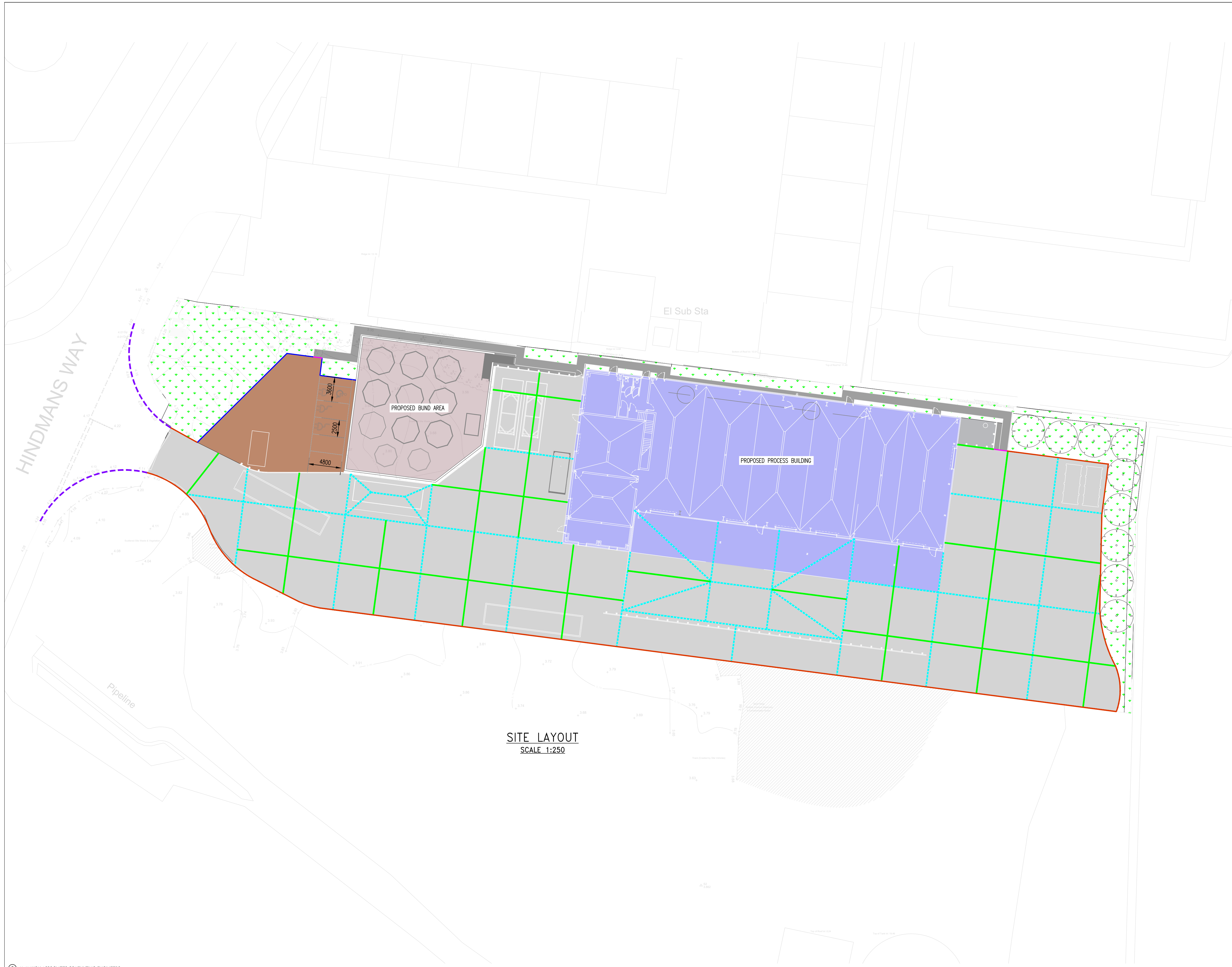


**GENERAL NOTES:**

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2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECT'S AND OTHER ENGINEERING DRAWINGS.

**SITE LAYOUT LEGEND**

- PROPOSED CONCRETE ROAD
- PROPOSED STONE MASTIC ASPHALT ROAD
- PROPOSED ASPHALT CONCRETE FOOTWAY
- PROPOSED CONCRETE BASE BUND AREA
- PROPOSED LANDSCAPE AREA
- PROPOSED BUILDING UNIT
- PROPOSED HALF BATTERED INSITU CONCRETE KERB (DROPPED)
- PROPOSED 125mm UPSTAND HALF BATTERED INSITU CONCRETE KERB
- 185mm UPSTAND HGV INSITU CONCRETE KERB
- EXISTING KERB TO BE RETAINED
- FORMED JOINT
- SAW CUT JOINT



**SITE LAYOUT**  
SCALE 1:250

REV	DATE	DESCRIPTION	BY	APPR

**DRAWING STATUS:**  
**INFORMATION**

CLIENT:  
**OLLECO**

JOB DESCRIPTION:  
**PROPOSED WORKS AT DAGENHAM,  
LONDON**

DRAWING TITLE:  
**SITE LAYOUT**

PROJECT No.:	DRAWING No.:
<b>P-3733</b>	<b>C-01</b>
REV. No.:	
-	

SCALE:	SHEET:	DATE:
1:250	A1	15.09.23
DRAWN BY:	CHECKED BY:	APPROVED BY:
SM	MK	PMCM

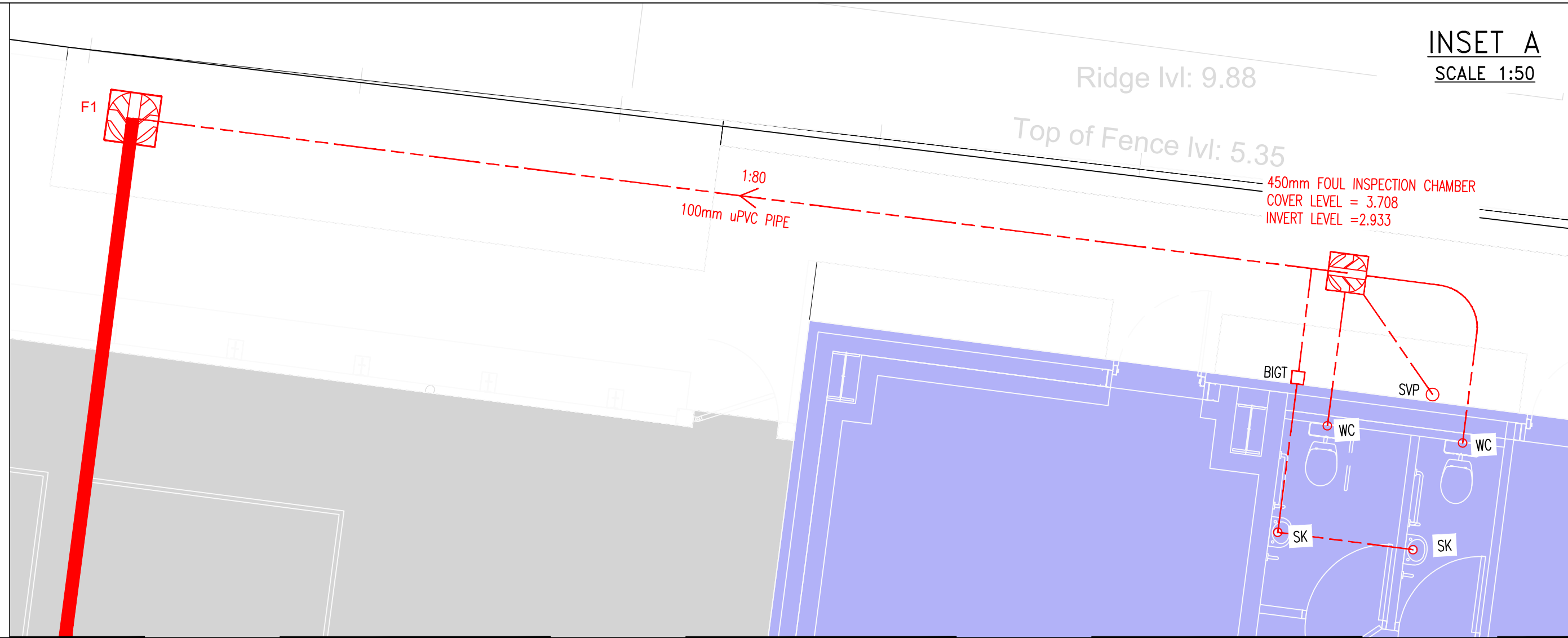
**McMahon Associates**  
 Consulting Civil & Structural Engineers, Traffic Engineers  
 PSDP/CDM Principal Designer, Project Managers  
 Arragh Drogheda Croydon  
 (028) 3752 2940 (041) 2137050 (0208) 263651  
 e: info@mcmahonengineers.com



STORM Network 1												
Pipe Code	Diameter (mm)	Gradient (1:)	Pipe Type	Pipe Length	Number	Upstream Invert	Manhole Cover	MH ø (mm)	Number	Downstream Invert	Manhole Cover	MH ø (mm)
1.000	450	170	CONC	27.083	S1	1.922	3.623	1800	S2	1.763	3.412	1800
1.001	450	170	CONC	35.486	S2	1.763	3.412	1800	S3	1.554	3.589	1800
1.002	450	170	CONC	35.484	S3	1.554	3.589	1800	S5	1.345	3.551	1350
1.003	450	150	CONC	25.765	S5	1.345	3.551	1350	S8	1.173	3.607	1350
1.004	450	150	CONC	28.811	S8	1.173	3.607	1350	S10	0.981	4.032	1350
1.005	450	150	CONC	20.226	S10	0.981	4.032	1350	EXS11	0.846	4.250	1350 (TBC)
2.000	225	170	uPVC	26.309	S4	1.725	3.654	1200	S5	1.570	3.551	1350
3.000	225	40	uPVC	27.836	S6	2.426	3.657	1200	S7	1.730	3.578	1200
3.001	225	40	uPVC	13.274	S7	1.730	3.578	1200	S8	1.398	3.607	1350
4.000	450	170	CONC	10.786	S9	1.053	4.027	1350	S10	0.990	4.032	1350

FOUL Network 1												
Pipe Code	Diameter (mm)	Gradient (1:)	Pipe Type	Pipe Length	Number	Upstream Invert	Manhole Cover	MH/IC ø (mm)	Number	Downstream Invert	Manhole Cover	MH ø (mm)
1.000	150	80	uPVC	36.402	F1	2.703	3.603	600	F2	2.248	3.512	1200
1.001	150	80	uPVC	19.960	F2	2.248	3.512	1200	F3	1.999	3.581	1200
1.002	150	80	uPVC	37.119	F3	1.999	3.581	1200	EXF3	1.535	3.780	1200 (TBC)

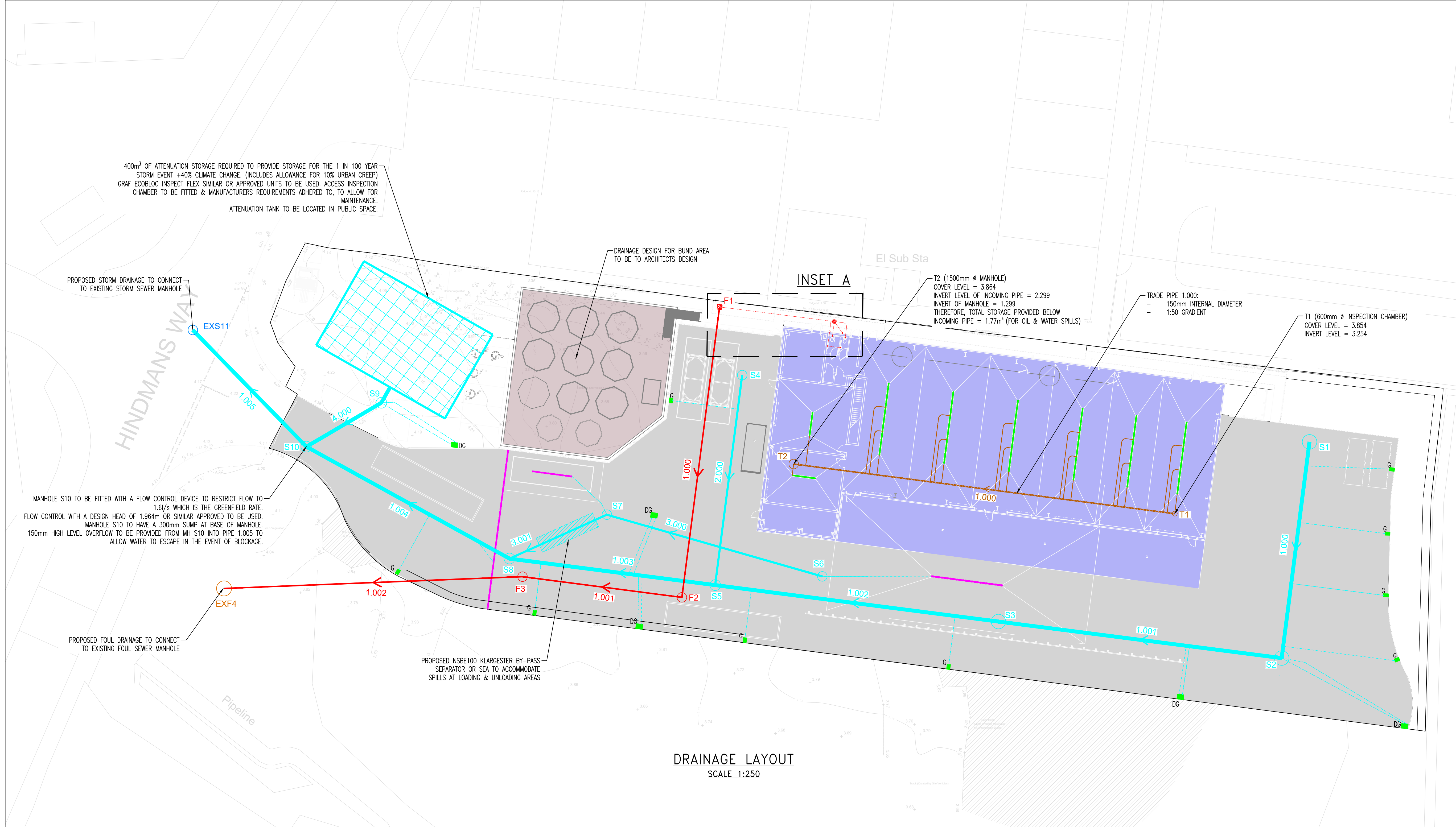


**GENERAL NOTES:**

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**DRAINAGE LAYOUT**

- EXISTING STORM SEWER
- EXISTING FOUL SEWER
- PROPOSED STORM SEWER & MH
- PROPOSED FOUL SEWER & MH
- PROPOSED TRADE EFFLUENT SEWER & MH
- PROPOSED ACO ROAD DRAIN
- KENT DOUBLE CHANNEL DRAIN (KSBC150DC) & KVDC315/6" GULLY OUTLET WITH HEAVY DUTY COVER (D400)
- PROPOSED ATTENUATION CELLULAR CRATES, ECOBLOC INSPECT FLEX OR BY-PASS SEPARATOR OR SEA
- PROPOSED GULLY/DOUBLE GULLY
- PROPOSED 600mm/450mm INSPECTION CHAMBER AND SEWER
- BIGT BACK INLET GULLY
- SVP SOIL VENT PIPE



**DRAINAGE LAYOUT**  
SCALE 1:250

REV	DATE	DESCRIPTION	BY	APPR

DRAWING STATUS: **INFORMATION**

CLIENT: OLLECO

JOB DESCRIPTION: PROPOSED WORKS AT DAGENHAM, LONDON

DRAWING TITLE: DRAINAGE LAYOUT

PROJECT No.: P-3733

DRAWING No.: C-02

SCALE: AS SHOWN | SHEET: A1 | DATE: 15.09.23

DRAWN BY: SM | CHECKED BY: MK | APPROVED BY: PMCM

**McMahon Associates**  
Consulting Civil & Structural Engineers, Traffic Engineers  
PSDP/CDM Principal Designer, Project Managers  
Armagh (028) 3752 2940 | Drogheda (041) 2137050 | Croydon (0208) 2636951  
e: info@mcMahonengineers.com



**GENERAL NOTES:**

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**SITE LEVELS LEGEND**

- 4.142 + CH00 PROPOSED ROAD LEVEL, CHAINAGE & CENTRELINE
- 18.565 + PROPOSED FOOTWAY LEVEL
- 19.570 + PROPOSED ROAD LEVEL
- PROPOSED LINEAR SURFACE DRAIN
- 1:50 PROPOSED GRADIENT



**SITE LEVELS**  
SCALE 1:250

REV	DATE	DESCRIPTION	BY	APPR

DRAWING STATUS:

**INFORMATION**

CLIENT:  
**OLLECO**

JOB DESCRIPTION:  
**PROPOSED WORKS AT DAGENHAM, LONDON**

DRAWING TITLE:  
**SITE LEVELS**

PROJECT No.:  
**P-3733**

DRAWING No.:  
**C-03**

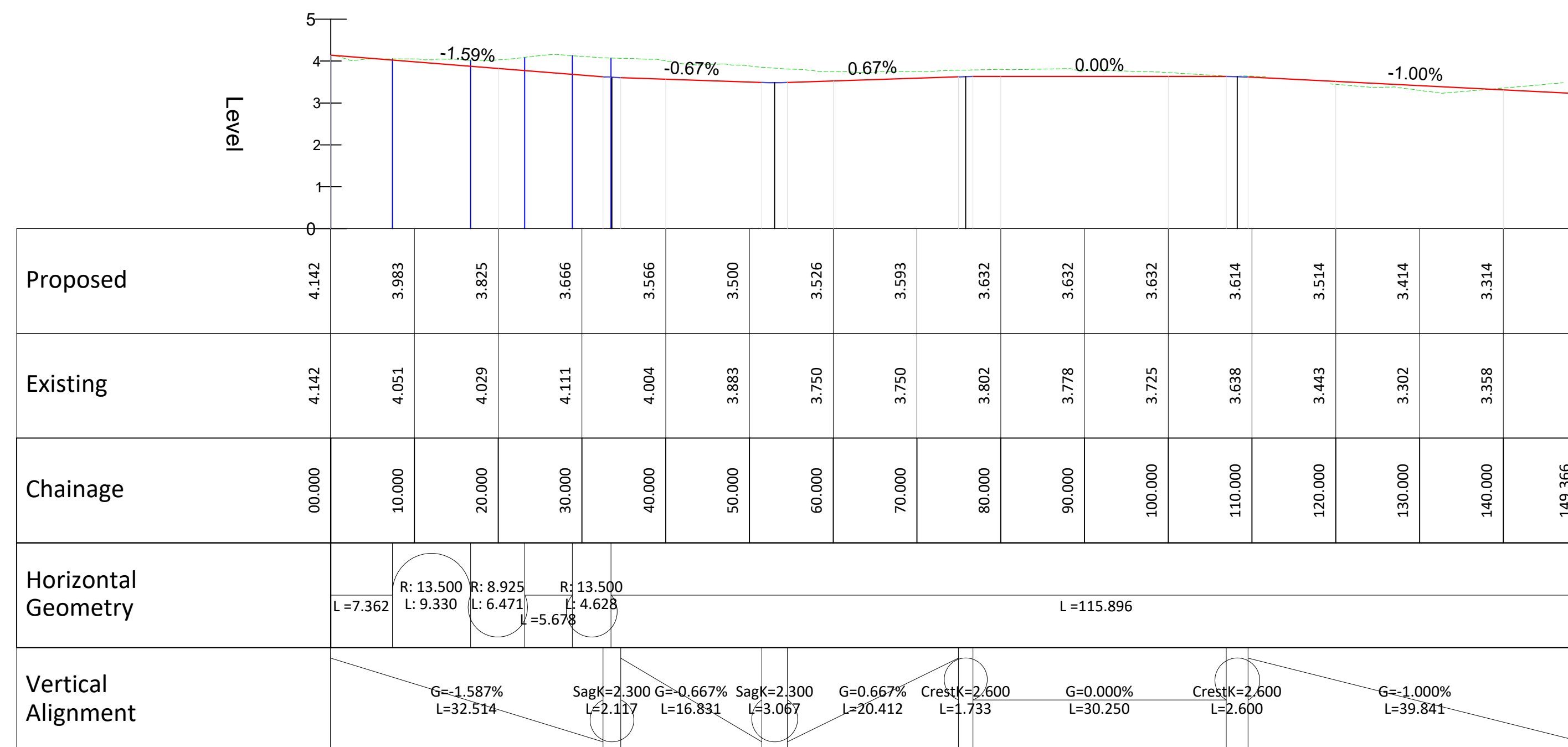
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DRAWN BY: SM CHECKED BY: MK APPROVED BY: PMCM

**McMahon Associates**  
Consulting Civil & Structural Engineers, Traffic Engineers  
PSDP/CDM Principal Designer, Project Managers  
Armagh (028) 3752 2940 Drogheda (041) 2137050 Croydon (0208) 2636951  
e: info@mcMahonengineers.com

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**ROAD LONGSECTION**

SCALE H<sub>Z</sub> 1:500

SCALE V<sub>T</sub> 1:100

REV	DATE	DESCRIPTION	BY	APPR

**DRAWING STATUS:**

**INFORMATION**

CLIENT:

OLLECO

JOB DESCRIPTION:  
PROPOSED WORKS AT DAGENHAM,  
LONDON

DRAWING TITLE:  
ROAD LONGSECTION

PROJECT No.: P-3733

DRAWING No.: C-04

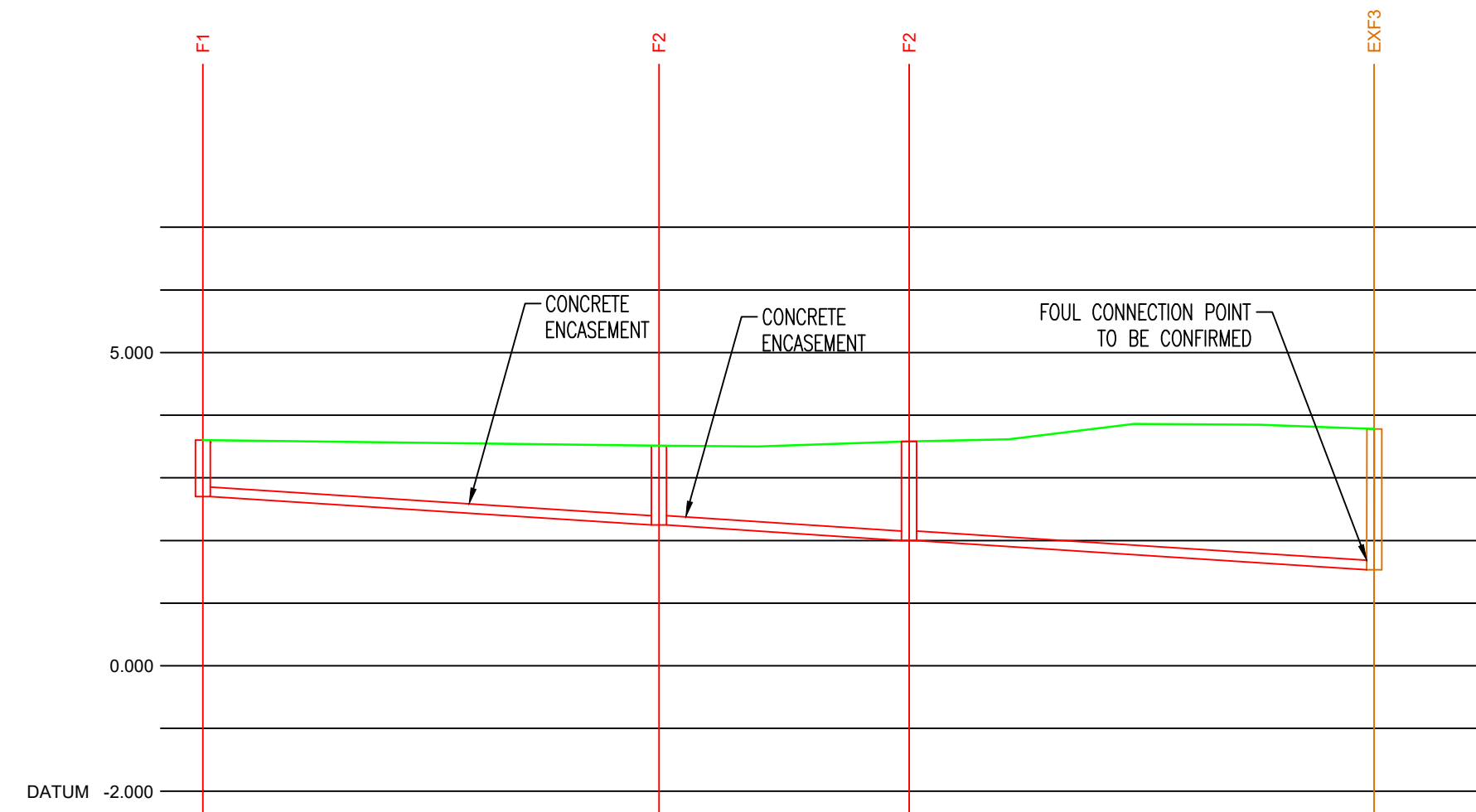
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DRAWN BY: SM CHECKED BY: MK APPROVED BY: PMCM

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Consulting Civil & Structural Engineers, Traffic Engineers  
PSDP/CDM Principal Designer, Project Managers  
Armagh: (028) 3752 2940 Drogheda: (041) 2137050 Croydon: (0208) 2636051  
e: info@mcmahonengineers.com

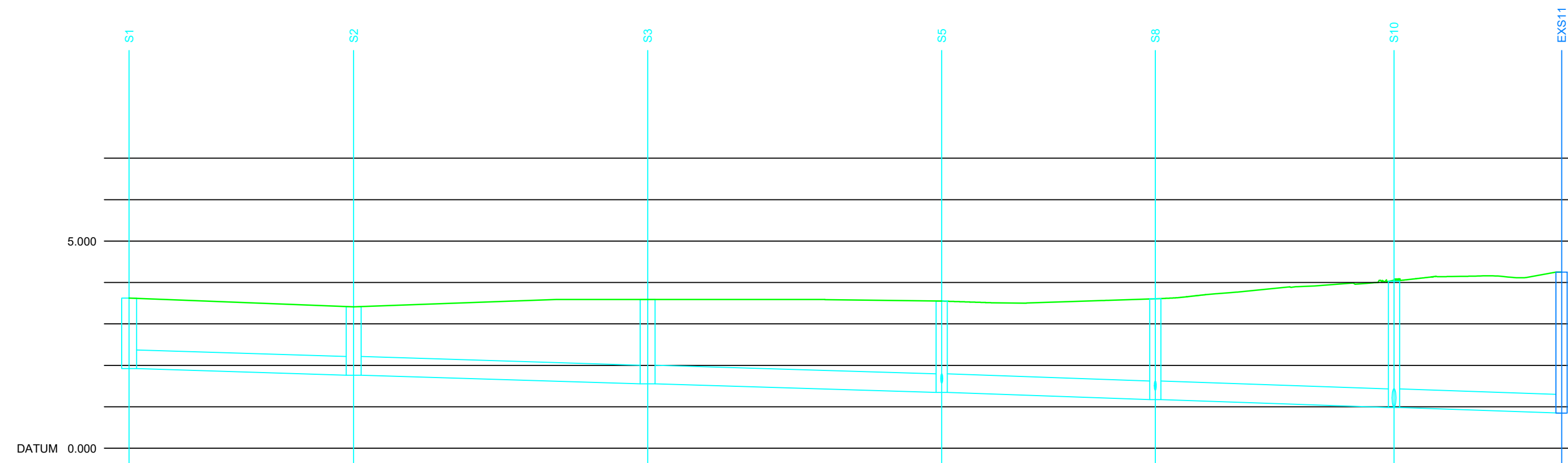
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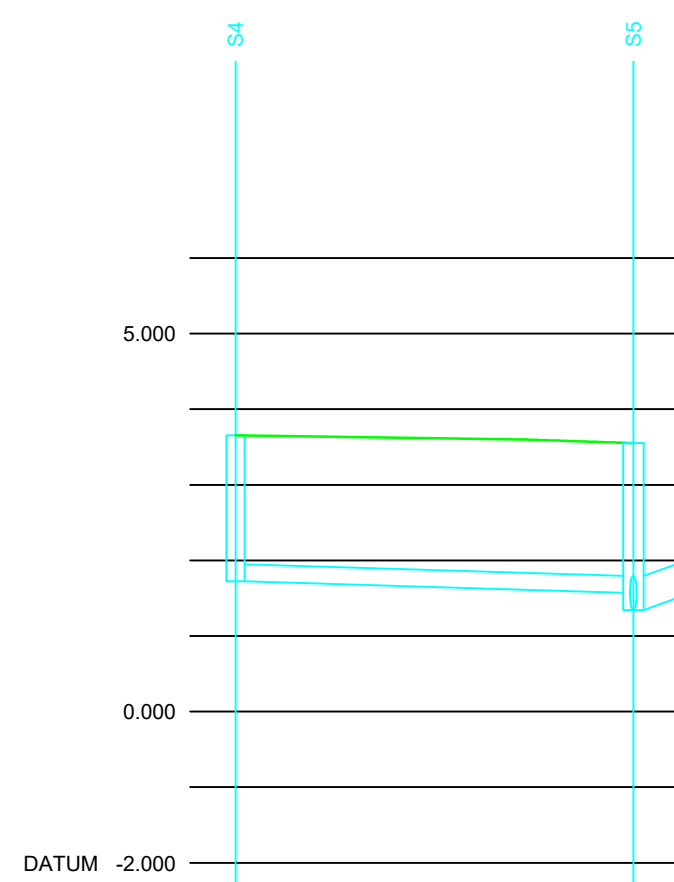
GROUND LEVEL		3.603	3.594	3.539	3.641	3.526	3.900	3.957	3.617	3.862	3.850	3.780
FOULWATER COVER LEVEL		3.603				3.512			3.581			3.780
FOULWATER DETAILS			Pipe 1.000 Dia 150 uPVC 1 in 80					Pipe 1.001 Dia 150 uPVC 1 in 80			Pipe 1.002 Dia 150 uPVC 1 in 80	
FOULWATER INVERT		2.703		2.248	2.248			1.959	1.959			1.535
FOULWATER LENGTHS			36.402					19.960			37.119	

**FOUL PIPES 1.000 TO 1.001**  
SCALE Hz 1:500  
SCALE Vt 1:100



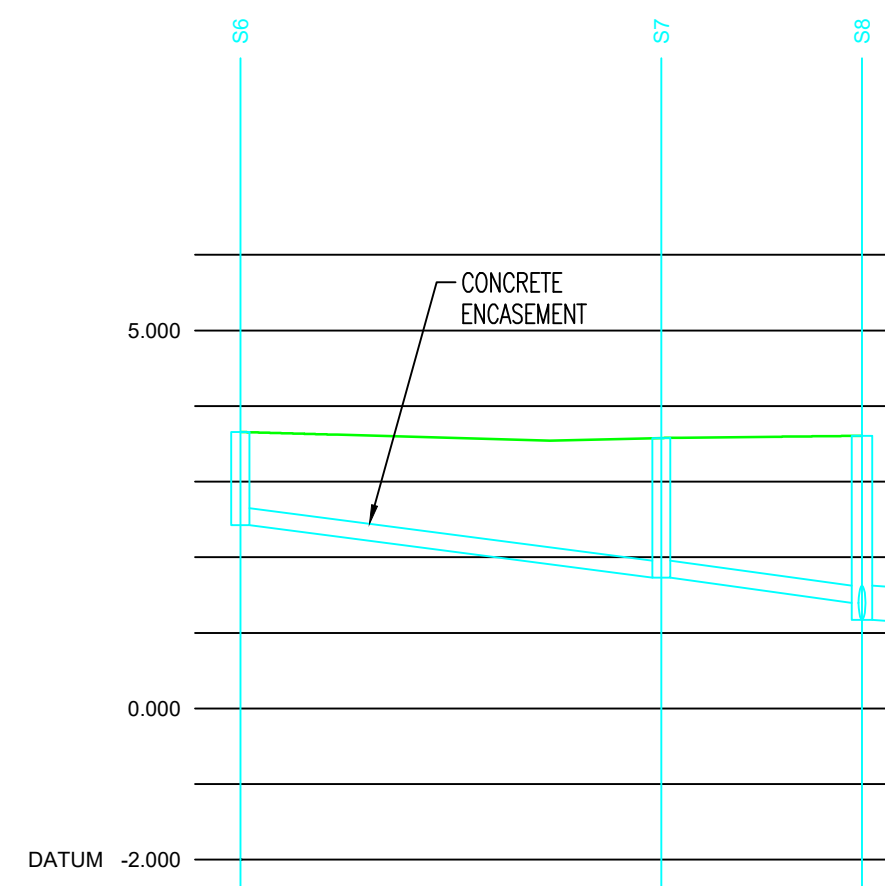
GROUND LEVEL		3.623	3.545	3.467	3.433	3.505	3.578	3.589	3.589	3.589	3.571	3.538	3.515	3.581	3.729	3.883	3.990	4.146		
STORMWATER COVER LEVEL		3.623			3.412			3.598				3.551			3.607		4.032		4.250	
STORMWATER INVERT		1.922			1.763	1.763		1.554	1.554			1.345	1.345		1.173	1.173		0.981	0.981	
STORMWATER DETAILS			Pipe 1.000 Dia 450 CONC 1 in 170					Pipe 1.001 Dia 450 CONC 1 in 170			Pipe 1.002 Dia 450 CONC 1 in 170			Pipe 1.003 Dia 450 CONC 1 in 150			Pipe 1.004 Dia 450 CONC 1 in 150			Pipe 1.005 Dia 450 CONC 1 in 150
STORMWATER LENGTHS			27.083					35.486			35.484			25.765			28.811			20.226

**STORM PIPES 1.000 TO 1.005**  
SCALE Hz 1:500  
SCALE Vt 1:100



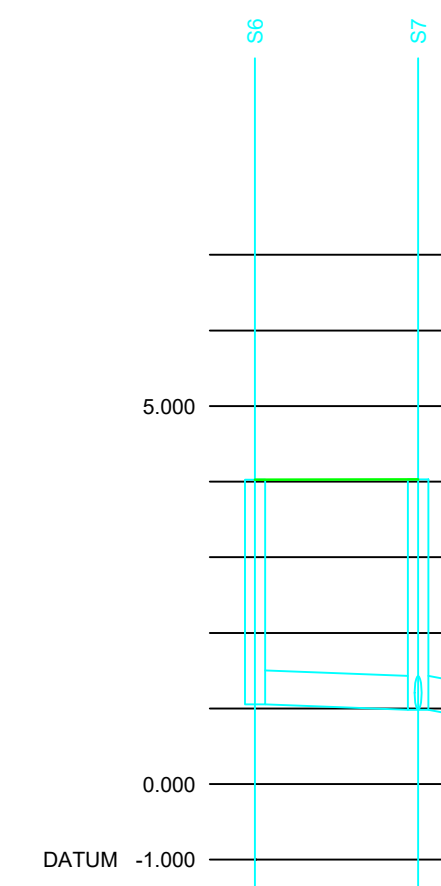
GROUND LEVEL		3.654	3.626	3.593
STORMWATER COVER LEVEL		3.654		3.551
STORMWATER INVERT		1.725		1.570
STORMWATER DETAILS		Pipe 2.000 Dia 225 uPVC 1 in 170		
STORMWATER LENGTHS		26.309		

**STORM PIPE 2.000**  
SCALE Hz 1:500  
SCALE Vt 1:100



GROUND LEVEL		3.657	3.601	3.545	3.583	3.604
STORMWATER COVER LEVEL		3.657			3.578	3.607
STORMWATER INVERT		2.426		1.730	1.730	1.388
STORMWATER DETAILS		Pipe 3.000 Dia 225 uPVC 1 in 40		Pipe 3.001 Dia 225 uPVC 1 in 40		
STORMWATER LENGTHS		27.836		13.274		

**STORM PIPES 3.000 TO 3.001**  
SCALE Hz 1:500  
SCALE Vt 1:100



GROUND LEVEL		4.027	4.032
STORMWATER COVER LEVEL		4.027	4.032
STORMWATER INVERT		1.053	0.981
STORMWATER DETAILS		Pipe 4.000 Dia 450 CONC 1 in 170	
STORMWATER LENGTHS		10.786	

**STORM PIPE 4.000**  
SCALE Hz 1:500  
SCALE Vt 1:100

REV	DATE	DESCRIPTION	BY	APPR

**DRAWING STATUS:**  
**INFORMATION**

CLIENT:  
**OLLECO**

JOB DESCRIPTION:  
**PROPOSED WORKS AT DAGENHAM, LONDON**

DRAWING TITLE:  
**DRAINAGE LONGSECTIONS**

PROJECT No.: **P-3733**      DRAWING No.: **C-05**

SCALE: AS\_SHOWN      SHEET: A1      DATE: 15.09.23

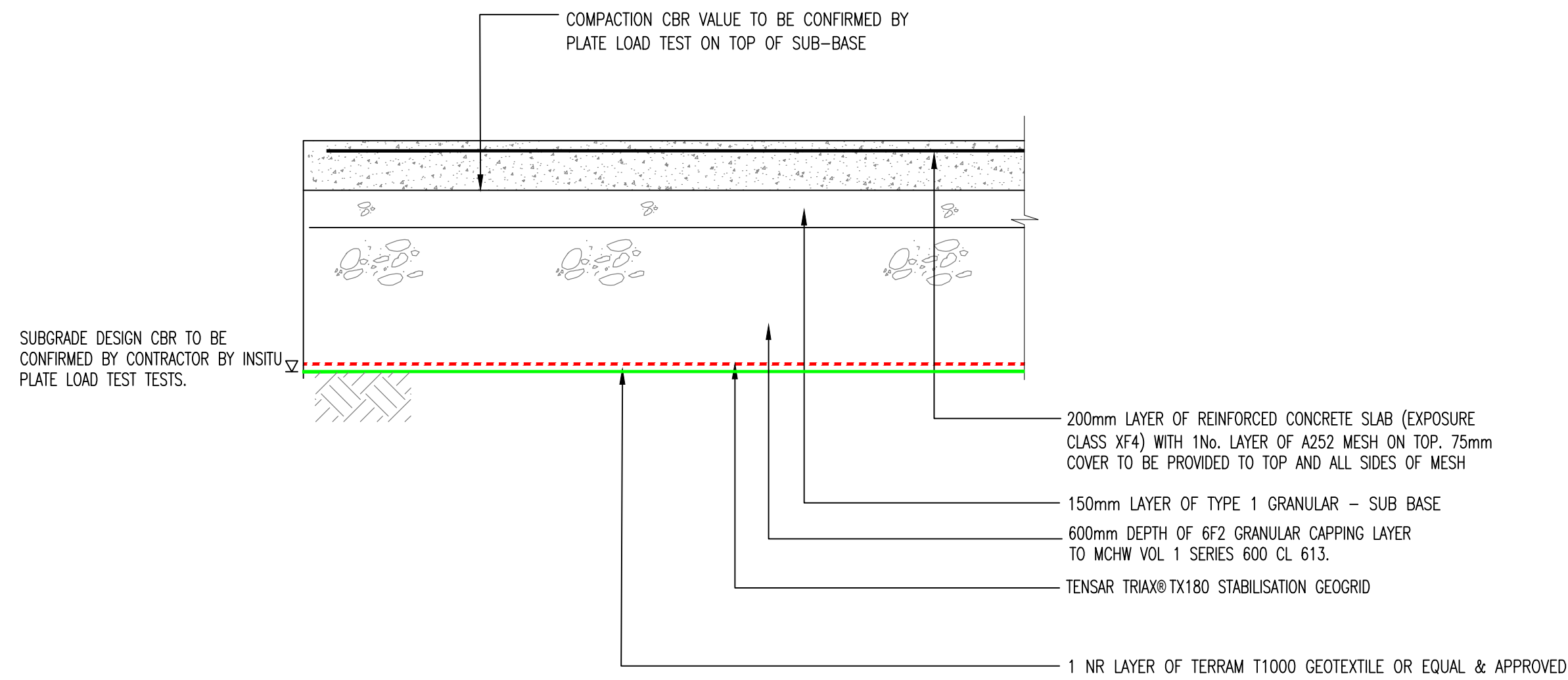
DRAWN BY: SM      CHECKED BY: MK      APPROVED BY: PMCM

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PSDP/CDM Principal Designer, Project Managers  
Armagh      Drogheda      Croydon  
(028) 3752 2940      (041) 2137050      (0208) 263651  
e: info@mcMahonengineers.com

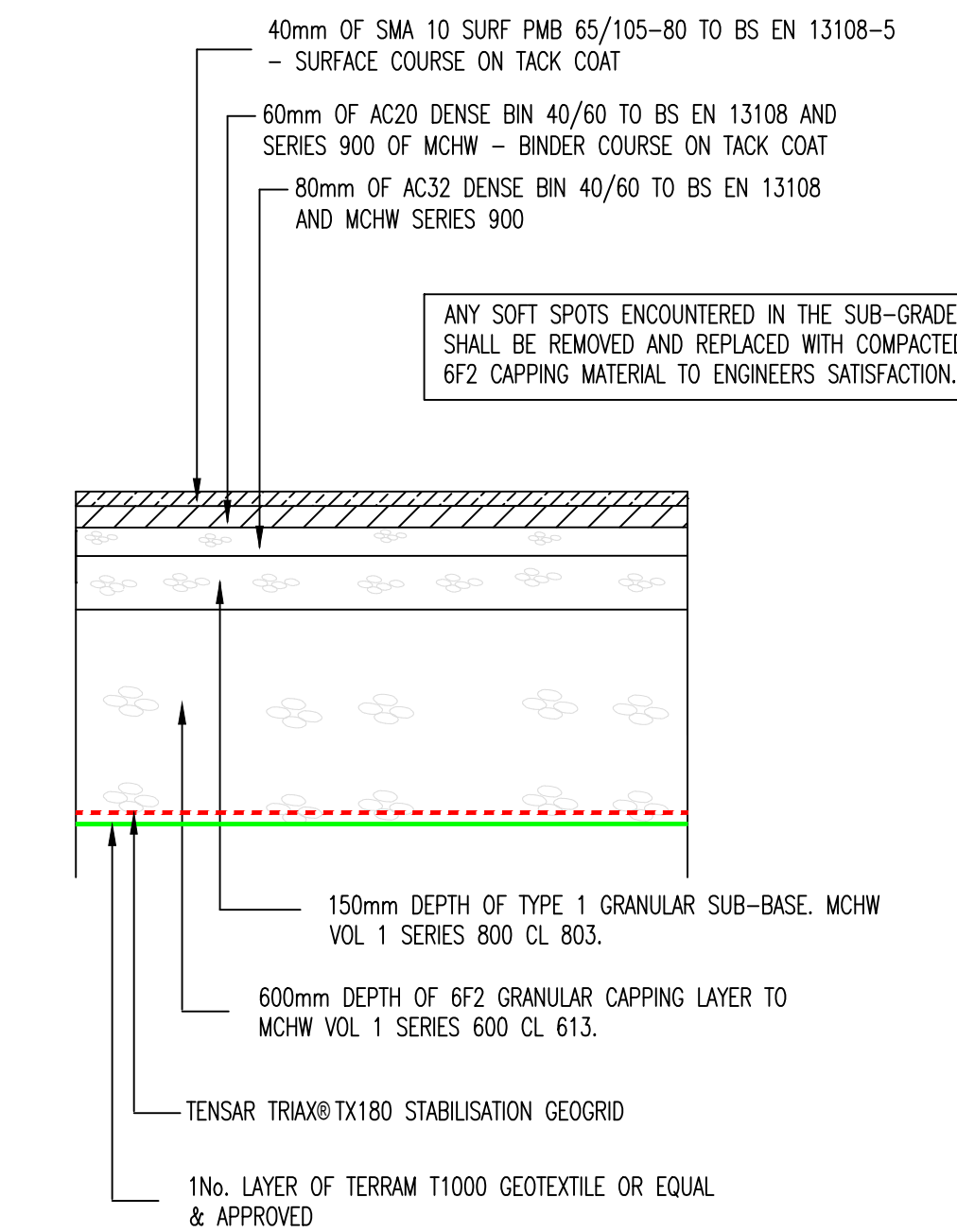


**GENERAL NOTES:**

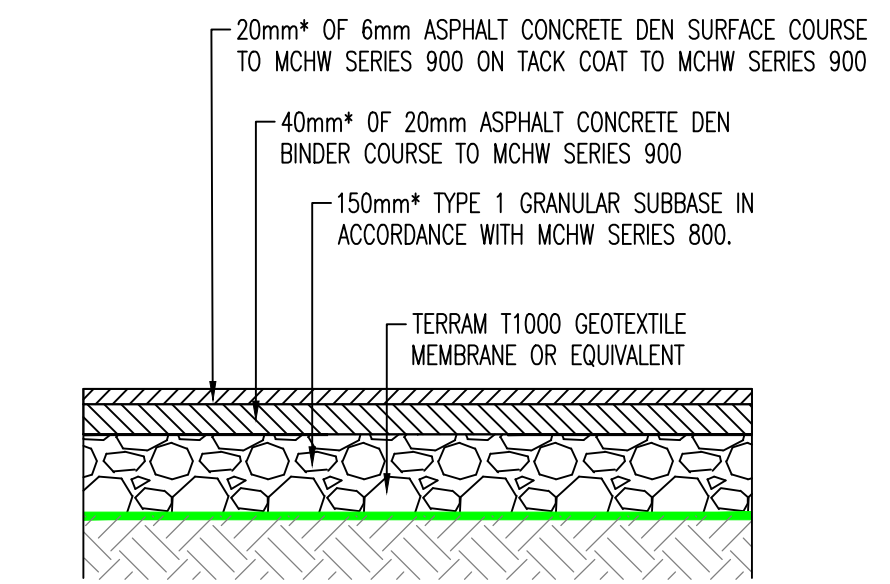
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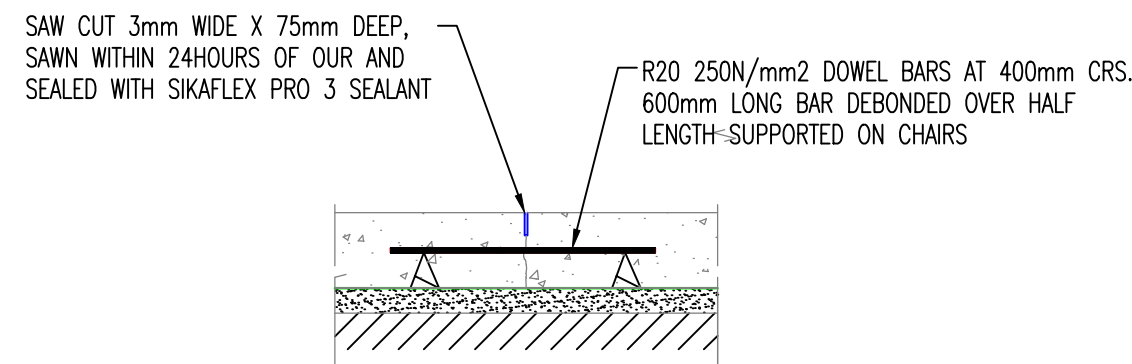
**CONCRETE YARD/ROAD MAKE-UP**  
SCALE 1:20



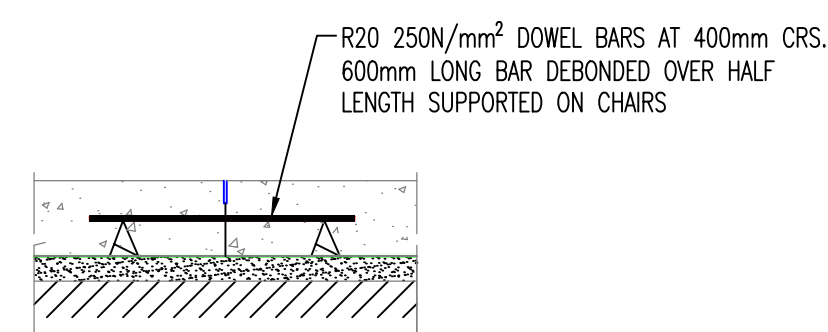
**ASPHALT BUILD UP DETAIL**  
SCALE 1:20



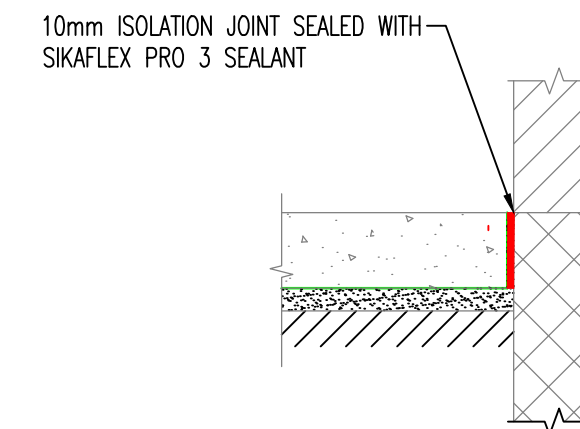
**ASPHALT CONCRETE FOOTPATH DETAIL**  
SCALE 1:20



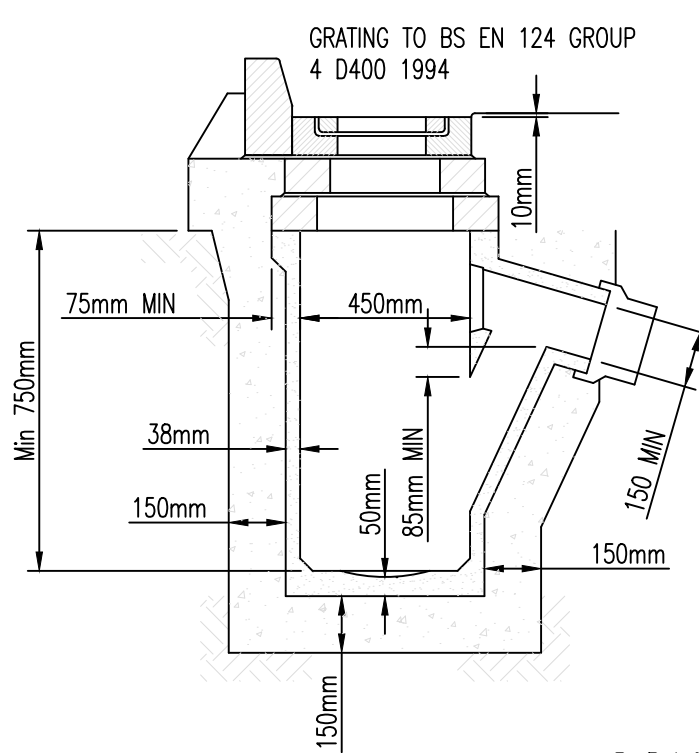
**SAWCUT CONTRACTION JOINT DETAIL (SCJ)**  
SCALE 1:20



**FORMED JOINT DETAIL (FJ)**  
SCALE 1:20

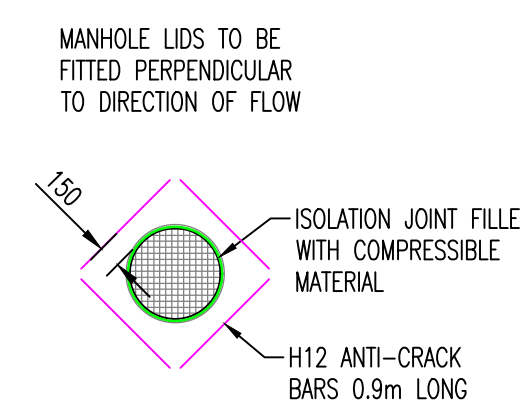


**ISOLATION JOINT DETAIL**  
SCALE 1:20

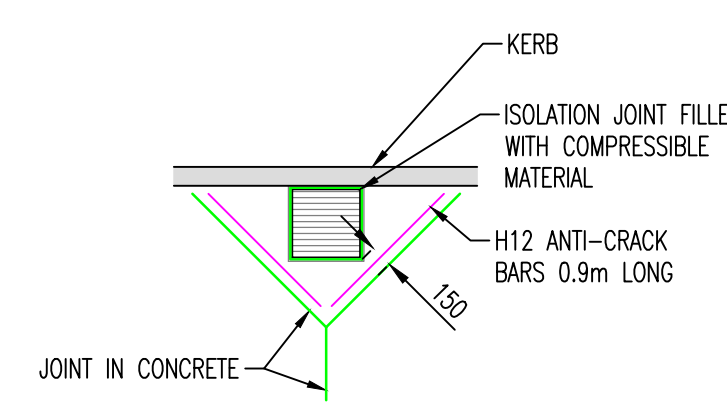


**CONCRETE ROAD GULLEY**  
SCALE 1:20

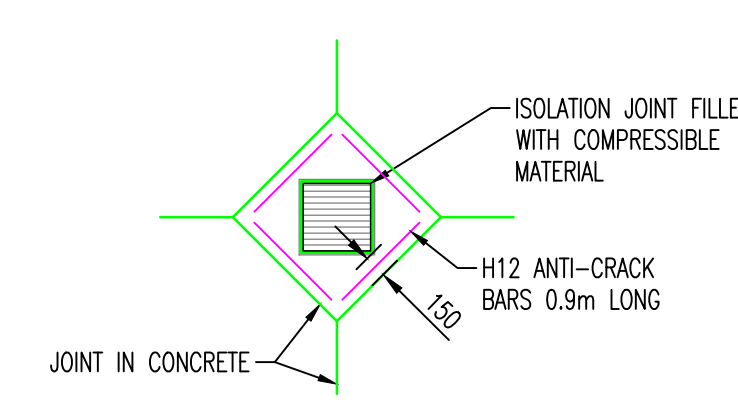
- CONCRETE ROAD GULLY NOTES:-**
1. THE GULLY GRATING AND FRAME SHOULD BE IN ACCORDANCE WITH BS EN 124 1994 GROUP 4 D400
  2. GULLY GRATING SHOULD BE SET TO 10mm BELOW CARRIAGEWAY PROFILE WHERE APPROPRIATE, ON A FULL MORTAR BED OF 1:3 CEMENT/SAND MORTAR.
  3. BRICKWORK SHOULD COMPLY WITH BS EN 771 OR CLASS B ENGINEERING BRICKS IN TWO COURSE SET ON 1:3 CEMENT/SAND MORTAR WITH WEEPHOLES FORMED IN THE FIRST COURSE.
  4. CARRIAGEWAY GULLY POTS SHOULD HAVE RODDING EYES AND STOPPERS TO BS 5911-6 2004 AND BE MINIMUM 450x750mm DEEP INTERNAL DIMENSIONS.
  5. GULLY POT SHOULD BE CONSTRUCTED TO BS 5911 SURROUNDED WITH 150mm MIN THICK CONCRETE CLASS C16/20 SULPHATE RESISTANT.



**MANHOLE JOINT DETAIL**  
SCALE 1:50



**GULLY JOINT DETAIL AT KERB**  
SCALE 1:50



**GULLY JOINT DETAIL**  
SCALE 1:50

REV	DATE	DESCRIPTION	BY	APPR

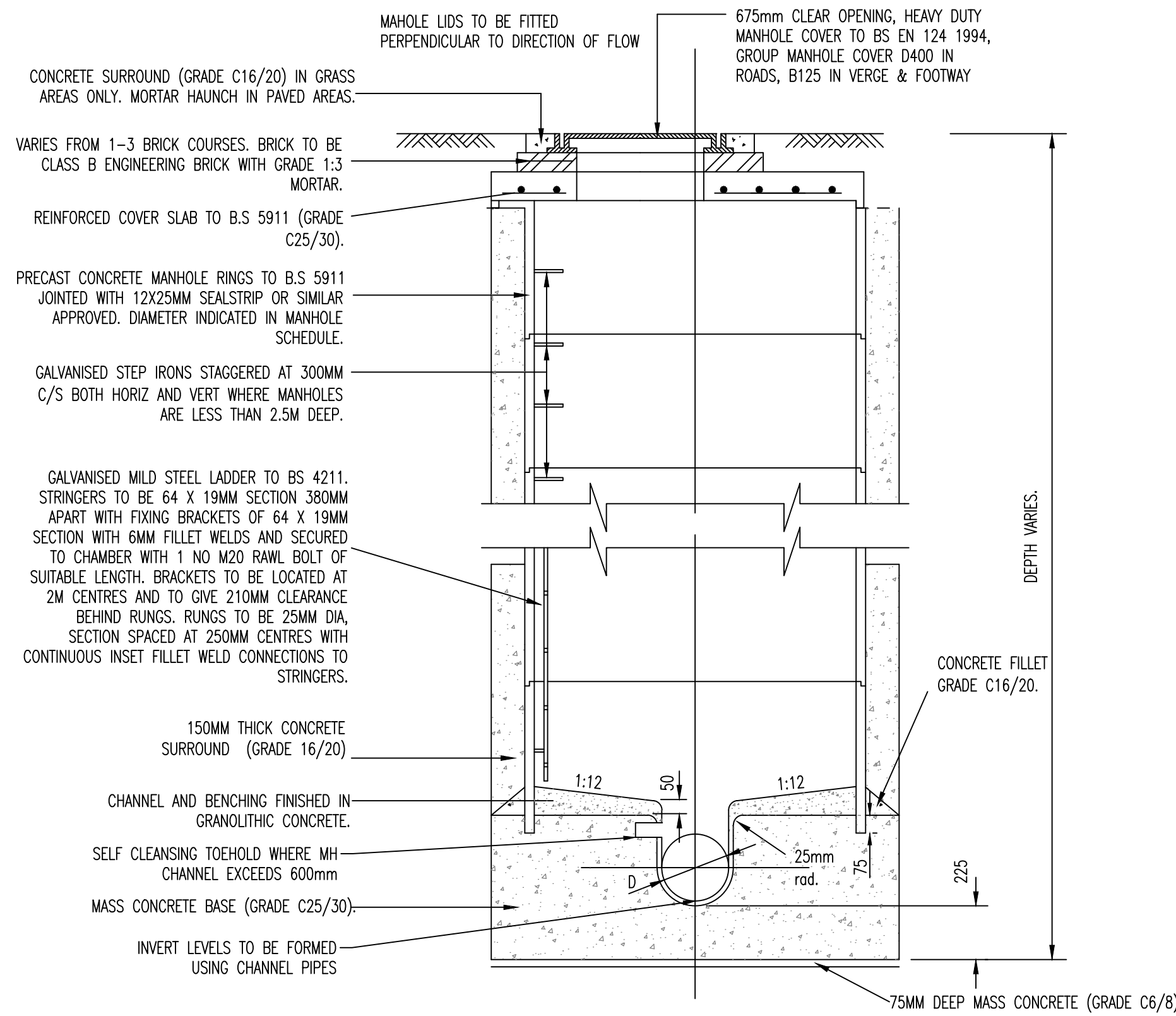
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<b>INFORMATION</b>	
CLIENT: <b>OLLECO</b>	
JOB DESCRIPTION: <b>PROPOSED WORKS AT DAGENHAM, LONDON</b>	
DRAWING TITLE: <b>CONSTRUCTION DETAILS - SHEET 1</b>	
PROJECT No.:	DRAWING No.:
<b>P-3733</b>	<b>C-06</b>
SCALE:	SHEET:
AS_SHOWN	A1
DATE:	15.09.23
DRAWN BY:	CHECKED BY:
SM	MK
APPROVED BY:	PMCM

**McMahon Associates**

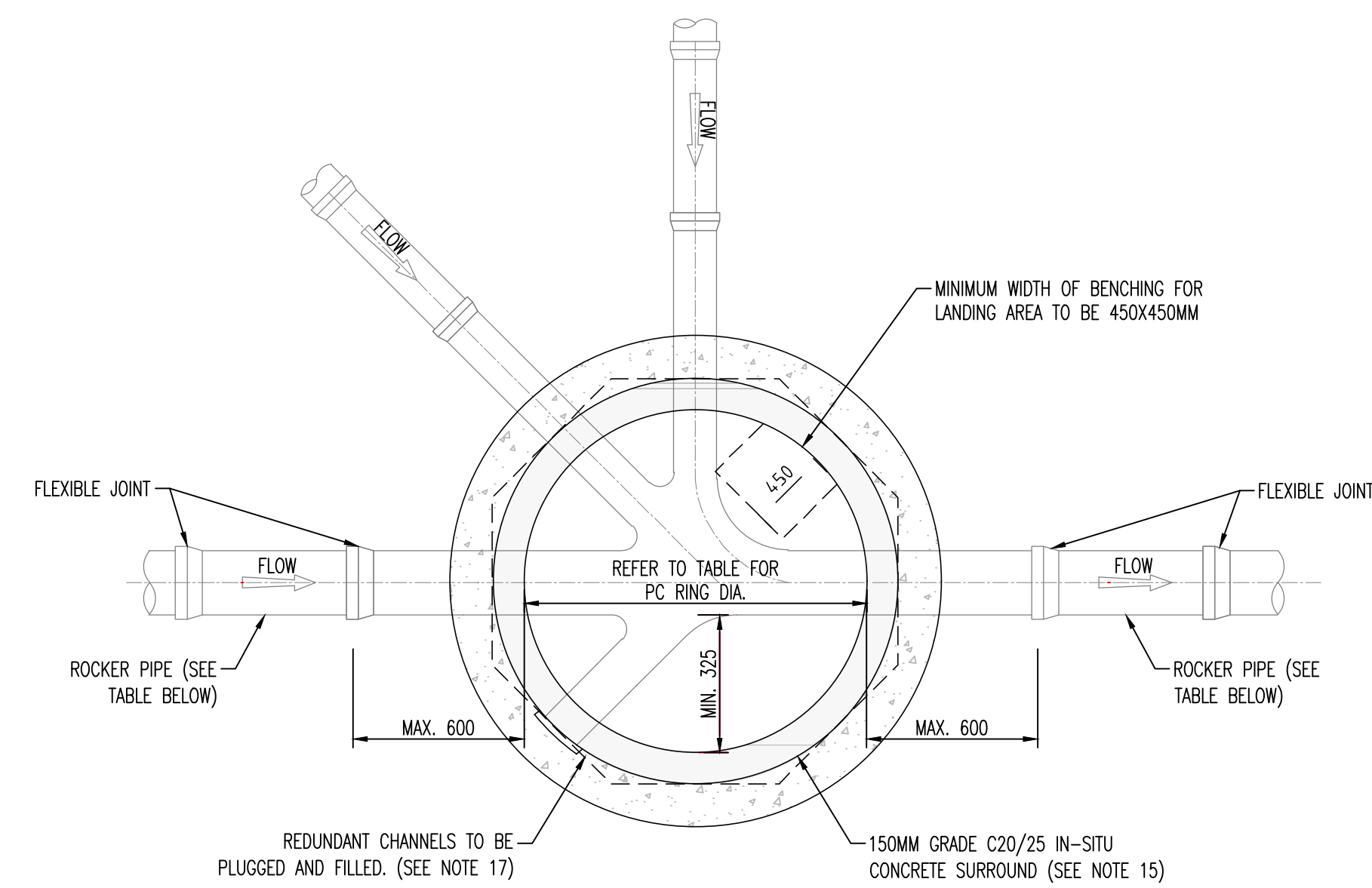
Consulting Civil & Structural Engineers, Traffic Engineers  
PSDP/CDM Principal Designer, Project Managers

Armagh (028) 3752 2940 Drogheda (041) 2137050 Croydon (0208) 2636951  
e: info@mcmahonengineers.com





**DETAIL OF PRECAST CONCRETE MANHOLE**  
SCALE 1:20



**PRE-CAST CONCRETE MANHOLE WITH PRECAST BASE**  
**PLAN**  
SCALE 1:20

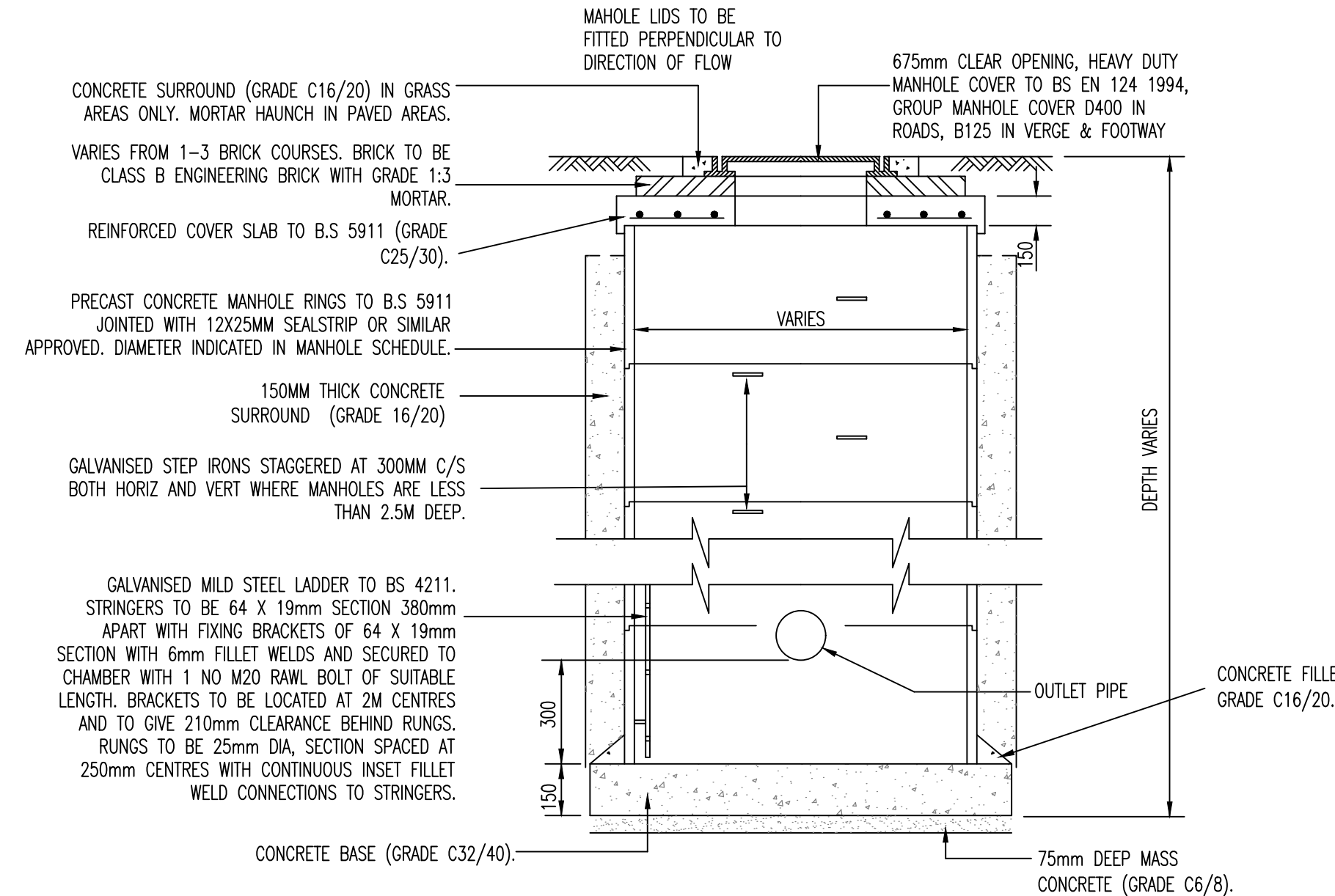
NOTE:  
IF FLEXIBLE PIPES ARE BEING USED,  
ROCKER PIPES ARE NOT REQUIRED.

MINIMUM CIRCULAR Ø OF MANHOLES	
NOMINAL INTERNAL DIAMETER OF LARGEST PIPE (mm)	MINIMUM CIRCULAR Ø (mm)
≤ 375	1200
375-450	1350
500-700	1500
750-900	1800
> 900	PIPE Ø + 900

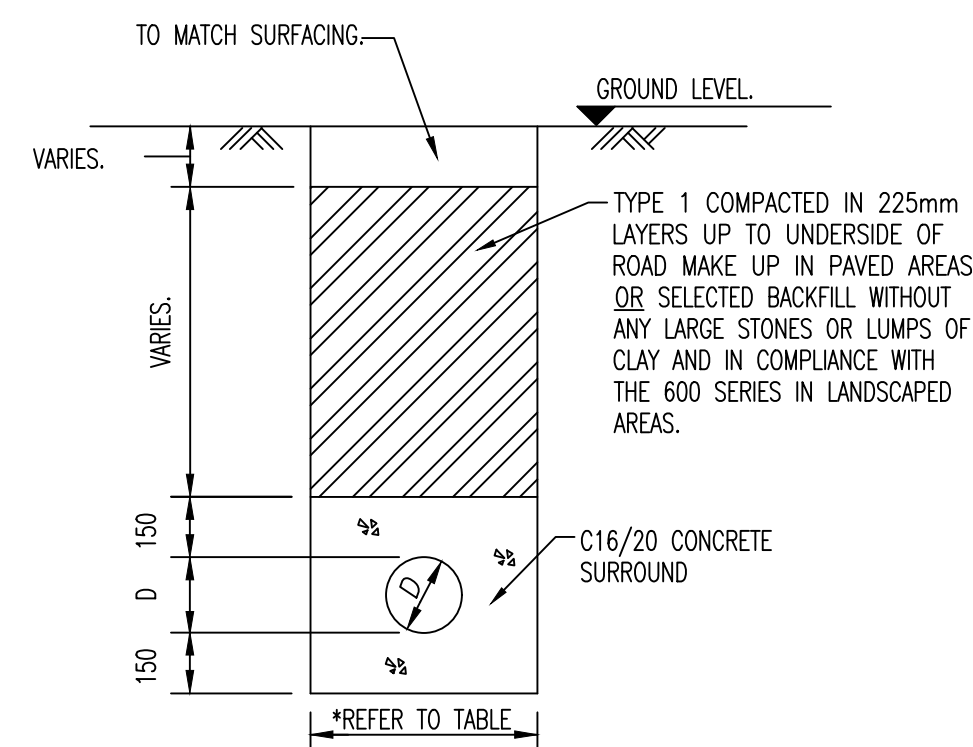
REFER TO TABLE NA.22 BS EN 752:2008

ALL CONCRETE TO BE IN ACCORDANCE WITH BS EN 203-1/BS 8500/BS 5911.

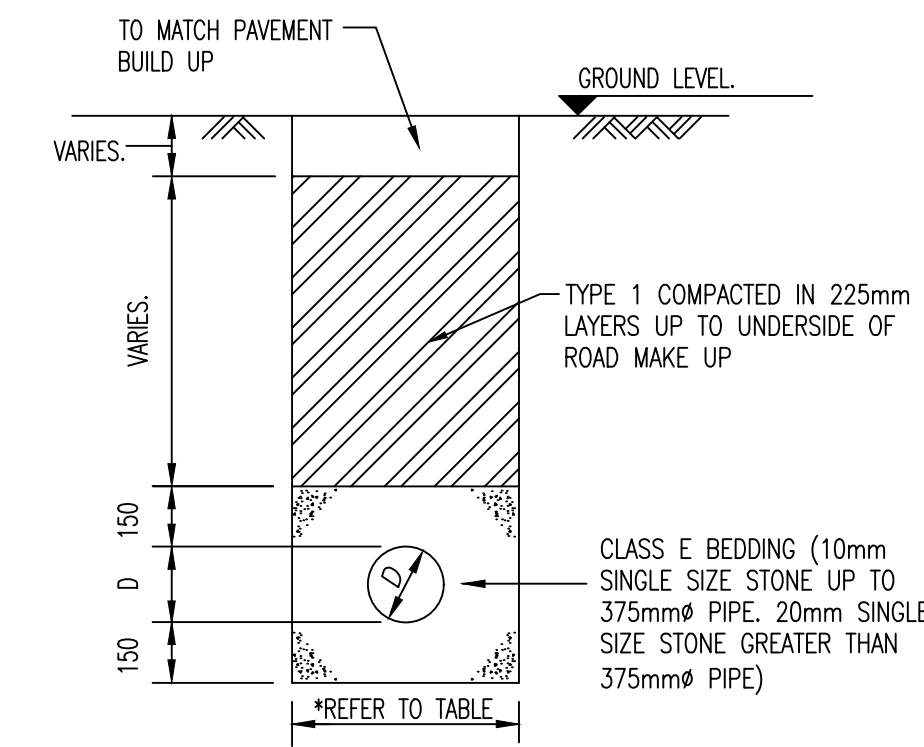
STAINLESS STEEL (GRADE 316) SAFETY CHAINS TO BE PROVIDED IN ALL MANHOLES WITH OUTLET PIPES GREATER THAN 600mm DIAMETER



**TYPICAL CATCHPIT MANHOLE DETAIL**  
**SURFACE WATER ONLY**  
SCALE 1:20



**CONCRETE BEDDING AND SURROUND DETAIL**  
SCALE 1:20



**CLASS E BEDDING DETAIL**  
**PAVED AREAS**  
SCALE 1:20

\*TRENCH WIDTH FOR UNDERGROUND DRAINAGE PIPES

NOMINAL INTERNAL DIAMETER OF PIPE (mm)	MINIMUM TRENCH WIDTH (mm)	MAXIMUM TRENCH WIDTH (mm)
100	430	630
150	490	690
200	580	780
300	680	880
375	950	1150
450	1030	1230
525	1200	1400
600	1380	1580
675	1600	1800

**BEDDING NOTES:**

- CLASS E BEDDING TO ALL PIPES WITH COVER GREATER THAN 1.2M UNDER TRAFFICKED AREAS AND 0.9M UNDER OTHER AREAS
- CONCRETE BED AND SURROUND TO PIPES WITH COVER LESS THAN 1.2M UNDER TRAFFICKED AREAS AND 0.9M UNDER OTHER AREAS
- ALL NEW DRAINAGE TRENCHES SHALL BE EXCAVATED DOWN TO A FIRM BEARING STRATA. EXTRA OVER DEPTH OF EXCAVATION SHALL BE MADE UP IN 250mm COMPACTED LAYERS OF TYPE 1 GRANULAR MATERIAL TO UNDERSIDE OF PIPE BEDDING.

**NOTES:**

- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
- PRE-CAST MANHOLES UNITS: COMPLYING WITH REQUIREMENTS OF BS EN 1917, BS 5911-3 & BS EN 5911-4.
- PRE-CAST CONCRETE BASE INCORPORATING CHANNELS, BENCHING ETC. SUBJECT TO WATER UK REVIEW AND COMPLYING WITH BS EN 1917 & BS 5911-3.
- IN SITUATIONS WHERE P.C.C. MANHOLE BASES HAVE REDUNDANT CHANNELS, THESE SHALL BE PLUGGED AND FILLED BY SCABBING, AND INFILLED WITH GRADE C20/25 CONCRETE TO MATCH EXISTING BASE AND BENCHED TO SUIT FLOW WITHIN THE MANHOLE BASE.
- FOUL MANHOLES GREATER THAN 3M IN DEPTH WILL REQUIRE A DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO WATER UK REVIEW.
- PRE-CAST CONCRETE ROOF SLABS TO BE USED SUBJECT TO WATER UK REVIEW AND COMPLIANCE WITH BS EN 1917, BS 5911-3 AND BS EN 1992-1-1.
- COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY WATER UK.
- 200MM ALL AROUND X 100MM DEEP, C20/25 CONCRETE PLINTH COMPLETE WITH BULL NOSE FINISH AND TO BE PROVIDED COMPLETE WITH MILD STEEL REINFORCEMENT LINK AROUND COVERS IN GREEN AREAS.
- ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY WATER UK.
- ALL CONCRETE TO BE IN ACCORDANCE WITH BS 5911, BS EN 203-1 & BS 8500.
- ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
- NEW ROAD CONSTRUCTION & SURFACE FINISH TO BE AS PER DESIGN DRAWINGS.
- EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF "SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS" BY THE DEPT. OF TRANSPORT REQUIREMENTS.
- IF DEPTH FROM GROUND TO PIPE SOFFIT IS GREATER THAN 6M DEEP, A SITE SPECIFIC ENGINEERED SOLUTION FOR ACCESS SHALL BE PROVIDED.
- PROPRIETARY WATERTIGHT PCC MANHOLE RING SYSTEMS WITH A WALL THICKNESS > 125MM, & A WATER TIGHT JOINT SEALING SYSTEM, MAY BE USED WITHOUT CONCRETE SURROUND, SUBJECT TO THE GROUND WATER LEVEL AT THE MANHOLE BEING LOW, & SUBJECT TO REVIEW BY WATER UK.
- THE INTERNAL MANHOLE DIAMETERS SHOWN IN THE TABLE ARE MINIMUM DIMENSIONS AND WILL INCREASE DEPENDING ON THE NUMBER AND DIAMETER OF ADDITIONAL INLETS AND FINISHED WITH A 1:3 SAND/CEMENT FINISH TO SUIT FLOW OF INLETS AND OUTLET.

**GENERAL NOTES:**

- ALL DIMENSIONS AND LEVELS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF THE WORKS. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECT'S AND OTHER ENGINEERING DRAWINGS.

REV	DATE	DESCRIPTION	BY	APPR

DRAWING STATUS:  
**INFORMATION**

CLIENT:  
**ILLECO**

JOB DESCRIPTION:  
**PROPOSED WORKS AT DAGENHAM, LONDON**

DRAWING TITLE:  
**CONSTRUCTION DETAILS - SHEET 2**

PROJECT No.:  
**P-3733**

DRAWING No.:  
**C-07**

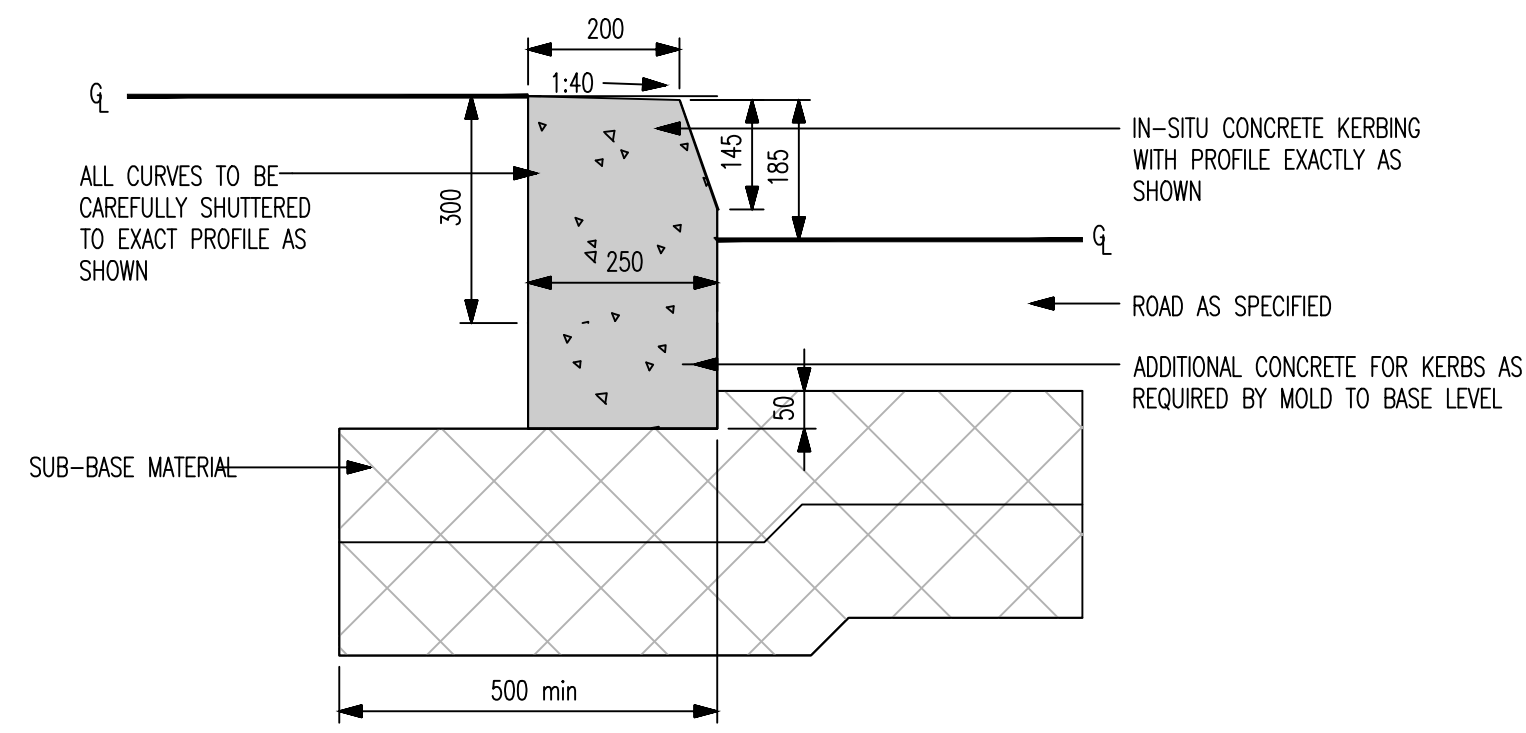
SCALE: AS SHOWN | SHEET: A1 | DATE: 15.09.23

DRAWN BY: SM | CHECKED BY: MK | APPROVED BY: PMCM

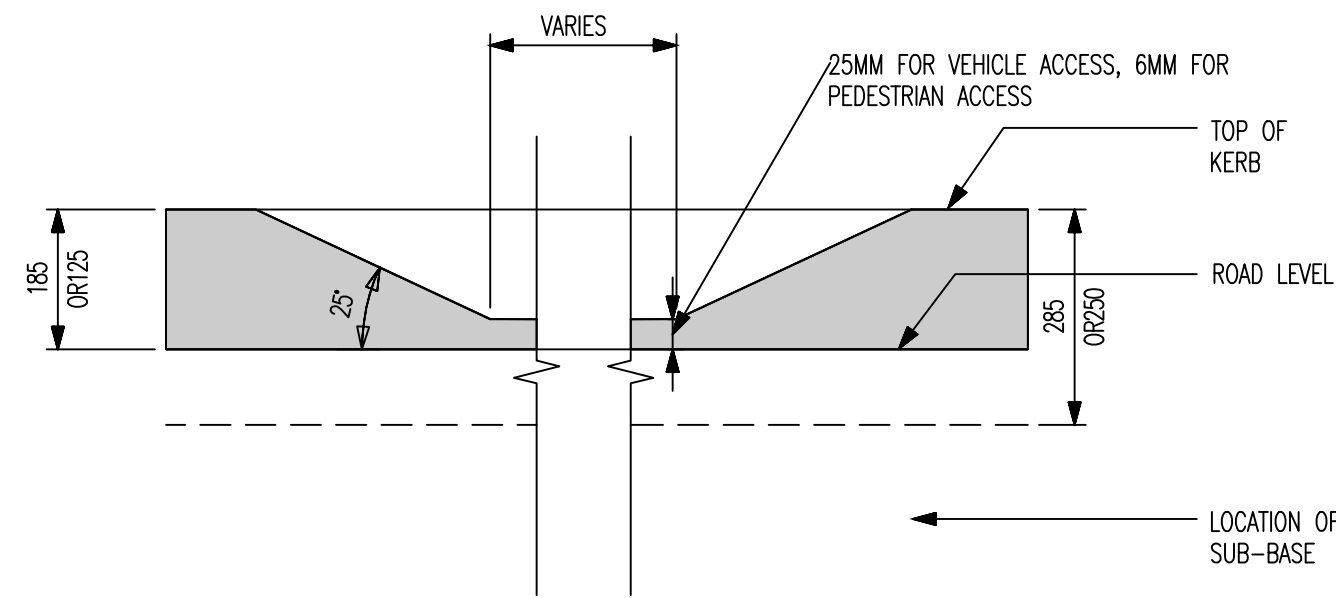
**McMahon Associates**  
Consulting Civil & Structural Engineers, Traffic Engineers  
PSDP/CDM Principal Designer, Project Managers

Armagh (028) 3752 2940 | Drogheda (0141) 2137050 | Croydon (0208) 2636951  
e: info@mcmahonengineers.com

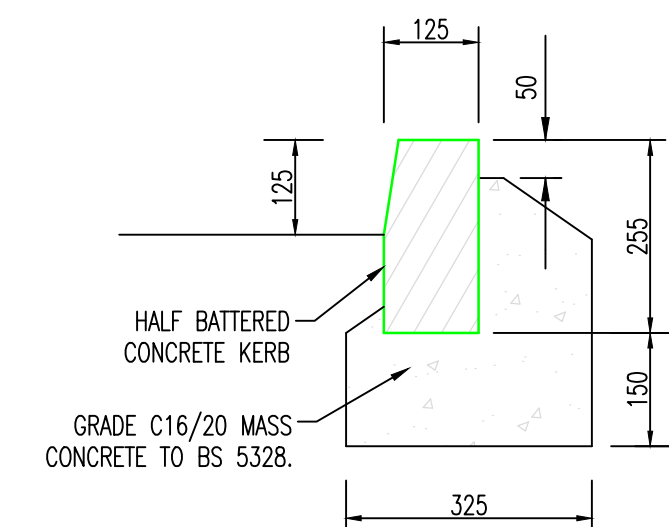




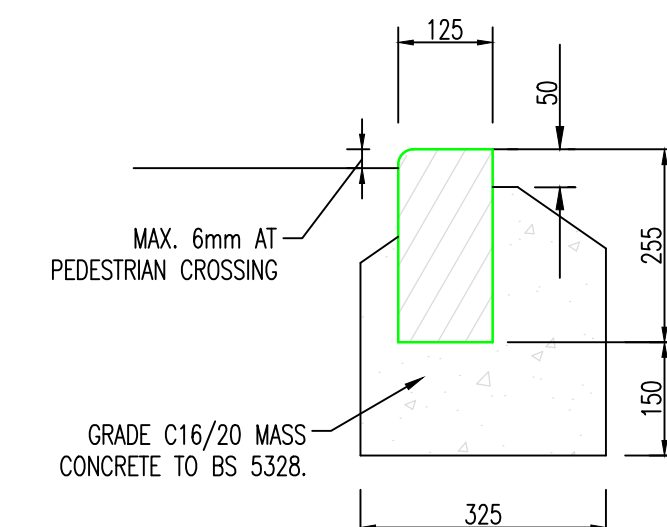
**EXTERNAL INSITU KERB FOR HGV VEHICLES**  
SCALE 1:10



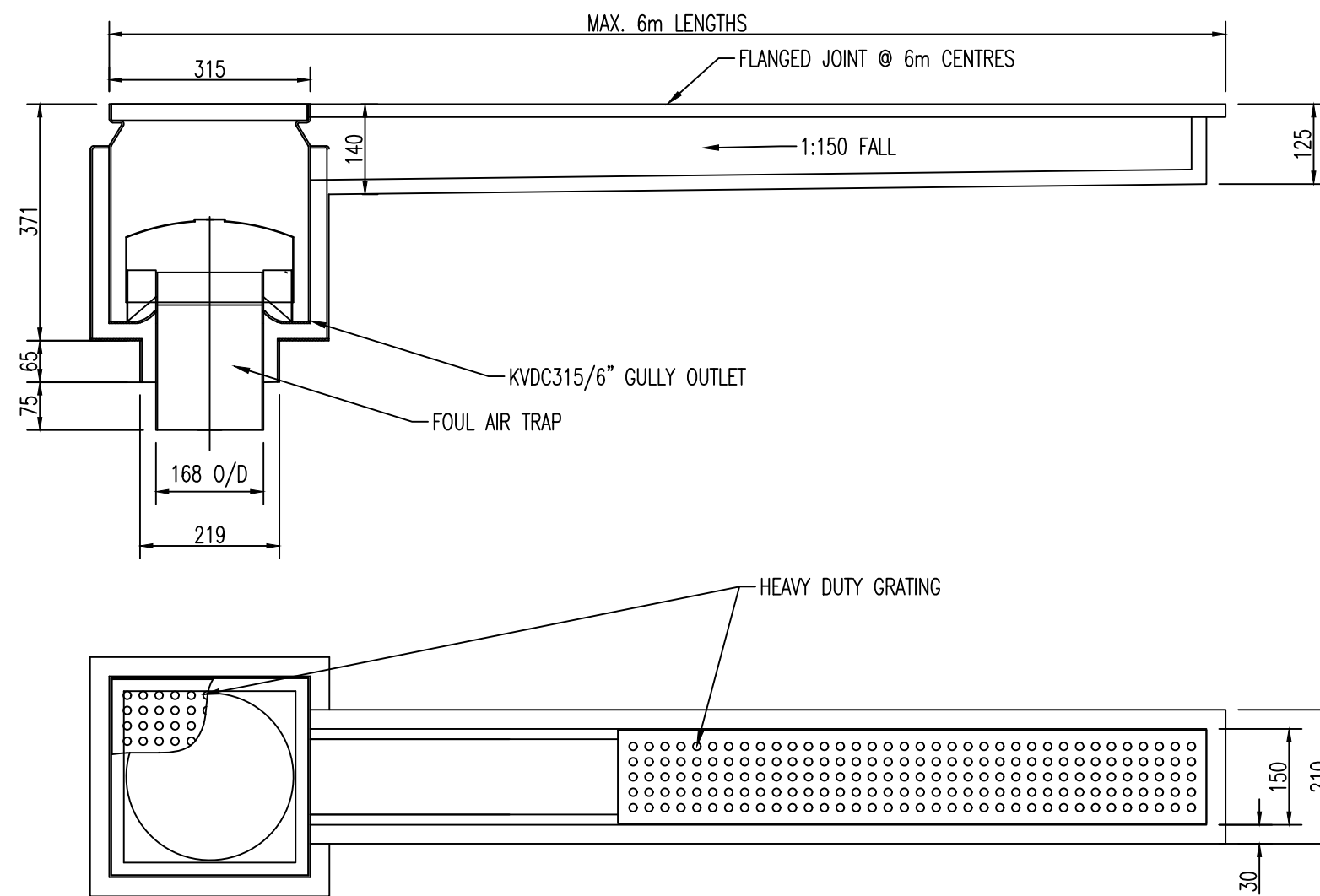
**DROP KERB ELEVATION**  
SCALE 1:10



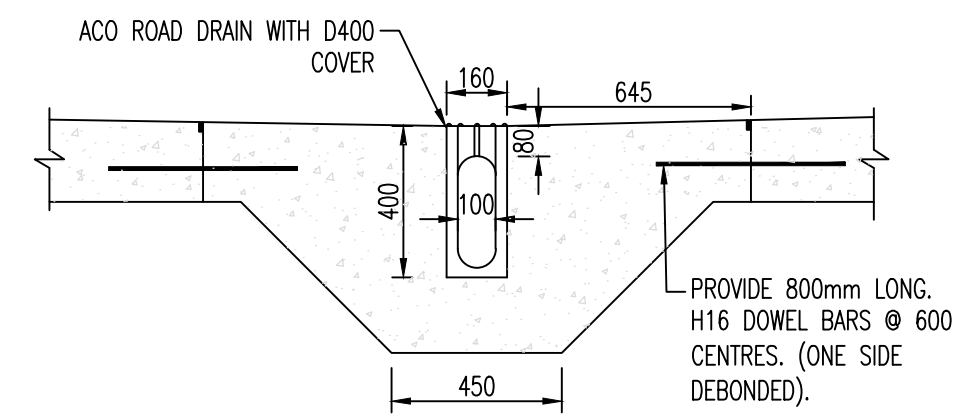
**255x125 HALF BATTERED ROAD KERB**  
SCALE 1:10



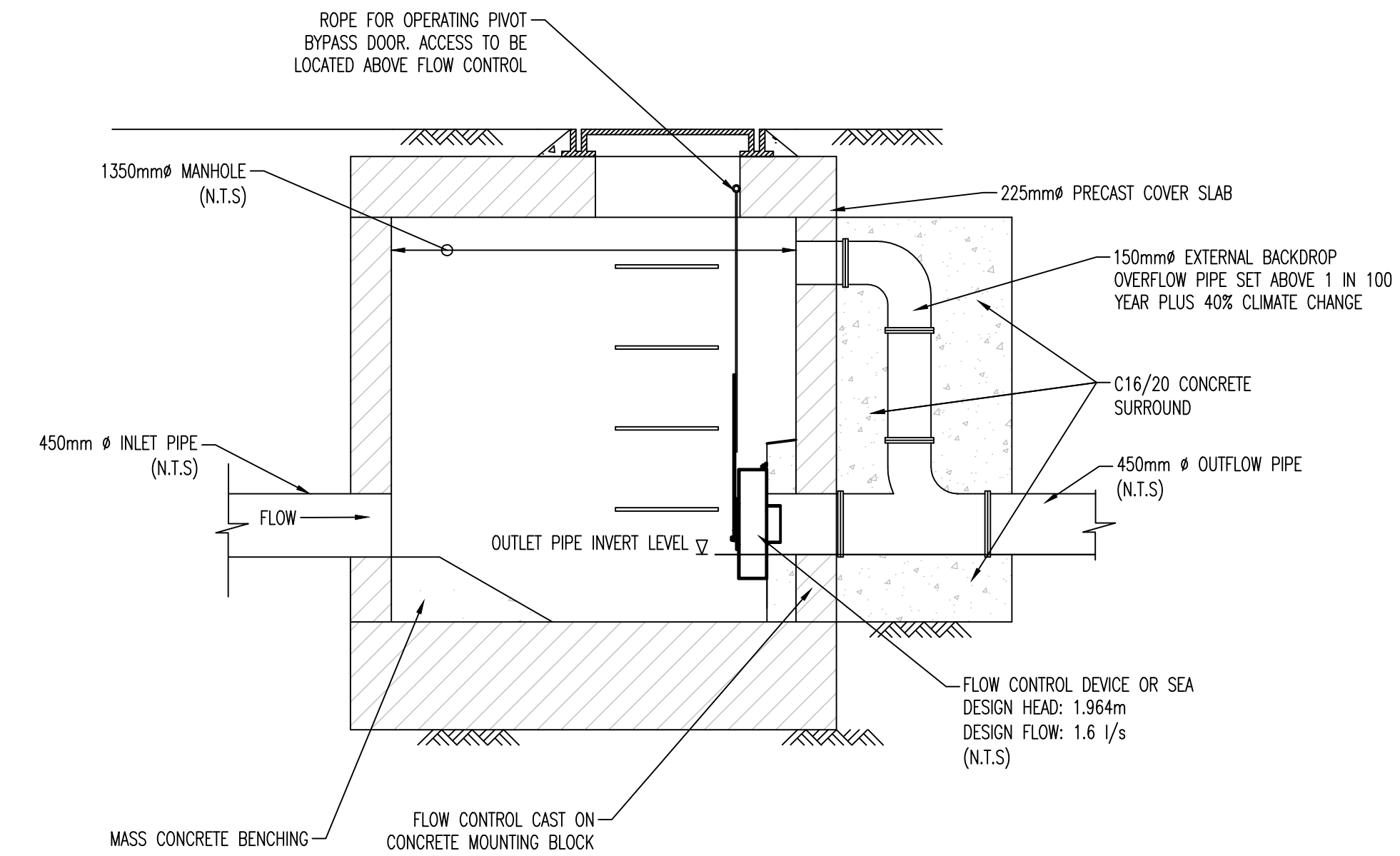
**DROPPED KERB**  
SCALE 1:10



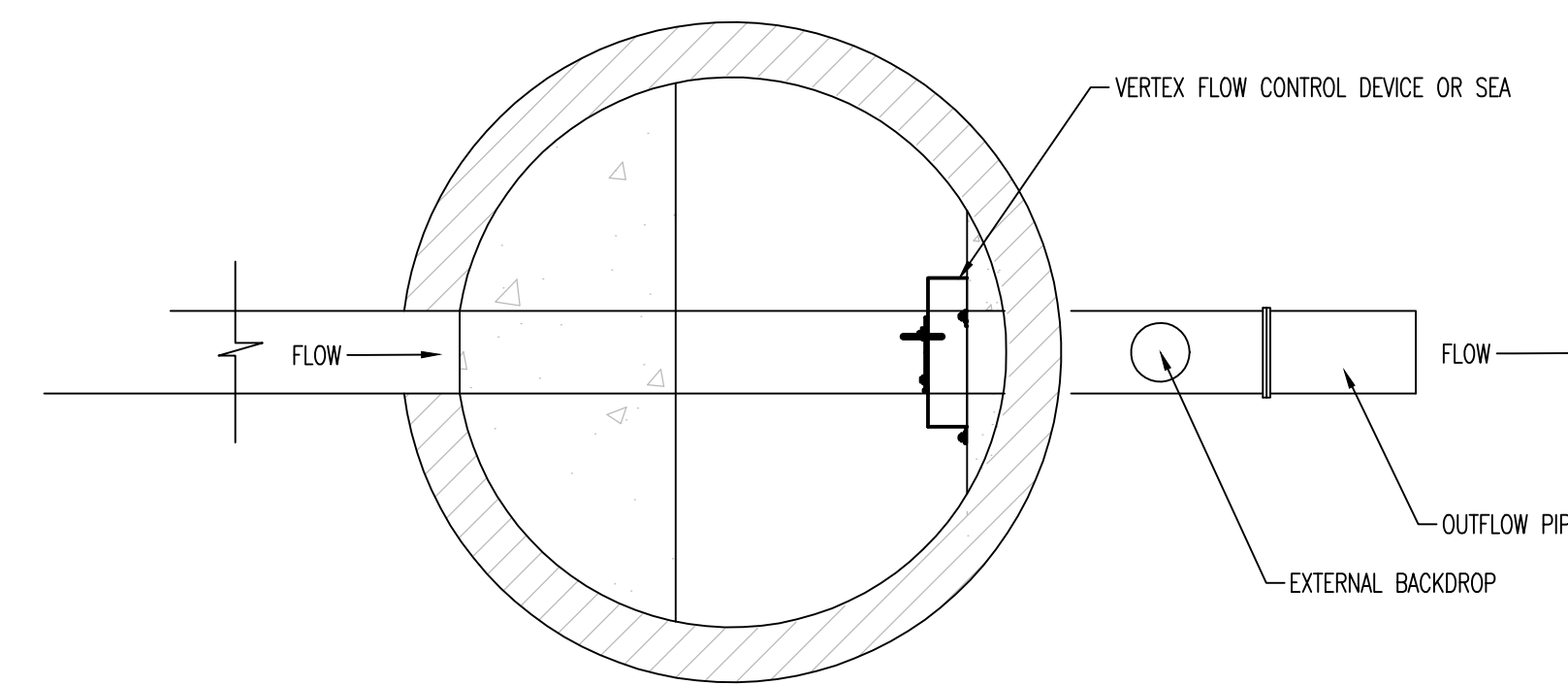
**KENT DOUBLE CHANNEL DRAIN (KSBC150DC OR SEA) (INTERNAL AREAS)**  
SCALE 1:10



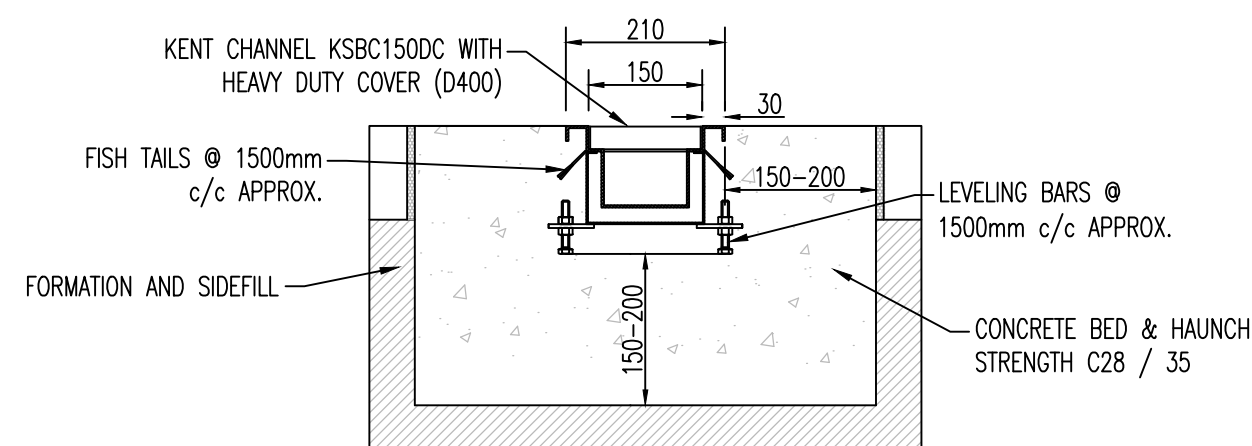
**TYPICAL ACO ROAD DRAIN DETAIL (EXTERNAL AREAS)**  
SCALE 1:20



**FLOW CONTROL MANHOLE DETAIL - SECTION**  
SCALE 1:20

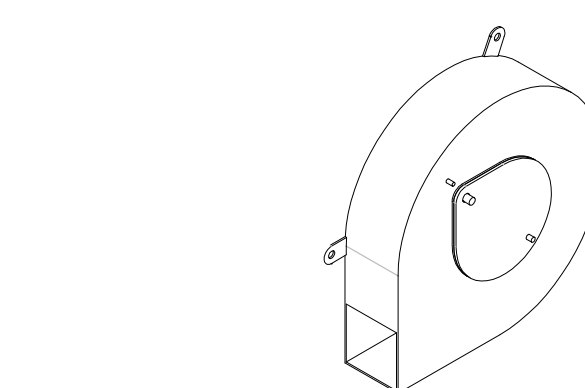


**FLOW CONTROL MANHOLE DETAIL - PLAN**  
SCALE 1:20



**KENT DOUBLE CHANNEL DRAIN (KSBC150DC) SURROUND**  
N.T.S

- NOTES:**
- 150mm BED AND HAUNCH SURROUND WHERE NON-TRAFFICKED.
  - 200mm BED AND HAUNCH SURROUND WHERE TRAFFICKED.
  - BOLT TOGETHER LENGTHS USING GEOPRENE GASKETS AND STAINLESS STEEL FIXINGS.
  - SILICONE SEALANT TO BE PLACED OVER NEOPRENE GASKETS.



**TYPICAL FLOW CONTROL DETAIL**  
SCALE 1:20

**GENERAL NOTES:**

1. ALL DIMENSIONS AND LEVELS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF THE WORKS. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECT'S AND OTHER ENGINEERING DRAWINGS.

REV	DATE	DESCRIPTION	BY	APPR

**DRAWING STATUS:**  
**INFORMATION**

CLIENT:  
**OLLECO**

JOB DESCRIPTION:  
**PROPOSED WORKS AT DAGENHAM, LONDON**

DRAWING TITLE:  
**CONSTRUCTION DETAILS - SHEET 3**

PROJECT No.: **P-3733**      DRAWING No.: **C-08**

SCALE: **A5\_SHOWN**      SHEET: **A1**      DATE: **15.09.23**

DRAWN BY: **SM**      CHECKED BY: **MK**      APPROVED BY: **PMCM**

**McMahon Associates**  
Consulting Civil & Structural Engineers, Traffic Engineers  
PSDP/CDM Principal Designer, Project Managers  
Aramagh (028) 3752 2940      Drogheda (041) 2137050      Croydon (0208) 2636951  
e: info@mcMahonengineers.com



**GENERAL NOTES:**

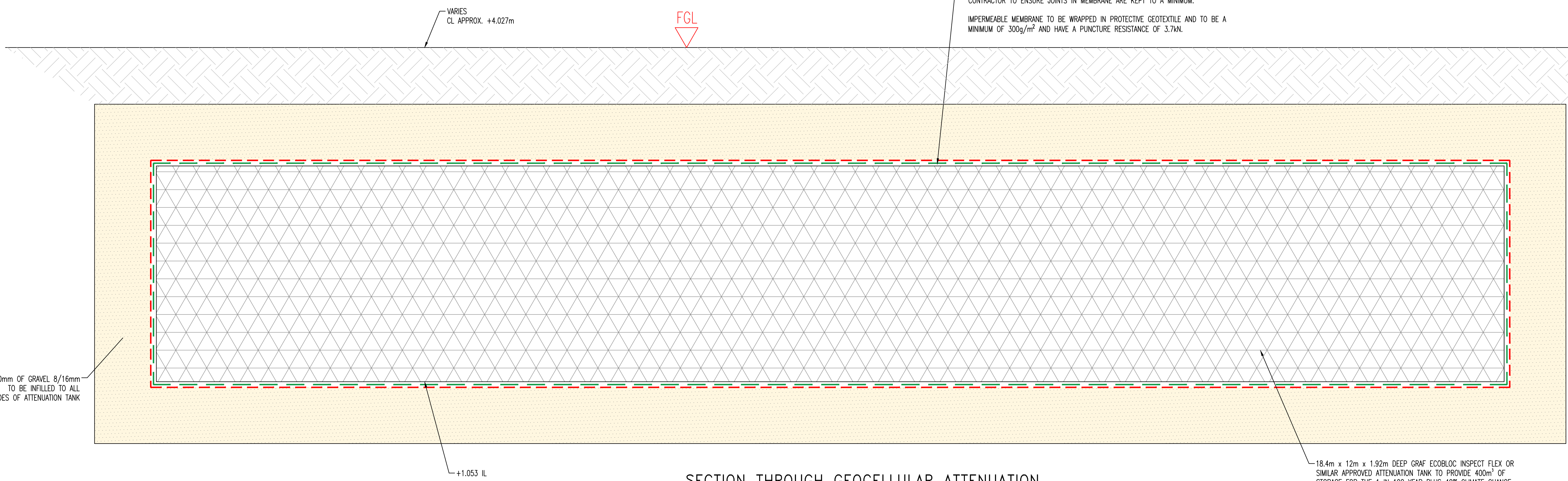
1. ALL DIMENSIONS AND LEVELS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF THE WORKS. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECT'S AND OTHER ENGINEERING DRAWINGS.

TANK TO BE FULLY SEALED IN IMPERMEABLE MEMBRANE AND FULLY WRAPPED IN PROTECTIVE GEOTEXTILE.  
 IMPERMEABLE MEMBRANE TO BE A MINIMUM OF 1mm THICK AND HAVE A PUNCTURE RESISTANCE OF 350N.  
 MEMBRANE JOINTS TO BE HEAT WELDED TO THE MEMBRANE MANUFACTURER'S GUIDELINES. CONTRACTOR TO ENSURE JOINTS IN MEMBRANE ARE KEPT TO A MINIMUM.  
 IMPERMEABLE MEMBRANE TO BE WRAPPED IN PROTECTIVE GEOTEXTILE AND TO BE A MINIMUM OF 300g/m<sup>2</sup> AND HAVE A PUNCTURE RESISTANCE OF 3.7kN.

TANK TO BE BACKFILLED WITH GENERAL FILL IN ACCORDANCE WITH THE SPECIFICATION FOR ROAD WORKS. SURFACE FINISH AND BUILD UP TO ASPHALT ROAD BUILD UP DETAIL/GRASS

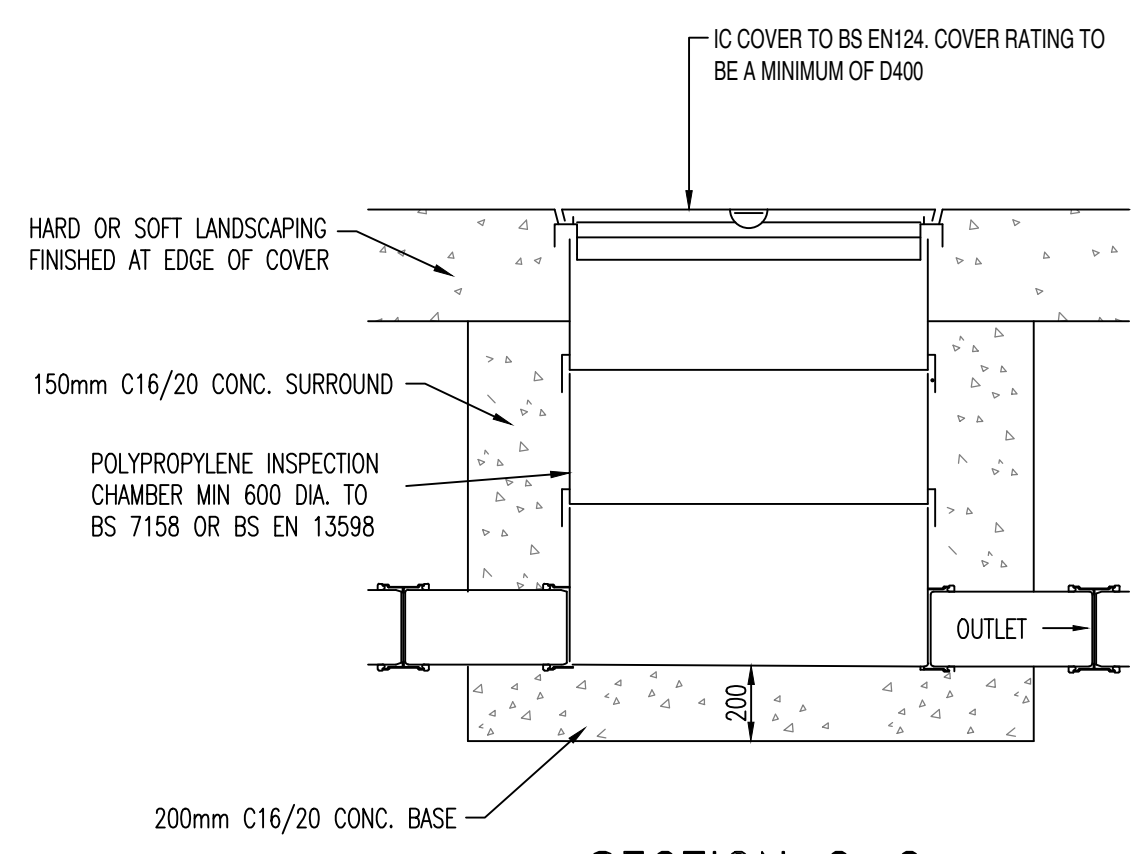
**MEMBRANE KEY:**

	IMPERMEABLE MEMBRANE WITH 1mm THICKNESS MIN. AND TO HAVE 350N PUNCTURE RESISTANCE (INNER LAYER)
	PROTECTIVE GEOTEXTILE 330g/m <sup>2</sup> MIN. AND TO HAVE PUNCTURE RESISTANCE OF 3.7kN (OUTER LAYER)

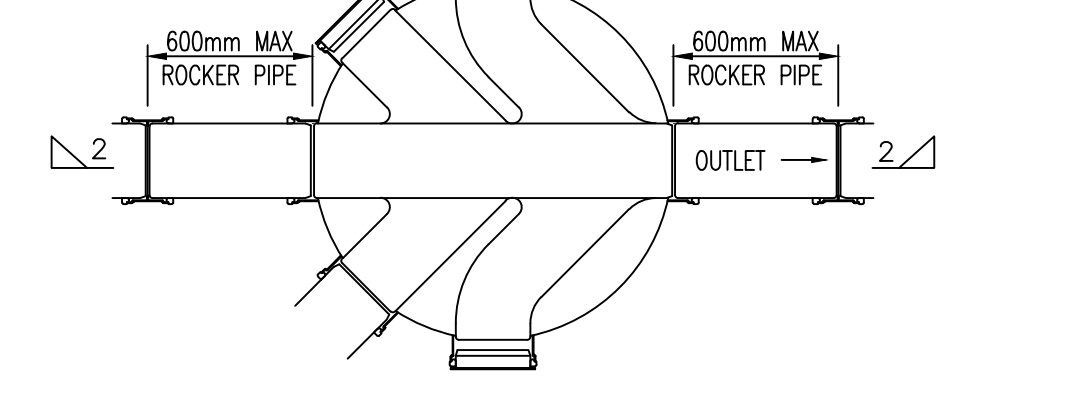


**SECTION THROUGH GEOCELLULAR ATTENUATION**  
 SCALE 1:20

18.4m x 12m x 1.92m DEEP GRAF ECOBLOC INSPECT FLEX OR SIMILAR APPROVED ATTENUATION TANK TO PROVIDE 400m<sup>3</sup> OF STORAGE FOR THE 1 IN 100 YEAR PLUS 40% CLIMATE CHANGE EVENT.  
 ATTENUATION TANK TO BE VENTED AS PER MANUFACTURERS GUIDELINES.  
 CONTRACTOR TO PROVIDE SITE SPECIFIC SHOP DRAWINGS AND CALCULATIONS OF PROPOSED ATTENUATION SYSTEM TO MCMAHON ASSOCIATES FOR REVIEW AND COMMENT PRIOR TO ORDERING.

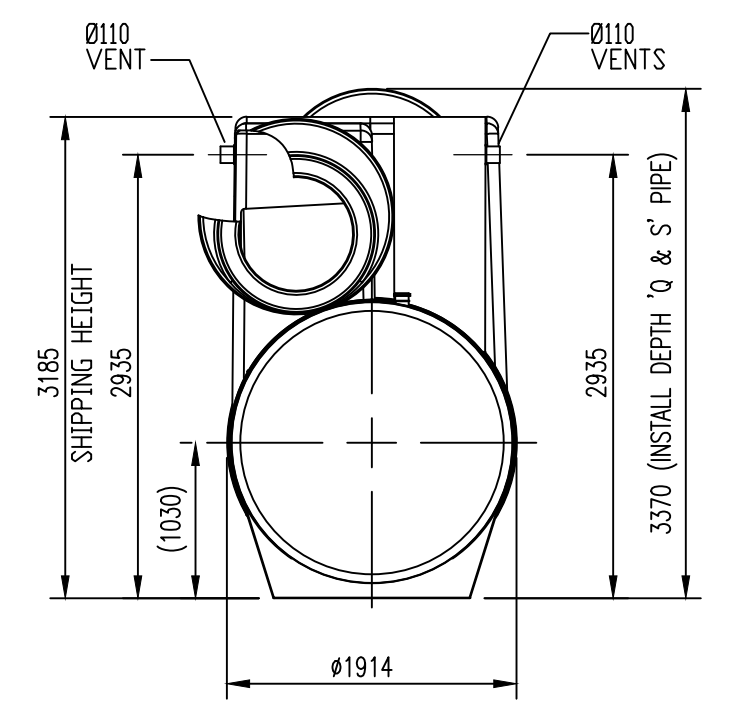
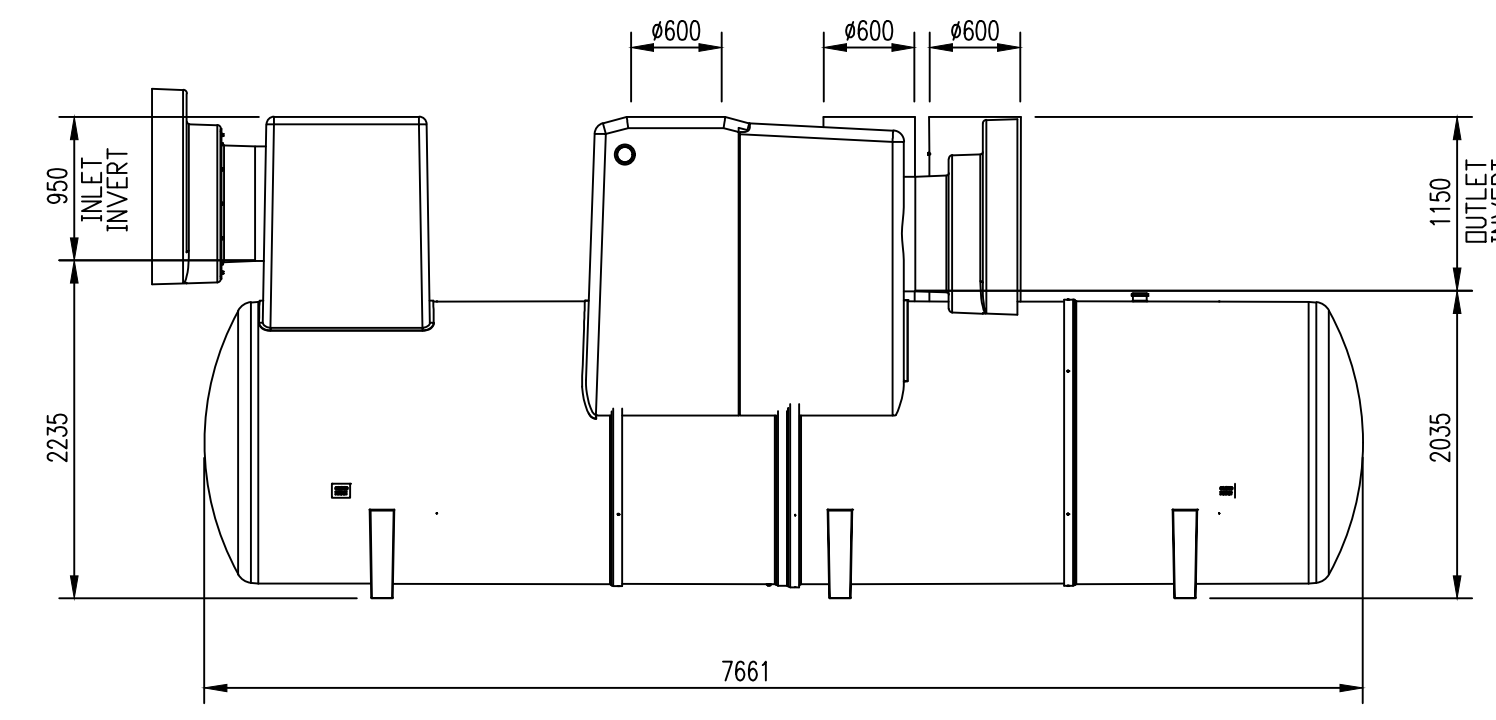
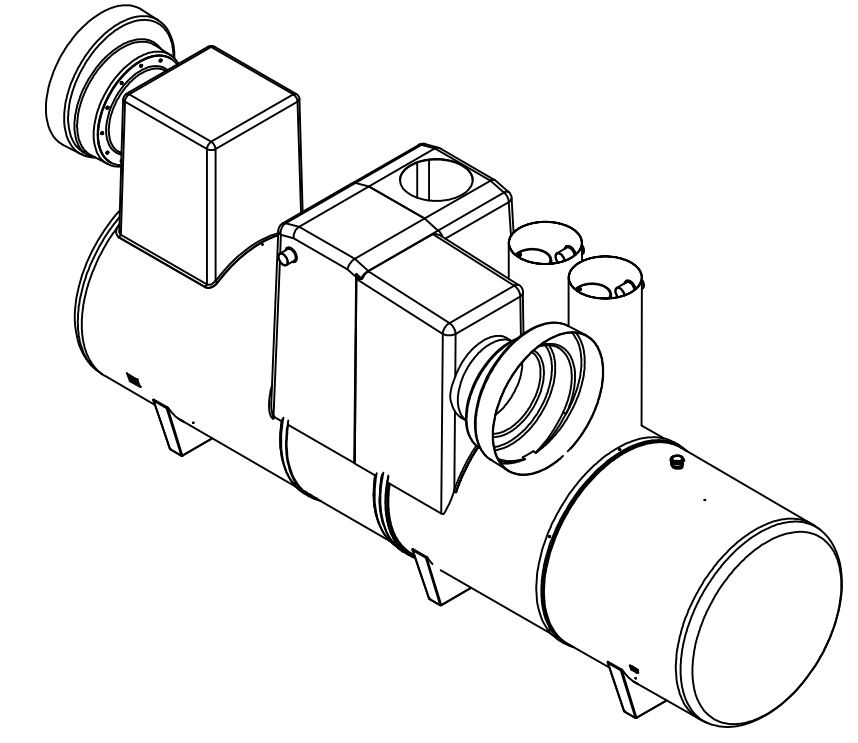
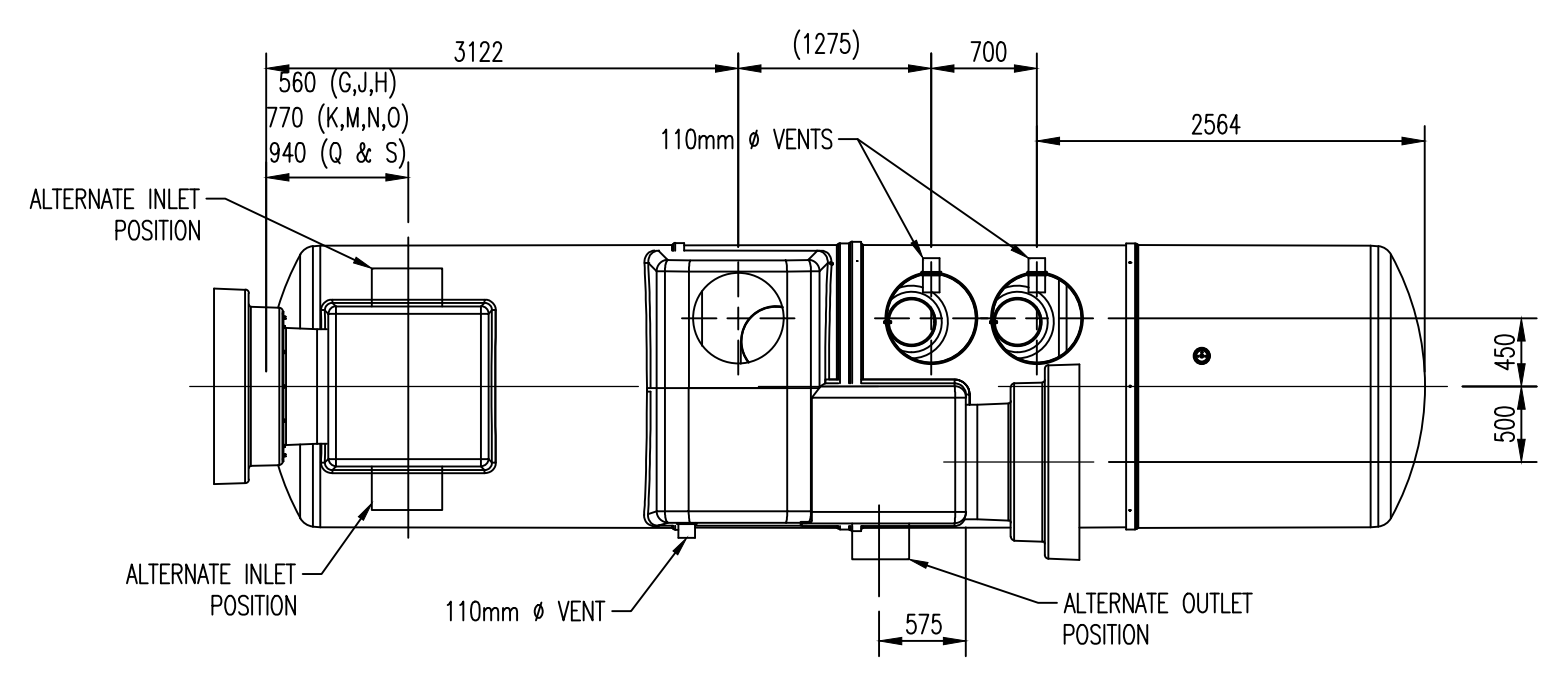


**SECTION 2-2**  
 SCALE 1:20



**SECTIONAL PLAN OF INSPECTION CHAMBER**  
 SCALE 1:20

MINIMUM CIRCULAR DIAMETER OF INSPECTION CHAMBERS	
DEPTH TO INVERT LEVEL (m)	MINIMUM DIAMETER (mm)
0.6 or less	300
1.0 or less	450



**NSBE100 BYPASS OIL SEPARATOR**  
 SCALE 1:50

REV	DATE	DESCRIPTION	BY	APPR

**DRAWING STATUS:**  
**INFORMATION**

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**OLLECO**

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**PROPOSED WORKS AT DAGENHAM, LONDON**

DRAWING TITLE:  
**CONSTRUCTION DETAILS - SHEET 4**

PROJECT No.: **P-3733**      DRAWING No.: **C-09**

SCALE: AS SHOWN      SHEET: A1      DATE: 15.09.23

DRAWN BY: SM      CHECKED BY: MK      APPROVED BY: PMCM

**McMahon Associates**  
 Consulting Civil & Structural Engineers, Traffic Engineers  
 PSDP/CDM Principal Designer, Project Managers

Armagh: (028) 3752 2940      Drogheda: (041) 2137050      Croydon: (0208) 2636951  
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