poga CONSULTING ENGINEERS

Unit C2, Nutgrove Office Park, Rathfarnham, Dublin 14, D14CR20. T 01 2051101, E info@poga.ie, W poga.ie

DOCUMENT ISSUE RECORD

PROJECT NAME:		CHARLESTOWN PLANCE SHD
PROJECT NUMBER:		1726
CLIENT:		PUDDENHILL PROPERTY LTD
SHEET:		1 OF 1

ISSUED FOR					ISSUE DATE
APPROVAL		TENDER		DAY	24
PRELIMINARY		CONSTRUCTION		MONTH	05
PLANNING	✓	AS-BUILT		YEAR	21

DOC. REF.	SIZE	TITLE	REV.↘
1726-100	A1	BASEMENT LAYOUT AND LEVELS	P1
1726-101	A1	ROAD AND BLOCK LEVELS, AND SIGNS	P2
1726-102	A1	BASEMENT DRAINAGE LAYOUT	P2
1726-103	A1	SLUNG DRAINAGE LAYOUT (UNDER PODIUM)	P4
1726-104	A1	DRAINAGE LAYOUT	P4
1726-105	A1	WATERMIAN LAYOUT	P3
1726-106	A1	SWEPT PATH ANALYSIS REFUSE VEHICLE AND FIRE APPLIANCE	P2
1726-107	A1	SWEPT PATH ANALYSIS PRIVATE CAR	P1
1726-108	A1	FOUL DRAINAGE LONG SECTIONS	P2
1726-109	A1	SURFACE WATER DRAINAGE LONG SECTIONS	P2
1726-110	A1	SUSTAINABLE DRAINAGE SYSTEMS (SuDS STRATEGY)	P2
1726-111	A1	STANDARD ROADS DETAILS	P0
1726-112	A1	ATTENUATION AND DRAINAGE DETAILS	P1
1726-113	A1	SURFACE WATER STANDARD MANHOLE DETAILS	P0
1726-EPR	A4	ENGINEERING PLANNING REPORT	R1
1726-DMURS-SOC	A4	DMURS STATEMENT OF CONSISTENCY	R2
1726-FRA	A4	SITE SPECIFIC FLOOD RISK ASSESSMENT	R2
1726-CMP	A4	OUTLINE CONSTRUCTION MANAGEMENT PLAN	R0

DISTRIBUTION TO:	COMPANY:	CONTACT:	
CLIENT	PUDDENHILL PROPERTY LTD	RONAN BARRETT	
PLANNING	BMA PLANNING	JOHN MURPHY	9H
ARCHITECT	MCORM ARCHITECTS	SHANE WALSH/PAUL KEANE	
LANDSCAPE	RMDA	MARTIN REDMOND	
LOCAL AUHORITY	FINGAL CO.CO.		
PQS	OBJ	GARY CONLON/JASON BYRNE	
OTHERS			

METHOD: Hand-H Post-P Email-E Courier-C

AREA UNDER CONSTRUCTION

McKelvey Celtic FC

McKelvey Celtic AFC

LAND REGISTRY BOUNDARY

FFL 64.600

FFL 65.000

NOTES:

1. Read in conjunction with all relevant Architect's and Engineer's drawings and specification. All setting out to be done from the Architect's drawings.
2. The contractor shall establish, by slit trenches, by liaison with the various utilities and by scanning, the location of the existing services, so that the work can be carried out in a safe and efficient manner. This information is also required by PO'GA so that alterations can be carried out to the location of services in the event of obstructions.
3. The contractor shall prepare a traffic management plan and agree it with the Local Authority, prior to commencement of work on site.
4. Soft areas and loose uncompacted areas to be excavated and replaced with stone capping layer, Class 6F2 to the NRA Specification for Road Works, compacted in layers to clause 612.
5. All services, including manhole covers and gullies must be installed before the wearing course is placed. No patch work permitted.
6. Concrete in footpaths to be Mix E to specification and Mix F in kerb beds and haunch. Form A should be giv to the concrete supplier.
7. Sub base to be blinded with a thin layer of non plastic quarry screenings, where necessary, maximum thickness to be 20mm.
8. Road gullies must be placed at low points to eliminate ponding. Close gullies in the direction of the traffic flow.

ROAD SPECIFICATION FOR ACCESS ROADS:

1. 40mm Polymer Modified Stone Mastic Asphalt Surface Course to Cl.942 of the NRA Specification for Road Works.
2. 60mm DBM Binder Course to Cl.942 of the NRA Specification for Road Works
3. 60mm DBM Base Course to Cl.942 of the NRA Specification for Road Works.
4. 150mm (min) crushed stone sub base to be to clause 808 to the NRA Specification for Road Works laid and compacted to clause 802.
5. 250mm (min) stone capping layer based on a CBR value of 5% to be confirmed on completion of CBR tests. Capping layer should be to Class 6F2 to the NRA Specification for Road Works. Capping must be increased for CBR values between 2% and 5% as per the Design table Figure 1. Capping layer of less than 250mm is not recommended irrespective of CBR value for values between 5% and 15%.
6. 6F2 capping layer material shall be compacted with approved mechanical equipment in accordance with clause 612 of the NRA Specification. Generally the layers shall not exceed 150mm thick.
7. Hardcore and granular fill shall be obtained from a independently tested and approved quarry. The stone shall be certified as being not subject to swelling when placed under concrete ground floor slabs. All stone to be certified for the end use as per the requirements of SR21 Annex E.
8. CBR tests to be carried out at a maximum of 100 m c/c.
9. Terram may be required for low CBR values.
10. Specialist Design to be sought for CBR values of less than 2%

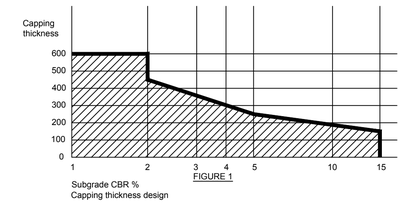

FIGURE 1

MACADAM CAR PARK CONSTRUCTION:

1. 30mm of dense macadam surface course to Cl.906 of the NRA Specification for Road Works on
2. 50mm Binder Course to Cl.906 of the NRA Specification for Road Works on
3. 150mm (min) crushed stone sub base to be to Cl. 808 to the NRA Specification for Road Works laid and compacted to Cl. 802 on
4. 150mm min capping layer to be decided on completion of CBR. test as per table below.

CBR%	<2	2	3	4-15	16+
Depth	350	250	200	150	0

5. Where Geotextile specified on adjacent roads, use on carpark also.

ROAD & BLOCK LEGEND

- SITE BOUNDARY
- LINE OF BASEMENT
- LINE OF BUILDINGS ABOVE
- FFL +65.00 — PROPOSED FINISHED FLOOR LEVEL

Rev.	Date	Description	By
P1	12/03/21	REVISED AS PER NEW ARCHITECTS LAYOUT	AL

Project Title
SHD AT CHARLESTOWN PLACE AND ST MARGARET'S ROAD

Architect
MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	1:500

Drawing Title
BASEMENT LAYOUT AND LEVELS

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	100	P1

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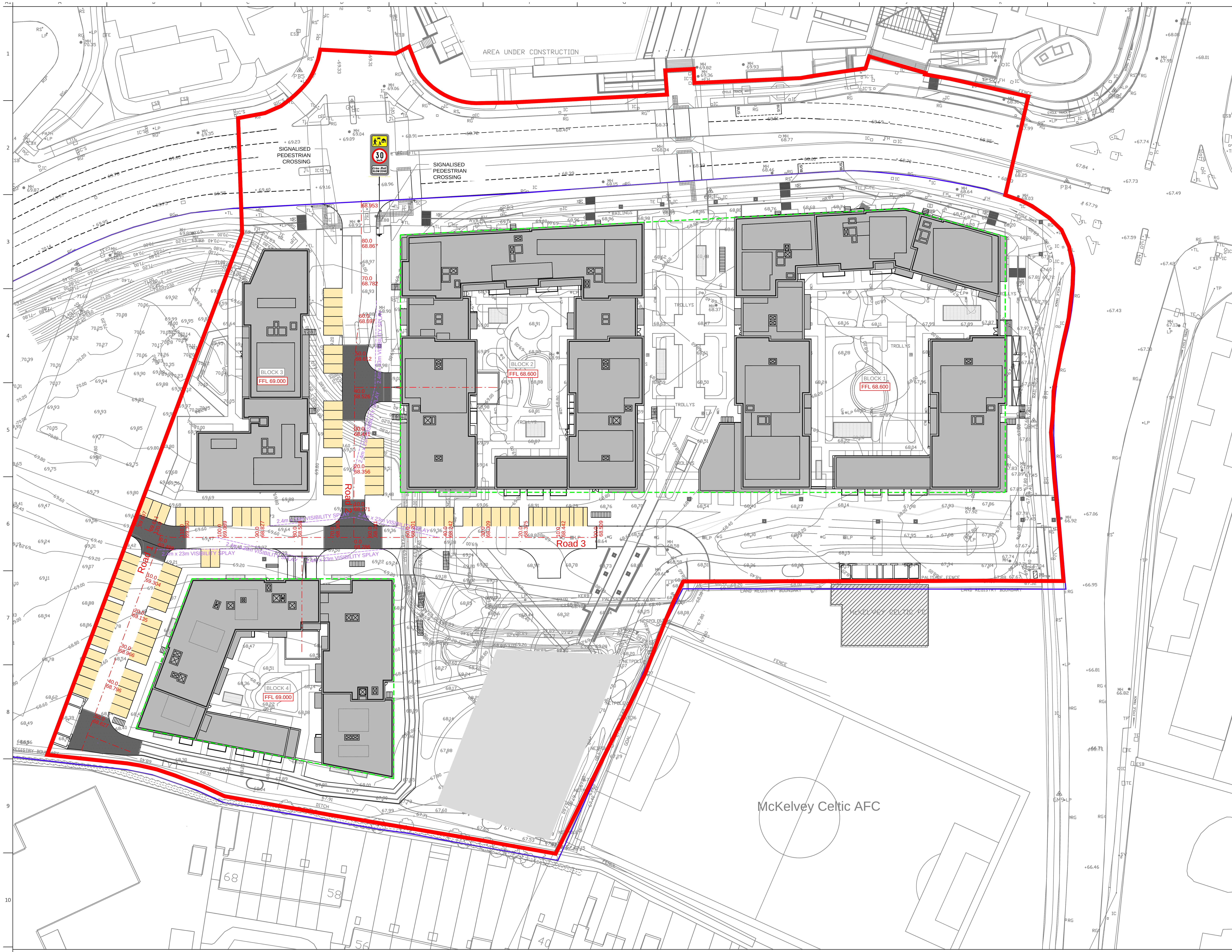
S:\01 PROJECTS\2017\1726 Charlestown (Southern lands-carpark site)\01 DRAWINGS\03 POGA Site Development\02 Planning\1726-100-110 R9.dwg, 13/05/2021 13:24:08



NOTES:

1. Read in conjunction with all relevant Architect's and Engineer's drawings and specification. All setting out to be done from the Architect's drawings.
2. The contractor shall establish, by slit trenches, by liaison with the various utilities and by scanning, the location of the existing services, so that the work can be carried out in a safe and efficient manner. This information is also required by PO'GA so that alterations can be carried out to the location of services in the event of obstructions.
3. The contractor shall prepare a traffic management plan and agree it with the Local Authority, prior to commencement of work on site.
4. Soft areas and loose uncompacted areas to be excavated and replaced with stone capping layer, Class 6F2 to the NRA Specification for Road Works, compacted in layers to clause 612.
5. All services, including manhole covers and gullies must be installed before the wearing course is placed. No patch work permitted.
6. Concrete in footpaths to be Mix E to specification and Mix F in kerb beds and haunch. Form A should be giv to the concrete supplier.
7. Sub base to be blinded with a thin layer of non plastic quarry screenings, where necessary, maximum thickness to be 20mm.
8. Road gullies must be placed at low points to eliminate ponding. Close gullies in the direction of the traffic flow.

ROAD SPECIFICATION FOR ACCESS ROADS:

1. 40mm Polymer Modified Stone Mastic Asphalt Surface Course to Cl.942 of the NRA Specification for Road Works.
2. 60mm DBM Binder Course to Cl.942 of the NRA Specification for Road Works
3. 60mm DBM Base Course to Cl.942 of the NRA Specification for Road Works..
4. 150mm (min) crushed stone sub base to be to clause 808 to the NRA Specification for Road Works laid and compacted to clause 802.
5. 250mm (min) stone capping layer based on a CBR value of 5% to be confirmed on completion of CBR tests. Capping layer should be to Class 6F2 to the NRA Specification for Road Works. Capping must be increased for CBR values between 2% and 5% as per the Design table Figure 1. Capping layer of less than 250mm is not recommended irrespective of CBR value for values between 5% and 15%.
6. 6F2 capping layer material shall be compacted with approved mechanical equipment in accordance with clause 612 of the NRA Specification. Generally the layers shall not exceed 150mm thick. .
7. Hardcore and granular fill shall be obtained from a independently tested and approved quarry. The stone shall be certified as being not subject to swelling when placed under concrete ground floor slabs. All stone to be certified for the end use as per the requirements of SR21 Annex E.
8. CBR tests to be carried out at a maximum of 100 m c/c.
9. Terram may be required for low CBR values.
10. Specialist Design to be sought for CBR values of less than 2%

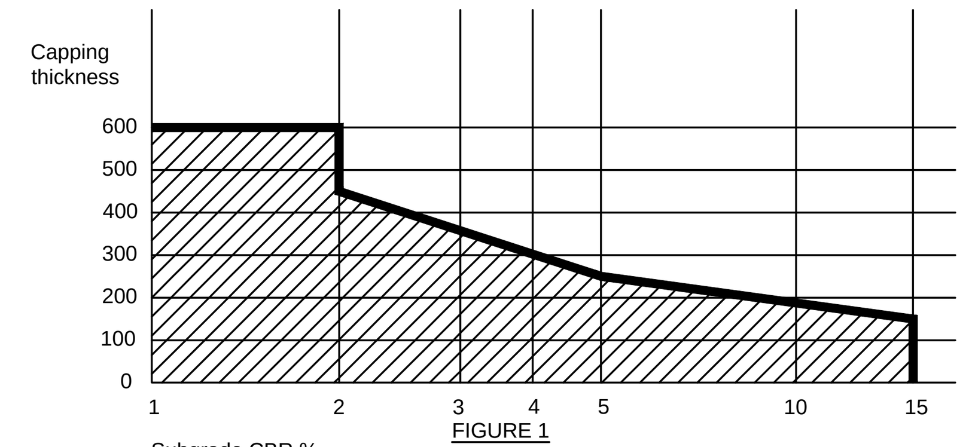


FIGURE 1

Subgrade CBR %
Capping thickness design

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2. 50mm Binder Course to Cl.906 of the NRA Specification for Road Works on
3. 150mm (min) crushed stone sub base to be to Cl. 808 to the NRA Specification for Road Works laid and compacted to Cl. 802 on
4. 150mm min capping layer to be decided on completion of CBR. test as per table below.

CBR%	<2	2	3	4-15	16+
Depth	350	250	200	150	0

5. Where Geotextile specified on adjacent roads, use on carpark also.

ROAD & BLOCK LEGEND

🟥	SITE BOUNDARY
🟩	LINE OF BASEMENT
10.0 68.530	PROPOSED ROAD LEVEL & CHAINAGE
FFL 63.500	PROPOSED FINISHED FLOOR LEVEL
	STOPPING SIGHT DISTANCE BASED ON 23m FORWARD VISIBILITY, EYE HEIGHT 1.05m & OBJECT HEIGHT 0.26m
	JUNCTION VISIBILITY SPLAY
🟨	PERMEABLE PAVING
▨	RAISED TABLE

Rev.	Date	Description	By
P2	21/05/21	ROOF LAYOUT REVISED	AL
P1	12/03/21	REVISED AS PER NEW ARCHITECTS LAYOUT	AL

Project Title
SHD AT CHARLESTOWN PLACE
AND ST MARGARET'S ROAD

Architect
MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	1:500

Drawing Title
ROAD & BLOCK LEVELS
AND TRAFFIC SIGNS

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	101	P2

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WATERMAIN NOTES

1. These are summary notes, refer to Irish Water Code of Practice and Standard Details for full notes and details. Where discrepancy between these and Irish Water publication are identified, Irish Water publications take precedence. All discrepancies should be reported to POGA.
2. The contractor shall agree the exact make, model and closing direction of sluice valves and hydrants with the Irish Water & the Water Inspector.
3. All boxes shall be as per Irish Water Code of Practice, Connection and Service Developer Services, Water Infrastructure latest standard details.
4. Watermains shall be tested in conjunction with the Irish Water , section 4.10 (Testing and Commissioning) to a minimum pressure of 10 Bars(150psi). The time taken (t) to pressure the watermain loop should be measured on site and the subsequent test held for a minimum duration of 2⌀t. The water pressure should not be topped up during the test. The pressure readings should be recorded at 1 minute intervals and submitted to project engineer for evaluation prior to backfilling.
5. Anchor blocks of grade C20/25 Type F concrete shall be provided on watermains at dead ends, tees, bends of greater curvature than 11.25° and at both sides of sluice valve chambers.
6. All pipework shall be thoroughly flushed out, sterilised with chlorine and then scoured and flushed out again in conjunction with Irish Water Code of Practice, section 4.10.5 and 4.13.
7. Hydrant covers shall be painted canary yellow (BS 381C) and be in paved non-vehicular areas. Hydrant never to be placed in parking bays.
8. Where Watermains terminating in a loop, provide connection to a minimum of four properties and a hydrant. See section 3.5.14 of Irish Water Code of Practice.
9. Provide an offline hydrant downstream of the proposed bulk meter locations. See section 3.15.4 of Irish Water Code of Practice and STD-W-27 of Water Infrastructure Standard Details.
10. Distribution Watermains shall be laid in public areas and be kept a minimum distance from existing structures and trees and shrubs. Distance to be specified in Irish Water Code of Practice, Connection and Service Developer Services, Water Infrastructure standard detail, STD-W11 & STD-W-12 respectively.
11. Where water main is required to be laid in roadway, please ensure that this is located a away from the kerb line, refer to 3.5.8-3.5.13 of the Irish Water Code of Practice. Watermain 150mm diameter and smaller shall be located a minimum of 3m for a structure and 1m from a boundary Wall.
12. Air valves shall be provided at all summits on pipelines of 110mm(ID) Ø or greater.
13. Pipes should be jointed strictly in accordance with manufacturer's requirements.
14. All pipes blue in colour, be HDPE or MDPE for 25mm to 80mm diameters & HDPE or Ductile Iron for minimum 100mm to 300mm inside diameters, or HPPE or Ductile Iron for a minimum 350 to 600mm internal diameters. An example is, 150 internal diameter watermain pipe should be; 180mm outside diameter, SDR-17 and PE-100, this give an internal dia (from Wavinsupasure range) of 158mm, The 100mm internal diameter should be 125mmOD, SDR-17 and PE-100, this gives and internal dia of 109.5mm.
15. HPPE and HDPE pipes to be be:
    - 15.1. Type PE-100
    - 15.2. SDR-17 rating
    - 15.3. Compliance with to IS EN 12201: Part 1 and Part 2 (Plastic Systems for Water Supply, Drainage and Sewerage Under Pressure - Part 1, General, and Part 2, Pipes)
    - 15.4. Compliance with I.S. EN 12201-3 (Plastic Systems for Water Supply, Drainage and Sewerage Under Pressure - Part 3: Fittings).
16. ALL PE pipes shall also conform to the following UK Water Industry Specifications:
    - 16.1. 4-32-08 - Specification for the fusion jointing of polyethylene pressure pipeline systems using PE80 and PE100 materials
    - 16.2. 4-32-16 - Specification for Butt Fusion Jointing Machines
    - 16.3. 4-32-19 - Specification for polyethylene pressure pipeline systems with an aluminium barrier layer for potable water supply in contaminated land
    - 16.4. IGN 4-01-03 - Pressure Testing of Pressure Pipes and Fittings for use by Public Water Supplies
    - 16.5. For pipes greater than 600mm refer to Engineer for approval.
17. All Watermain pipes to have minimum 10 bar working pressure rating.
18. Cover to Watermains in roadways as per Irish Water Code of Practice latest , Connection and Service Developer Services, Water Infrastructure standard details.
19. All changes in both vertical and horizontal alignment greater than 4° to be supported by a concrete anchor block.
20. Air valve locations to be accurately set out at summit points on site.
21. All watermains to be backfilled as per as per Irish Water Code of Practice latest, Connection and Service Developer Services, Water Infrastructure standard details, STD-W-13.
22. Service pipes to be a minimum of 20mm(ID) and shall not exceed 15m in length.
23. Depth of finished ground to the outlet of the Hydrant not to be greater than 350mm.
24. Boundary Box to be provided on all connection and should be located in pedestrian areas on the public side of the boundary, locations and type to be in constructed in accordance with standard detail STD-W-03.
25. All materials and details to comply with Irish Water Code of Practice latest, Connection and Service Developer Services, Water Infrastructure standard details.

MARKERS:

1. When a suitable wall is available the sign shall be fixed to it, at a location to be agreed with the Architect.
2. Indicator posts shall be constructed with 10mm grade C30/35 concrete, reinforced with 6mmØ galvanised bars.
3. Hydrant Indicator plates shall be canary yellow (BS 381 C) with black lettering to BS 3251.
4. Plates shall be bolted to posts/walls with non-corrosive metal bolts, which shall be compatible with the plate material.

Please refer to the most up to date Irish Water (IW) documents, IW-CDS-5020 for Water infrastructure standard details. These details superseded all previously issued POGA watermain details and should be used on all new and part constructed developments from the December 2017.

Drawing No.	Drawing Title	Rev
STD-W-01	Water service connection responsibility	0
STD-W-02	Typical layout for water mains within developments	1
STD-W-03	Customer connection & boundary box	3
STD-W-04	General pipe connections (sheet 1 of 7)	3
STD-W-05	General pipe connections (sheet 2 of 7)	2
STD-W-06	General pipe connections (sheet 3 of 7)	2
STD-W-07	General pipe connections (sheet 4 of 7)	1
STD-W-08	General pipe connections (sheet 5 of 7)	1
STD-W-09	General pipe connections (sheet 6 of 7)	1
STD-W-10	General pipe connections (sheet 7 of 7)	1
STD-W-11	Typical service layout indicating separation distances	1
STD-W-12	Restrictions on water infrastructure works adjacent to exisitng tress	2
STD-W-12A	Restrictions on new trees / shrubs planting adjacent to Watermains	0
STD-W-13	Trench backfill & bedding	1
STD-W-14	Sluice valve for ductile iron (D.I.) pipe (<350mm dia.) (sheet 1 of 2)	3
STD-W-15	Sluice valve for polyethylene (P.E.) pipe (<350mm dia.) (sheet 2 of 2)	2
STD-W-16	On-line hydrant for ductile iron (D.I.) pipe (sheet 1 of 4)	2
STD-W-17	Off-line hydrant for ductile iron (D.I.) pipe (sheet 2 of 4)	3
STD-W-18	On-line hydrant for polyethylene (P.E.) pipe (sheet 3 of 4)	2
STD-W-19	Off-line hydrant for polyethylene (P.E.) pipe (sheet 4 of 4)	3
STD-W-20	On-line air valve for ductile iron (D.I.) pipe (sheet 1 of 4)	2
STD-W-21	Off-line air valve for ductile iron (D.I.) pipe (sheet 2 of 4)	3
STD-W-22	On-line air valve for polyethylene (P.E.) pipe (sheet 3 of 4)	2
STD-W-23	Off-line air valve for polyethylene (P.E.) pipe (sheet 4 of 4)	3
STD-W-24	Pressure reducing / sustaining valve (P.R.V. / P.S.V.) chamber	2
STD-W-25	Booster pump station arrangement	1
STD-W-26	Non Mech. Meter chamber (40-250mm Dia.)	3
STD-W-26A	Meter chamber (≤300mm dia.)	0
STD-W-27	Marker posts / plates	2
STD-W-28	Water main thrust & support blocks	1
STD-W-29	Duct chamber	2
STD-W-30	Scour chamber & head wall arrangements	3
STD-W-30A	Washout hydrant	2
STD-W-31	Typical ditch / stream crossing for water main	1
STD-W-32	Typical bridge crossing for water main (sheet 1 of 2)	1
STD-W-33	Typical bridge crossing for water main (sheet 2 of 2)	1
STD-W-34	Security gate & fencing	2
STD-W-35	Pipe repair to existing mains	2
STD-W-36	Telemetry and wet kiosk	2
STD-W-37	Lamp bollard & lamp standard	1

DRAINAGE LEGEND

- SITE BOUNDARY
- Proposed SW Sewer — PROPOSED SURFACE WATER SEWER
- Existing SW Sewer — EXISTING SURFACE WATER SEWER
- Proposed FW Sewer — PROPOSED FOUL WATER SEWER WITH INSPECTION CHAMBER IN ACCORDANCE WITH STANDARD DETAIL STD-WW-03
- Existing FW Sewer — EXISTING FOUL WATER SEWER
- PROPOSED FOUL RISING MAIN
- PROPOSED Ø150mm FOUL SLUNG DRAINAGE
- PROPOSED Ø150mm SURFACE WATER SLUNG DRAINAGE WITH DOUBLE LEVEL GULLY SYSTEM
- PROPOSED ROAD GULLY
- RWP — PROPOSED RAINWATER PIPE
- PROPOSED DRAIN CHANNEL

Rev.	Date	Description	By
P2	12/03/21	REVISED AS PER NEW ARCHITECTS LAYOUT	AL
P1	MAY 2020	ATTENUTAION TANK SIZE & POSITION AMENDED	CB

Project Title
SHD AT CHARLESTOWN PLACE AND ST MARGARET'S ROAD

Architect
MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	1:500

Drawing Title
BASEMENT DRAINAGE LAYOUT

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	102	P2

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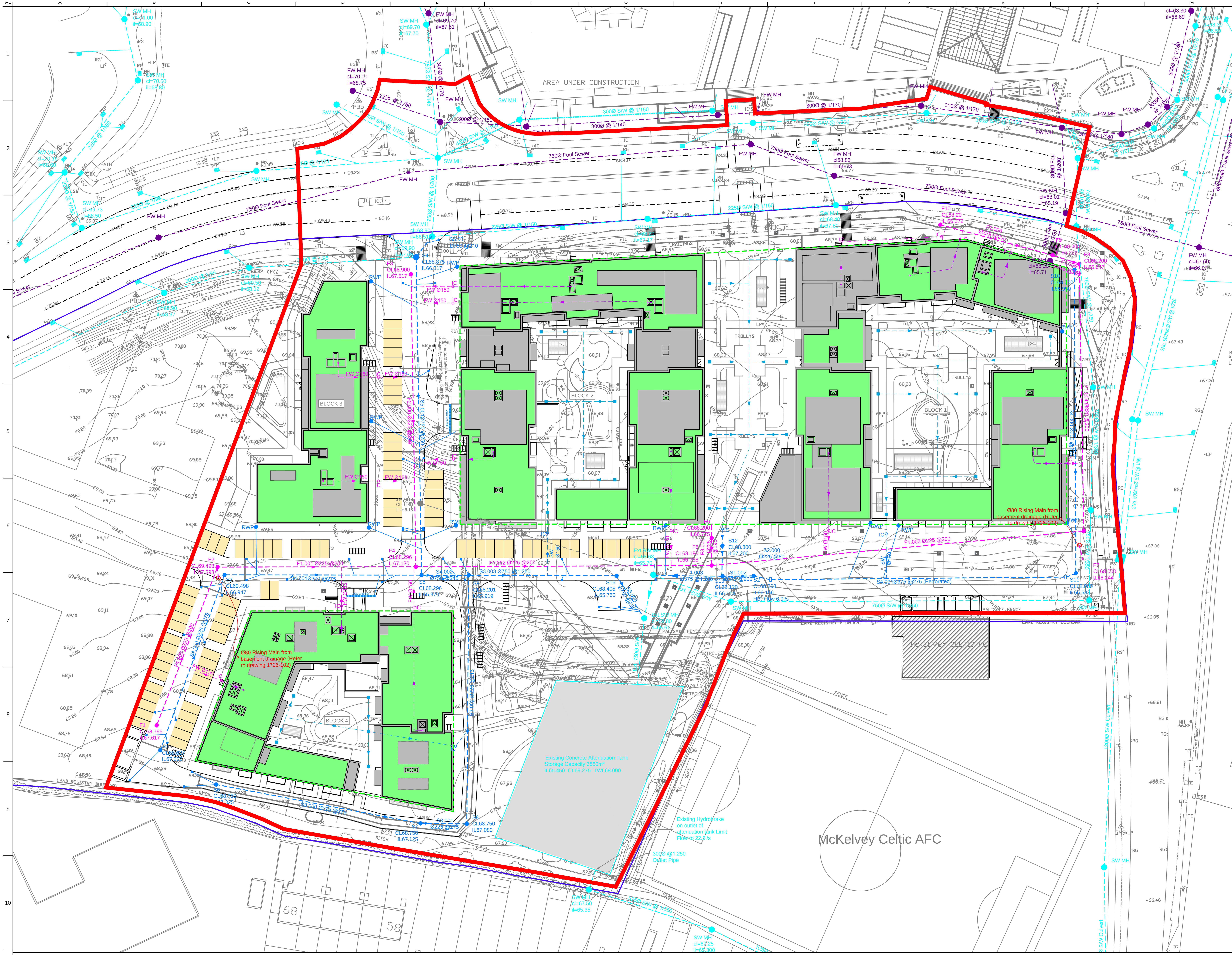
S:\01 PROJECTS\2017\1726 Charlestown (Southern lands-carpark site)\01 DRAWINGS\03 POGA Site Development\02 Planning\1726-100-110 R9.dwg, 13/05/2021 13:24:13



WATERMAIN NOTES

1. These are summary notes, refer to Irish Water Code of Practice and Standard Details for full notes and details. Where discrepancy between these and Irish Water publication are identified, Irish Water publications take precedence. All discrepancies should be reported to POGA.
2. The contractor shall agree the exact make, model and closing direction of sluice valves and hydrants with the Irish Water & the Water Inspector.
3. All boxes shall be as per Irish Water Code of Practice, Connection and Service Developer Services, Water Infrastructure latest standard details.
4. Watermains shall be tested in conjunction with the Irish Water , section 4.10 (Testing and Commissioning) to a minimum pressure of 10 Bars(150psi). The time taken (t) to pressure the watermain loop should be measured on site and the subsequent test held for a minimum duration of 22t. The water pressure should not be topped up during the test. The pressure readings should be recorded at 1 minute intervals and submitted to project engineer for evaluation prior to backfilling.
5. Anchor blocks of grade C20/25 Type F concrete shall be provided on watermains at dead ends, tees, bends of greater curvature than 11.25° and at both sides of sluice valve chambers.
6. All pipework shall be thoroughly flushed out, sterilised with chlorine and then scoured and flushed out again in conjunction with Irish Water Code of Practice, section 4.10.5 and 4.13.
7. Hydrant covers shall be painted canary yellow (BS 381C) and be in paved non-vehicular areas. Hydrant never to be placed in parking bays.
8. Where Watermains terminating in a loop, provide connection to a minimum of four properties and a hydrant. See section 3.5.14 of Irish Water Code of Practice.
9. Provide an offline hydrant downstream of the proposed bulk meter locations. See section 3.15.4 of Irish Water Code of Practice and STD-W-27 of Water Infrastructure Standard Details.
10. Distribution Watermains shall be laid in public areas and be kept a minimum distance from existing structures and trees and shrubs. Distance to be specified in Irish Water Code of Practice, Connection and Service Developer Services, Water Infrastructure standard detail, STD-W11 & STD-W-12 respectively.
11. Where water main is required to be laid in roadway, please ensure that this is located a away from the kerb line, refer to 3.5.8-3.5.13 of the Irish Water Code of Practice. Watermain 150mm diameter and smaller shall be located a minimum of 3m for a structure and 1m from a boundary Wall.
12. Air valves shall be provided at all summits on pipelines of 110mm(ID) Ø or greater.
13. Pipes should be jointed strictly in accordance with manufacturer's requirements.
14. All pipes blue in colour, be HDPE or MDPE for 25mm to 80mm diameters & HDPE or Ductile Iron for minimum 100mm to 300mm inside diameters, or HPPE or Ductile Iron for a minimum 350 to 600mm internal diameters. An example is, 150 internal diameter watermain pipe should be; 180mm outside diameter, SDR-17 and PE-100, this give an internal dia (from Wavinsupasure range) of 158mm. The 100mm internal diameter should be 125mmOD, SDR-17 and PE-100, this gives and internal dia of 109.5mm.
15. HPPE and HDPE pipes to be be:
    - 15.1. Type PE-100
    - 15.2. SDR-17 rating
    - 15.3. Compliance with to IS EN 12201: Part 1 and Part 2 (Plastic Systems for Water Supply, Drainage and Sewerage Under Pressure - Part 1, General, and Part 2, Pipes)
    - 15.4. Compliance with I.S. EN 12201-3 (Plastic Systems for Water Supply, Drainage and Sewerage Under Pressure - Part 3: Fittings).
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    - 16.3. 4-32-19 - Specification for polyethylene pressure pipeline systems with an aluminium barrier layer for potable water supply in contaminated land
    - 16.4. IGN 4-01-03 - Pressure Testing of Pressure Pipes and Fittings for use by Public Water Supplies
    - 16.5. For pipes greater than 600mm refer to Engineer for approval.
17. All Watermain pipes to have minimum 10 bar working pressure rating.
18. Cover to Watermains in roadways as per Irish Water Code of Practice latest , Connection and Service Developer Services, Water Infrastructure standard details.
19. All changes in both vertical and horizontal alignment greater than 4° to be supported by a concrete anchor block.
20. Air valve locations to be accurately set out at summit points on site.
21. All watermains to be backfilled as per as per Irish Water Code of Practice latest, Connection and Service Developer Services, Water Infrastructure standard details, STD-W-13.
22. Service pipes to be a minimum of 20mm(ID) and shall not exceed 15m in length.
23. Depth of finished ground to the outlet of the Hydrant not to be greater than 350mm.
24. Boundary Box to be provided on all connection and should be located in pedestrian areas on the public side of the boundary, locations and type to be in constructed in accordance with standard detail STD-W-03.
25. All materials and details to comply with Irish Water Code of Practice latest, Connection and Service Developer Services, Water Infrastructure standard details.

MARKERS:

1. When a suitable wall is available the sign shall be fixed to it, at a location to be agreed with the Architect.
2. Indicator posts shall be constructed with 10mm grade C30/35 concrete, reinforced with 6mmØ galvanised bars.
3. Hydrant Indicator plates shall be canary yellow (BS 381 C) with black lettering to BS 3251.
4. Plates shall be bolted to posts/walls with non-corrosive metal bolts, which shall be compatible with the plate metal.

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STD-W-06	General pipe connections (sheet 3 of 7)	2
STD-W-07	General pipe connections (sheet 4 of 7)	1
STD-W-08	General pipe connections (sheet 5 of 7)	1
STD-W-09	General pipe connections (sheet 6 of 7)	1
STD-W-10	General pipe connections (sheet 7 of 7)	1
STD-W-11	Typical service layout indicating separation distances	1
STD-W-12	Restrictions on water infrastructure works adjacent to exisitng tress	2
STD-W-12A	Restrictions on new trees / shrubs planting adjacent to Watermains	0
STD-W-13	Trench backfill & bedding	1
STD-W-14	Sluice valve for ductile iron (D.I.) pipe (<350mm dia.) (sheet 1 of 2)	3
STD-W-15	Sluice valve for polyethylene (P.E.) pipe (<350mm dia.) (sheet 2 of 2)	2
STD-W-16	On-line hydrant for ductile iron (D.I.) pipe (sheet 1 of 4)	2
STD-W-17	Off-line hydrant for ductile iron (D.I.) pipe (sheet 2 of 4)	3
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STD-W-21	Off-line air valve for ductile iron (D.I.) pipe (sheet 2 of 4)	3
STD-W-22	On-line air valve for polyethylene (P.E.) pipe (sheet 3 of 4)	2
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STD-W-25	Booster pump station arrangement	1
STD-W-26	Non Mech. Meter chamber (40-250mm Dia.)	3
STD-W-26A	Meter chamber (≤300mm dia.)	0
STD-W-27	Marker posts / plates	2
STD-W-28	Water main thrust & support blocks	1
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STD-W-30	Scour chamber & head wall arrangements	3
STD-W-30A	Washout hydrant	2
STD-W-31	Typical ditch / stream crossing for water main	1
STD-W-32	Typical bridge crossing for water main (sheet 1 of 2)	1
STD-W-33	Typical bridge crossing for water main (sheet 2 of 2)	1
STD-W-34	Security gate & fencing	2
STD-W-35	Pipe repair to existing mains	2
STD-W-36	Telemetry and wet kiosk	2
STD-W-37	Lamp bollard & lamp standard	1

DRAINAGE LEGEND

- SITE BOUNDARY
- Proposed SW Sewer — PROPOSED SURFACE WATER SEWER
- Existing SW Sewer — EXISTING SURFACE WATER SEWER
- Proposed FW Sewer — PROPOSED FOUL WATER SEWER WITH INSPECTION CHAMBER IN ACCORDANCE WITH STANDARD DETAIL STD-WW-03
- Existing FW Sewer — EXISTING FOUL WATER SEWER
- PROPOSED FOUL RISING MAIN
- IC — PROPOSED Ø150mm FOUL SLUNG DRAINAGE
- IC — PROPOSED Ø150mm SURFACE WATER SLUNG DRAINAGE WITH DOUBLE LEVEL GULLY SYSTEM
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P2	05/02/21	REVISED AS PER IW COMMENTS	AL
P1	01/02/21	REVISED AS PER IW COMMENTS	AL

Project Title
SHD AT CHARLESTOWN PLACE AND ST MARGARET'S ROAD

Architect
MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	1:500

Drawing Title
SLUNG DRAINAGE LAYOUT UNDER PODIUM LEVEL

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	103	P4

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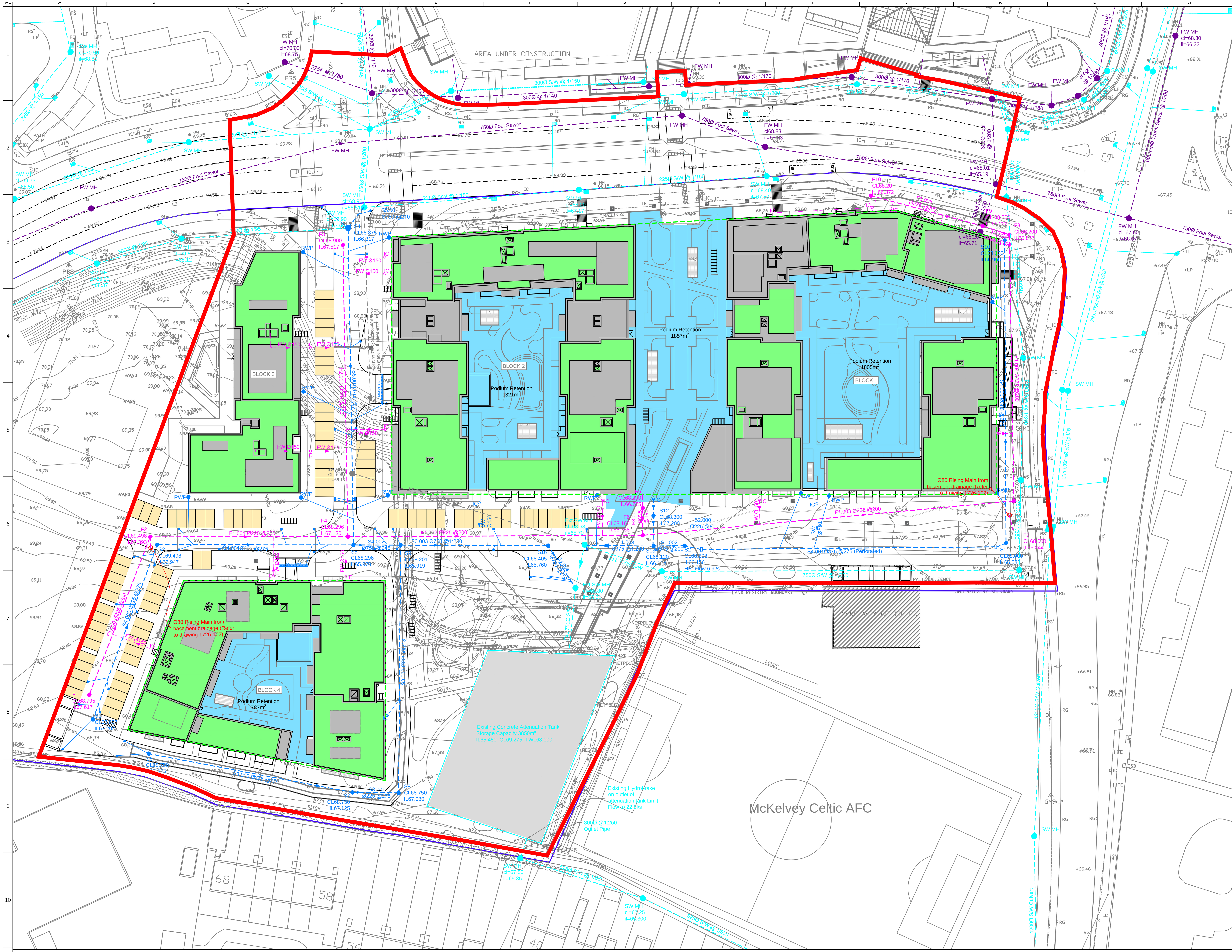

WATERMAIN NOTES

1. These are summary notes, refer to Irish Water Code of Practice and Standard Details for full notes and details. Where discrepancy between these and Irish Water publication are identified, Irish Water publications take precedence. All discrepancies should be reported to POGA.
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3. All boxes shall be as per Irish Water Code of Practice, Connection and Service Developer Services, Water Infrastructure latest standard details.
4. Watermains shall be tested in conjunction with the Irish Water , section 4.10 (Testing and Commissioning) to a minimum pressure of 10 Bars(150psi). The time taken (t) to pressure the watermain loop should be measured on site and the subsequent test held for a minimum duration of 22t. The water pressure should not be topped up during the test. The pressure readings should be recorded at 1 minute intervals and submitted to project engineer for evaluation prior to backfilling.
5. Anchor blocks of grade C20/25 Type F concrete shall be provided on watermains at dead ends, tees, bends of greater curvature than 11.25° and at both sides of sluice valve chambers.
6. All pipework shall be thoroughly flushed out, sterilised with chlorine and then scoured and flushed out again in conjunction with Irish Water Code of Practice, section 4.10.5 and 4.13.
7. Hydrant covers shall be painted canary yellow (BS 381C) and be in paved non-vehicular areas. Hydrant never to be placed in parking bays.
8. Where Watermains terminating in a loop, provide connection to a minimum of four properties and a hydrant. See section 3.5.14 of Irish Water Code of Practice.
9. Provide an offline hydrant downstream of the proposed bulk meter locations. See section 3.15.4 of Irish Water Code of Practice and STD-W-27 of Water Infrastructure Standard Details.
10. Distribution Watermains shall be laid in public areas and be kept a minimum distance from existing structures and trees and shrubs. Distance to be specified in Irish Water Code of Practice, Connection and Service Developer Services, Water Infrastructure standard detail, STD-W11 & STD-W-12 respectively.
11. Where water main is required to be laid in roadway, please ensure that this is located a away from the kerb line, refer to 3.5.8-3.5.13 of the Irish Water Code of Practice. Watermain 150mm diameter and smaller shall be located a minimum of 3m for a structure and 1m from a boundary Wall.
12. Air valves shall be provided at all summits on pipelines of 110mm(ID) Ø or greater.
13. Pipes should be jointed strictly in accordance with manufacturer's requirements.
14. All pipes blue in colour, be HDPE or MDPE for 25mm to 80mm diameters & HDPE or Ductile Iron for minimum 100mm to 300mm inside diameters, or HPPE or Ductile Iron for a minimum 350 to 600mm internal diameters. An example is, 150 internal diameter watermain pipe should be; 180mm outside diameter, SDR-17 and PE-100, this give an internal dia (from Wavinsupasure range) of 158mm. The 100mm internal diameter should be 125mmOD, SDR-17 and PE-100, this gives and internal dia of 109.5mm.
15. HPPE and HDPE pipes to be be:
   15.1. Type PE-100
   15.2. SDR-17 rating
   15.3. Compliance with to IS EN 12201: Part 1 and Part 2 (Plastic Systems for Water Supply, Drainage and Sewerage Under Pressure - Part 1, General, and Part 2, Pipes)
   15.4. Compliance with I.S. EN 12201-3 (Plastic Systems for Water Supply, Drainage and Sewerage Under Pressure - Part 3: Fittings).
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19. All changes in both vertical and horizontal alignment greater than 4° to be supported by a concrete anchor block.
20. Air valve locations to be accurately set out at summit points on site.
21. All watermains to be backfilled as per as per Irish Water Code of Practice latest, Connection and Service Developer Services, Water Infrastructure standard details, STD-W-13.
22. Service pipes to be a minimum of 20mm(ID) and shall not exceed 15m in length.
23. Depth of finished ground to the outlet of the Hydrant not to be greater than 350mm.
24. Boundary Box to be provided on all connection and should be located in pedestrian areas on the public side of the boundary, locations and type to be in constructed in accordance with standard detail STD-W-03.
25. All materials and details to comply with Irish Water Code of Practice latest, Connection and Service Developer Services, Water Infrastructure standard details.

MARKERS:

1. When a suitable wall is available the sign shall be fixed to it, at a location to be agreed with the Architect.
2. Indicator posts shall be constructed with 10mm grade C30/35 concrete, reinforced with 6mmØ galvanised bars.
3. Hydrant Indicator plates shall be canary yellow (BS 381 C) with black lettering to BS 3251.
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Project Title
SHD AT CHARLESTOWN PLACE AND ST MARGARET'S ROAD

Architect
MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	1:500

Drawing Title
DRAINAGE LAYOUT

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	104	P4

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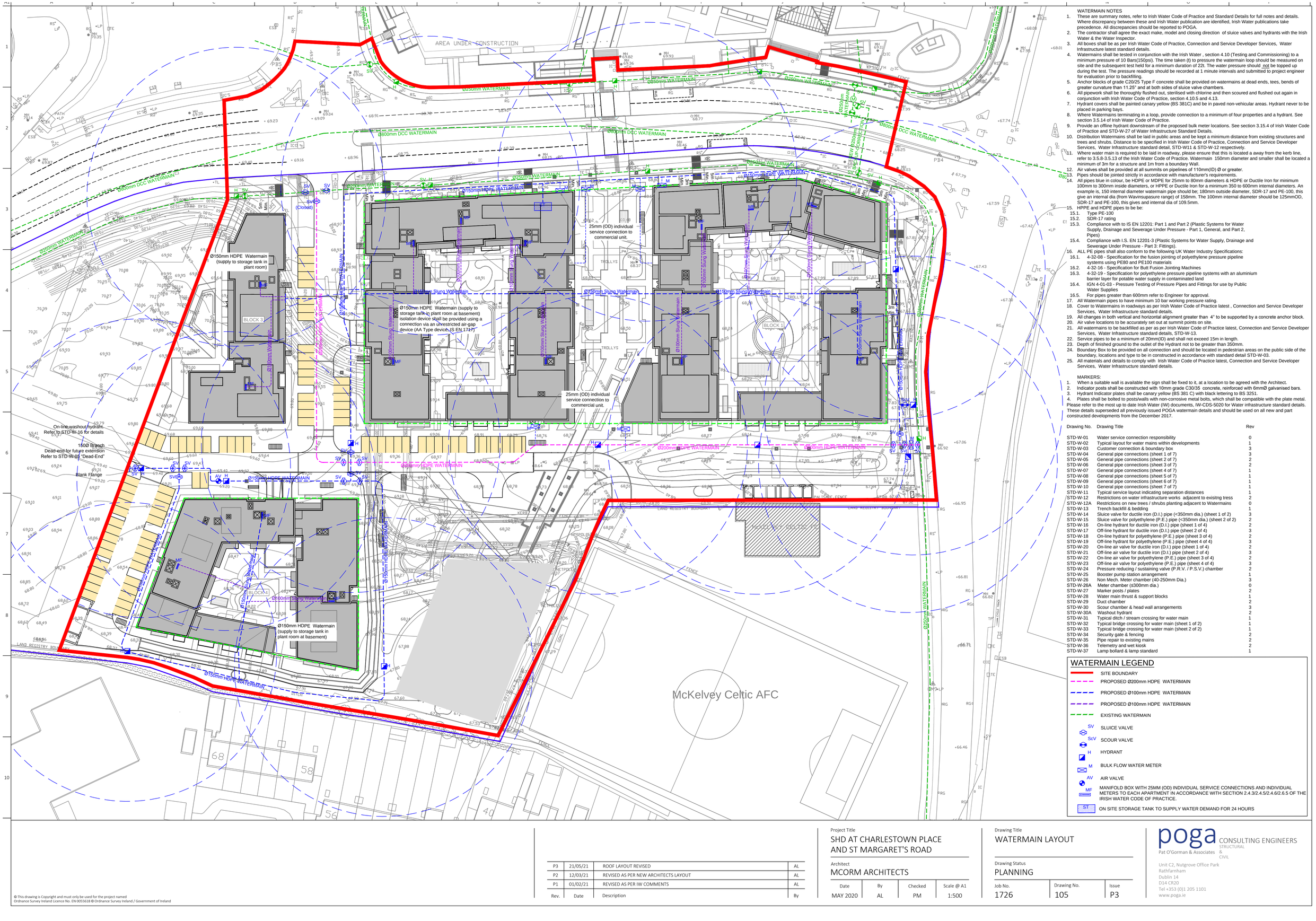

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WATERMAIN LEGEND

- SITE BOUNDARY
- PROPOSED Ø200mm HDPE WATERMAIN
- PROPOSED Ø100mm HDPE WATERMAIN
- PROPOSED Ø100mm HDPE WATERMAIN
- EXISTING WATERMAIN
- SV — SLUICE VALVE
- ScV — SCOUR VALVE
- H — HYDRANT
- M — BULK FLOW WATER METER
- AV — AIR VALVE
- MF — MANIFOLD BOX WITH 25MM (OD) INDIVIDUAL SERVICE CONNECTIONS AND INDIVIDUAL METERS TO EACH APARTMENT IN ACCORDANCE WITH SECTION 2.4.3/2.4.5/2.4.6/2.6.5 OF THE IRISH WATER CODE OF PRACTICE.
- ST — ON SITE STORAGE TANK TO SUPPLY WATER DEMAND FOR 24 HOURS

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SHD AT CHARLESTOWN PLACE AND ST MARGARET'S ROAD

Architect
MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	1:500

Drawing Title
WATERMAIN LAYOUT

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	105	P3

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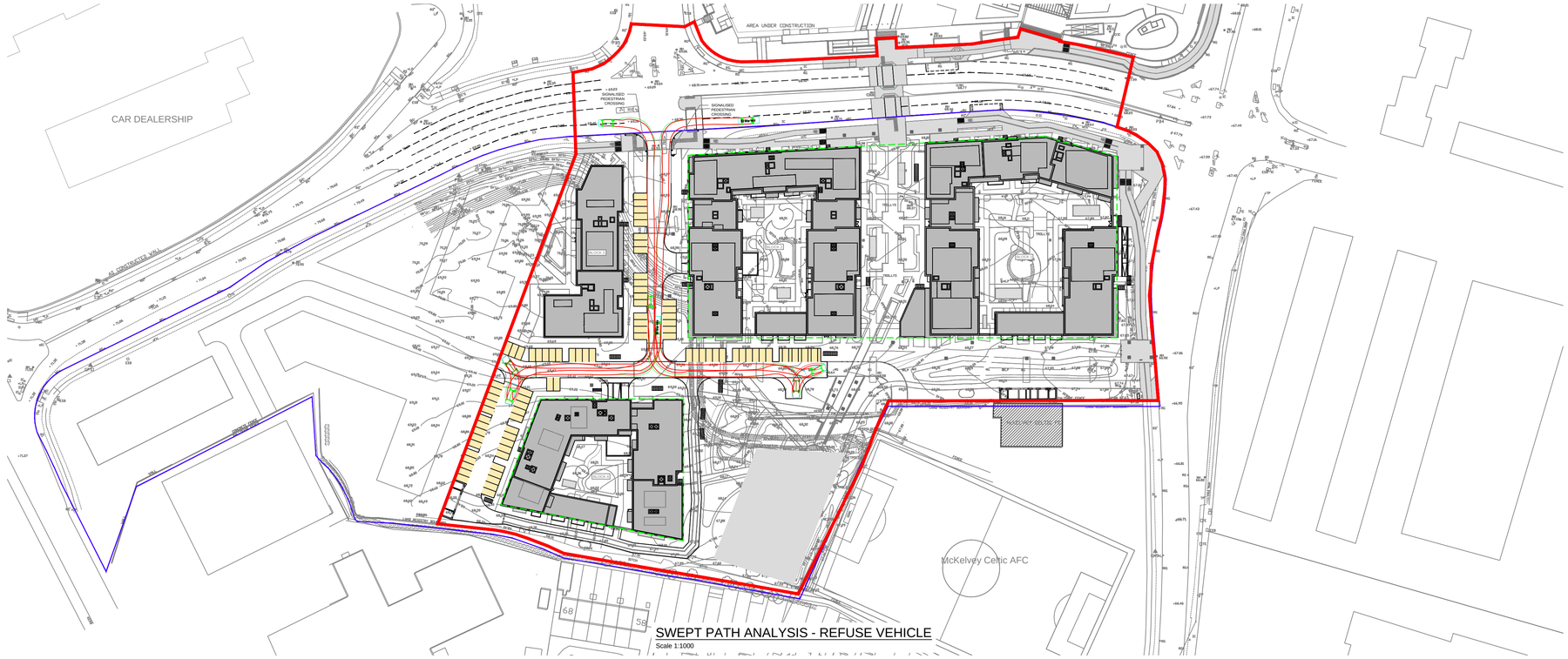
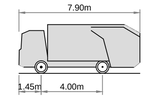


SWEPT PATH ANALYSIS - REFUSE VEHICLE

Scale 1:1000

NOTE:

DB32 Refuse Vehicle used for analysis as a worse case scenario turning circle of 9.625m compared to Fire Tender with a lesser turning circle of 7.910m

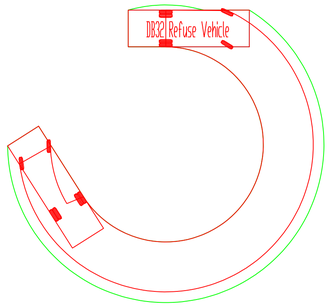


DB32 REFUSE VEHICLE

Overall Length	7.900m
Overall Width	2.400m
Overall Body Height	3.183m
Min Body Ground Clearance	0.388m
Max Track Width	2.400m
Curb to Curb Turning Radius	9.625m

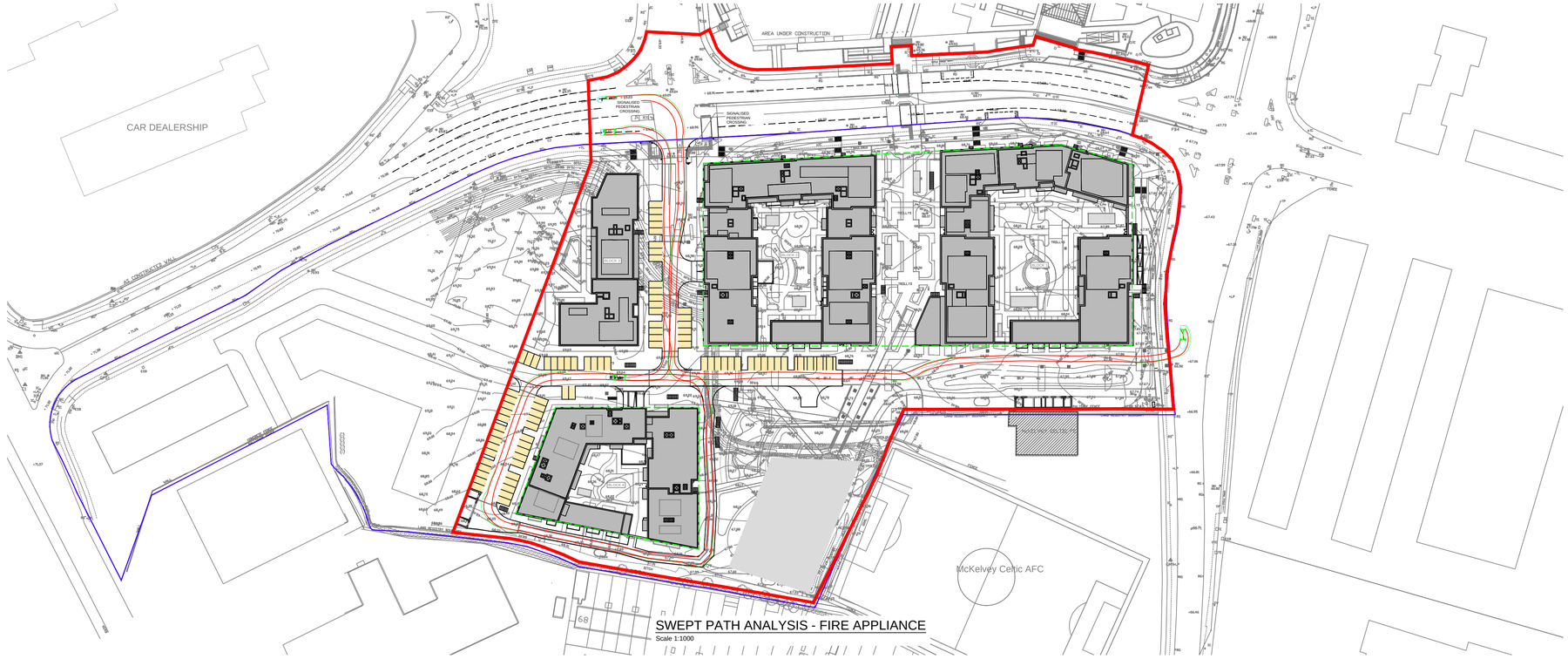
VEHICLE DATA

Scale 1:200



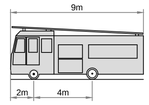
VEHICLE TURNING CIRCLE COMPARISON

Scale 1:200



SWEPT PATH ANALYSIS - FIRE APPLIANCE

Scale 1:1000

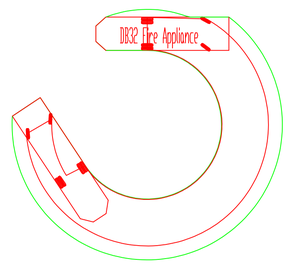


DB32 FIRE APPLIANCE

Overall Length	8.680m
Overall Width	2.180m
Overall Body Height	3.452m
Min Body Ground Clearance	0.337m
Max Track Width	2.121.m
Curb to Curb Turning Radius	7.910m

Vehicle Data

Scale 1:200



VEHICLE TURNING CIRCLE COMPARISON

Scale 1:200

Rev.	Date	Description	By
P2	21/05/21	ROOF LAYOUT REVISED	AL
P1	12/03/21	REVISED AS PER NEW ARCHITECTS LAYOUT	AL

Project Title

SHD AT CHARLESTOWN PLACE AND ST MARGARET'S ROAD

Architect

MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	1:1000

Drawing Title

SWEPT PATH ANALYSIS REFUSE VEHICLE & FIRE APPLIANCE

Drawing Status

PLANNING

Job No.	Drawing No.	Issue
1726	106	P2

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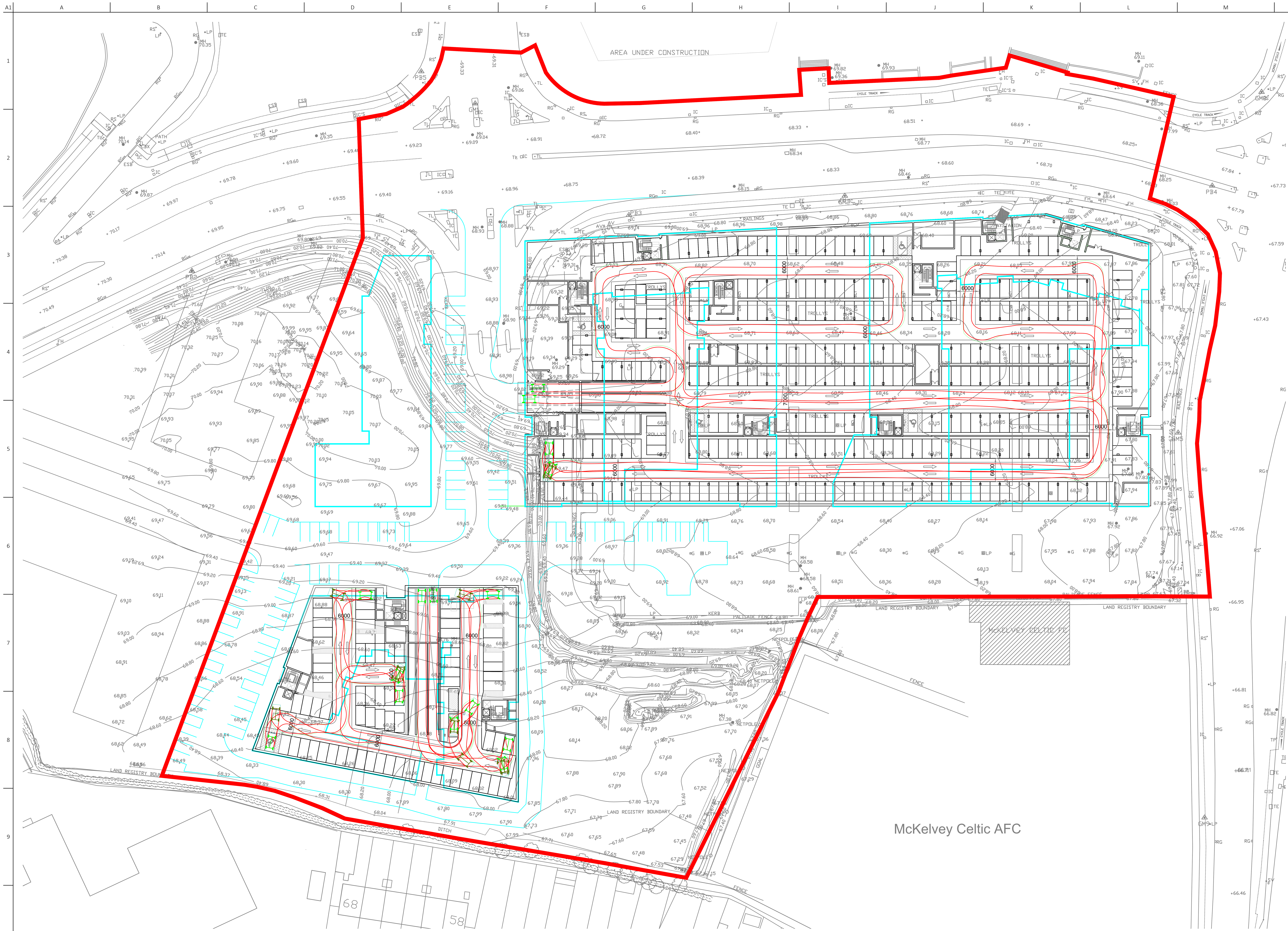

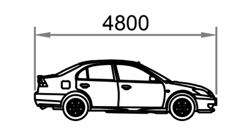

Standard Design Vehicle (SDV)	
Overall Length	4.800m
Overall Width	2.000m
Min Body Height	1.950m
Min Body Ground Clearance	0.100m
Track Width	2.000m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	6.000m

Vehicle Data
Scale 1:200

SWEPT PATH ANALYSIS - FIRE APPLIANCE
Scale 1:1000

Rev.	Date	Description	By
P1	12/03/21	REVISED AS PER NEW ARCHITECTS LAYOUT	AL

Project Title
SHD AT CHARLESTOWN PLACE AND ST MARGARET'S ROAD

Architect
MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	1:1000

Drawing Title
SWEPT PATH ANALYSIS
PRIVATE CAR

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	107	P1

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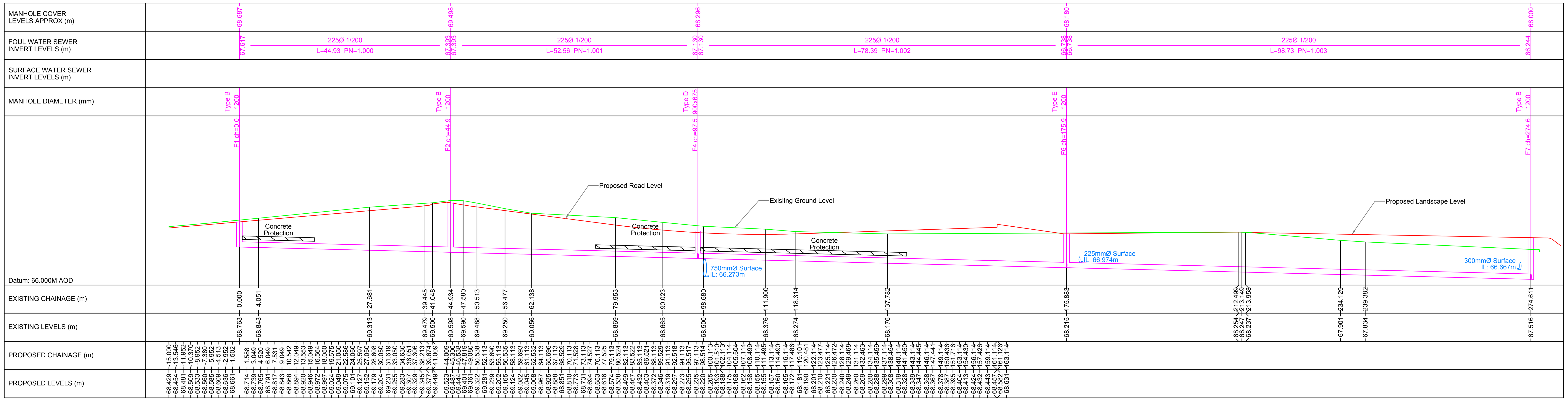
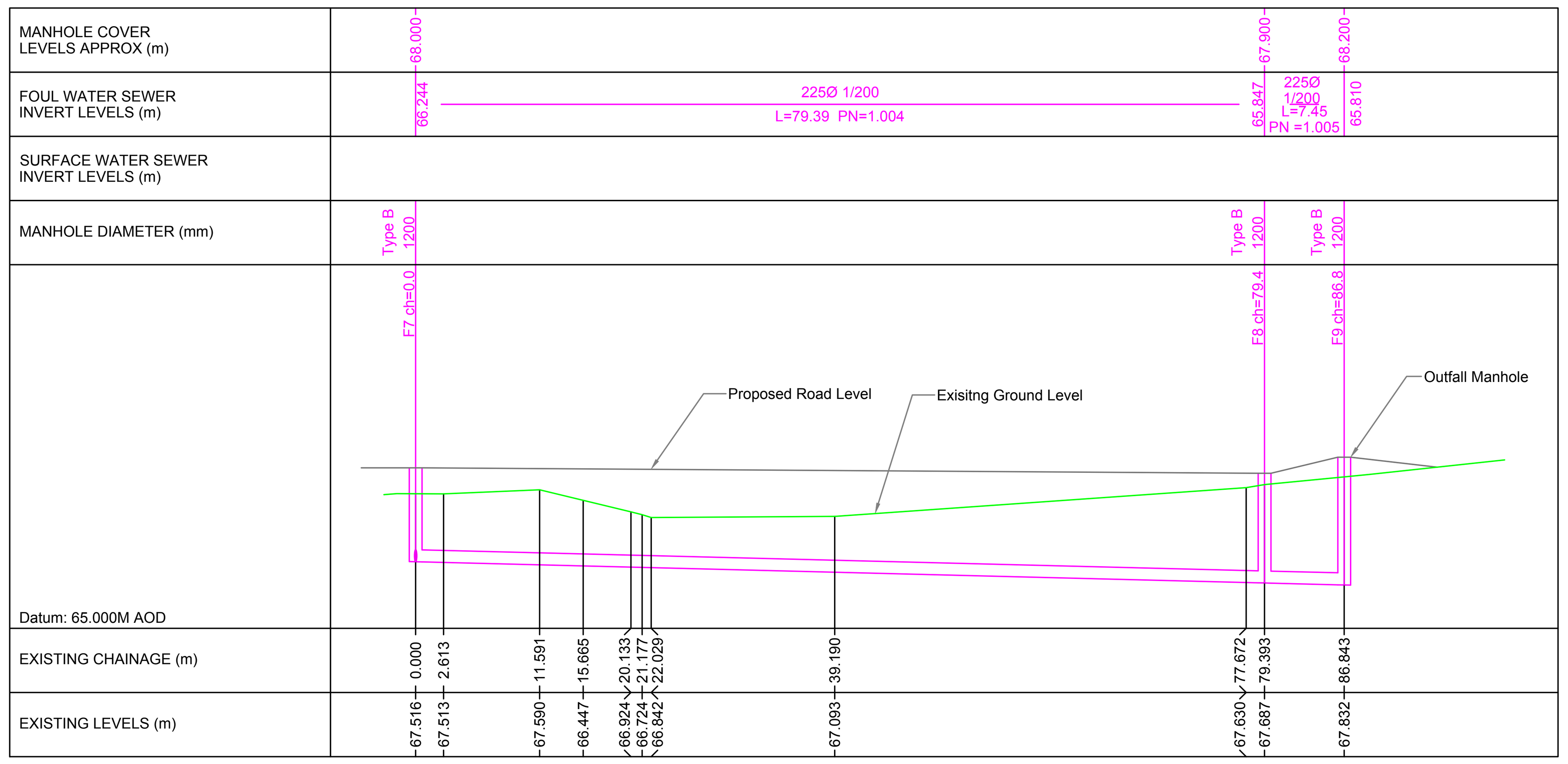
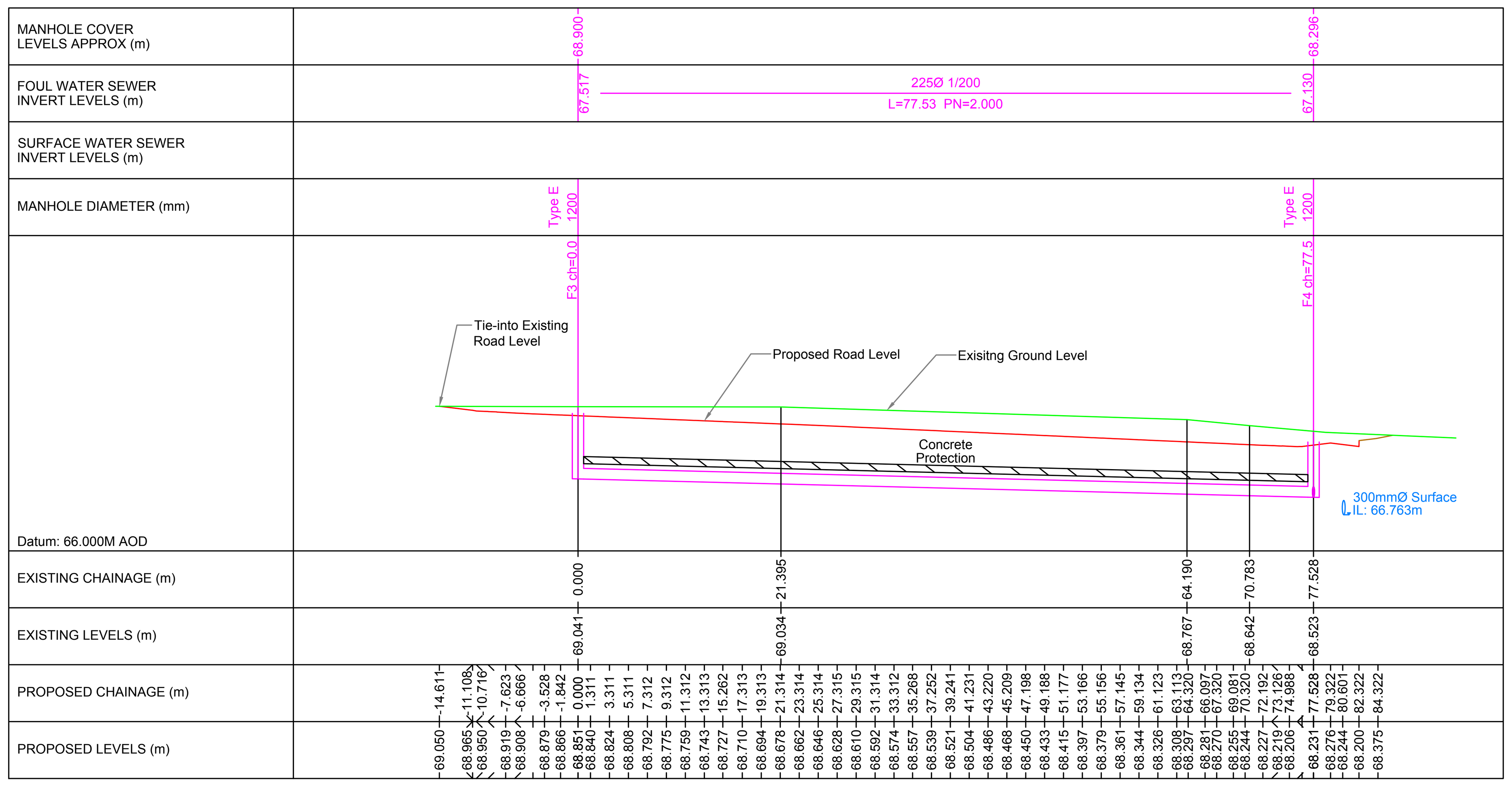


Foul Drainage Section - PN 1.000 - PN 1.003
Scale: 1:500H, 1:100V



Foul Drainage Section - PN 1.004 - PN 1.005
Scale: 1:500H, 1:100V



Foul Drainage Section - PN 2.000
Scale: 1:500H, 1:100V

Rev.	Date	Description	By
P2	12/03/21	REVISED AS PER NEW ARCHITECTS LAYOUT	AL
P1	01/02/21	REVISED AS PER IW COMMENTS	AL

Project Title
SHD AT CHARLESTOWN PLACE AND ST MARGARET'S ROAD

Architect
MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	1:500

Drawing Title
FOUL DRAINAGE LONG SECTIONS

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	108	P2

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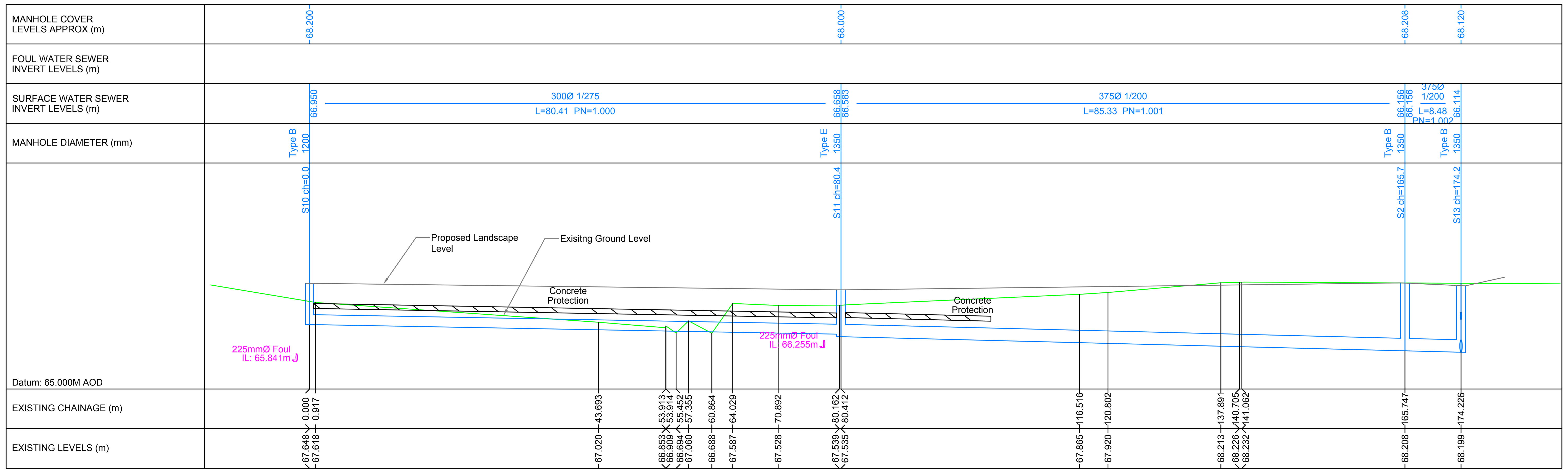
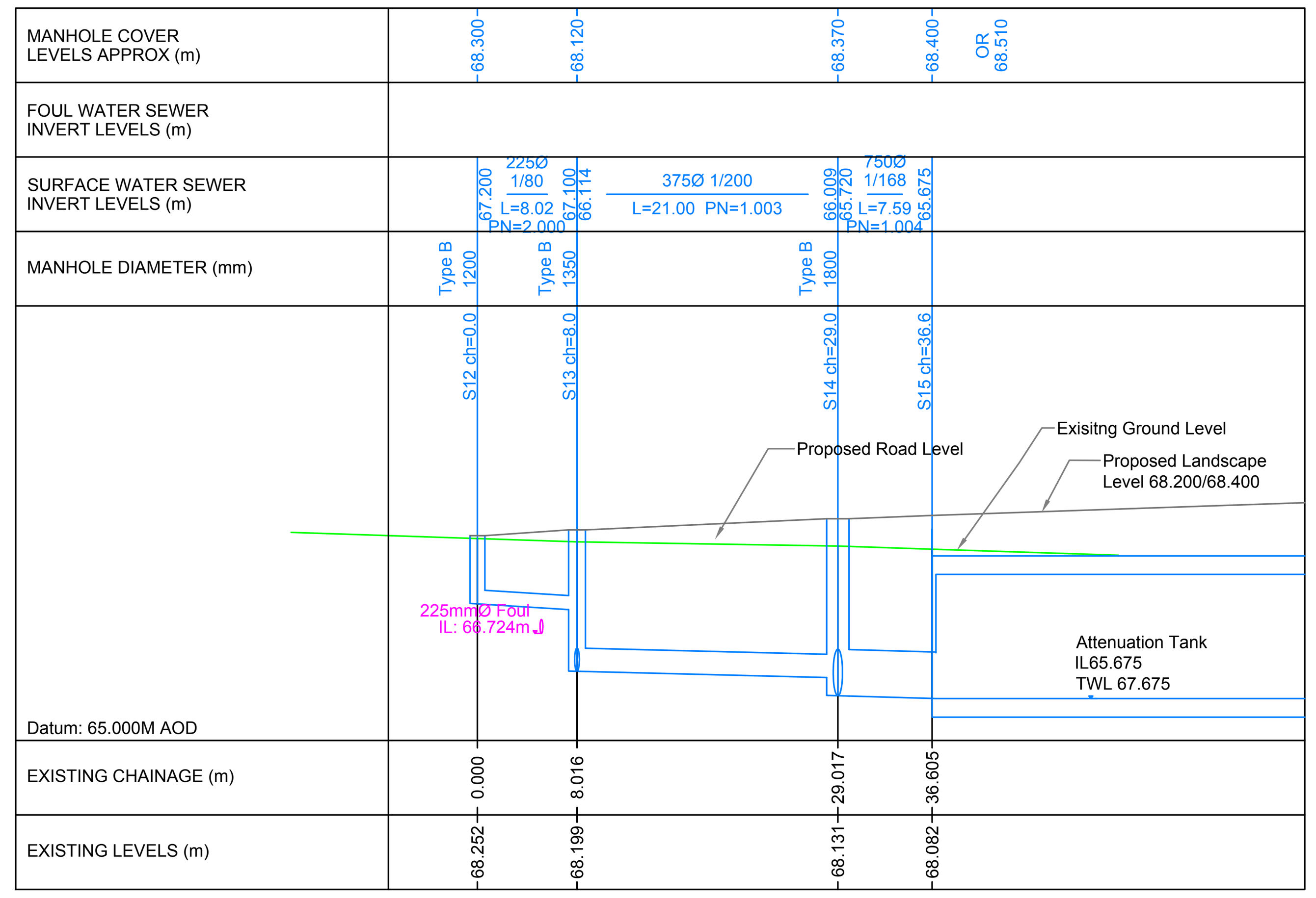


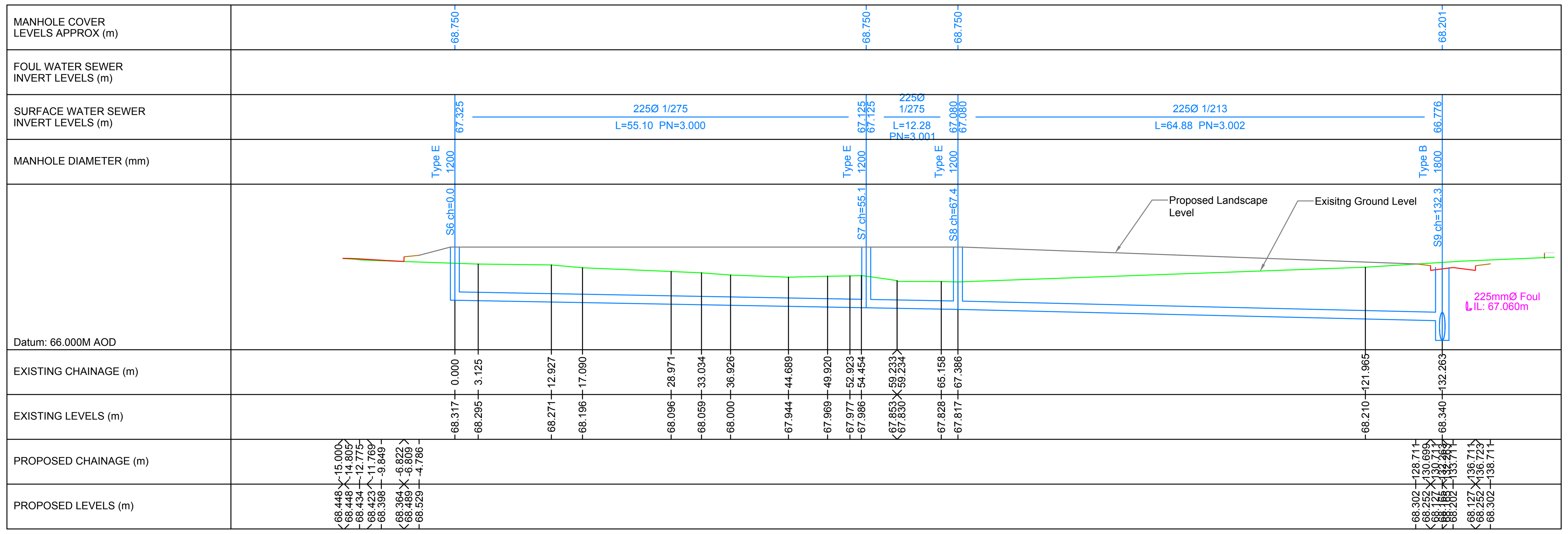
Surface Water Drainage Section - PN 1.000 - PN 1.002

Scale: 1:500H, 1:100V



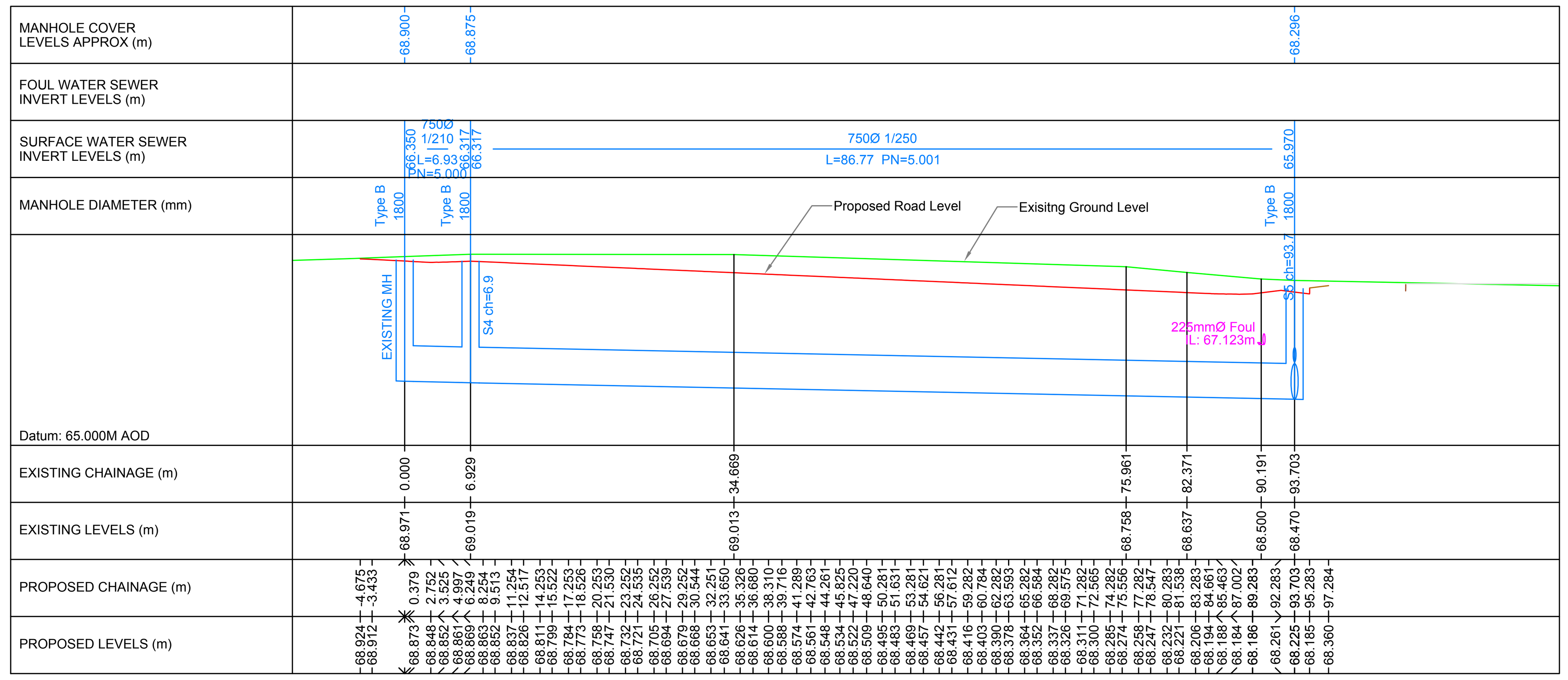
Surface Water Drainage Section - PN 2.000 - PN 1.004

Scale: 1:500H, 1:100V



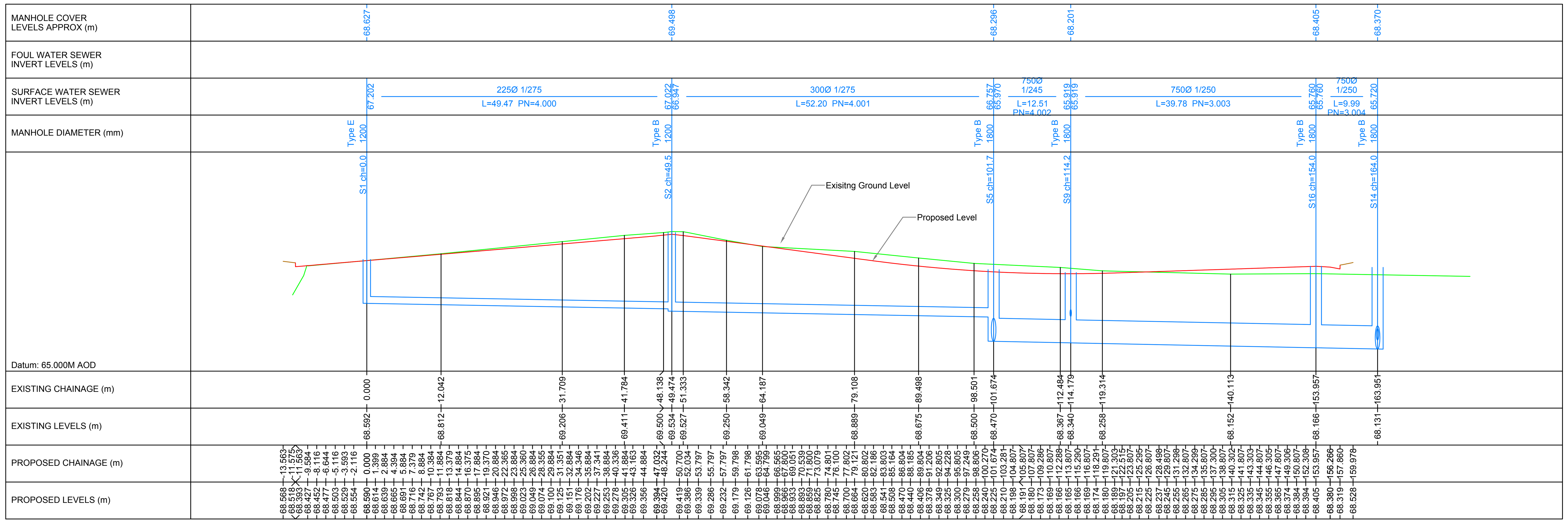
Surface Water Drainage Section - PN 3.000 - PN 3.002

Scale: 1:500H, 1:100V



Surface Water Drainage Section - PN 5.000 -PN 5.001

Scale: 1:500H, 1:100V



Surface Water Drainage Section - PN 4.000 - PN 3.004

Scale: 1:500H, 1:100V

Rev.	Date	Description	By
P1	12/03/21	REVISED AS PER NEW ARCHITECTS LAYOUT	AL
P1	01/02/21	REVISED AS PER IW COMMENTS	AL

Project Title
SHD AT CHARLESTOWN PLACE AND ST MARGARET'S ROAD

Architect
MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	AS SHOWN

Drawing Title
SURFACE WATER DRAINAGE LONG SECTIONS

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	109	P2

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AREA UNDER CONSTRUCTION

BLOCK 3

BLOCK 2

Podium Retention
1321m²

Podium Retention
1857m²

Podium Retention
1805m²

BLOCK 1

BLOCK 4

Podium Retention
787m²

McKelvey Celtic AFC

LAND REGISTRY BOUNDARY

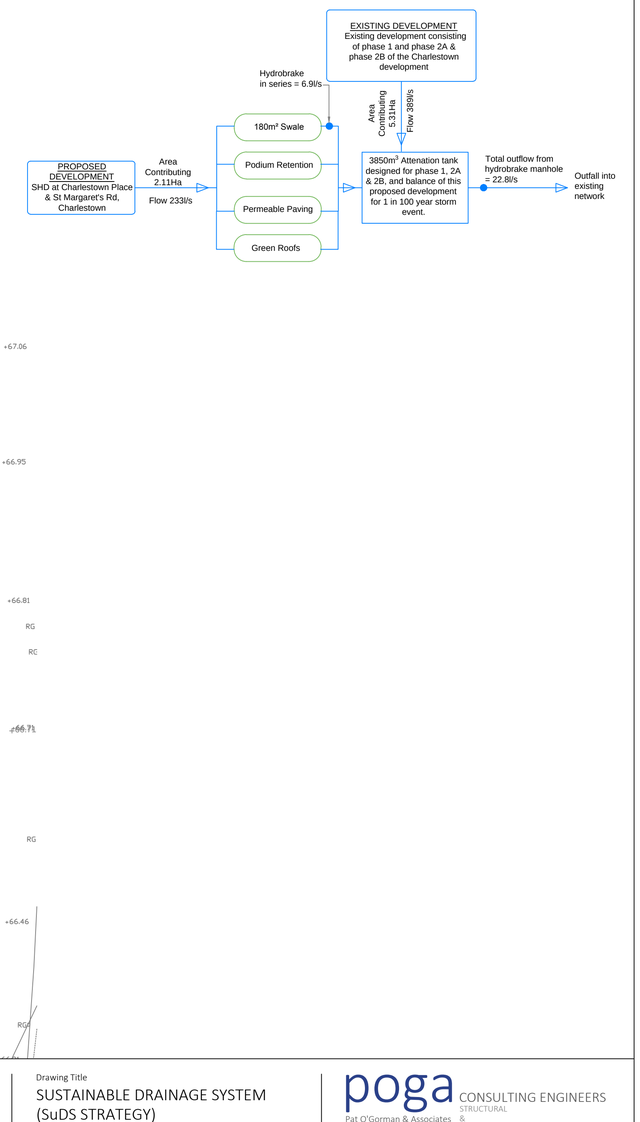
DITCH

FENCE

PAVED AREAS

	SITE BOUNDARY	33482m²
	ROADS AND HARDSTANDING	2274m²
	IMPERMABLE ROOF & PV PANEL	7287m²
	PERMEABLE PAVING	908m²
	GREEN ROOF SYSTEM	2429m²
	PODIUM RETENTION SYSTEM	5770m²
	GREEN AREA	10301m²
	GRASSCRETE / PERMABLE FOOTPATH	2385m²
	PUBLIC FOOTPATH AND CYCLEPATH	1776m²
	PAVED STREET (REFER TO LANDSCAPE DRAWINGS FOR FINISHES)	345m²
	RAISED TABLES	
	SWALES	

NOTE: Green Roofs have been provided on 25% of the total roof area. Balance of the roof area has been reserved for PV Panels for compliance with part L of the building regulations.



Rev.	Date	Description	By
P2	21/05/21	ROOF LAYOUT REVISED	AL
P1	12/03/21	REVISED AS PER NEW ARCHITECTS LAYOUT	AL

Project Title
SHD AT CHARLESTOWN PLACE AND ST MARGARET'S ROAD

Architect
MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	1:500

Drawing Title
SUSTAINABLE DRAINAGE SYSTEM (SuDS STRATEGY)

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	110	P2

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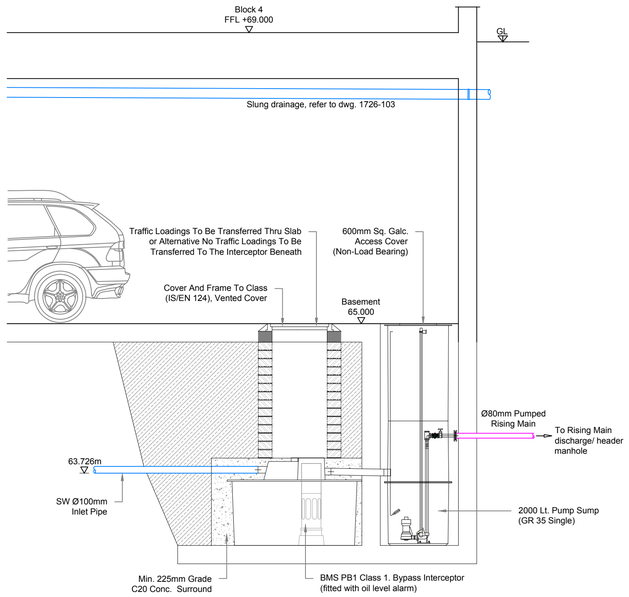
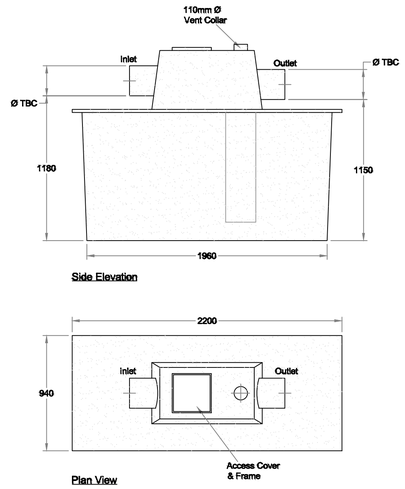


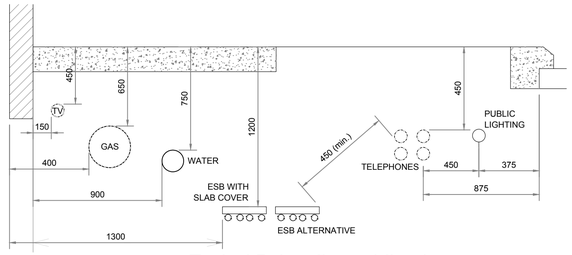
TYPICAL BASEMENT SUMP

Scale 1:50



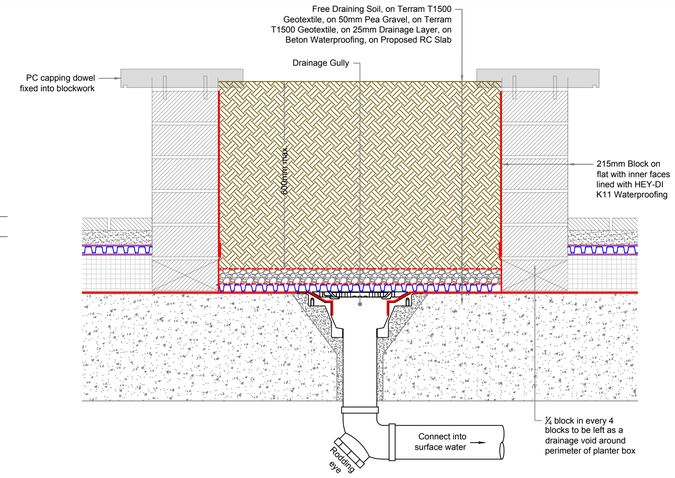
PETROL & OIL INTERCEPTOR BMS PB 1

Scale 1:25



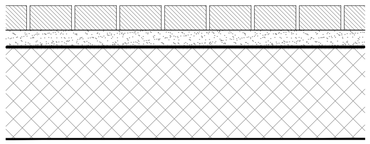
Typical Below Ground Services Layout Requirements

Scale 1:25



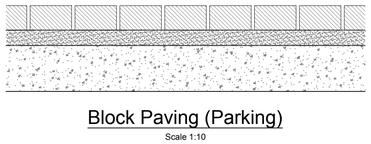
Typical Planter Box detail

Scale 1:10



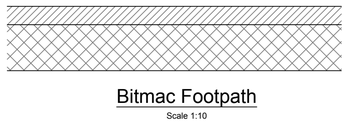
Permeable Paving (Parking)

Scale 1:10



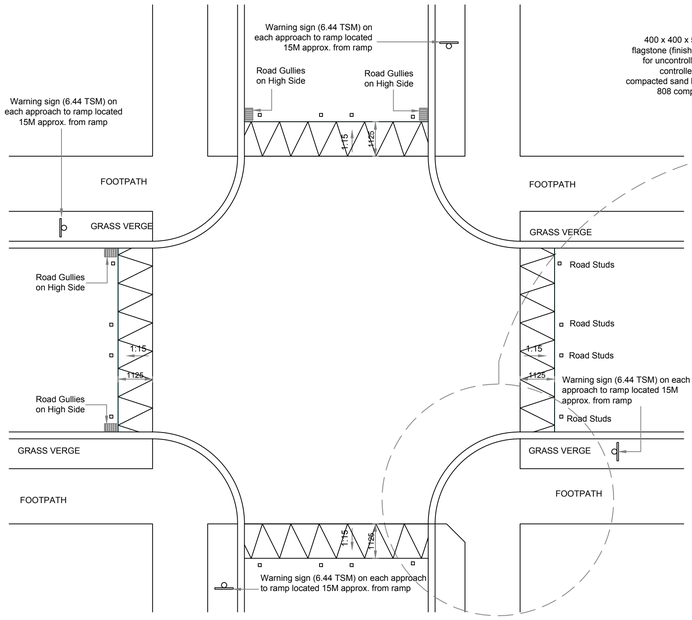
Block Paving (Parking)

Scale 1:10



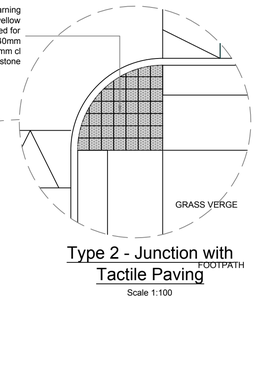
Bitmac Footpath

Scale 1:10



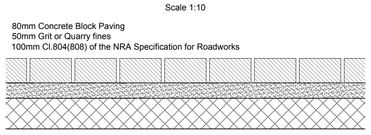
Type 1 - Plan on Raised Table at Junction with Pedestrian Crossing with no Tactile Paving

Scale 1:100



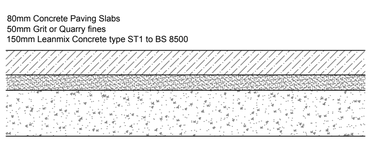
Type 2 - Junction with Tactile Paving

Scale 1:100



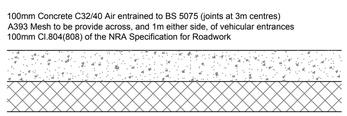
Block Paving (Non Parking)

Scale 1:10



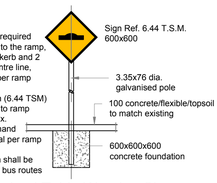
Paving Slab (Parking)

Scale 1:10



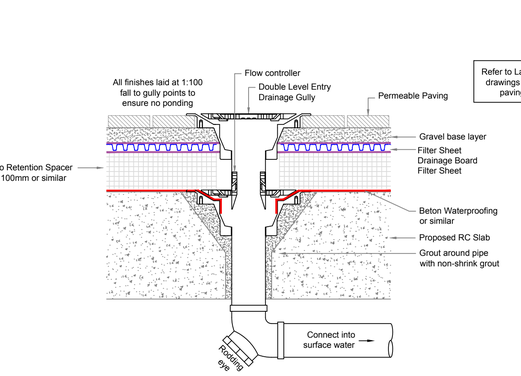
Concrete Footpath

Scale 1:10



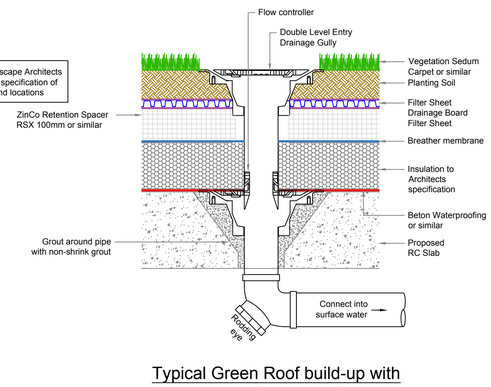
Typical Raised Table Warning Sign

Scale 1:50



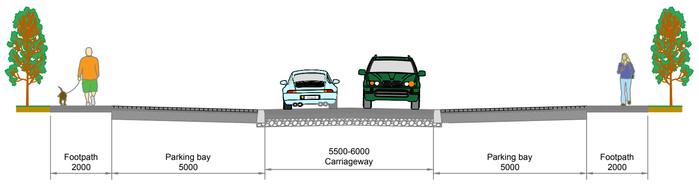
Typical Podium build-up with Stormwater Retention System

Scale 1:10



Typical Green Roof build-up with Stormwater Retention System

Scale 1:10

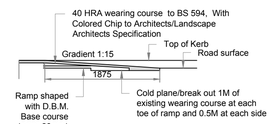


Typical Housing Estate - Road Cross Section

Scale 1:100

FOOTPATH CONSTRUCTION:
100mm Concrete C32/40 Air entrained to BS 5075 (joints at 3m centres)
A393 Mesh to be provide across, and 1m either side, of vehicular entrances
100mm Cl.808 of the NRA Specification for Roadwork

ROAD CONSTRUCTION:
40mm Polymer Modified Stone Mastic Asphalt Surface Course to Cl.942 of the NRA Specification for Road Works.
60mm DBM Binder Course to Cl.942 of the NRA Specification for Road Works
60mm DBM Base Course to Cl.942 of the NRA Specification for Road Works..
150mm (min) crushed stone sub base to be to clause 808 to the NRA Specification for Road Works laid and compacted to clause 802.
250mm (min) stone capping layer based on a CBR value of 5% to be confirmed on completion of CBR tests. Capping layer should be to Class 6F2 to the NRA Specification for Road Works. Capping must be increased for CBR values between 2% and 5% as per the Design table Figure 1. Capping layer of less than 250mm is not recommended irrespective of CBR value for values between 5% and 15%.
6F2 capping layer material shall be compacted with approved mechanical equipment in accordance with clause 612 of the NRA Specification. Generally the layers shall not exceed 150mm thick.



Section A-A

Scale 1:50

Rev.	Date	Description	By

Project Title
SDH AT CHARLESTOWN PLACE AND ST MARGARET'S ROAD

Architect
MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	AS SHOWN

Drawing Title
STANDARD ROADS DETAILS

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	111	P0

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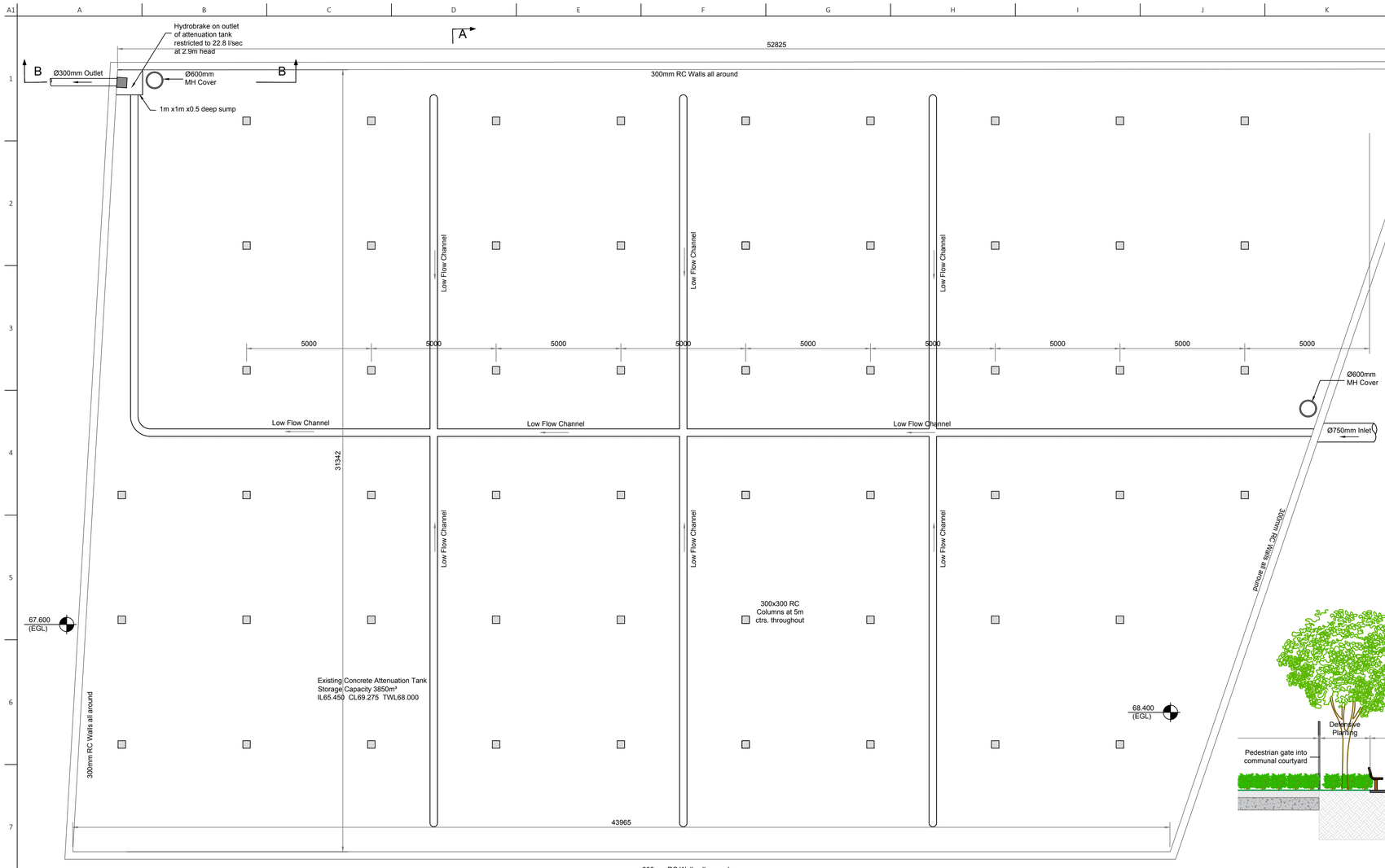
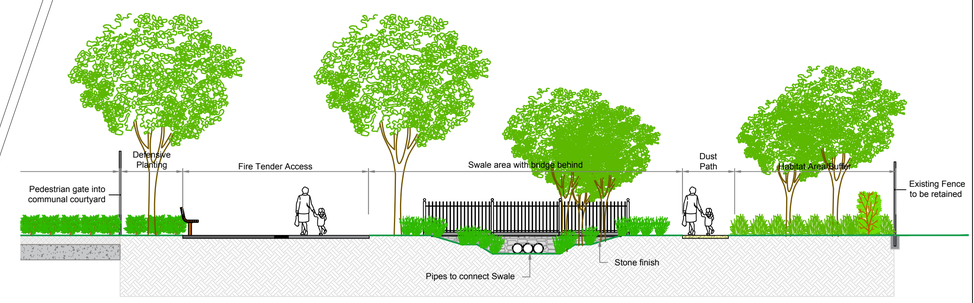


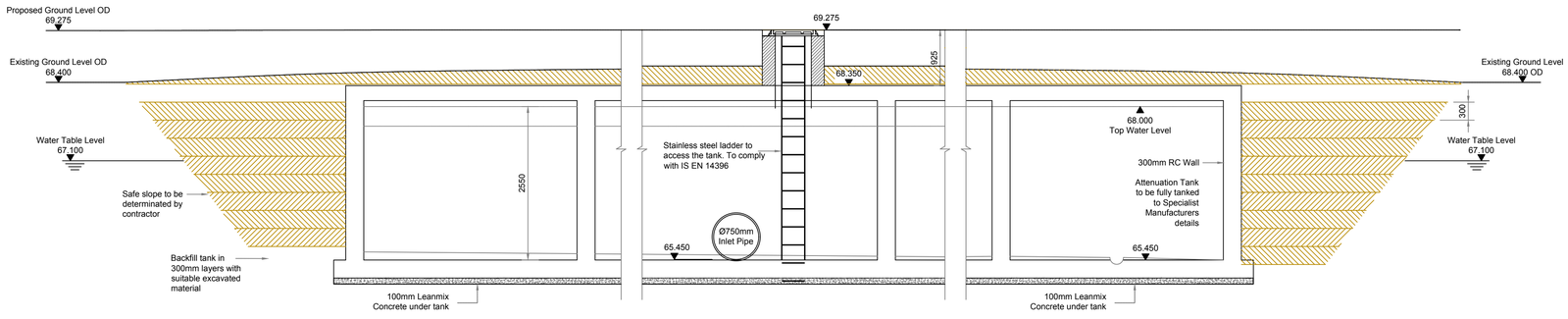
ATTENUATION TANK - PLAN

Scale 1:100



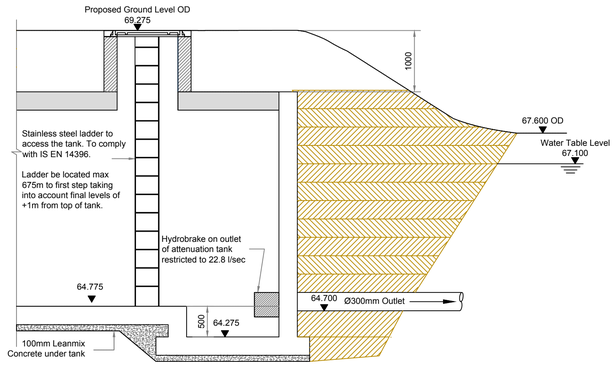
DRAINAGE SWALE SECTION

Scale 1:100



ATTENUATION TANK - SECTION A-A

Scale 1:50



ATTENUATION TANK - SECTION B-B

Scale 1:50

Rev.	Date	Description	By
P1	12/03/21	ATTENUATION TANK DIMENSIONS REVISED	AL

Project Title
SHD AT CHARLESTOWN PLACE AND ST MARGARET'S ROAD

Architect
MCORM ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	AS SHOWN

Drawing Title
ATTENUATION & DRAINAGE DETAILS

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	112	P1

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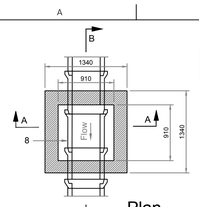
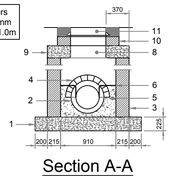


Plan

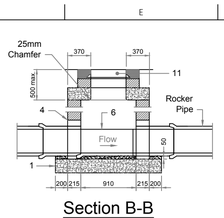
Scale 1:50

Details for pipe diameters
150, 225, 300, 375, 450mm
Depth to invert less than 1.0m



Section A-A

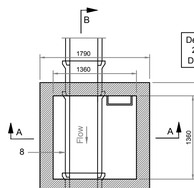
Scale 1:50



Section B-B

Scale 1:50

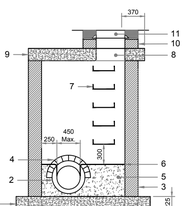
MANHOLE - TYPE A



Plan

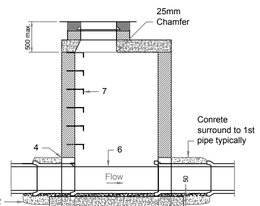
Scale 1:50

Details for pipe diameters
225, 300, 375, 450mm
Depth to invert 1m to 3m



Section A-A

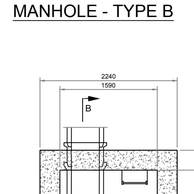
Scale 1:50



Section B-B

Scale 1:50

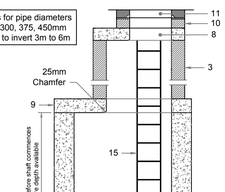
MANHOLE - TYPE B



Plan

Scale 1:50

Details for pipe diameters
225, 300, 375, 450mm
Depth to invert 3m to 6m



Section A-A

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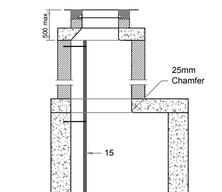
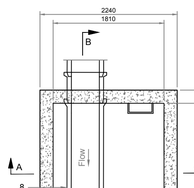


Section B-B

Scale 1:50

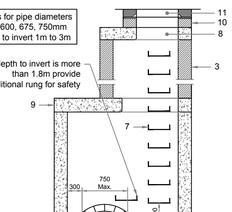
MANHOLE - TYPE C



Plan

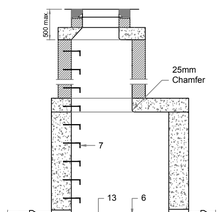
Scale 1:50

Details for pipe diameters
525, 600, 675, 750mm
Depth to invert 1m to 3m



Section A-A

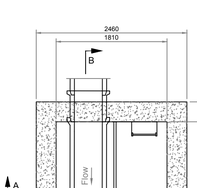
Scale 1:50



Section B-B

Scale 1:50

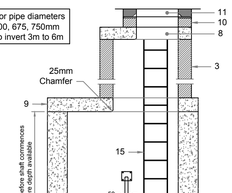
MANHOLE - TYPE D



Plan

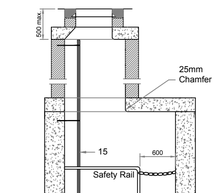
Scale 1:50

Details for pipe diameters
525, 600, 675, 750mm
Depth to invert 3m to 6m



Section A-A

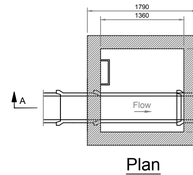
Scale 1:50



Section B-B

Scale 1:50

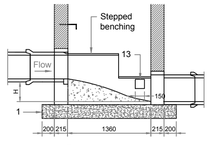
MANHOLE - TYPE E



Plan

Scale 1:50

Ramp manhole for
pipe diameters
150, 225, 300, 375mm
Drop less than 750mm



Section A-A

Scale 1:50

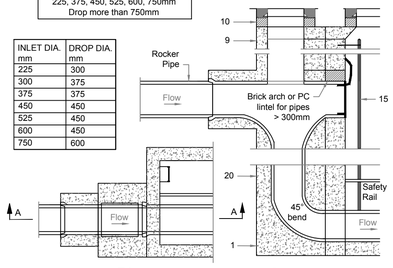
Where Drop 'H'
is greater than the
max. value shown,
use Back-Drop Manhole

Inlet Dia. mm	H(max) mm
225	600
300	600
375	750
450	750
525	750
600	750
750	600

MANHOLE - TYPE F (Ramp)

Backdrop manhole for pipe diameters
225, 375, 450, 525, 600, 750mm
Drop more than 750mm

INLET DIA. mm	DROP DIA. mm
225	300
300	375
375	375
450	450
525	450
600	450
750	600



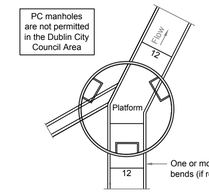
Plan

Scale 1:50

Section B-B

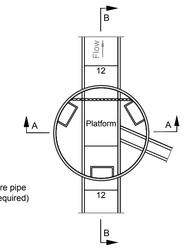
Scale 1:50

MANHOLE - TYPE G (Backdrop)



Plan on Curved Invert

Scale 1:50

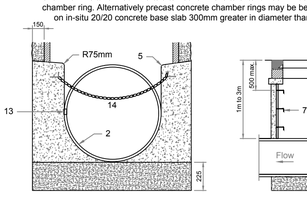


Plan on Straight Invert

Scale 1:50

MANHOLE - TYPE J

Integral in-situ 20/20 concrete base walls, benching and base slab with precast channel as shown or in-situ formed inverts alternative. Walls to extend 150mm beyond outer faces of chamber ring. Alternatively precast concrete chamber rings may be bedded in a mortar or on in-situ 20/20 concrete base slab 300mm greater in diameter than chamber rings.



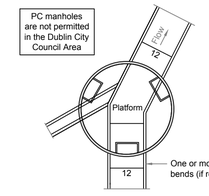
Section A-A

Scale 1:25

Section B-B

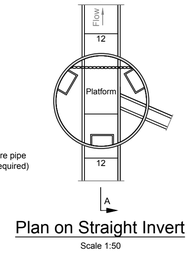
Scale 1:50

Integral in-situ 20/20 concrete base walls, benching and base slab with precast channel as shown or in-situ formed inverts alternative. Walls to extend 150mm beyond outer faces of chamber ring. Alternatively precast concrete chamber rings may be bedded in a mortar or on in-situ 20/20 concrete base slab 300mm greater in diameter than chamber rings.



Plan on Curved Invert

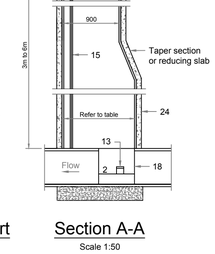
Scale 1:50



Plan on Straight Invert

Scale 1:50

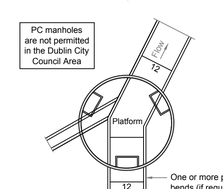
MANHOLE - TYPE K



Section A-A

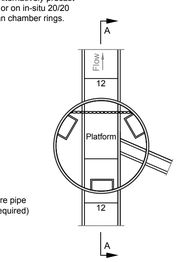
Scale 1:50

Integral in-situ 20/20 concrete base walls, benching and base slab with precast channel as shown or in-situ formed inverts alternative. Walls to extend 150mm beyond outer faces of chamber ring. Alternatively precast concrete chamber rings may be bedded in a mortar or on in-situ 20/20 concrete base slab 300mm greater in diameter than chamber rings.



Plan on Curved Invert

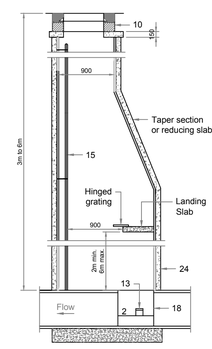
Scale 1:50



Plan on Straight Invert

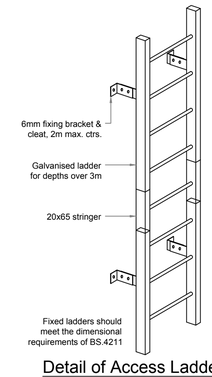
Scale 1:50

MANHOLE - TYPE L



Section A-A

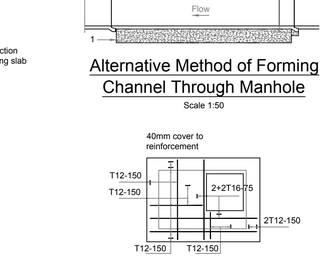
Scale 1:50



Detail of Access Ladder

NTS

Crown removed by cutting
to half diameter provided
flexible joints are situated
on each side no further
than 600mm from inner
face of Manhole walls
(See Note 2)



Alternative Method of Forming
Channel Through Manhole

Scale 1:50

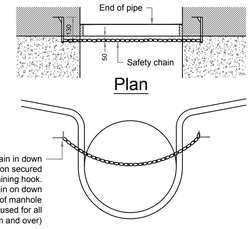
In-situ Roof Slab - Plan

NTS

GENERAL NOTES:

A. Read in conjunction with all relevant Architect's & Engineer's drawings and cross read the detailed notes on the various manholes.
B. The minimum length of manholes are as shown, however this may need be increased subject to the number of branches, this is made up as follows:
- For pipes up to 150mmØ, provide the sum of the branches + 200mm per branch + 300mm
- For pipes over 150mmØ, provide the sum of the branches + 300mm per branch + (300mm if no pipes up to 150mm are used) eg; for 2x150Ø + 1x225Ø pipes on one side, length =1525mm (subject to minimum length)

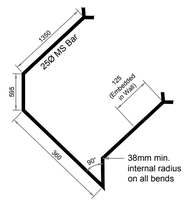
C. Access Rungs shall be provided in MH greater than 1000mm to the invert level of the pipe.
D. A 300mm concrete surround shall be provided around manhole covers in grassed areas.
E. All Manholes covers and gullies shall be approved Local Authority type and to their standard pattern.
F. All Drainage work shall be Constructed Strictly in accordance with the requirements of the Local Authority & Building Regulations.
G. Class U2 finish to the top of slabs. Reinforcement in the slabs to details or instructed by the Engineer.



Plan

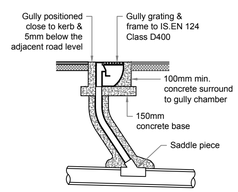
Safety Chain - Elevation

NTS



Standard Galvanised Rung

Scale 1:50

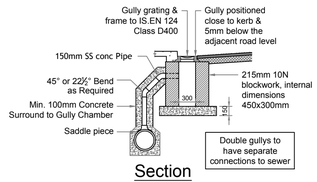


Section A-A

Gully Plan

Scale 1:50

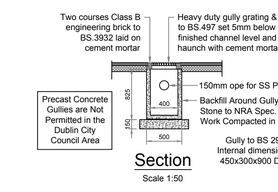
GULLY TO COMBINED SEWER



Section

Scale 1:50

GULLY TO STORM SEWER



Section

Scale 1:50

PRECAST CONCRETE GULLY PIT

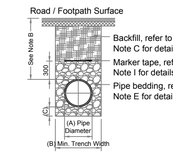
NOTES RELATED TO MANHOLE DETAILS:

1. 225mm Thick C30/37 Mass Concrete Foundations (Over 75mm concrete blinding if required by site conditions)
2. Preformed half circle Channel pipes. The pipeline may where practicable, be laid through the manhole and the crown cut out to half diameter, provided flexible joints are situated on each side no further than 600mm.from the inner face of Manhole wall.
3. For Surface Water Manholes high density blocks to Cl.S10 of I.S.20 Part 1: 1987 or Cl 30N/20 insitu concrete. Blockwork shall be bedded and jointed using Mortar designation three to I.S406. Beds and vertical joints shall be completely filled with mortar as the blocks are laid. Joints shall be flush pointed as the work proceeds (Blockwork not to be used in areas where a high water table is prevalent). All Foul Manholes must be faced in solid Engineering Brick (min.class A or B), or in-situ concrete for 1 meter above benching level. Brick to be bonded to Blockwork using English Garden Wall Bond.
4. Relieving arch formed by 215x103x65 brick as per drawing. Relieving arches used in brick or blockwork manholes to extend over full thickness of wall. Double arch to be formed for pipe diameters greater than 600mm.
5. Benching and pipe channel pipe surround Cl. 20N/20 concrete.
6. Benching finished in 2:1 sand-cement mortar with a smooth trowel finish,at 1 in 30 slope towards channel. 25mm radius Nose on Benching to be level with Crown of Pipe.
7. Standard rungs at 300c/c vertically and galvanised to BS 729.
8. 675mm square ope. in roof slab.
9. 225thk. Precast R.C Roof Slab in C30/37 Concrete. Cover to steel shall be 40mm.
10. 1 to 2 No.Engineering Bricks Cl.B to I.S.91:1983 set in 1:3 (cement sand mortar)
11. Class D400 manhole cover and frame to IS/EN 124.150mm deep frame for roads,100mm deep for footpaths and green areas. Class B250 manhole covers can used in Private areas accessible to light vehicular traffic. Non-rock design, closed keyways,manufactured from spheroid graphite cast iron (ductile cast iron), 675x675 (or 675diam.) clear opening, cover and frame coated in bitumen or other approved material, cover to have a minimum mass of 140Kg/m2, frame bearing area shall be 80,000mm2 min., frames shall be designed to prevent covers falling into manhole.Frames shall be bedded on approved mortar to manufacturers instructions.
12. Short length pipe, pipe joint external to manhole shall not exceed 600mm from the inner face of the manhole wall.
13. Toe holes of 230mm min. depth and galvanised steel safety railings to be provided in benching of sewers greater than 525mm dia. and depth to invert>3M for access to invert.
14. Safety chain to be provided on pipes that exceed 450mm in diameter. Mild steel safety chain shall be 10mm nominal size grade M(H) non calibrated chain, type 1. complying with B.S.4942 Part 2.
15. When depth of Manholes to invert is greater than 3.0M. ladders shall be used, instead of rungs 25mm in dia. B.S.4211 except that stringers should be not less than 65x20mm. in section and rungs 25mm in diam.Fixed Ladders should meet the dimensional requirements of B.S.4211.
16. Ladder stringers should be adequately supported from the Manhole wall at intervals of not more than 2.0m. Stringers should be bolted to cleats to facilitate renewal.
17. All ladders,rungs,handrails,safety chains etc. shall be hot dip galvinised to B.S.729.
18. Socket of pipe should be cut flush with the inside surface of the manhole wall.
19. Position of 910 square ope in intermediate roof slab. All Manholes shall be watertight to the satisfaction of the Engineer. Formwork to reinforced concrete and mass concrete shall comply comply to Class 2, Section 6.2.7 BS8110:Part 1:1997. Finish to the top of slabs shall comply to Type A, Section 6.2.7 BS8110: Part 1: 1997. Plan dimensions of Manholes are based on blockwork having a co-ordinating size of 450x225x100. Manholes are designed to B.S8005 and wall thickness to I.S325 Blockwork design requirement to slabs to Engineers details.
20. For Manholes >3m depth to invert use C30/37 in-situ concrete. Reinforcing mesh Ref.A393 @ 6.16Kg./m to be fixed at mid point of wall. Additional reinforcement to be supplied over pipe crown. All brick to be Engineering Brick.
21. For pre-cast Manholes, Chamber walls and cover slab to be constructed to IS EN 1917 and IS 420 2004.
22. Manhole opes to be situated furthest from the nearest Carriageway. Manhole steps/access to be positioned to allow viewing of oncoming traffic.
23. For bedding and sealing of chamber rings, the top ring (to Pre cast cover slab) and bottom ring to be bedded with cement mortar, For intermediate rings, joints to be sealed with approved pre-formed jointing strip.
24. Precast Manholes to be surrounded with a minimum of 150mm thick Grade C20/40 concrete.

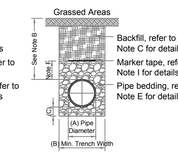
BEDDING & BACKFILLING NOTES:

A. The minimum depth of cover from the finished surface to the crown of gravity pipes without protection should be as follows:
- Gardens and pathways without any possibility of vehicular access - depth not less than 0.5 m. (this would normally relate to drains in private property, shallow pipes of this nature are undesirable and should be installed in accordance with the current building regulations).
- Driveways, parking areas and yards with height restrictions to prevent entry by vehicles with a gross vehicle weight in excess of 7.5 tonnes - depth not less than 0.75 m.
- Driveways, parking areas and narrow streets without footways (e.g. mews developments) with limited access for vehicles with a gross vehicle weight in excess of 7.5 tonnes - depth not less than 0.9 m.
- Depths of sewers in gated estates shall be similar to that outlined above.
- Agricultural land and public open space - depth not less than 0.9 m.
- Other highways and parking areas with unrestricted access to vehicles with a gross vehicle weight in excess of 7.5 tonnes - depth not less than 1.2m.

B. Clause 806 material in accordance with the National Roads Authority specification for Road Works is to be used as backfill material where the sewer main is located in roads, footpaths or when the nearest part of the trench is within 1m of the paved edge of the roadway. Clause 808 is to be compacted as per Clause 802 of the NRA SRW.
C. Selected excavated material may be used in green-field areas above granular pipe surround material subject to the approval of Irish Water.
D. Pipe bedding shall comply with WIS 4-08-02 and IGN 4-08-0 granular material shall be 14mm to 5mm graded aggregate or 10mm single sized aggregate is en 13242. concrete bed, haunch & surround, where required, shall be to STD-WW-08.
E. In soft ground conditions (cbr < 5) the material should be excavated and disposed of in accordance with the waste management act and clause 808 material in accordance with the national roads authority specification for road works shall replace the excavated material, wrapped in geo-textile wrapping. alternatively, special pipe support arrangements, including piling etc. may be required where the depth of soft material is excessive. such arrangements shall be subject to assessment by Irish Water before advancing with the work.
F. In green field areas, Type B backfill (selected excavated material) will be allowed above the side haunch granular material in the case of rigid pipes. A granular surround of a minimum depth of 150mm above the crown of the pipe is required for flexible pipes, and Type B material may be used as backfill above this. all rising mains in greenfield areas shall have a minimum cover of 300mm of granular material above the external crown of the pipe.
G. Pipes shall not be supported on stones, rocks or any hard objects at any point along the trench. rock shall be excavated to a depth of 150mm below the actual depth of the trench with the void filled with clause 808 material in accordance with the national roads authority specification for road works. the granular material shall be laid above this void backfill material.
H. Non degradable marker tape should be installed at top of pipe bedding layer. In the case of non metal pipe material, the marker tape should incorporate a trace wire which is linked to fittings and terminated at the waste water pumping station and the discharge manhole.
I. Trench widths for pipe sizes ≤80mm may be <500mm, subject to consideration being given to the trench depth, health & safety & construction access requirements.



ROADWAY



GRASSED AREAS

TYPE A

TYPE B

TYPE C

TYPE D

PIPE DIAMETER (A) mm	TRENCH WIDTH (B) mm
≤ 80 Rising Main	See Note 10
100	500
150	600
200	600
250	750
300	750
350	750
400	900
450	900

PIPE DIAMETER (A) mm	BEDDING DEPTH (C) mm
≤ 100	100
150 - 450	200

Concrete pipe beds and haunches may be required to address minimum cover situations, and shall be subject to submission and assessment by Irish Water before advancing with the works. Concrete pipe beds and haunches shall have a minimum thickness of 150mm with an absolute minimum depth of cover above the external crown of the pipe of 750mm.Concrete to be in accordance with is EN 206 and to be class C16/20.The haunches and surrounds to be formed using form work to provide a rough cast finish. Expansion joints in the concrete shall be provided at all pipe joints to allow for pipe flexibility, compressible filler board to be in accordance with BS EN 622-1 and BS EN 622-4, and to be 18mm thick.Polyethylene pipes shall be wrapped in plastic sheeting having a composition in accordance with BS EN 6076 before being cast into concrete. Bituminous material shall not be put in contact with PE or PVC pipes.

PIPE BEDDING & BACK FILLING DETAILS

DEPTH (m)		PIPE DIAMETER (mm)											
		150	225	300	375	450	525	600	675	750	900	1050	1200
0-1	INSITU/BLOCK	A 910x910	A 910x910	A 910x910	A 1360x1360	A 1360x1360	-	-	-	-	-	-	-
	PRECAST	J 1050Ø	J 1200Ø	J 1200Ø	J 1350Ø	J 1350Ø	J 1500Ø	J 1500Ø	J 1500Ø	J 1800Ø	Pipe0+900	Pipe0+900	Pipe0+900
1-3	INSITU/BLOCK	B 1360x1360	B 1360x1360	B 1360x1360	B 1360x1360	B 1360x1360	D 1810x1810	D 1810x1810	D 1810x1810	D 1810x1810	-	-	-
	PRECAST	J 1050Ø	J 1200Ø	J 1200Ø	J 1350Ø	J 1350Ø	J 1500Ø	J 1500Ø	J 1500Ø	J 1800Ø	Pipe0+900	Pipe0+900	Pipe0+900
3-6	INSITU/BLOCK	C 1590x1590	C 1590x1590	C 1590x1590	C 1590x1590	C 1590x1590	E 1810x1810	E 1810x1810	E 1810x1810	E 1810x1810	-	-	-
	PRECAST	K 1200Ø	K 1200Ø	K 1200Ø	K 1350Ø	K 1350Ø	K 1500Ø	K 1500Ø	K 1500Ø	K 1800Ø	Pipe0+900	Pipe0+900	Pipe0+900

TABLE 1 - MANHOLE TYPES & SIZES

Rev.	Date	Description	By

Project Title
SHD AT CHARLESTOWN PLACE
AND ST MARGARET'S ROAD

Architect
MCORN ARCHITECTS

Date	By	Checked	Scale @ A1
MAY 2020	AL	PM	AS SHOWN

Drawing Title
SURFACE WATER MANHOLE
AND DRAINAGE DETAILS

Drawing Status
PLANNING

Job No.	Drawing No.	Issue
1726	113	P0

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S:\01 PROJECTS\2017\1726 Charlestown (Southern lands-carpark site)\01 DRAWINGS\03 POGA Site Development\02 Planning\1726-113-P0 (Surface water Manhole details).dwg, 13/05/2021 13:24:42