002	S4	P01

Drawn	Checked	Date	Scale	Size
ST	JM	2022-06-16	1:20	A1

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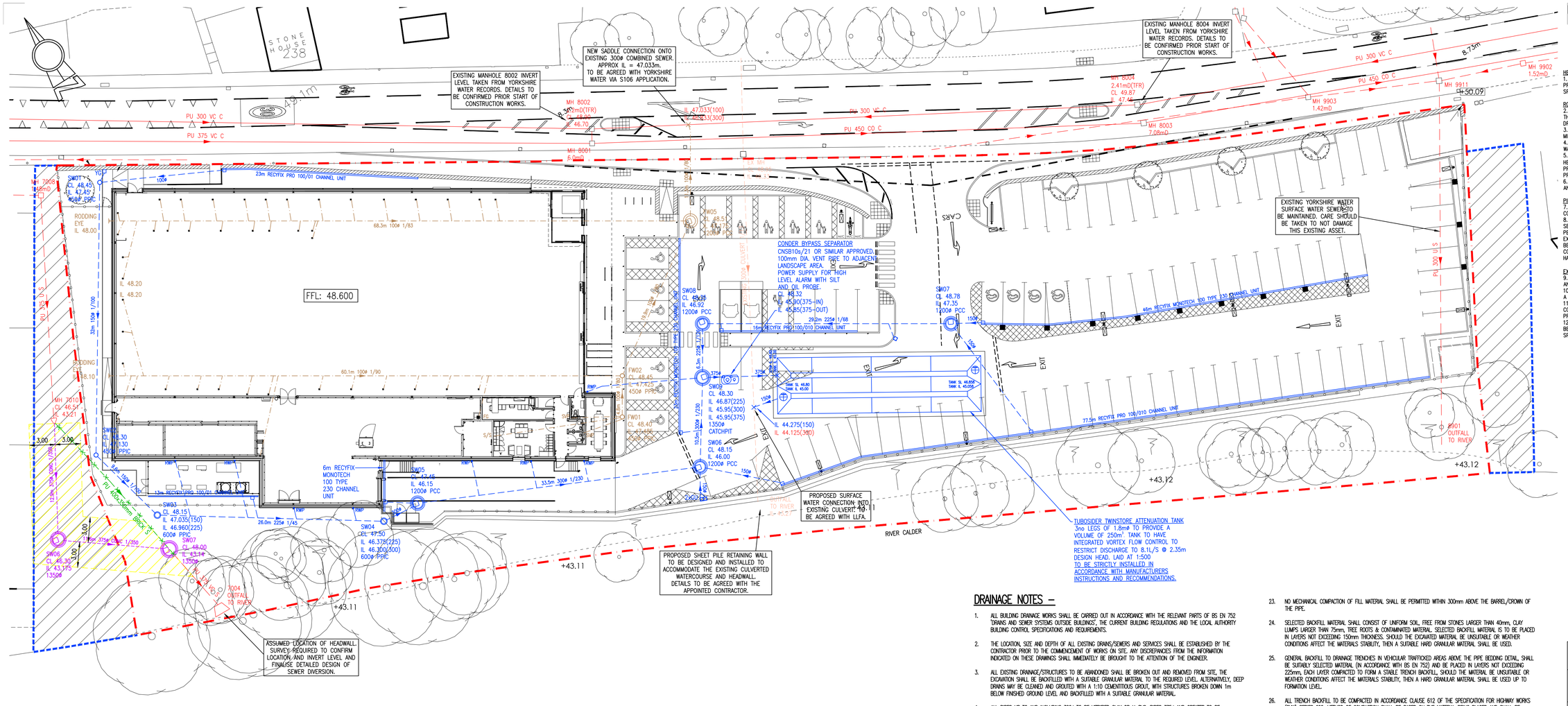

KEY

- EXISTING SURFACE WATER SEWER
- EXISTING FOUL WATER SEWER
- EXISTING COMBINED WATER SEWER
- EXISTING SURFACE WATER DRAIN
- EXISTING SURFACE WATER SEWER TO BE GRUBBED OUT/REMOVED AND DIVERTED
- PROPOSED SURFACE WATER SEWER DIVERSION
- PROPOSED SURFACE WATER SEWER MANHOLE
- PROPOSED SURFACE WATER DRAINAGE
- PROPOSED SURFACE WATER MANHOLE
- PROPOSED FOUL WATER DRAINAGE
- PROPOSED FOUL WATER MANHOLE
- PROPOSED FOUL WATER POLYPROPYLENE INSPECTION CHAMBER
- PROPOSED FOUL WATER RODDING EYE
- PROPOSED LINEAR DRAINAGE CHANNEL SYSTEM. ALL OUTLETS TO BE 150ø UNLESS SHOWN OTHERWISE.
- GU — PROPOSED TRAPPED/RODDABLE PPC ROAD GULLY WITH 150ø OUTLET PIPE. COVER & FRAME AS SPECIFIED BY THE ARCHITECT.
- RWP — PROPOSED RAIN WATER PIPE POSITION SHOWN INDICATIVELY. ALL UNDERGROUND RWP CONNECTIONS TO BE 150ø UNLESS SHOWN OTHERWISE.
- SEWER EASEMENT.

SURFACE WATER ATTENUATION TANK

- A SURFACE WATER ATTENUATION TANK IS REQUIRED TO ACHIEVE THE RESTRICTED RUN-OFF RATE NOTED ON THE DRAWING.
- ATTENUATION TANK TO BE DESIGNED BY SPECIALIST SUB-CONTRACTOR BASED ON THE DESIGN INTENT SHOWN ON THE DRAWING.
- ATTENUATION TANK TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS, INCLUDING BACKFILL IMMEDIATELY ABOVE THE TANK.
- GENERAL FILL OVER THE ATTENUATION TANK TO BE PLACED AND COMPACTED IN ACCORDANCE CLAUSE 612 OF THE SPECIFICATION FOR HIGHWAY WORKS (SHW) SERIES 600. METHOD OF COMPACTION SHALL BE BASED ON THE MATERIAL BEING PLACED AND SHALL BE CLASSIFIED IN ACCORDANCE WITH THE REQUIREMENTS OF TABLE 6/1. MATERIAL TO BE PLACED AND COMPACTED USING 'METHOD COMPACTION' WITH LAYER THICKNESS AND NUMBER OF PASSES SELECTED USING TABLE 6/4.
- PLATE LOAD TESTING TO BE UNDERTAKEN ABOVE TANK, AT FORMATION LEVEL, TO CONFIRM MINIMUM CBR OF 5%.

PETROL/OIL INTERCEPTOR

- ALL PETROL/OIL INTERCEPTORS TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.
- ALL INTERCEPTORS TO BE FITTED WITH HIGH LEVEL, EXCESS OIL AND SILT PROBE.
- CONTROL PANEL, FLASHING BEACON AND SIREN TO BE PROVIDED WITH CONTROL PANEL LOCATED WITHIN OFFICE ACCOMMODATION. ROUTE OF DUCTING BETWEEN CONTROL PANEL AND INTERCEPTOR TO BE DETERMINED BY OTHERS.
- VENT PIPE TO BE PROVIDED FROM PETROL/OIL INTERCEPTOR INTO ADJACENT LANDSCAPED AREA.

ROOF DRAINAGE SYSTEM - TRADITIONAL

- ASSUMED TRADITIONAL RAINWATER PIPE ROOF DRAINAGE SYSTEM.
- ALL RWP POSITIONS SHOWN INDICATIVELY, TO BE CONFIRMED BY THE ARCHITECT AND/OR M&E ENGINEER.
- ALL RWP CONNECTIONS TO BE 100ø UNLESS NOTED OTHERWISE.

DRAINAGE NOTES -

1. ALL BUILDING DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT PARTS OF BS EN 752 'DRAINS AND SEWER SYSTEMS OUTSIDE BUILDINGS', THE CURRENT BUILDING REGULATIONS AND THE LOCAL AUTHORITY BUILDING CONTROL SPECIFICATIONS AND REQUIREMENTS.
2. THE LOCATION, SIZE AND DEPTH OF ALL EXISTING DRAINS/SEWERS AND SERVICES SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS ON SITE. ANY DISCREPANCIES FROM THE INFORMATION INDICATED ON THESE DRAWINGS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
3. ALL EXISTING DRAINAGE/STRUCTURES TO BE ABANDONED SHALL BE BROKEN OUT AND REMOVED FROM SITE, THE EXCAVATION SHALL BE BACKFILLED WITH A SUITABLE GRANULAR MATERIAL TO THE REQUIRED LEVEL. ALTERNATIVELY, DEEP DRAINS MAY BE CLEANED AND GROUTED WITH A 1:10 CEMENTITIOUS GROUT, WITH STRUCTURES BROKEN DOWN 1m BELOW FINISHED GROUND LEVEL AND BACKFILLED WITH A SUITABLE GRANULAR MATERIAL.
4. ALL PIPES UP TO AND INCLUDING 300ø TO BE VITRIFIED CLAY OR U-PVC. PIPES 375ø AND GREATER TO BE CONCRETE CLASS 120.
5. ALL EXTERNAL ROD PIPEWORK SHALL BE LAID WITH A CLASS S PIPE BEDDING DETAIL WITH 1.2m MINIMUM COVER TO THE PIPE BARREL UNDER VEHICULAR TRAFFICKED AREAS, 0.9m COVER UNDER FIELDS AND 0.6m COVER UNDER FOOTWAYS/GARDENS. WHERE COVER IS LESS THAN THAT STATED, A CLASS A PIPE BEDDING DETAIL SHALL BE USED ON PIPES 225ø AND LARGER, FOR PIPES LESS THAN 225ø USE A CLASS Z PIPE BEDDING DETAIL. UNDER BUILDINGS A CLASS S PIPE BEDDING DETAIL SHALL BE USED. WHERE THERE IS LESS THAN 300mm BETWEEN THE BARREL OF THE PIPE AND THE UNDERSIDE OF THE STRUCTURAL FLOOR SLAB, THE PIPE SHALL BE CAST INTEGRAL WITH THE FLOOR SLAB WITH 150mm MINIMUM CONCRETE SURROUND WITH VERTICAL REINFORCEMENT TIED INTO THE SLAB.
6. ALL U-PVC PIPEWORK SHALL BE LAID WITH A CLASS F PIPE BEDDING DETAIL WITH 1.2m MINIMUM COVER TO THE PIPE BARREL UNDER VEHICULAR TRAFFICKED AREAS, 0.9m COVER UNDER FIELDS AND 0.6m COVER UNDER FOOTWAYS/GARDENS. WHERE COVER IS LESS THAN THAT STATED A CLASS Q PIPE BEDDING DETAIL SHALL BE USED.
7. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND DIVERSION WORKS AS NECESSARY, TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE PUBLIC UTILITIES.
8. THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUN-OFF INTO EXCAVATIONS AND FROM GROUNDWATER BY MEANS OF SUMPS, PUMPING AND DE-WATERING AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS REASONABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS.
9. THE NEED FOR ANY TEMPORARY LAND DRAINAGE SHALL BE ASSESSED BY THE CONTRACTOR PRIOR TO ANY WORKS COMMENCING. THESE TEMPORARY WORKS SHALL TAKE INTO ACCOUNT THE PHASING OF THE WORKS AND THE CONTRACTORS METHOD OF WORKING. NO LAND DRAINAGE, TEMPORARY OR OTHERWISE, SHALL BE PERMITTED TO DISCHARGE INTO THE PERMANENT DRAINAGE SYSTEM OR DIRECTLY ONTO THE PUBLIC HIGHWAY.
10. ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
11. THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS IN LINE WITH CURRENT LEGISLATION WHEN WORKING IN/NEAR CONFINED SPACES, DEEP EXCAVATIONS, LIVE SEWERS AND MACHINERY.
12. THE CONTRACTOR SHALL SUITABLY PROTECT PEDESTRIANS AND VEHICLES FROM THE WORKING AREAS.
13. ALL PIPES SHALL BE LAID WITH SOFFITS LEVEL AND ALL MANHOLE/INSPECTION CHAMBER INVERT LEVELS SHOWN ARE FOR THE OUTLET PIPE (UNLESS OTHERWISE SHOWN). ALL PIPE RUNS SHALL BE LAID TO THE LEVELS INDICATED, ALL PIPE GRADIENTS INDICATED ARE APPROXIMATE.
14. ALL RAINWATER PIPES/INTERNAL FOUL DRAIN CONNECTIONS ARE SHOWN INDICATIVELY OR TO THE LATEST ARCHITECTS DRAWINGS, ADAPTORS AT FINISHED FLOOR LEVEL TO SUIT CONNECTION DETAILS BY OTHERS. POSITION OF RAIN WATER PIPES AND WASTE OUTLETS MUST BE CONFIRMED FROM ARCHITECT'S DRAWING BEFORE LAYING UNDERGROUND PIPEWORK.
15. ALL INTERNAL BELOW GROUND FOUL DRAINAGE IS TO BE LAID IN ACCORDANCE WITH THE BUILDING REGULATIONS H1 SECTION 2 'CLAUSE 2.34/TABLE 6.
16. ALL BELOW GROUND PLASTIC/GRP TANKS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. THEY SHALL BE PROVIDED WITH SUFFICIENT CONCRETE SURROUND TO COUNTER FLOATATION AND SHALL HAVE A WALL THICKNESS ADEQUATE TO RESIST THE HIGHEST GROUND WATER LEVEL WHICH COULD BE ENCOUNTERED AT THEIR LOCATION.
17. ALL INSITU AND PRECAST CONCRETE PRODUCTS SHALL BE DESIGNED TO SUIT THE GROUND CONDITIONS IDENTIFIED IN THE SITE INVESTIGATION REPORT AND IN ACCORDANCE WITH BRE SPECIAL DIGEST 1, CONCRETE IN AGGRESSIVE GROUND (2001) PART 1: TABLE 2.
18. ALL PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE KITEMARKED. ALL PRECAST CONCRETE PIPES SHALL BE CLASS 120 AND COMPLY WITH THE REQUIREMENTS OF NOTE 17 ABOVE.
19. ALL VITRIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 295 AND BS 65 RESPECTIVELY AND BE KITEMARKED. ALL PIPES SHALL BE EXTRA STRENGTH TO BS 65 OR EQUIVALENT BS EN 295 PIPE CRUSHING STRENGTH AND BE OF A SLEEVED SYSTEM.
20. ALL U-PVC PIPES AND FITTINGS SHALL COMPLY WITH WIS 4-35-01 AND SHALL BE KITEMARKED.
21. WHERE CONCRETE PROTECTION IS REQUIRED TO PIPEWORK, THE CONCRETE SHALL BE DISCONTINUED AT EACH PIPE JOINT OVER THE FULL CROSS SECTION OF THE CONCRETE BY MEANS OF A SHAPED COMPRESSIBLE FILLER.
22. WHERE TWO PIPELINES CROSS WITH LESS THAN 300mm COVER, SURROUND EACH PIPE WITH A FULL CONCRETE BED AND SURROUND (CLASS Z DETAIL) FOR NOT LESS THAN 1m CENTRED ON THE CROSSING AND EXTENDED AS REQUIRED TO WITHIN 150mm OF THE NEAREST FLEXIBLE JOINT.
23. NO MECHANICAL COMPACTION OF FILL MATERIAL SHALL BE PERMITTED WITHIN 300mm ABOVE THE BARREL/CROWN OF THE PIPE.
24. SELECTED BACKFILL MATERIAL SHALL CONSIST OF UNIFORM SOIL, FREE FROM STONES LARGER THAN 40mm, CLAY LUMPS LARGER THAN 75mm, FREE ROOTS & CONTAMINATED MATERIAL. SELECTED BACKFILL MATERIAL IS TO BE PLACED IN LAYERS NOT EXCEEDING 150mm THICKNESS. SHOULD THE EXCAVATED MATERIAL BE UNSUITABLE OR WEATHER CONDITIONS AFFECT THE MATERIALS STABILITY, THEN A SUITABLE HARD GRANULAR MATERIAL SHALL BE USED).
25. GENERAL BACKFILL TO DRAINAGE TRENCHES IN VEHICULAR TRAFFICKED AREAS ABOVE THE PIPE BEDDING DETAIL, SHALL BE SUITABLY SELECTED MATERIAL (IN ACCORDANCE WITH BS EN 752) AND BE PLACED IN LAYERS NOT EXCEEDING 225mm, EACH LAYER COMPACTED TO FORM A STABLE TRENCH BACKFILL, SHOULD THE MATERIAL BE UNSUITABLE OR WEATHER CONDITIONS AFFECT THE MATERIALS STABILITY, THEN A HARD GRANULAR MATERIAL SHALL BE USED UP TO FORMATION LEVEL.
26. ALL TRENCH BACKFILL TO BE COMPACTED IN ACCORDANCE CLAUSE 612 OF THE SPECIFICATION FOR HIGHWAY WORKS (SHW) SERIES 600. METHOD OF COMPACTION SHALL BE BASED ON THE MATERIAL BEING PLACED AND SHALL BE CLASSIFIED IN ACCORDANCE WITH THE REQUIREMENTS OF TABLE 6/1. MATERIAL TO BE PLACED AND COMPACTED USING 'METHOD COMPACTION' WITH LAYER THICKNESS AND NUMBER OF PASSES SELECTED USING TABLE 6/4.
27. ALL EXCAVATIONS IN AREAS OF HIGH WATER TABLES AND GRANULAR MATERIALS WITH HIGH SAND/SILT CONTENTS SHALL BE WRAPPED WITH A SUITABLE GEOTECHNICAL FILTER MEMBRANE TO PREVENT MIGRATION OF SANDS/SILTS. FULL HEIGHT CLAY STANKS ACROSS TRENCHES AND/OR AT MANHOLE LOCATIONS AT 25m INTERVALS TO RESTRICT WATER MOVEMENT ALONG THE EXCAVATION.
28. UPON COMPLETION OF THE WORKS THE CONTRACTOR SHALL CLEAN ALL DRAINAGE BY JETTING, REMOVING ALL DEBRIS FROM SITE. NO DEBRIS SHALL BE PERMITTED TO ENTER THE EXISTING DRAINAGE SYSTEM. THE CONTRACTOR SHALL CARRY OUT A COLOUR CCTV SURVEY OF ALL THE DRAINAGE SYSTEMS WITHIN THE AREA OF THE WORKS AND PROVIDE THE ENGINEER WITH TWO COPIES OF THE CCTV ON CD (MPEG-1 FORMAT) AND REPORT TO WRC STANDARD.
29. GEOTEXTILE FABRIC TO BE WRAPPED AROUND GRANULAR PIPE BEDDING WHERE SEWER TRENCHES ARE FORMED IN RUNNING SAND/SILT MATERIAL WHERE THERE IS A RISK OF FINE MATERIAL ENTERING THE VOIDED GRANULAR BEDDING. IN THESE CONDITIONS THE GEOTEXTILE IS TO BE EXTENDED UNDER THE MANHOLE BASES.
30. WHERE UTILITY/LAND DRAINAGE TRENCHES ETC CROSS OVER DRAINAGE TRENCHES, THE CONTRACTOR SHALL CONSTRUCT AN IMPERMEABLE BARRIER TO PREVENT GROUNDWATER INFILTRATING INTO THE DRAINAGE TRENCH.
31. DESIGN ASSUMES THAT ALL WORKS ARE NOT TO BE ADOPTED AND THAT NO OFF SITE IMPROVEMENT WORKS ARE REQUIRED.
32. MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 214, HAVE 600x600 CLEAR OPENINGS UNLESS OTHERWISE SPECIFIED AND BE OF NON-ROCKING DESIGN WITHOUT CUSHION INSERTS AND BE KITEMARKED. LOAD CLASS D400 IN TRAFFICKED AREAS AND LOAD CLASS B125 IN FOOTWAYS, LANDSCAPED AND PEDESTRIAN AREAS. WHERE REQUIRED, COVERS SHALL BE RECESSED TO RECEIVE THE ARCHITECTS SPECIFIED FINISH.
33. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN124 AND BE OF NON-ROCKING DESIGN WITH CAPTIVE HINGE ACCESS AND BE KITEMARKED. LOAD CLASS D400 IN INDUSTRIAL ESTATE ROADS AND AREAS CARRYING REGULAR HEAVY TRAFFIC AND LOAD CLASS C250 IN ESTATE ROADS AND CAR PARKING AREAS. IN ALL ROAD LOCATIONS, THE GRATE SHALL BE HINGED ON THE SIDE OF THE TRAFFIC DIRECTION (LEFT HAND OPENING).
34. ALL PRIVATE GULLY'S TO BE TRAPPED PCC POTS, 375ø X 915 DEEP WITH 150ø OUTLETS UNLESS NOTED OTHERWISE.
35. ALL LINEAR DRAINAGE CHANNELS TO HAVE TRAPPED OUTLETS, WITH 150ø OUTLETS UNLESS NOTED OTHERWISE. ALLOWANCE SHOULD BE MADE FOR ACCESS/RODDING POINTS AT EACH END OF THE DRAINAGE CHANNEL RUN.
36. ALL WORKS ARE ASSUMED TO BE WITHIN PUBLIC HIGHWAY OR WITHIN LAND OWNERS LANDS & NO WORKS ARE REQUIRED ON THIRD PARTY LAND OWNERS PROPERTY.
37. ALL BELOW GROUND FOUL WATER DRAINAGE AND RWP'S TO BE 100ø UNLESS NOTED OTHERWISE. ALL DRAINAGE CHANNEL & GULLY CONNECTIONS TO BE 150ø (UNLESS NOTED OTHERWISE). ALL ITEMS TO BE RODDABLE AT LOCATIONS ABOVE GROUND LEVEL.
38. ALL SWP's, RWP's AND DRAINAGE POP-UPS ARE SHOWN INDICATIVELY AND BASED ON THE LATEST ARCHITECTS LAYOUT DRAWING. ALL LOCATIONS SHALL BE CONFIRMED BY THE ARCHITECT AND/OR M&E ENGINEER.
39. PROPOSED COVER LEVELS ON THIS DRAWING ARE INDICATIVE ONLY. THE CONTRACTOR SHALL CONFIRM ALL LEVELS INDICATED ARE CORRECT AND REPORT ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.
40. ALL POLYPROPYLENE INSPECTION CHAMBERS (PPIC'S) TO BE 450ø & ALL PRECAST CONCRETE CHAMBERS ARE 1200ø. (UNLESS NOTED OTHERWISE).
41. ALL WORKS WITHIN THE PUBLIC HIGHWAY TO BE REINSTATED TO HIGHWAY AUTHORITY REQUIREMENTS.
42. THE CONTRACTOR MUST MAKE PUBLIC SEWER CONNECTION APPLICATION TO RELEVANT WATER AUTHORITY PRIOR TO MAKING CONNECTION, WHEN/IF REQUIRED. THE CONTRACTOR SHALL ALSO ALLOW FOR ANY FEES REQUIRED IN CONNECTION WITH ROAD AND SEWER OPENING PERMITS.
43. ALL KERB DRAINAGE & DRAINAGE CHANNELS TO BE DESIGNED BY SPECIALIST SUB-CONTRACTOR.
44. ALL MANHOLES LESS THAN 1.5m DEEP ARE CONSIDERED AS NONE MAN ENTRY & SHALL BE MAINTAINED FROM GROUND LEVEL.
45. NO DEEP ROOTING TREES / VEGETATION SHOULD BE PLANTED WITHIN 5m OF ANY DRAINAGE WORKS.

REV	DATE	DESCRIPTION	DRW	CHK
P01	2022-05-16	INITIAL ISSUE	ST	JM
P02	2023-04-05	UPDATED TO LATEST ARCHITECTS LAYOUT.	JM	AC
P03	2023-04-24	UPDATED TO LATEST ARCHITECTS LAYOUT.	JM	AC

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

ROADS & DRAINAGE
2. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE
3. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
4. CONNECTIONS TO EXISTING SEWERS TO ONLY BE MADE BY THE RELEVANT WATER AUTHORITY APPROVED CONTRACTOR.
5. 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.
6. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.

PIPES & CABLES
7. ALL EXISTING SERVICE RECORDS TO BE OBTAINED FROM THE M&E CONSULTANT.
8. THE CONTRACTOR SHOULD BE AWARE OF AND REFER TO ALL THE RELEVANT SERVICE RECORDS PRIOR TO ANY WORK COMMENCING. ALL NECESSARY PERMISSIONS AND PROTECTION MEASURES TO BE IN PLACE PRIOR TO ANY EXCAVATION WORKS. FOR THE AVOIDANCE OF DOUBT ANY DISCREPANCIES SHOULD BE REPORTED TO THE M&E AND CIVIL CONSULTANTS IMMEDIATELY. THE CONTRACTOR SHOULD PROCEED WITH CAUTION AND LOCATE ALL SERVICES BY HAND DIG ONLY.

EXCAVATION/FILL
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.
12. ALL IMPORTED FILL MATERIAL, COMPACTION METHOD AND TESTING REGIME TO BE IN ACCORDANCE WITH THE CURRENT 3E CONSULTING ENGINEERS EARTHWORKS SPECIFICATION.

Note for Contractors

This 3E drawing should be considered along with the risk information contained in the CDM Pre Construction Information. This information will include details of the SIGNIFICANT risks which 3E have identified which may arise from constructing the designs shown on this drawing. A competent Contractor should be aware of the typical risks associated with doing this work.

Note for Workers

DO NOT START YOUR WORK unless you know the Risks and Controls relating to the work on this drawing (including SAFE SEQUENCES OF WORK and EQUIPMENT).

STOP

Do not issue copies of parts of this drawing without the above Note for Workers (unless you are sure that the Workers can undertake the work safely).

Client
Aldi Stores Ltd.

Project Title
Aldi - New Hey Road, Huddersfield

Project Address
Proposed Aldi Store
Huddersfield Road
Mirfield

Drawing Title
Proposed Drainage Layout

Job No.	Originator	Zone	Level	Type	Role
79-E????	3EC	XX	XX	DR	C

System Classification	Drawing No.	Suitability	Revision
SS_50_35_82-	0001	S4	P03

Drawn	Checked	Date	Scale	Size
ST	JM	2022-06-16	1:250	A1

Hydrock 3E Leeds
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LS1 4AW
t: +44 (0)113 543 1700

Hydrock 3E Newcastle
2 Esh Plaza, Sir Bobby Robson Way,
Great Park, Newcastle upon Tyne
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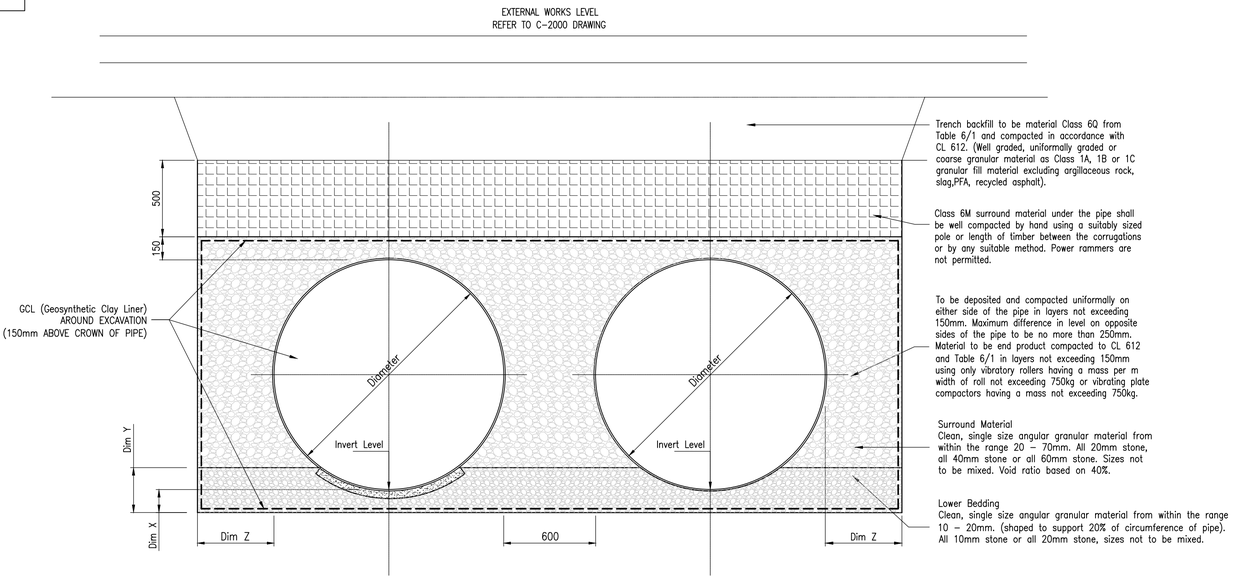
t: +44 (0)191 230 2993

A1



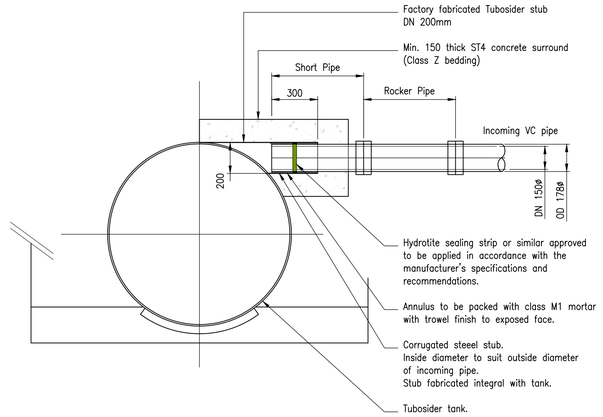
TYPICAL TUBOSIDER TWINSTORE MULTI-PIPE TANK BEDDING DETAIL

(SCALE 1:20)

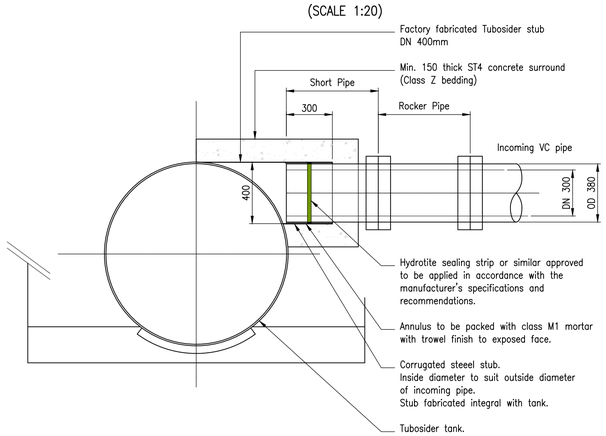
PIPE DIA mm	DIM X mm	DIM Y mm	DIM Z mm
1800	180	352	500

DESIGN AND CONSTRUCTION

DESIGN AND CONSTRUCTION OF CORRUGATED STEEL STRUCTURES TO BE IN ACCORDANCE WITH THE HIGHWAYS AGENCY DESIGN MANUAL FOR ROADS AND BRIDGES BD12/01 AND MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, SPECIFICATION FOR HIGHWAY WORKS CLAUSES 623 & 2501.

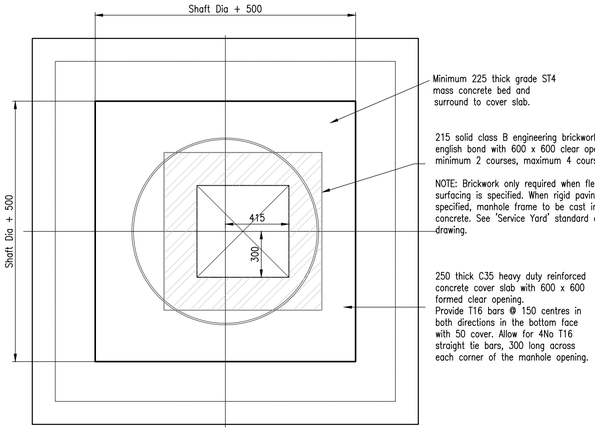


TUBOSIDER AND 150ø VITRIFIED CLAY PIPE CONNECTION
(WHEN REQUIRED)
(SCALE 1:20)



TUBOSIDER AND 300ø VITRIFIED CLAY PIPE CONNECTION
(WHEN REQUIRED)
(SCALE 1:20)

DO NOT SCALE.

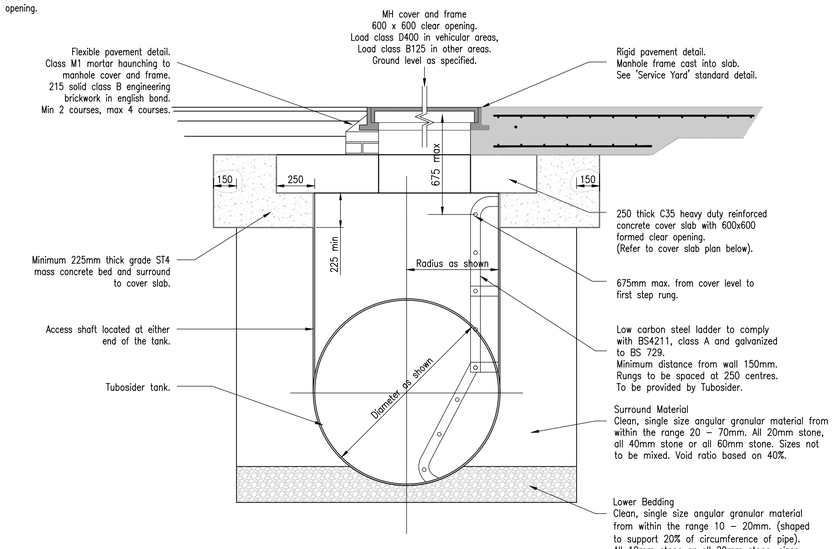


COVER SLAB PLAN THROUGH TUBOSIDER ACCESS SHAFT

(SCALE 1:20)

NOMINAL SIZE	Effective Length (mm)
150 to 600	600
675 to 675	1000
825 and above	1250

SHORT AND ROCKER PIPE LENGTHS TABLE



TYPICAL SECTION THROUGH TUBOSIDER ACCESS SHAFT

(SCALE 1:20)

TUBOSIDER NOTES

ALL CLAUSE NUMBERS BELOW REFER TO THE HIGHWAYS AGENCY'S MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS VOLUME 1, SPECIFICATION FOR HIGHWAY WORKS.

1. This drawing to be read in conjunction with all relevant 3E, Architect, and M & E consultant's drawings and project specifications.
2. All building drainage works shall be carried out in accordance with the relevant parts of BS EN 752 'Drains and Sewer Systems Outside Buildings,' the current Building Regulations and the Local Authority Building Control's requirements.
3. Corrugated steel pipes shall generally be in accordance with CL 501/4, Table 5/1 and CL 2501. The pipes and their components shall have a current Type Approval Certificate and the pipes shall also have a current BBA Roads and Bridges Certificate.
4. Joints shall be classified as 'Rigid' and shall be made watertight in accordance with the manufacturer's specifications and recommendations and complying with CL 2501/6 and 2501/8.
5. Where it becomes necessary to make a site connection into the tank other than at prefabricated junctions, the new connection shall be made using ports sourced from the original manufacturer, and all connection methods shall be strictly in accordance with the manufacturer's specifications and recommendations.
6. Where flow control devices are incorporated in the tank, they shall be fitted strictly in accordance with the manufacturer's specifications and recommendations to the levels shown on the main drainage drawings. They shall be fully operational on completion of the works with any temporary stoppers and blocks removed. Any draw wires or valves or spindles required for emergency draw down shall be fully installed and operational in accordance with the manufacturer's specifications. Some control devices may need to be fitted into the tank before the cover slab is constructed.
7. Where concrete invert paving is required it shall be constructed in accordance with BD12/01 Chapter 13 and CL 2501/12 and 2501/14 using concrete C25/30 with maximum aggregate size 20mm and A393 mesh in accordance with CL 2501/13.
8. Excavation for pipes shall be in accordance with CL 502. Soft spots in the base of the trench shall be removed and backfilled and compacted with bedding material 6K as specified on this drawing.
9. Bedding and laying of Tubosider tanks shall be carried out in accordance with CL 503/1. Earthworks for Tubosider tanks shall be in accordance with CL 623.
10. Bedding and surround for Tubosider tanks shall be selected granular fill material as shown on this drawing, laid in accordance with CL 608.
11. Backfilling of Tubosider trenches shall take place immediately after installation, jointing and surrounding is complete. Backfill shall be material Class 6Q, in accordance with Table 6/1 and CL 612, laid in even layers. Power rammers shall not be used for compaction within 300mm of any part of the pipe.
12. Tanks shall be left clean and free from silt, construction debris and obstructions.
13. All insitu and precast concrete products shall comply with class DS1 requirements for sulphate exposure in accordance with BRE Special Digest 1, Concrete in Aggressive Ground (2001) Part 1: Table 2.
14. All precast concrete products shall comply with the relevant provisions of BS5911 and be kitemarked. All precast concrete pipes shall be Class M and comply with the requirements of note 13 above.
15. All vitrified clay pipes and fittings shall comply with the relevant provisions of BSEN295 and BS65 respectively and be kitemarked. All pipes shall be extra strength to BS65 or equivalent BSEN295 pipe crushing strength.
16. Manhole covers and frames shall comply with the relevant provisions of BSEN214, and be kitemarked, with 600 x 600 clear openings.

NOTES –

1. This drawing is to be read in conjunction with all relevant 3E, architect and M&E consultants drawings and project specifications.
2. All building drainage works shall be carried out in accordance with the relevent parts of BS EN 752 'Drains and Sewer Systems Outside Buildings', the current building regulations and the local authority building control specifications and requirements.
3. All insitu and precast concrete products shall comply with class DS1 requirements for sulphate exposure in accordance with BRE Special Digest 1, Concrete in Aggresive Ground (2001) Part 1: Table 2.
4. All precast concrete products shall comply with the relevant provisions of BS 5911 and be Kitemarked. All precast concrete pipes shall be class 120 and comply with the requirements of note 3 above.
5. All 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 65 or equivalent BS EN295 pipe crushing strength and be of a sleeved system.
6. All u-PVC pipes and fittings shall comply with WIS 4-35-01 and shall be kitemarked.
7. Manhole covers and frames shall comply with the relevant provisions of BS EN214, have 600x600 clear openings unless otherwise specified and be of non-rocking design without cushion inserts and be Kitemarked. Load class D400 in trafficked areas and load class B125 in footways, landscaped and pedestrian areas. where required, covers shall be recessed to receive the architects specified finish.
8. Gully grates and frames shall comply with the relevant provisions of BS EN:124 and be of non-rocking design with captive hinge access and be Kitemarked. Load class D400 in industrial estate roads and areas carrying regular heavy traffic and load class C250 in estate roads and car parking areas. In all road locations, the grate shall be hinged on the side of the traffic direction (left hand opening).
9. All external rigid pipework shall be laid with a class S pipe bedding detail with 1.2m minimum cover to the pipe barrel under vehicular trafficked areas, 0.9m cover under fields and 0.6m cover under footways/gardens. Where cover is less than that stated, a class A pipe bedding detail shall be used on pipes 225dia and larger, for pipes less than 225dia use a class Z pipe bedding detail. Under buildings a class S pipe bedding detail shall be used. Where there is less than 300mm between the barrel of the pipe and the underside of the structural floor slab, the pipe shall be cast integral with the floor slab with 150mm minimum concrete surround with vertical reinforcement tied into the slab.
10. All u-PVC pipework shall be laid with a class T pipe bedding detail with 1.2m minimum cover to the pipe barrel under vehicular trafficked areas, 0.9m cover under fields and 0.6m cover under footways/gardens. Where cover is less than that stated a class Q pipe bedding detail shall be used.
11. Where concrete protection is required to pipework, the concrete shall be discontinued at each pipe joint over the full cross section of the concrete by means of a shaped compressible filler.
12. Where two pipelines cross with less than 300mm cover, surround each pipe with a full concrete bed and surround (class Z detail) for not less than 1m centered on the crossing and extended as required to within 150mm of the nearest flexible joint.
13. Selected backfill material shall consist of uniform soil, free from stones larger than 40mm, clay lumps larger than 75mm, tree roots, contaminated material. Selected backfill material is to be placed in layers not exceeding 150mm thickness. Should the excavated material be unsuitable or weather conditions affect the materials stability, then a suitable hard granular material shall be used.
14. No mechanical compaction of fill material shall be permitted within 300mm above the barrel/crown of the pipe.
15. General backfill to drainage trenches in vehicular trafficked areas above the pipe bedding detail, shall be suitably selected material (in accordance with BS 8301 clause 5.7.6.1.) and be placed in layers not exceeding 225mm, each layer compacted to form a stable trench backfill, should the material be unsuitable or weather conditions affect the materials stability, then a hard granular material shall be used up to formation level.
16. All separators shall be in accordance with the environment agency document PPG3.
17. All below ground plastic/grp tanks shall be installed in accordance with the manufacturers instructions. They shall be provided with sufficient concrete surround to counter floatation and shall have a wall thickness adequate to resist the highest ground water level which could be encountered at their location.
18. All excavations in areas of high water tables and granular materials with high sand/silt contents shall be wrapped with a suitable geotechnical filter membrane to prevent migration of sands/silts. Full height clay stanks across trenches and/or at manhole locations at 25m intervals to restrict water movement along the excavation shall be provided.
19. Where utility/land drainage trenches etc cross over drainage trenches, the contractor shall construct an impermeable barrier to prevent groundwater infiltrating into the drainage trench.
20. Non-man entry access chambers shall comply with the relevant provisions of BS EN 752-3.

REV	DATE	DESCRIPTION	DRW	CHK
P01	2022-06-16	PRELIMINARY ISSUE	ST	JM

GENERAL NOTES –

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT 3E, ARCHITECTS AND M&E ENGINEERS DRAWINGS AND SPECIFICATIONS.

2. DRAWINGS NOT TO BE SCALED. ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER AND FURTHER INSTRUCTIONS OBTAINED BEFORE WORK IS COMMENCED.

HEALTH & SAFETY

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

ROADS & DRAINAGE

4. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE.

5. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.

6. CONNECTIONS TO EXISTING SEWERS TO ONLY BE MADE BY THE RELEVANT WATER AUTHORITY APPROVED CONTRACTOR.

7. 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.

8. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.

PIPES & CABLES

9. ALL EXISTING SERVICE RECORDS TO BE OBTAINED FROM THE M&E CONSULTANT.

10. THE CONTRACTOR SHOULD BE AWARE OF AND REFER TO ALL THE RELEVANT SERVICE RECORDS PRIOR TO ANY WORK COMMENCING. ALL NECESSARY PERMISSIONS AND PROTECTION MEASURES TO BE IN PLACE PRIOR TO ANY EXCAVATION WORKS. FOR THE AVOIDANCE OF DOUBT ANY DISCREPANCIES SHOULD BE REPORTED TO THE M&E AND CIVIL CONSULTANTS IMMEDIATELY. THE CONTRACTOR SHOULD PROCEED WITH CAUTION AND LOCATE ALL SERVICES BY HAND DIG ONLY.

EXCAVATION/FILL

11. CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.

12. CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.

13. CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.

14. ALL FILL MATERIAL, COMPACTION METHOD AND TESTING REGIME TO BE IN ACCORDANCE WITH THE CURRENT 3E CONSULTING ENGINEERS EARTHWORKS SPECIFICATION.

Note for Contractors

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Client
Aldi Stores Ltd.

Project Title
Aldi - Portholme Road

Project Address
Proposed Aldi Store
Huddersfield Road
Mirfield

Drawing Title
Typical Attenuation Tank Details

Job No.	Originator	Zone	Level	Type	Role
79-E????	3EC	XX	XX	DR	C

System Classification	Drawing No.	Suitability	Revision
SS_50_70_05	-0001	S4	P01

Drawn	Checked	Date	Scale	Size
ST	JM	2022-05-16	1:20	A1

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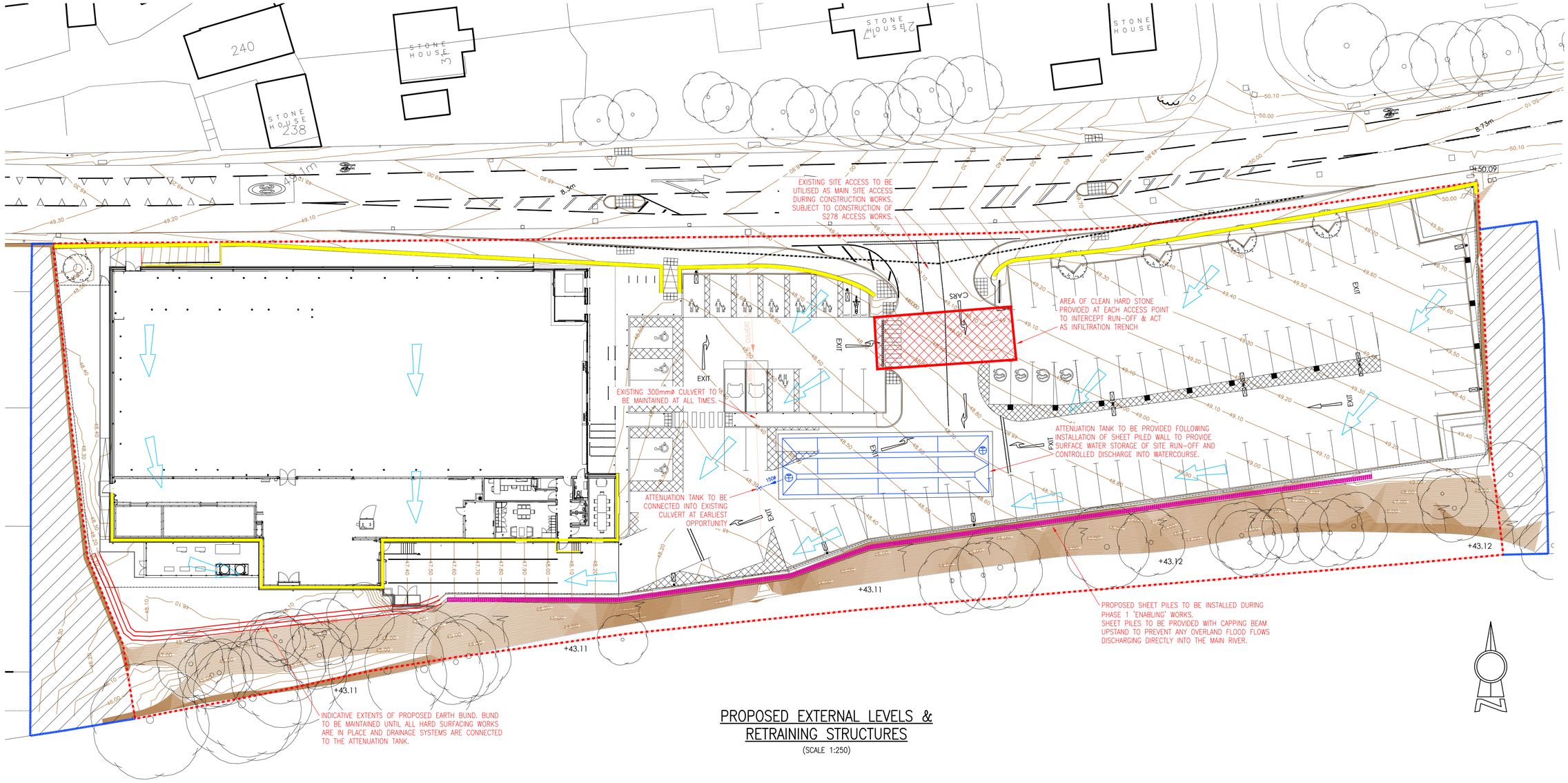
REV	DATE	DESCRIPTION	DRW	CHK
P01	2023-06-14	INITIAL ISSUE	JM	ST/AC



PROPOSED EXTERNAL LEVELS & RETRAINING STRUCTURES

(SCALE 1:250)

SITE MANAGEMENT TO MONITOR ALL SURFACE WATER RUN-OFF. ADDITIONAL BUNDING, GRIPS AND SUMPS TO BE PROVIDED WHERE NECESSARY.

KEY

- SITE BOUNDARY
- 19.23 — EXISTING LEVEL
- 19.800+ — PROPOSED LEVEL
- 1/40 — PROPOSED GRADIENT
- 19.90 — PROPOSED FINISHED CONTOUR
- FFL 20.00 — PROPOSED FINISHED FLOOR LEVEL
- (900RW) — PROPOSED RETAINING STRUCTURE WITH MAX HEIGHT IN MILLIMETERS
- (900UB) — PROPOSED UNDERBUILD WITH MAX HEIGHT IN MILLIMETERS
- INDICATIVE EXTENTS OF PROPOSED SHEET PILED RETAINING WALL
- = OVERLAND FLOOD ROUTE

Note for Contractors

This 3E drawing should be considered along with the risk information contained in the CDM Pre Construction Information. This information will include details of the SIGNIFICANT risks which 3E have identified which may arise from constructing the designs shown on this drawing. A competent Contractor should be aware of the typical risks associated with doing this work.

Note for Workers

DO NOT START YOUR WORK unless you know the Risks and Controls relating to the work on this drawing (including SAFE SEQUENCES OF WORK and EQUIPMENT).

STOP

Do not issue copies of parts of this drawing without the above Note for Workers (unless you are sure that the Workers can undertake the work safely).

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

ROADS & DRAINAGE
2. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE
3. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
4. CONNECTIONS TO EXISTING SEWERS TO ONLY BE MADE BY THE RELEVANT WATER AUTHORITY APPROVED CONTRACTOR.
5. 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.
6. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.

PIPES & CABLES
7. ALL EXISTING SERVICE RECORDS TO BE OBTAINED FROM THE M&E CONSULTANT.
8. THE CONTRACTOR SHOULD BE AWARE OF AND REFER TO ALL THE RELEVANT SERVICE RECORDS PRIOR TO ANY WORK COMMENCING. ALL NECESSARY PERMISSIONS AND PROTECTION MEASURES TO BE IN PLACE PRIOR TO ANY EXCAVATION WORKS. FOR THE AVOIDANCE OF DOUBT ANY DISCREPANCIES SHOULD BE REPORTED TO THE M&E AND CIVIL CONSULTANTS IMMEDIATELY. THE CONTRACTOR SHOULD PROCEED WITH CAUTION AND LOCATE ALL SERVICES BY HAND DIG ONLY.

EXCAVATION/FILL
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.
12. ALL IMPORTED FILL MATERIAL, COMPACTION METHOD AND TESTING REGIME TO BE IN ACCORDANCE WITH THE CURRENT 3E CONSULTING ENGINEERS EARTHWORKS SPECIFICATION.

Client
Aldi Stores Ltd.

Project Title
Aldi - Huddersfield Rd, Mirfield

Project Address
Proposed Aldi Store
Huddersfield Road
Mirfield

Drawing Title
Temporary Drainage Plan

Job No.	Originator	Zone	Level	Type	Role
79-E????	3EC	XX	XX	DR	C

System Classification	Drawing No.	Suitability	Revision
SL_90_40_46 -	0003	S4	P01

Drawn	Checked	Date	Scale	Size
JM	AC	2022-06-01	1:250	A1

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General Maintenance & Inspection Recommendations
For Below Ground Gravity Drainage. (Including Drainage Channels)

1. No work shall be carried out on the drainage system without permission from a nominated person, who has access to information/ a working knowledge of the system.

2. Maintenance/ inspection work shall be carried out in a safe/ planned manner.

3. All work is to be carried out by competent persons suitably trained and equipped in accordance with current statutory safe working policies.

4. Entry into confined spaces shall be kept to a minimum and be restricted to suitably qualified/ equipped persons working in accordance with current statutory safe working policies.

5. High levels of hygiene shall be maintained at all times, with adequate welfare facilities being provided for the personnel.

6. Drainage systems shall be inspected at least every 6 months. Any debris/ defects discovered shall be recorded and a programme of cleaning/ repair initiated. Urgent repairs/ cleaning shall be actioned as soon as practicable.

7. The maintenance/ cleaning of Bypass Type Interceptors and Grease Traps etc. shall be carried out in accordance with the specific manufacturers instructions.

8. The following operations should be carried out annually.
    a) Covers of inspection chambers and manholes shall be removed and the sides, benchings and channels cleared.
    b) Accumulated deposits of silt in soakaways, catchpit manholes, drainage channels, gullies etc. shall be removed. Any traps shall then be plunged and thoroughly flushed out with clean water.
    c) Main and branch drains shall be cleared as required and afterwards be flushed with clean water. Any obstructions found shall be removed and not flushed down the system.
    d) Covers of inspection chambers, manholes, gullies etc. shall be replaced, bedded in suitable grease or other sealing material as required and bolted/locked down as appropriate. Missing bolts and broken items shall be replaced in accordance with the manufacturers details.

9. During prolonged periods of dry weather, traps shall be checked and replenished as necessary in order to maintain the seal, preventing the escape of odours.

10. Clearing of the drainage system can be achieved by a number of methods depending on the nature of the work
    a) Rodding – Manual/ Mechanical with flexible rods.
    b) Jetting – High pressure water jetting.
    c) Plunging.

1 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Summer	1	+0%	30/15 Summer	100/15 Winter			46.276
S1.001	S2	15 Summer	1	+0%	30/15 Summer				46.173
S2.000	S3	15 Summer	1	+0%	30/15 Winter				47.445
S2.001	S4	15 Summer	1	+0%	30/15 Summer				47.058
S1.002	S3	15 Summer	1	+0%	30/15 Winter				46.119
S1.003	S4	15 Summer	1	+0%	1/15 Summer				45.172

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.174	0.000	0.36			24.4	OK	1
S1.001	S2	-0.127	0.000	0.63			38.0	OK	
S2.000	S3	-0.130	0.000	0.36			21.3	OK	
S2.001	S4	-0.087	0.000	0.68			21.5	OK	
S1.002	S3	-0.206	0.000	0.42			59.3	OK	
S1.003	S4	0.022	0.000	0.11			5.8	SURCHARGED	

30 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Summer	30	+0%	30/15 Summer	100/15 Winter			46.572
S1.001	S2	15 Summer	30	+0%	30/15 Summer				46.465
S2.000	S3	15 Summer	30	+0%	30/15 Winter				47.550
S2.001	S4	15 Summer	30	+0%	30/15 Summer				47.217
S1.002	S3	15 Summer	30	+0%	30/15 Winter				46.325
S1.003	S4	15 Summer	30	+0%	1/15 Summer				45.451

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	0.122	0.000	0.84			56.9	SURCHARGED	1
S1.001	S2	0.165	0.000	1.53			92.2	SURCHARGED	
S2.000	S3	-0.025	0.000	0.88			51.5	OK	
S2.001	S4	0.072	0.000	1.63			51.3	SURCHARGED	
S1.002	S3	0.000	0.000	1.01			142.4	OK	
S1.003	S4	0.301	0.000	0.11			6.1	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Winter	100	+40%	30/15 Summer	100/15 Winter			47.449
S1.001	S2	15 Summer	100	+40%	30/15 Summer				47.027
S2.000	S3	15 Summer	100	+40%	30/15 Winter				48.377
S2.001	S4	15 Summer	100	+40%	30/15 Summer				47.448
S1.002	S3	15 Summer	100	+40%	30/15 Winter				46.583
S1.003	S4	15 Summer	100	+40%	1/15 Summer				45.838

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	0.999	0.039	1.55			105.1	FLOOD	1
S1.001	S2	0.727	0.000	2.73			164.8	SURCHARGED	
S2.000	S3	0.802	0.000	1.44			84.7	SURCHARGED	
S2.001	S4	0.303	0.000	2.70			85.1	SURCHARGED	
S1.002	S3	0.258	0.000	1.73			243.7	SURCHARGED	
S1.003	S4	0.688	0.000	0.12			6.6	SURCHARGED	

1 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Winter	1	+0%	30/15 Summer	100/15 Winter			46.279
S1.001	S2	15 Winter	1	+0%	30/15 Summer				46.179
S2.000	S3	15 Winter	1	+0%	30/15 Winter				47.447
S2.001	S4	15 Winter	1	+0%	30/15 Summer				47.063
S1.002	S3	15 Winter	1	+0%	30/15 Winter				46.124
S1.003	S4	30 Winter	1	+0%	1/15 Summer				45.244

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.171	0.000	0.38			25.5	OK	1
S1.001	S2	-0.121	0.000	0.66			40.0	OK	
S2.000	S3	-0.128	0.000	0.38			22.3	OK	
S2.001	S4	-0.082	0.000	0.72			22.6	OK	
S1.002	S3	-0.201	0.000	0.44			62.2	OK	
S1.003	S4	0.094	0.000	0.12			6.2	SURCHARGED	

30 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Winter	30	+0%	30/15 Summer	100/15 Winter			46.596
S1.001	S2	15 Winter	30	+0%	30/15 Summer				46.484
S2.000	S3	15 Winter	30	+0%	30/15 Winter				47.582
S2.001	S4	15 Winter	30	+0%	30/15 Summer				47.227
S1.002	S3	15 Winter	30	+0%	30/15 Winter				46.326
S1.003	S4	480 Summer	30	+0%	1/15 Summer				45.714

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	0.146	0.000	0.86			58.4	SURCHARGED	1
S1.001	S2	0.184	0.000	1.61			97.1	SURCHARGED	
S2.000	S3	0.007	0.000	0.91			53.4	SURCHARGED	
S2.001	S4	0.082	0.000	1.68			52.9	SURCHARGED	
S1.002	S3	0.001	0.000	1.06			149.4	SURCHARGED	
S1.003	S4	0.564	0.000	0.12			6.7	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Winter	100	+40%	30/15 Summer	100/15 Winter			47.449
S1.001	S2	15 Winter	100	+40%	30/15 Summer				47.095
S2.000	S3	15 Winter	100	+40%	30/15 Winter				48.481
S2.001	S4	15 Winter	100	+40%	30/15 Summer				47.478
S1.002	S3	15 Winter	100	+40%	30/15 Winter				46.617
S1.003	S4	240 Winter	100	+40%	1/15 Summer				47.407

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	0.999	0.039	1.55			105.1	FLOOD	1
S1.001	S2	0.795	0.000	2.83			170.9	SURCHARGED	
S2.000	S3	0.906	0.000	1.50			88.2	FLOOD RISK	
S2.001	S4	0.333	0.000	2.81			88.5	SURCHARGED	
S1.002	S3	0.292	0.000	1.81			255.7	SURCHARGED	
S1.003	S4	2.257	0.000	0.15			8.2	SURCHARGED	

STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	33.517	0.150	223.4	0.206	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.001	10.507	0.050	210.1	0.140	0.00	0.0	0.600	o	300	Pipe/Conduit	
S2.000	29.235	0.430	68.0	0.180	5.00	0.0	0.600	o	225	Pipe/Conduit	
S2.001	6.342	0.050	126.8	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.002	8.792	0.130	67.6	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.003	4.642	0.725	6.4	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	46.60	5.53	46.150	0.206	0.0	0.0	0.0	1.05	74.1	26.0
S1.001	46.02	5.70	46.000	0.345	0.0	0.0	0.0	1.08	76.4	43.0
S2.000	47.45	5.31	47.350	0.180	0.0	0.0	0.0	1.59	63.2	23.1
S2.001	47.10	5.40	46.920	0.180	0.0	0.0	0.0	1.16	46.1	23.1
S1.002	45.78	5.76	45.950	0.525	0.0	0.0	0.0	2.21	243.6	65.1
S1.003	48.57	5.02	45.000	0.000	8.1	0.0	0.0	4.01	70.8	8.1

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.206	0.206	0.206
1.001	User	-	100	0.041	0.041	0.041
	User	-	100	0.045	0.045	0.087
	User	-	100	0.053	0.053	0.140
2.000	User	-	100	0.144	0.144	0.144
	User	-	100	0.005	0.005	0.149
	User	-	100	0.030	0.030	0.180
2.001	-	-	100	0.000	0.000	0.000
1.002	-	-	100	0.000	0.000	0.000
1.003	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.525	0.525	0.525

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.003	S	48.296	44.275	0.000	0	0

Online Controls for Storm

Hydro-Brake® Optimum Manhole: S4, DS/PN: S1.003, Volume (m³): 5.7

Unit Reference	MD-SHE-0113-8100-2350-8100
Design Head (m)	2.350
Design Flow (l/s)	8.1
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	113
Invert Level (m)	45.000
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.350	8.1	Kick-Flo®	1.006	5.4
Flush-Flo™	0.492	6.8	Mean Flow over Head Range	-	6.5

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

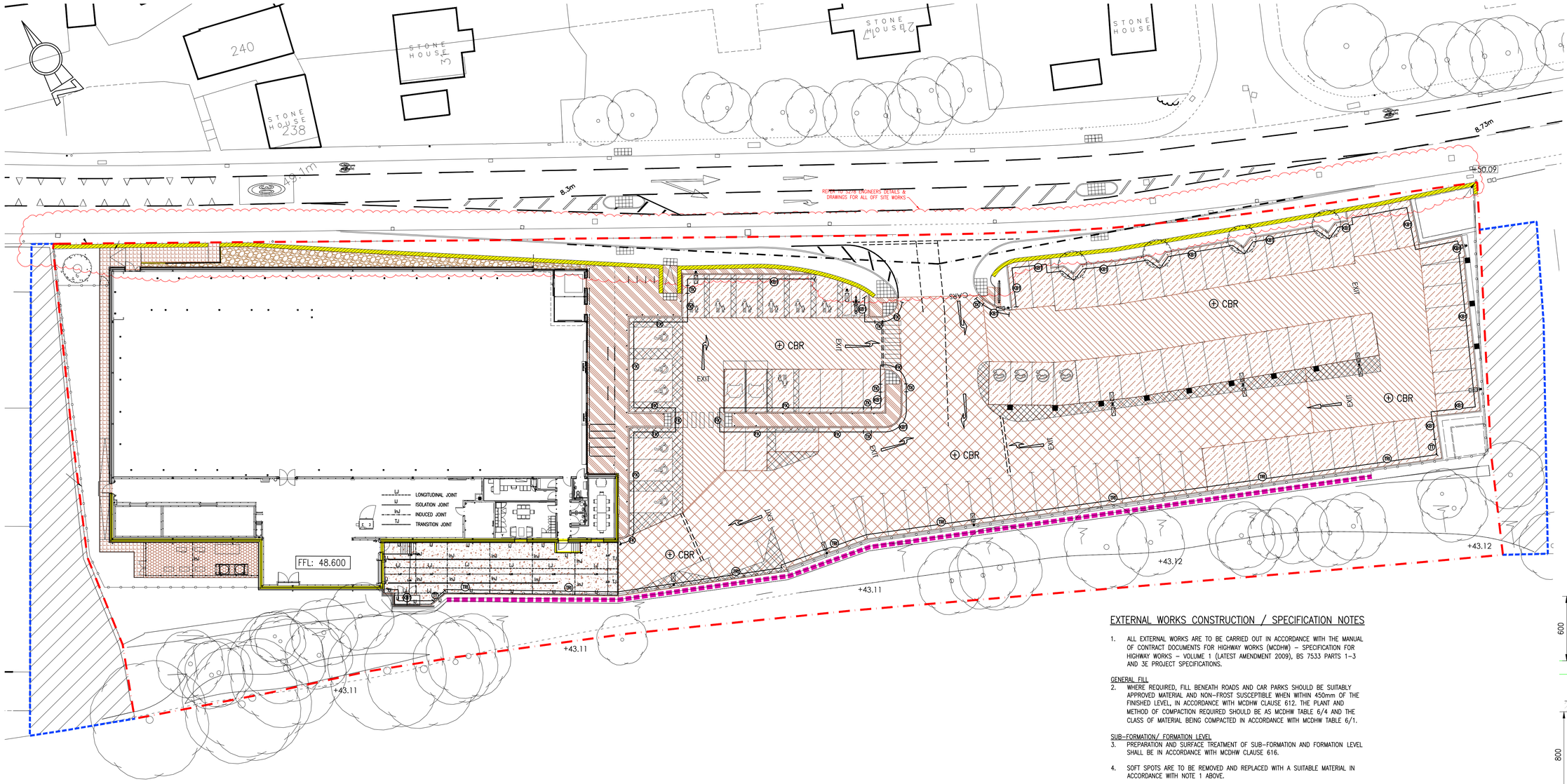
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.9	1.200	5.9	3.000	9.1	7.000	13.6
0.200	6.0	1.400	6.3	3.500	9.8	7.500	14.0
0.300	6.6	1.600	6.8	4.000	10.4	8.000	14.5
0.400	6.8	1.800	7.1	4.500	11.0	8.500	14.9
0.500	6.8	2.000	7.5	5.000	11.6	9.000	15.3
0.600	6.8	2.200	7.8	5.500	12.1	9.500	15.7
0.800	6.5	2.400	8.2	6.000	12.6		
1.000	5.5	2.600	8.5	6.500	13.1		

Storage Structures for Storm

Tank or Pond Manhole: S4, DS/PN: S1.003

Invert Level (m) 45.000

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	138.0	0.600	138.0	1.200	138.0	1.800	138.0
0.200	138.0	0.800	138.0	1.400	138.0	1.801	0.0
0.400	138.0	1.000	138.0	1.600	138.0		



REV	DATE	DESCRIPTION	DRW	CHK
P01	2022-06-16	INITIAL ISSUE	ST	JM
P02	2023-04-03	UPDATED TO SUIT LATEST SITE LAYOUT PLAN	JM	AB
P03	2023-04-24	UPDATED TO SUIT LATEST SITE LAYOUT PLAN	JM	AB

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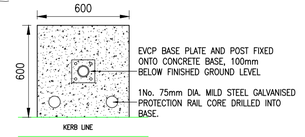

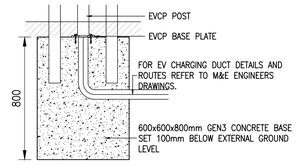

TYPICAL EVCP BASE DETAIL

(SCALE 1:20)

EXTERNAL WORKS CONSTRUCTION / SPECIFICATION NOTES

1. ALL EXTERNAL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS (MCDHW) – SPECIFICATION FOR HIGHWAY WORKS – VOLUME 1 (LATEST AMENDMENT 2009), BS 7533 PARTS 1–3 AND 3E PROJECT SPECIFICATIONS.

GENERAL FILL
2. WHERE REQUIRED, FILL BENEATH ROADS AND CAR PARKS SHOULD BE SUITABLY APPROVED MATERIAL AND NON-FROST SUSCEPTIBLE WHEN WITHIN 450mm OF THE FINISHED LEVEL, IN ACCORDANCE WITH MCDHW CLAUSE 612. THE PLANT AND METHOD OF COMPACTION REQUIRED SHOULD BE AS MCDHW TABLE 6/4 AND THE CLASS OF MATERIAL BEING COMPACTED IN ACCORDANCE WITH MCDHW TABLE 6/1.

SUB-FORMATION/ FORMATION LEVEL
3. PREPARATION AND SURFACE TREATMENT OF SUB-FORMATION AND FORMATION LEVEL SHALL BE IN ACCORDANCE WITH MCDHW CLAUSE 616.
4. SOFT SPOTS ARE TO BE REMOVED AND REPLACED WITH A SUITABLE MATERIAL IN ACCORDANCE WITH NOTE 1 ABOVE.
5. THE FORMATION LEVEL AND SUB-BASE SHALL BE COVERED AS SOON AS PRACTICABLE WITH PROTECTION PROVIDED FROM CONSTRUCTION TRAFFIC / OPERATIONS AND INCLEMENT WEATHER CONDITIONS.
6. SUB-BASE THICKNESSES ARE GIVEN FOR VARIOUS CBR VALUES. TESTING SHOULD BE CARRIED OUT ON SITE TO DETERMINE THE ACTUAL CBR.
7. UNDER ADVERSE WEATHER CONDITIONS, OR FOR CBR VALUES OF 2% OR LESS, THE USE OF A SEPARATION MEMBRANE (TERRAM T1000 NON WOVEN GEOTEXTILE OR SIMILAR APPROVED TO MCDHW CLAUSE 609) IS RECOMMENDED, LAID ON TOP OF FORMATION LAYER.
8. THE CONSTRUCTION THICKNESSES HAVE BEEN BASED ON THE ASSUMPTION THAT THE CORRECTED VOLUME OF TRAFFIC WILL BE NO GREATER THAN 0.5MSA (MILLION STANDARD AXLES) PER SITE AND 1.0MSA FOR THE SHARED SITE ACCESS, BASED ON A 20 YEAR DESIGN LIFE WITH 0% GROWTH.
9. THE DESIGN OF THE SUB BASE HAS NOT ALLOWED FOR CONSTRUCTION TRAFFIC USE. SHOULD THE CONTRACTOR WISH TO USE THE SUB BASE FOR CONSTRUCTION TRAFFIC THEN THE ENGINEER SHALL BE NOTIFIED AND THE DESIGN THICKNESS REVISED AS REQUIRED.
10. COMPACTION OF GRANULAR MATERIAL TO BE IN ACCORDANCE WITH MCDHW CLAUSE 802.
11. GENERAL REQUIREMENTS FOR THE COMPACTION OF FILL MATERIAL TO BE IN ACCORDANCE WITH MCDHW CLAUSE 612.
12. PLACING, COMPACTING AND TRANSPORTATION OF BITUMINOUS SURFACING MATERIALS TO BE IN ACCORDANCE WITH MCDHW CLAUSE 903.
12. USE OF SURFACES BY TRAFFIC AND CONSTRUCTION PLANT TO BE IN ACCORDANCE WITH MCDHW CLAUSE 903.
14. COLOUR, TEXTURE AND PROFILE OF BLOCK PAVERS AND KERBS TO BE USED, AS SPECIFIED BY THE ARCHITECT.
15. BLOCK PAVERS ARE TO BE INSTALLED IN A PATTERN AS SPECIFIED BY THE ARCHITECT. TO BE LAID IN ACCORDANCE WITH BS 7533: PART 3, CODE OF PRACTICE FOR LAYING PRECAST CONCRETE PAVING BLOCKS.
16. TO PROVIDE AN ADEQUATE BOND BETWEEN EXISTING AND NEW ASPHALT/DENSE MACADAM LAYERS, EACH EXISTING LAYER IS TO BE CUT BACK IN 300MM STAGGERED STRIPS, WITH BITUMEN EMULSION APPLIED TO ALL VERTICAL FACES.
17. ALL CONSTRUCTION THICKNESSES SPECIFIED ARE THE REQUIRED COMPACTED FINISHED THICKNESS.
18. TO REDUCE THE RISK OF DIFFERENTIAL SETTLEMENT AN AREA OF TRANSITION SHALL BE ALLOWED FOR BETWEEN THE INTERFACE OF DIFFERING SUB-GRADE AND CONSTRUCTION SPECIFICATIONS, IE. WITH NO VERTICAL FACES. SLOPES SHOULD BE NO STEEPER THAN APPROXIMATELY 30 DEGREES.

NOTES FOR CONCRETE SERVICE YARD SLABS.

1. CONCRETE AND JOINTS FOR EXTERNAL SLABS SHALL GENERALLY BE IN ACCORDANCE WITH SERIES 1000 OF THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS (MCDHW).
2. YARD SLAB CONCRETE SHALL BE DESIGNATED MIX PAV 2 C28/35 AIR ENTRAINED TO BS 8500–PART 1. FULL REQUIREMENTS FOR DESIGNATED MIXES SHALL BE IN ACCORDANCE WITH CLAUSE 6 OF BS 8500–2:2006.
3. VISQUEEN (OR SIMILAR APPROVED) MEMBRANE SHALL BE IN ACCORDANCE WITH MCDHW CLAUSE 1007.
4. CONCRETE SHALL NOT BE LAID ON ANY SURFACE WHICH IS FROZEN OR COVERED IN ICE.
5. TOLERANCES SHALL BE IN ACCORDANCE WITH MCDHW CLAUSE 702 AND TABLES 7/1 AND 7/2.
6. BRUSH FINISH TO SURFACE SHALL BE IN ACCORDANCE WITH MCDHW CLAUSE 1026/2, WITH FLAT STEEL FLOAT EDGES BEFORE CURING.
7. CURING SHALL BE FOR A MINIMUM PERIOD OF 7 DAYS.

KEY

HGV ACCESS AND TURNING AREA
40mm Of ULTIPHALT HD or similar approved
H/Stone PSV 60
60mm Of AC 20 dense bin 40/60 Binder Course
100mm Of AC 32 base 40/60 Base
Type 1 Sub Base in accordance with Table 1

CAR PARK LANES
40mm of SMA 10 surf 40/60 Surface Course
H/Stone PSV 60
60mm of AC 20 dense bin 100/150 Binder Course
70mm of AC 32 dense bin 100/150 Base
Type 1 Sub Base in accordance with Table 1

LOADING BAY SERVICE RAMP
200mm thick PAV 2 Concrete Slab, brush finish, with steel float edges with A193 fabric top face with 40mm cover, 400mm laps, cast onto 1000 gauge Visqueen (or similar approved) membrane.
250mm Type 1 Granular Sub Base

PEA GRAVEL AREAS
25–40mm pea gravel to Architects specification.
Laid over Terram Weedguard or similar approved geomembrane.
150mm Type 1 Granular Sub Base

CAR PARK BAYS
40mm of SMA 10 surf 40/60 Surface Course
H/Stone PSV 60
60mm of AC 20 dense bin 100/150 Binder Course
Type 1 Sub Base in accordance with Table 1

ASPHALT FOOTWAY
20mm Of AC 6 dense surf 100/150 Surface Course
50mm Of AC 20 dense bin 100/150 Binder Course
250mm Type 1 Granular Sub Base

CONCRETE PLANT PLATFORM
150mm Thick PAV 2 with A142 mesh in centre.
Brushed finish
150mm Type 1 Granular Sub Base
1 in 100 fall away from store.

CONCRETE FOOTWAY
100mm Thick PAV 2 with A142 mesh in centre.
Brushed finish
150mm Type 1 Granular Sub Base
1 in 100 fall away from store.

TACTILE PAVIORS
400x400x65mm tactile paving flags
Bedded on 20mm thick 1:3 cement sand mortar bed.
On 75mmn thick grade ST4 concrete bed.
Buff coloured.

PROPOSED CBR TEST LOCATIONS
Tests to be undertaken 500mm below proposed finished level in natural material.
Formation to be proof rolled prior to undertaking tests.

RETAINING WALL
See drawing SL_90_4–_46–0001 for levels and retaining wall information.

KEY – KERBING AND EDGING

- (KB1) EXTENTS OF 125x255mm P.C.C HALF–BATTERED KERB TO BS EN 1340: 2003. 100mm FACE (U.N.O.)
- (FK) EXTENTS OF 125x150mm P.C.C BULLNOSED KERB TO BS EN 1340: 2003.
- (TK) PRECAST CONCRETE TRANSITION KERB TO BS EN 1340: 2003. 125 x 255 TO 125 x 150
- (EK) EXTENTS OF 50x150 P.C.C SQUARE EDGING TO BS EN 1340: 2003.
- (TR1) EXTENTS OF 380x415 P.C.C TRIEF KERB. GST 2A 914 BY BRETT LANDSCAPING OR SIMILAR APPROVED.
- (TT) EXTENTS OF P.C.C. TRIEF TAPER KERBS. 2No UNITS PER TAPER.

IT IS ASSUMED THAT A CBR OF 2% WILL BE ACHIEVED AT FORMATION LEVEL. HOWEVER, ACTUAL CONSTRUCTION BUILD–UPS SHOULD BE BASED UPON IN–SITU CBR TESTS WITH SUB–BASE THICKNESSES TAKEN FROM TABLE 1 BELOW.

TABLE 1

CBR	SUB–BASE ONLY	CAPPING + SUB–BASE
< 2%	N/A*	N/A*
2%	400mm	450mm + 150mm
3%	300mm	150mm + 150mm
4%	275mm	N/A
5%	250mm	N/A

* WHERE CBR < 2.0%

AN ALTERNATIVE CONSTRUCTION IS REQUIRED WHERE THE FORMATION LEVEL CBR RESULT <2%.

SUB–BASE BUILD–UP DESIGN TO BE PROVIDED BY TENSAR (OR SIMILAR APPROVED) AND AGREED WITH THE ENGINEER.

Client
Aldi Stores Ltd.

Project Title
Aldi - Huddersfield Rd, Mirfield

Project Address
Proposed Aldi Store
Huddersfield Road
Mirfield

Drawing Title
External Build-Ups Layout

Job No.	Originator	Zone	Level	Type	Role
79-E????	3EC	XX	XX	DR	C

System Classification	Drawing No.	Suitability	Revision
PR_35_31_05	0001	S4	P03

Drawn	Checked	Date	Scale	Size
JM	AC	2022-06-16	1:250	A1

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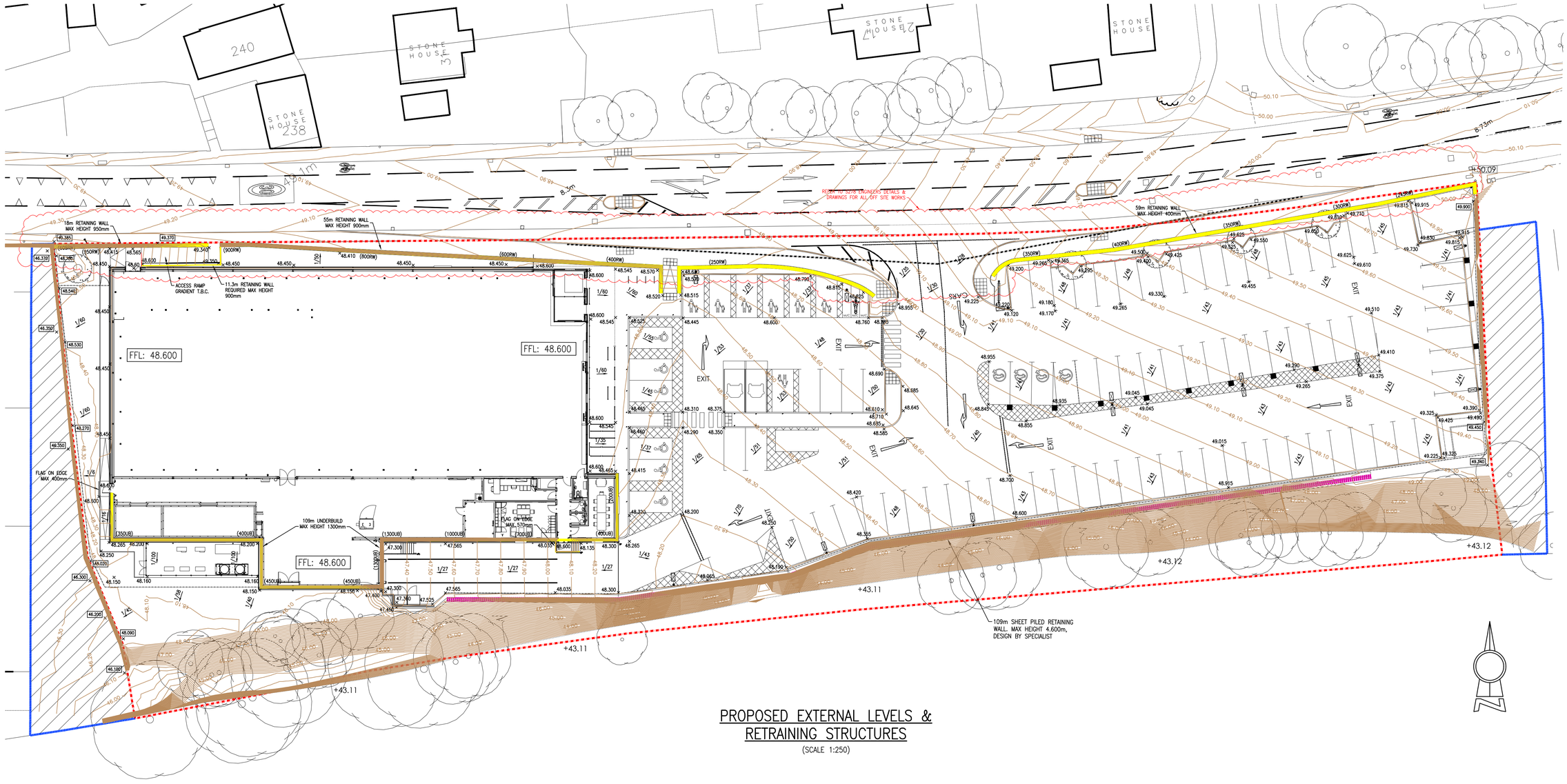
REV	DATE	DESCRIPTION	DRW	CHK
P01	2022-06-01	INITIAL ISSUE	JM	ST/AC
P02	2022-06-16	No OF STEPS ADDED AT FIRE EXIT.	ST	JM
P03	2023-03-28	UPDATED TO SUIT HIGHWAY LEVELS. FIRE ESCAPE CHANGED TO RAMP. RET. WALLS UPDATED.	JM	AC
P04	2023-04-24	UPDATED TO LATEST ARCHITECTS LAYOUT	JM	AC



PROPOSED EXTERNAL LEVELS & RETRAINING STRUCTURES

(SCALE 1:250)

KEY

- SITE BOUNDARY
- 19.23 EXISTING LEVEL
- 19.800+ PROPOSED LEVEL
- 1/40 PROPOSED GRADIENT
- 19.90 PROPOSED FINISHED CONTOUR
- FFL 20.00 PROPOSED FINISHED FLOOR LEVEL
- (900RW) PROPOSED RETAINING STRUCTURE WITH MAX HEIGHT IN MILLIMETERS
- (900UB) PROPOSED UNDERBUILD WITH MAX HEIGHT IN MILLIMETERS
- INDICATIVE EXTENTS OF PROPOSED SHEET PILED RETAINING WALL

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Proposed Aldi Store
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Drawing Title
Proposed External Levels & Retaining Structures

Job No.	Originator	Zone	Level	Type	Role
79-E????	3EC	XX	XX	DR	C

System Classification	Drawing No.	Suitability	Revision
SL_90_40_46 -	0002	S4	P04

Drawn	Checked	Date	Scale	Size
JM	AC	2022-06-01	1:250	A1

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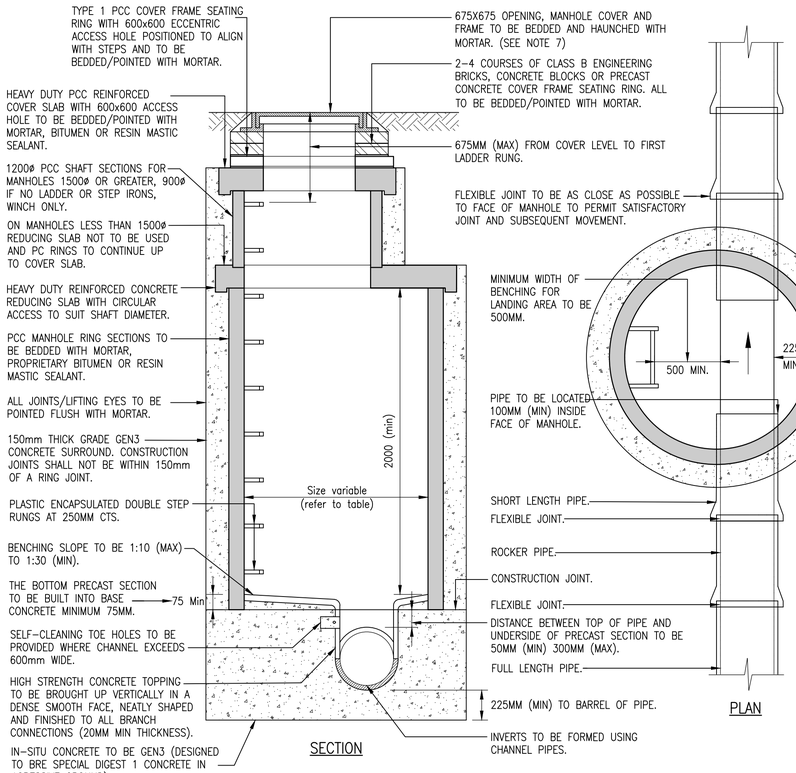
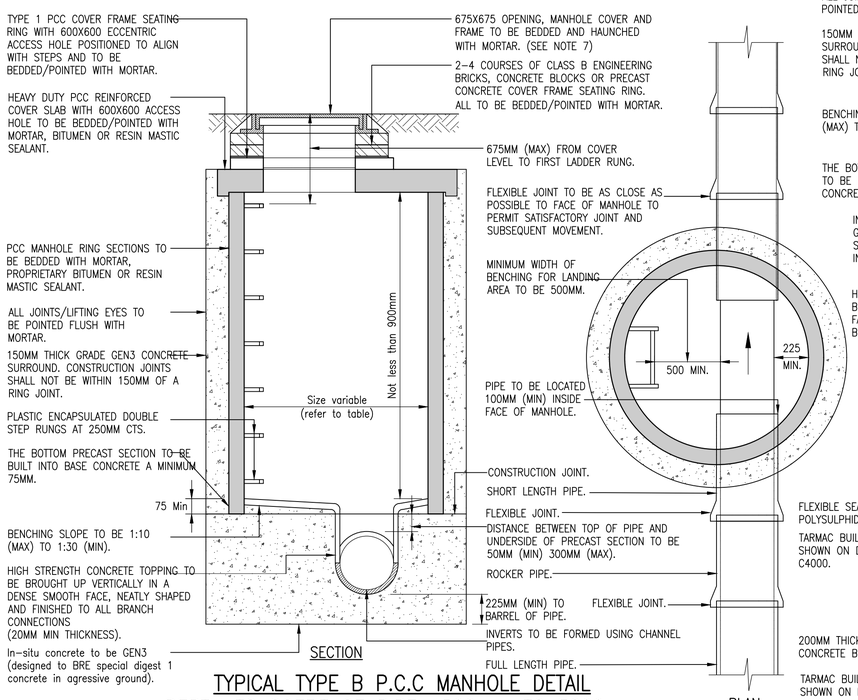


TYPICAL TYPE A P.C.C. MANHOLE DETAIL
DEPTH TO SOFFIT OF PIPE 3000mm TO 6000mm



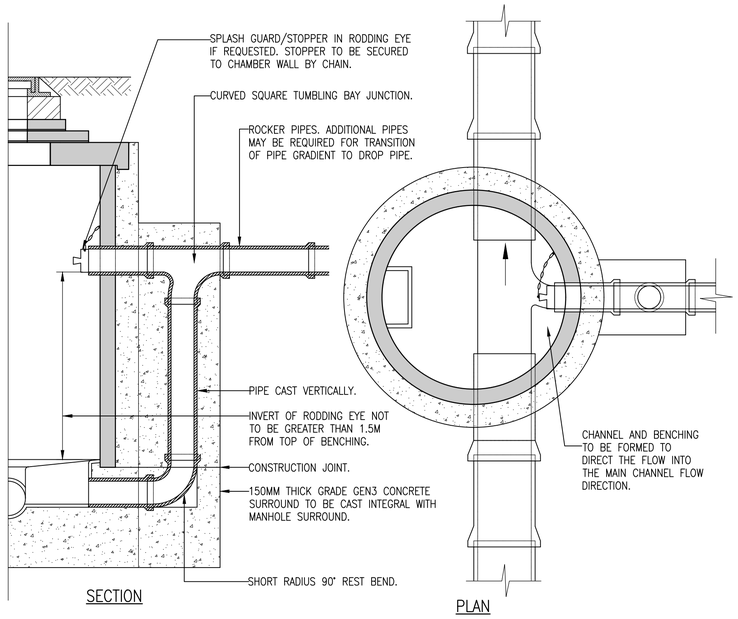
TYPICAL TYPE B P.C.C MANHOLE DETAIL
DEPTH TO SOFFIT OF PIPE 1500mm TO 3000mm

NOMINAL SIZE	EFFECTIVE LENGTH (mm)
150 TO 600	600
OVER 600 TO 750	1000
OVER 750	1250

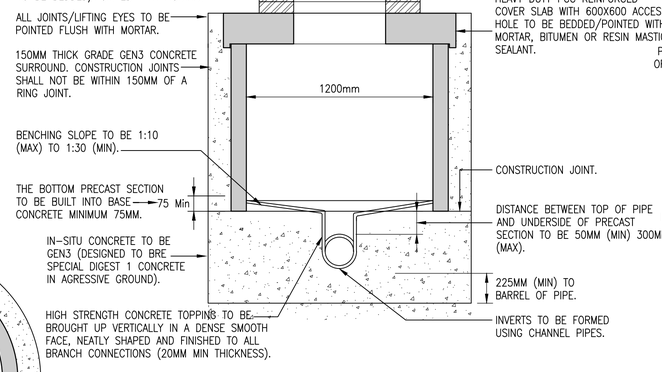
SHORT AND ROCKER PIPE LENGTHS TABLE
APPLICABLE TO ALL MANHOLE TYPES

DIA. OF LARGEST PIPE IN M.H.	CHAMBER SECTION INT.DIA. (mm)
LESS THAN 375mm	1200
375 TO 700	1500
750 TO 900	1800
GRATER THAN 900	AS SPECIFIED

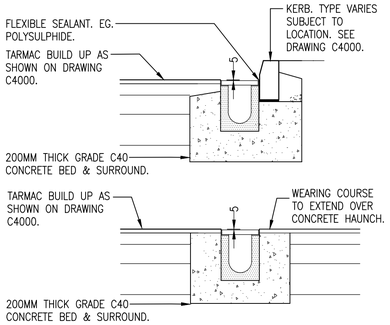
TABLE APPLICABLE TO P.C.C. MANHOLE TYPES
(chamber sizes are minimum required)



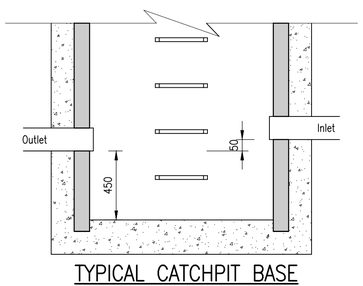
TYPICAL VERTICAL BACKDROP MANHOLE DETAIL
(note: construction details as standard PCC manhole)



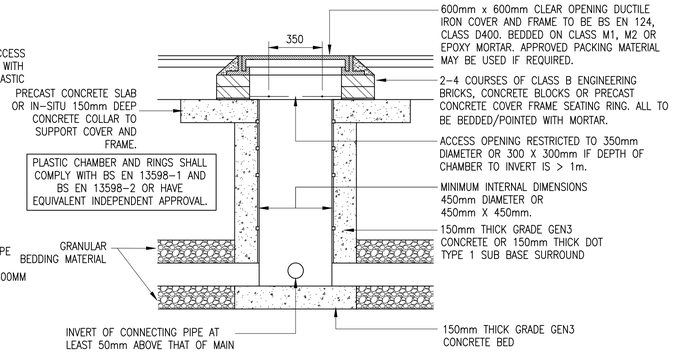
TYPICAL TYPE E P.C.C. MANHOLE DETAIL DEPTH TO SOFFIT OF PIPE 1m TO 1.5m
Max sewer diameter 375mm
(NON-MAN ENTRY)



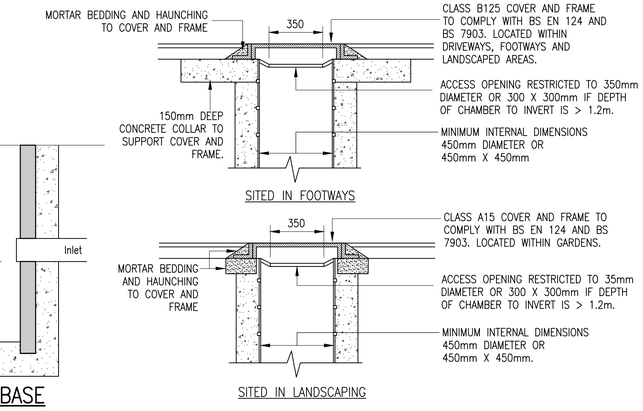
TYPICAL CHANNEL DETAILS



TYPICAL CATCHPIT BASE



TYPICAL 450ø / 600ø INSPECTION CHAMBER DETAIL
MAXIMUM DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE IN AREAS SUBJECT TO VEHICLE LOADING 3m, NON-ENTRY



ALTERNATIVE TOP DETAILS FOR LIGHT VEHICLE LOADING AND LANDSCAPED AREAS

NOTES –

1. This drawing is to be read in conjunction with all relevant 3E, architect and M&E consultants drawings and project specifications.
2. All building drainage works shall be carried out in accordance with the relevent parts of BS EN 752 'Drains and Sewer Systems Outside Buildings', the current building regulations and the local authority building control specifications and requirements.
3. All insitu and precast concrete products shall comply with class DS1 requirements for sulphate exposure in accordance with BRE Special Digest 1, Concrete in Aggressive Ground (2001) Part 1: Table 2.
4. All precast concrete products shall comply with the relevant provisions of BS 5911 and be Kitemarked. All precast concrete pipes shall be class 120 and comply with the requirements of note 3 above.
5. All 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 65 or equivalent BS EN295 pipe crushing strength and be of a sleeved system.
6. All u-PVC pipes and fittings shall comply with WIS 4-35-01 and shall be kitemarked.
7. Manhole covers and frames shall comply with the relevant provisions of BS EN214, have 600x600 clear openings unless otherwise specified and be of non-rocking design without cushion inserts and be Kitemarked. Load class D400 in trafficked areas and load class B125 in footways, landscaped and pedestrian areas. where required, covers shall be recessed to receive the architects specified finish.
8. Gully grates and frames shall comply with the relevant provisions of BS EN:124 and be of non-rocking design with captive hinge access and be Kitemarked. Load class D400 in industrial estate roads and areas carrying regular heavy traffic and load class C250 in estate roads and car parking areas. In all road locations, the grate shall be hinged on the side of the traffic direction (left hand opening).
9. All external rigid pipework shall be laid with a class S pipe bedding detail with 1.2m minimum cover to the pipe barrel under vehicular trafficked areas, 0.9m cover under fields and 0.6m cover under footways/gardens. Where cover is less than that stated, a class A pipe bedding detail shall be used on pipes 225dia and larger, for pipes less than 225dia use a class Z pipe bedding detail. Under buildings a class S pipe bedding detail shall be used. Where there is less than 300mm between the barrel of the pipe and the underside of the structural floor slab, the pipe shall be cast integral with the floor slab with 150mm minimum concrete surround with vertical reinforcement tied into the slab.
10. All u-PVC pipework shall be laid with a class T pipe bedding detail with 1.2m minimum cover to the pipe barrel under vehicular trafficked areas, 0.9m cover under fields and 0.6m cover under footways/gardens. Where cover is less than that stated a class Q pipe bedding detail shall be used.
11. Where concrete protection is required to pipework, the concrete shall be discontinued at each pipe joint over the full cross section of the concrete by means of a shaped compressible filler.
12. Where two pipelines cross with less than 300mm cover, surround each pipe with a full concrete bed and surround (class Z detail) for not less than 1m centered on the crossing and extended as required to within 150mm of the nearest flexible joint.
13. Selected backfill material shall consist of uniform soil, free from stones larger than 40mm, clay lumps larger than 75mm, tree roots, contaminated material. Selected backfill material is to be placed in layers not exceeding 150mm thickness. Should the excavated material be unsuitable or weather conditions affect the materials stability, then a suitable hard granular material shall be used.
14. No mechanical compaction of fill material shall be permitted within 300mm above the barrel/crown of the pipe.
15. General backfill to drainage trenches in vehicular trafficked areas above the pipe bedding detail, shall be suitably selected material (in accordance with BS 8301 clause 5.7.6.1.) and be placed in layers not exceeding 225mm, each layer compacted to form a stable trench backfill, should the material be unsuitable or weather conditions affect the materials stability, then a hard granular material shall be used up to formation level.
16. All separators shall be in accordance with the environment agency document PPG3.
17. All below ground plastic/grp tanks shall be installed in accordance with the manufacturers instructions. They shall be provided with sufficient concrete surround to counter floatation and shall have a wall thickness adequate to resist the highest ground water level which could be encountered at their location.
18. All excavations in areas of high water tables and granular materials with high sand/silt contents shall be wrapped with a suitable geotechnical filter membrane to prevent migration of sands/silts. Full height clay stanks across trenches and/or at manhole locations at 25m intervals to restrict water movement along the excavation shall be provided.
19. Where utility/land drainage trenches etc cross over drainage trenches, the contractor shall construct an impermeable barrier to prevent groundwater infiltrating into the drainage trench.
20. Non-man entry access chambers shall comply with the relevant provisions of BS EN 752-3.

REV	DATE	DESCRIPTION	DRW	CHK
P01	2022-06-16	INITIAL ISSUE	ST	JM

GENERAL NOTES –

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT 3E, ARCHITECTS AND M&E ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DRAWINGS NOT TO BE SCALED. ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER AND FURTHER INSTRUCTIONS OBTAINED BEFORE WORK IS COMMENCED.

HEALTH & SAFETY

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

ROADS & DRAINAGE

4. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE.
5. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
6. CONNECTIONS TO EXISTING SEWERS TO ONLY BE MADE BY THE RELEVANT WATER AUTHORITY APPROVED CONTRACTOR.
7. 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.
8. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.

PIPES & CABLES

9. ALL EXISTING SERVICE RECORDS TO BE OBTAINED FROM THE M&E CONSULTANT.
10. THE CONTRACTOR SHOULD BE AWARE OF AND REFER TO ALL THE RELEVANT SERVICE RECORDS PRIOR TO ANY WORK COMMENCING. ALL NECESSARY PERMISSIONS AND PROTECTION MEASURES TO BE IN PLACE PRIOR TO ANY EXCAVATION WORKS. FOR THE AVOIDANCE OF DOUBT ANY DISCREPANCIES SHOULD BE REPORTED TO THE M&E AND CIVIL CONSULTANTS IMMEDIATELY. THE CONTRACTOR SHOULD PROCEED WITH CAUTION AND LOCATE ALL SERVICES BY HAND DIG ONLY.

EXCAVATION/FILL

11. CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.
12. CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.
13. CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.
14. ALL FILL MATERIAL, COMPACTION METHOD AND TESTING REGIME TO BE IN ACCORDANCE WITH THE CURRENT 3E CONSULTING ENGINEERS EARTHWORKS SPECIFICATION.

Note for Contractors

This 3E drawing should be considered along with the risk information contained in the CDM Pre Construction Information. This information will include details of the SIGNIFICANT risks which 3E have identified which may arise from constructing the designs shown on this drawing. A competent Contractor should be aware of the typical risks associated with doing this work.

Note for Workers

DO NOT START YOUR WORK unless you know the Risks and Controls relating to the work on this drawing (including SAFE SEQUENCES OF WORK and EQUIPMENT).

STOP

Do not issue copies of parts of this drawing without the above Note for Workers (unless you are sure that the Workers can undertake the work safely).

Client
Aldi Stores Ltd.

Project Title
Aldi - New Hey Road, Huddersfield

Project Address
Proposed Aldi Store
Huddersfield Road
Mirfield

Drawing Title
Typical Drainage Details Sheet 1

Job No.	Originator	Zone	Level	Type	Role
79-E????	3EC	XX	XX	DR	C

System Classification	Drawing No.	Suitability	Revision
SS_50_35_08	-0001	S4	P01

Drawn	Checked	Date	Scale	Size
ST	JM	2022-06-16	1:20	A1

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