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2025

**Proposed Residential Development
Phase 9 Avourwen, Platin Road,
Lagavooren, Drogheda, Co. Meath
Civil Engineering Planning Report**

Phase 9 Avourwen, Platin Road, Lagavooren, Drogheda, Co. Meath
Civil Engineering Planning Report

Document Control Sheet

Client:	Manley Developments Ltd
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1 Introduction

This report outlines the civil engineering deliverables completed for the planning application for a proposed residential development (Phase 9 Avourwen) located at Platin/ Duleek Road, Lagavoreen, Drogheda, Co. Meath.

The proposed development will consist of:

- 36 duplex units comprising 22No. 2-bed units and 14No. 3-bed units contained within 3-storey blocks;
- Provision of a retail area of 142.37sqm and a creche of 360.22sqm with an external child play area of 108sqm;
- Provision of 44No. car parking spaces and 106No. bicycle parking spaces;
- All associated site development works, including landscaping, site lighting, play areas, bin stores, signage, boundary treatments, and service infrastructure.

An overview of the proposed layout is provided in **Figure 1.1**.



Figure 1.1 – Proposed Site Layout (Source: ALTU Architects)

2 Design Codes & Standards

The civil engineering works presented in this report and the accompanying drawings have been designed in accordance with the following codes of practice and standards:

- a. "Irish Building Regulations Technical Guidance Documents" Department of the Environment and Local Government
- b. "Greater Dublin Strategic Drainage Study" published under the National Development Plan
- c. CIRIA Report "C697 – Sustainable Drainage Systems"
- d. EPA - Wastewater Treatment Manuals – Treatment Systems for Small Communities, Business, Leisure Centres and Hotels
- e. EPA – Guidance on the Authorisation of Discharges to Groundwater (EPA, 2011)
- f. EPA – Groundwater Protection Responses for On-site Wastewater Systems for Single Houses
- g. European Communities Environmental Objectives (Surface Water) Regulations, 2009.
- h. Design manual for Urban Roads and Streets, Department of Transport, 2013

3 Site Location and Description

The site is located at Platin Road, Lagavooren, Drogheda, Co. Meath. The site is bound to the north and east by Phase 8 Avourwen Development (planning reference: LB201937), to the west by Platin Road (R152), and to the south by a local access road. The area is generally a well-developed residential area approximately 2.8km south of Drogheda town centre.

The site is approximately 0.82 ha in area. **Figure 3.1** below provides an aerial view of the site with the approximate site area outlined in red.



Figure 3.1 – Aerial View of Site (Source: Google Maps)

3.1 Site Topography

A topographical survey was carried out on the entire site. The site is approximately 0.82 ha in area on plan with a gradual rise from north to south by approximately 6m (2.5% gradient). Levels on the site boundary in the north are of the order of 39m OD, rising to 45m OD in the south.

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The design intent of the proposed development is to maintain existing site levels as much as reasonably possible. Levels will be otherwise be dictated by the need to create falls to cater for surface water run-off and gravity wastewater drainage.

Refer to the drainage layout drawing number **231348-ORS-Z0-00-DR-C-400** for the existing levels and proposed ground floor levels.

4 Water & Wastewater Services

4.1 Irish Water Correspondence

It is proposed to connect to the public water supply and foul sewer network to services the development. A pre-connection enquiry was lodged in 2021 with Irish Water to confirm the feasibility to supply water and wastewater connections to phases 7 and 9 Avourwen. A Confirmation of Feasibility (COF) was received from Irish Water in September 2021 confirming that water and wastewater connections for the proposed development are feasible subject to upgrades. Refer to **Appendix A** for a copy of the COF letter in full.

4.2 Water Supply

There is a watermain present in Platin Road (R152) to the west of the site and in the local access road to the south of the site. In the proposed Phase 8 Avourwen development (planning reference LB201937) to the east of the site a 125mm uPVC watermain is proposed to be installed.

For the subject development (Phase 9), it is proposed to provide a new 125mm PE watermain connected to the proposed Phase 8 Avourwen uPVC watermain to the southeast and northeast of the site. It is also proposed to install two hydrants on this watermain.

The anticipated water demand for the development, has been calculated in accordance with Irish Water – Code of Practice for Water Infrastructure. Calculations are based on an allowance of 150 litres/person/day for residential units. For 2-bed units, we assume there are 3 people living in each, and for 3-bed units, we assume there are 4 people living in each. The retail space is estimated to use 90 litres/person/day for 3 people, and the creche is estimated to use 90 litres/person/day for 6 people. Therefore, as calculated in **Appendix C**, the total anticipated water demand will be approximately 19.11 m³/day, with a peak hour water demand (5 x average water demand) of 1.11 l/s.

The watermain shall have a minimum cover of 900mm and shall be overlain with tape containing a tracer wire. The watermain shall also be located a minimum of 3m away from any structure as per Irish Water Code of Practice requirements. Air valves to BS5159 and sluice valves to BS5163 where required shall be installed on site.

All watermain infrastructure shall be designed and constructed in accordance with Irish Water documents “Code of Practice for Water Infrastructure” and “Water Infrastructure Standard Details”.

Please refer to ORS drawing no. 231348-ORS-Z0-00-DR-C-400 for details of the proposed water supply infrastructure.

4.3 Wastewater Discharge

It is proposed to construct a new 225mm uPVC foul sewer running along the centre of the Phase 9 of the subject development, with a connection to the proposed wastewater sewer in Phase 8 in two locations – to the east and to the northeast. Service connections will be provided to this sewer from each of the new units.

The proposed internal wastewater sewer will consist of a series of 150 – 225mm diameter sewers falling in ranges of between 1:60 and 1:200. 100mm diameter pipes will be provided between access junctions falling at a minimum grade of 1 in 60. All internal wastewater drainage will be separate to surface water drainage infrastructure in accordance with Irish Water standards. Proposed wastewater sewer loading calculations are attached in **Appendix C**.

The anticipated wastewater loading for the development, has been calculated in accordance with Irish Water – Code of Practice for Water Infrastructure. Calculations are based on an allowance of 150 litres/person/day for residential units. For 2-bed units, we assume there are 3 people living in each, and for 3-bed units, we assume there are 4 people living in each. The retail space is estimated to use 90 litres/person/day for 3 people, and the creche is estimated to use 90 litres/person/day for 6 people. Therefore, as calculated in **Appendix D**, the total anticipated foul loading will be approximately 19.11 m³/day, with a peak loading (6 x Dry Weather Flow) of 1.33 l/s.

All wastewater infrastructure shall be designed and constructed in accordance with Irish Water documents “Code of Practice for Wastewater Infrastructure” and “Wastewater Infrastructure Standard Details”.

Please refer to ORS drawing no. 220489-ORS-Z0-00-DR-C-400 for the layout of the proposed wastewater drainage infrastructure.

5 Surface Water Drainage

5.1 Drainage Strategy

Guidance for the design of the Surface Water network has been taken from the Greater Dublin Strategic Drainage Study (GDSDS) and Sustainable Urban Drainage Systems (SuDS) as per standard practice.

The SUDS Selection Hierarchy Sheet (see **Table 5.1** below) shows how SuDS have been integrated into the surface water management plan for the development and how they have maximised the retention of storm water runoff on site and limited the discharge rates from the site to greenfield runoff rate or less.

Table 5.1 – SUDS Selection Hierarchy Sheet		
SuDS Measures	Measures to be used on site	Rational for selecting / not selecting measure
Attenuation Tank	Yes	Effective reduction of the risk of flooding
		Easy Installation
		Low Maintenance
		Long-term cost savings
		contribution to climate resilience
Permeable paving - consider for all hard paved areas without heavy traffic	Yes	Reduces the risk of flooding, waterlogging, and erosion
		Promotes groundwater recharge
		Improves water quality.
Bio-retention planter - disconnect downpipe connection into drains and allow roof runoff into planter with means of overflow	Yes	Reduces stormwater flows
		Removes pollutants.
Water butt - 150L capacity or more (based water use demand) with means of overflow	Future potential	Not practical for the duplex buildings due to factors like space limitations, potential for shared guttering, and the need for maintenance.
		Can be recommended for use by future residents
Rain garden - disconnect downpipe/RWP into the planted flower bed	Future potential	Need for proper soil conditions
		Potential for flooding
		Requirement for adequate space
		Can be recommended for use by future residents

Green / Blue Roof - requires a minimum substrate depth (growth medium) of at least 80 mm excluding the vegetative map	No	Not practical in this scheme - proposal is for a traditional pitched roof
		The increased risk of water infiltration into the building
		The added weight of a green roof is a structural limitation
		Costly and time-consuming ongoing maintenance requirements

The proposed surface water drainage strategy for the subject development will include collection of runoff from the developed site via below ground gravity pipework which will be discharged into a proposed attenuation tank located to the northeast of the site within the proposed public open space. The surface water network will be attenuated, and flow controlled to greenfield runoff rates prior to outfall into the proposed surface water drainage network within Phase 8 to the north-east of the site.

The internal road and all car parking spaces other than the accessible spaces within the site are proposed to be permeable and will cater for road drainage in the immediate vicinity of the spaces. The permeable paving is anticipated to cater for all surface water drainage through infiltration at source, however high-level overflows will be provided back into the piped surface water network on the site.

Bio-retention areas will be provided where practical on site to encourage infiltration of surface water drainage at source. Each bio-retention area is anticipated to cater for all surface water drainage locally through infiltration at source, however high-level overflows will be provided back into the piped surface water network on the site.

The attenuation tank design does not take into account the stormwater which will infiltrate through the permeable paving and bio-retention areas and therefore is conservative.

Surface water runoff from impermeable areas will be collected via gullies along road edges which will be connected to the main piped network.

In developing the surface water design for the site, a range of SuDS measures were reviewed. Measures which were deemed suitable in controlling the quality and quantity of water discharged from the development include:

- Permeable paving to road and parking spaces,
- Bio-retention areas,
- Collection of excess roof rainwater and run-off from impermeable surfaces and attenuating this run-off prior to discharge to outfall locations,
- The use of trapped gullies throughout the development,
- The use of an oil interceptor.

The following design criteria has been incorporated into the design:

- Pipes are designed for small catchment areas as defined in GDSDS, based on the Modified Rational Method and a rainfall intensity of 50mm/hour onto impermeable

surfaces.

- All surface water pipes have been designed to achieve a minimum self-cleansing velocity of 0.75m/s.
- Surface water pipework will be laid to a gradient no flatter than 1:500.
- The GDSDS requirements with respect to interception volume, long-term storage volume and treatment volume have been considered.
- Minimum surface water pipe size of 225mm
- Minimum depth of cover to pipework of 1.2m below roads without appropriate protection
- Maximum depth of pipework 5m
- Roughness value for surface water pipework, k_s 0.6mm

The drainage network was modelled and tested against different critical storms using the standard catchment rainfall profiles from the Flood Studies Report (FSR) within Causeway software. A critical storm is considered as a level of rainfall intensity, and the greater the year of the return period, the higher the intensity of the storm. For each return period tested, the following storm durations have been simulated, to assess against the length that a storm would release rainfall into the drainage network: 15min; 30min; 60min; 120min; 180min; 240min; 360min; 480min; 600min; 720min; 960min; 1440min; 2160min (36 hours). Refer to **Appendix E** for pipeline design and calculations.

5.2 Catchment and SuDS Systems

The proposed site layout has been designed as one surface water catchment. The catchment will have a gravity surface water drainage network which will outfall into an attenuation system. The attenuation system has been sized to store the runoff from a 1:100-year storm of critical duration plus a 20% climate change allowance (refer to calculations in **Appendix E**).

A breakdown of the different land uses across the site is included below in **Table 5.2** below.

Table 5.2 – Catchment Land Uses/Area	
Catchment Area	Areas (Hectares)
Roof Areas – Future Estimated (95% impermeable)	0.22
Road/Paving Areas (90% impermeable)	0.24
Landscaped Green Space (10% impermeable)	0.27
Permeable Paving (50%)	0.10
Catchment: Total Area	0.83

The attenuation system proposed is a polytunnel type system such as Stormtech or similar approved and will be wrapped in a geotextile. The tank volume does not include an allowance for infiltration and therefore is conservative. Prior to detailed design, BRE 365 infiltration tests will be carried out in the tank location to verify actual rates of infiltration, and the tank volume may then be adjusted if appropriate.

5.3 Flow Controls

A flow control device will be fitted to the outlet manhole from the site. This will be fitted to a 225mm diameter outlet pipe and will have a pull chord bypass. To allow maintenance, a penstock valve (or similar approved) will be installed on the inlet to the flow control manhole.

5.4 Bypass Interceptors

As surface water is to be collected from the roads and car parking areas with a low risk of spillage, a Class 1 Petrol/Oil Bypass Interceptor will be installed prior to discharge into the attenuation tank. All surface water shall be drained from impermeable areas through precast lockable gully traps.

Please refer to ORS drawing no. 231348-ORS-ZZ-00-DR-C-400.

6 Flood Risk Identification

The Floodinfo.ie website was consulted for high level information on any potential flood risk on the site. The site is not in an area of defined flood risk under the OPW mapping and there is no indication of any likely past or future flood incidences in the vicinity of the site. Refer to **Figure 6.1** below.

The development will present no significant increase in risk of flooding either within the site or downstream of the site. Surface water runoff will be limited to greenfield runoff rates via flow control measures.

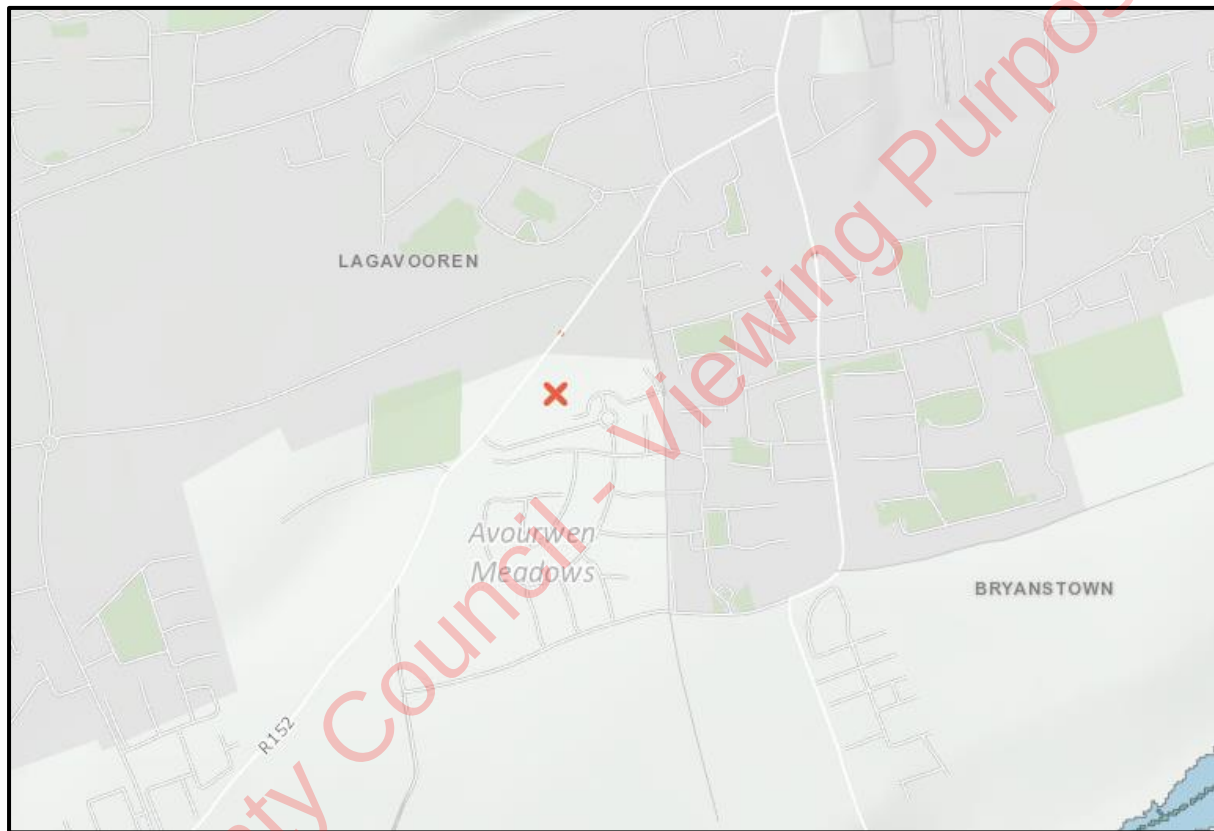


Figure 6.1: Floodinfo Map – approximate site location marked with red X

7 Site Access and Traffic

Guidance has been taken from DMURS for the engineering design of streets and footpaths in the development, the following criteria are addressed as follows:

7.1 Internal Road Widths

The local roads within the development are proposed to be 6.0m wide. These road widths are in compliance with DMURS recommendations and can facilitate the manoeuvring of an 11m refuse truck as per Local Authority requirements.

7.2 Parking

All car parking spaces have been designed such that they have a minimum of 6.0m space behind them to reverse safely from a parking space. All parking spaces have minimum dimensions of 2.5m x 5.0m. Generally, parking is provided perpendicular to roadways throughout the site.

7.3 Corner Radii (Main access and internal junctions)

The junction radii throughout the proposed development range from approximately 1m to 4.0m and comply with the requirements of DMURS for streets with “few” and “occasional” larger vehicles. Corner radii on the site have been minimised while still accommodating an 11m bin truck and comply with the recommendations of DMURS.

7.4 Internal Road Markings

Internal road markings are proposed to be limited to the approach to internal junctions and STOP lines. A STOP sign will be provided at each internal junction where a STOP line is proposed. All road markings and signs will be in accordance with Chapter 7 Traffic Signs Manual

7.5 Turning Areas for Vehicles

Turning areas have been checked by swept path analysis to ensure sufficient space to allow for applicable vehicles to turn without mounting kerbs and paths.

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8 Health and Safety

ORS understand their health and safety responsibilities as set out in the Health and Safety at Work (Construction) Regulations 2013.

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Appendix A – Irish Water COF

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David Reilly
108 Gleann Alainn
Tullyallen
Drogheda
Louth
A92K2D2

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City.

www.water.ie

3 September 2021

Re: CDS21001331 pre-connection enquiry - Subject to contract | Contract denied

Connection for Housing Development of 205 unit(s) at PHH7 & PHH9, Avourwen, Platin Rd, Drogheda, Co. Meath

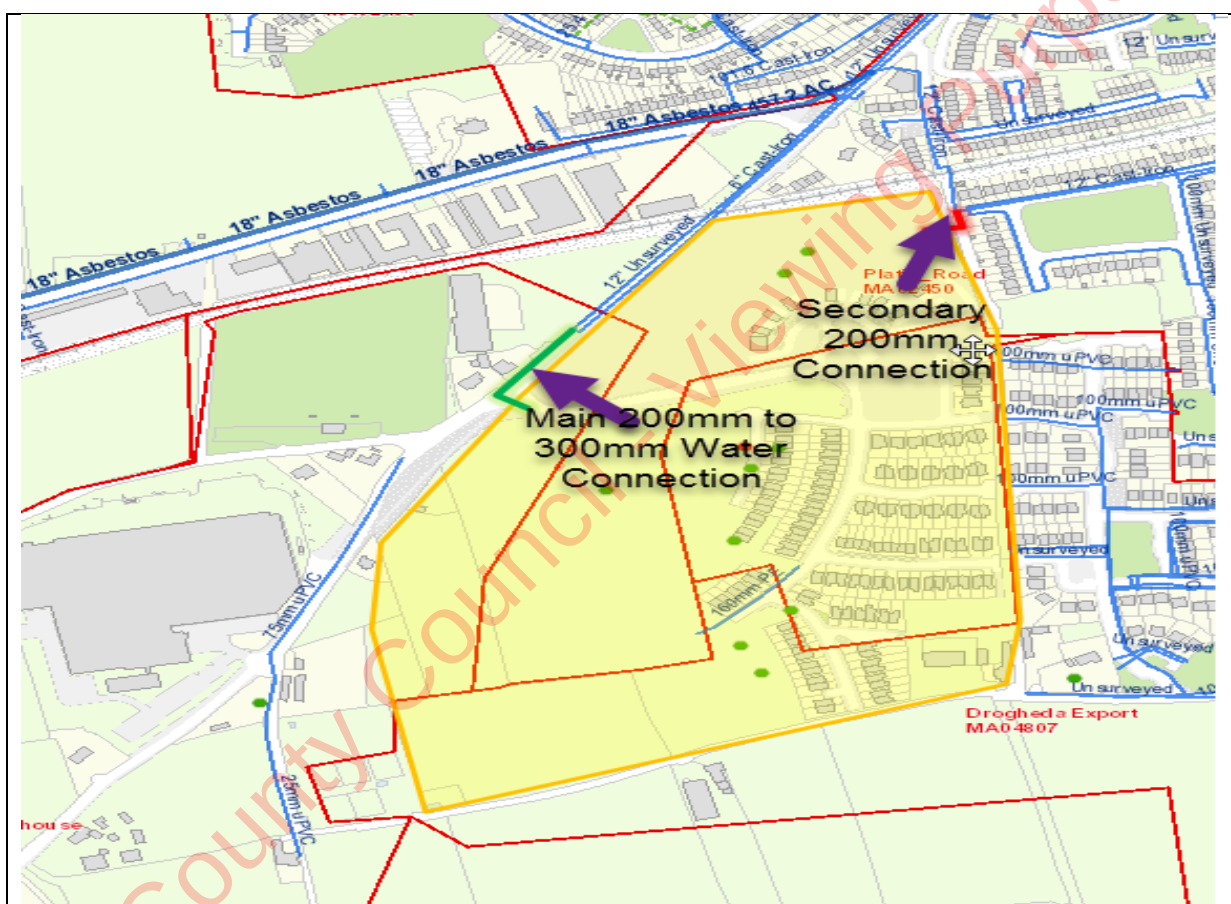
Dear Sir/Madam,

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at PHH7 & PHH9, Avourwen, Platin Rd, Drogheda, Co. Meath (the **Premises**). Based upon the details you have provided with your pre-connection enquiry and on our desk top analysis of the capacity currently available in the Irish Water network(s) as assessed by Irish Water, we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

SERVICE	OUTCOME OF PRE-CONNECTION ENQUIRY <u>THIS IS NOT A CONNECTION OFFER. YOU MUST APPLY FOR A CONNECTION(S) TO THE IRISH WATER NETWORK(S) IF YOU WISH TO PROCEED.</u>
Water Connection	Feasible Subject to upgrades
Wastewater Connection	Feasible Subject to upgrades
SITE SPECIFIC COMMENTS	
Water Connection	In order to connect the proposed development, a new additional Secondary Resilience main is required, circa 50m of 200mm ID main to be laid to connect development to existing 12" CI main, valve to be added to this main and closed during normal operations. In addition, new Storage is required, the Commercial units must have onsite storage suitable to deliver average demand for 24 hour period with a refill time of 12 hours.

Wastewater Connection	The customer is engaging with a Major Connection Agreement to resolve capacity issues downstream. However, the leisure centre discharge needs further confirmation to allow the upgrades to be fully designed.
The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this development shall comply with the Irish Water Connections and Developer Services Standard Details and Codes of Practice that are available on the Irish Water website. Irish Water reserves the right to supplement these requirements with Codes of Practice and these will be issued with the connection agreement.	

The map included below outlines the current Irish Water infrastructure adjacent to your site:



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Whilst every care has been taken in its compilation Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland to Irish Water. Irish Water can assume no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided and does not accept any liability whatsoever arising from any errors or omissions. This information should not be relied upon in the event of excavations or any other works being carried out in the vicinity of the Irish Water underground network. The onus is on the parties carrying out excavations or any other works to ensure the exact location of the Irish Water underground network is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

General Notes:

- 1) The initial assessment referred to above is carried out taking into account water demand and wastewater discharge volumes and infrastructure details on the date of the assessment. **The availability of capacity may change at any date after this assessment.**
- 2) This feedback does not constitute a contract in whole or in part to provide a connection to any Irish Water infrastructure. All feasibility assessments are subject to the constraints of the Irish Water Capital Investment Plan.
- 3) The feedback provided is subject to a Connection Agreement/contract being signed at a later date.
- 4) A Connection Agreement will be required to commencing the connection works associated with the enquiry this can be applied for at <https://www.water.ie/connections/get-connected/>
- 5) A Connection Agreement cannot be issued until all statutory approvals are successfully in place.
- 6) Irish Water Connection Policy/ Charges can be found at <https://www.water.ie/connections/information/connection-charges/>
- 7) Please note the Confirmation of Feasibility does not extend to your fire flow requirements.
- 8) Irish Water is not responsible for the management or disposal of storm water or ground waters. You are advised to contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges
- 9) To access Irish Water Maps email datarequests@water.ie
- 10) All works to the Irish Water infrastructure, including works in the Public Space, shall have to be carried out by Irish Water.

If you have any further questions, please contact Paul Fuller from the design team on (087) 718-6226 or email PFuller@water.ie For further information, visit www.water.ie/connections.

Yours sincerely,



Yvonne Harris

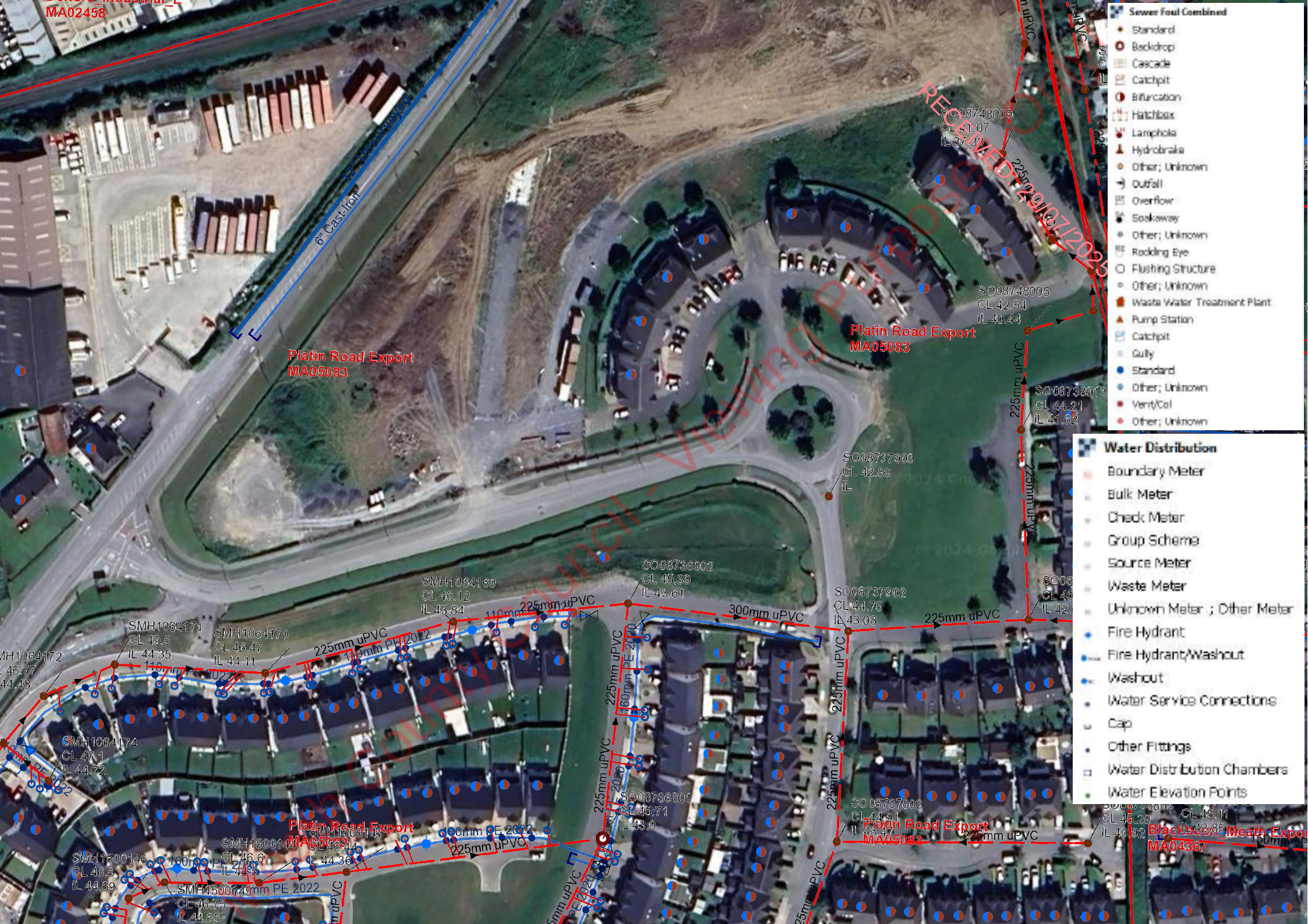
Head of Customer Operations

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Appendix B – Irish Water Records

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- ### Sewer Foul Combined
- Standard
 - Backdrop
 - Cascade
 - Catchpit
 - Bifurcation
 - Hatchbox
 - Lamphole
 - Hydrobrake
 - Other; Unknown
 - Outfall
 - Overflow
 - Soakaway
 - Other; Unknown
 - Rodding Eye
 - Flushing Structure
 - Other; Unknown
 - Waste Water Treatment Plant
 - Pump Station
 - Catchpit
 - Gully
 - Standard
 - Other; Unknown
 - Vent/Col
 - Other; Unknown

- ### Water Distribution
- Boundary Meter
 - Bulk Meter
 - Check Meter
 - Group Scheme
 - Source Meter
 - Waste Meter
 - Unknown Meter ; Other Meter
 - Fire Hydrant
 - Fire Hydrant/Washout
 - Washout
 - Water Service Connections
 - Cap
 - Other Fittings
 - Water Distribution Chambers
 - Water Elevation Points

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Appendix C – Water Demand Calculations

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	PROPOSED WATER DEMAND CALCULATIONS			
				ORS Ref: 231348
CLIENT: PROJECT DESCRIPTION: DRAWING REFERENCE:	Manley Developments Ltd Phase 9 Avourwen, Platin Road, Lagavooren, Drogheda, Co. Meath 231348-ORS-ZZ-00-DR-C-480			
Type:	Number of:	Flow (l/day/person):	Persons per Unit:	Total Flow (l/day)
<u>UNIT:</u>				
Retail Space	1	90	3	270
Creche	1	90	6	540
2 Bed Units	22	150	3	9900
3 Bed Units	14	150	4	8400
Total Residential				
Total Flow (l/day):		19110	Total Flow (m³/day):	19.11
		Average Hour Water Demand	0.22	l/s
		Peak Hour Water Demand (Average Hour Water Demand x 5)	1.11	l/s

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Appendix D – Foul Water Loading Calculations

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	PROPOSED FOUL SEWER DESIGN CALCULATIONS							
	ORS Ref:							231348
CLIENT:	Manley Developments Ltd							
PROJECT DESCRIPTION:	Phase 9 Avourwen, Platin Road, Lagavooren, Drogheda, Co. Meath							
DRAWING REFERENCE:	231348-ORS-ZZ-00-DR-C-480							
Type:	Number of:	Flow (l/day/person):	BOD (g/day/person)	Persons per Unit	Persons	Total Flow (l/day)	BOD (g/day/person)	P.E.
UNIT:								
Retail Space	1	90	60	3	3	270	180	3
Creche	1	90	60	6	6	540	360	6
2 Bed Units	22	150	60	3	66	9900	3960	66
3 Bed Units	14	150	60	4	56	8400	3360	56
				Total	122	19110	7860	131
				Residential Total Flow per day			19110.00	litres/day
				Residential Dry Weather Flow (DWF)			0.22	litres/second
				Peak Dry Weather Flow			1.33	l/s @ 6 x DWF

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Appendix E – Surface Water Drainage Calculations

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Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	5	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	Scotland and Ireland	Connection Type	Level Soffits
M5-60 (mm)	15.800	Minimum Backdrop Height (m)	0.200
Ratio-R	0.280	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1	0.117	5.00	44.190	1200	708524.779	773968.173	1.500
S2	0.126	5.00	43.850	1200	708537.316	773984.442	1.365
S6_IN			42.000	1200	708585.923	774041.636	3.548
S3	0.041	5.00	43.650	1200	708558.859	774012.389	1.518
S5	0.022	5.00	41.524	1200	708573.688	774046.379	1.844
S4	0.078	5.00	43.650	1200	708557.537	774019.990	3.610
S7_OUT			40.900	1200	708610.630	774038.452	2.548

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
S1.000	S1	S2	20.539	0.600	42.690	42.485	0.205	100.0	225	5.26	50.0
S1.001	S2	S3	35.286	0.600	42.485	42.132	0.353	100.0	225	5.71	50.0
S1.002	S3	S4	7.715	0.600	42.132	42.055	0.077	100.0	225	5.81	50.0
S1.003	S4	S5	30.940	0.600	40.040	39.680	0.360	85.9	225	6.18	50.0
S1.004	S5	S6_IN	13.122	0.600	39.680	39.550	0.130	100.9	300	6.32	50.0

Name	US Node	DS Node	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)
S1.000	S1	S2	1.307	52.0	15.9	1.275	1.140	0.117
S1.001	S2	S3	1.307	52.0	32.9	1.140	1.293	0.243
S1.002	S3	S4	1.307	52.0	38.5	1.293	1.370	0.284
S1.003	S4	S5	1.411	56.1	49.1	3.385	1.619	0.362
S1.004	S5	S6_IN	1.565	110.6	52.1	1.544	2.150	0.384

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
S1.000	20.539	100.0	225	Circular	44.190	42.690	1.275	43.850	42.485	1.140
S1.001	35.286	100.0	225	Circular	43.850	42.485	1.140	43.650	42.132	1.293
S1.002	7.715	100.0	225	Circular	43.650	42.132	1.293	43.650	42.055	1.370
S1.003	30.940	85.9	225	Circular	43.650	40.040	3.385	41.524	39.680	1.619
S1.004	13.122	100.9	300	Circular	41.524	39.680	1.544	42.000	39.550	2.150

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
S1.000	S1	1200	Manhole	Adoptable	S2	1200	Manhole	Adoptable
S1.001	S2	1200	Manhole	Adoptable	S3	1200	Manhole	Adoptable
S1.002	S3	1200	Manhole	Adoptable	S4	1200	Manhole	Adoptable
S1.003	S4	1200	Manhole	Adoptable	S5	1200	Manhole	Adoptable
S1.004	S5	1200	Manhole	Adoptable	S6_IN	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	708524.779	773968.173	44.190	1.500	1200				
S2	708537.316	773984.442	43.850	1.365	1200		0 S1.000 42.690 225 1 S1.000 42.485 225		
S6_IN	708585.923	774041.636	42.000	3.548	1200		0 S1.001 42.485 225 1 S1.004 39.550 300		
S3	708558.859	774012.389	43.650	1.518	1200		1 S1.001 42.132 225 0 S1.002 42.132 225		
S5	708573.688	774046.379	41.524	1.844	1200		1 S1.003 39.680 225 0 S1.004 39.680 300		
S4	708557.537	774019.990	43.650	3.610	1200		1 S1.002 42.055 225 0 S1.003 40.040 225		
S7_OUT	708610.630	774038.452	40.900	2.548	1200				

Simulation Settings

Rainfall Methodology	FSR	Skip Steady State	x
FSR Region	Scotland and Ireland	Drain Down Time (mins)	240
M5-60 (mm)	15.800	Additional Storage (m³/ha)	20.0
Ratio-R	0.280	Check Discharge Rate(s)	x
Summer CV	0.750	Check Discharge Volume	x
Analysis Speed	Normal		

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440 | 2160

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
5	20	0	0
30	20	0	0
100	20	0	0

Node S7_OUT Online StormBrake™ Control

Flap Valve	x	Design Flow (l/s)	2.0
Replaces Downstream Link	✓	Product Code	FPM-SB1-02000-00200-1100
Invert Level (m)	38.352	Min Outlet Diameter (m)	0.100
Design Depth (m)	2.000	Min Node Diameter (mm)	1200

Node S7_OUT Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	20.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	38.352	Main Channel Slope (1:X)	200.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.040

Inlets

S6_IN

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	150.0	0.0	1.200	150.0	0.0	1.201	0.0	0.0

Results for 5 year +20% CC Critical Storm Duration. Lowest mass balance: 99.85%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	10	42.791	0.101	22.2	0.2731	0.0000	OK
15 minute summer	S2	10	42.652	0.167	45.8	0.4969	0.0000	OK
960 minute summer	S6_IN	765	38.976	0.524	9.7	0.5923	0.0000	OK
15 minute summer	S3	11	42.379	0.247	53.1	0.4137	0.0000	SURCHARGED
15 minute summer	S5	11	39.873	0.193	69.7	0.2641	0.0000	OK
15 minute summer	S4	11	40.423	0.383	67.2	0.5999	0.0000	SURCHARGED
960 minute summer	S7_OUT	765	38.976	0.624	5.6	0.7054	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	S1.000	S2	22.0	0.897	0.423	0.5029	
15 minute summer	S2	S1.001	S3	45.5	1.254	0.875	1.2518	
960 minute summer	S6_IN	Flow through pond	S7_OUT	5.6	0.038	0.001	86.0705	
15 minute summer	S3	S1.002	S4	53.0	1.372	1.020	0.2919	
15 minute summer	S5	S1.004	S6_IN	68.9	1.558	0.623	0.5827	
15 minute summer	S4	S1.003	S5	65.7	1.662	1.171	1.1758	
960 minute summer	S7_OUT	StormBrake™		1.5				77.5

Results for 30 year +20% CC Critical Storm Duration. Lowest mass balance: 99.85%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	12	43.065	0.375	32.5	1.0112	0.0000	SURCHARGED
15 minute summer	S2	12	42.990	0.505	62.2	1.5017	0.0000	SURCHARGED
960 minute summer	S6_IN	840	39.278	0.826	13.4	0.9343	0.0000	OK
15 minute summer	S3	11	42.477	0.345	68.4	0.5771	0.0000	SURCHARGED
15 minute summer	S5	12	39.918	0.238	91.5	0.3262	0.0000	OK
15 minute summer	S4	12	40.922	0.882	88.6	1.3807	0.0000	SURCHARGED
960 minute summer	S7_OUT	840	39.278	0.926	7.3	1.0474	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	S1.000	S2	28.9	0.920	0.556	0.8169	
15 minute summer	S2	S1.001	S3	58.2	1.463	1.120	1.4034	
960 minute summer	S6_IN	Flow through pond	S7_OUT	7.3	0.046	0.001	131.4343	
15 minute summer	S3	S1.002	S4	67.8	1.705	1.304	0.3013	
15 minute summer	S5	S1.004	S6_IN	91.9	1.646	0.831	0.7312	
15 minute summer	S4	S1.003	S5	86.7	2.179	1.545	1.2305	
960 minute summer	S7_OUT	StormBrake™		1.5				89.7



Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 99.85%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	12	43.526	0.836	42.1	2.2521	0.0000	SURCHARGED
15 minute summer	S2	12	43.408	0.923	77.1	2.7445	0.0000	SURCHARGED
960 minute summer	S6_IN	855	39.570	1.118	16.8	1.2645	0.0000	OK
15 minute summer	S3	12	42.597	0.465	85.1	0.7781	0.0000	SURCHARGED
15 minute summer	S5	12	40.023	0.343	114.2	0.4698	0.0000	SURCHARGED
15 minute summer	S4	12	41.611	1.571	111.1	2.4601	0.0000	SURCHARGED
960 minute summer	S7_OUT	855	39.570	1.218	9.0	1.3772	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	S1.000	S2	35.2	0.951	0.677	0.8169	
15 minute summer	S2	S1.001	S3	72.9	1.832	1.402	1.4034	
960 minute summer	S6_IN	Flow through pond	S7_OUT	9.0	0.038	0.001	174.1779	
15 minute summer	S3	S1.002	S4	85.0	2.137	1.635	0.3037	
15 minute summer	S5	S1.004	S6_IN	114.5	1.660	1.035	0.8869	
15 minute summer	S4	S1.003	S5	108.0	2.717	1.926	1.2305	
960 minute summer	S7_OUT	StormBrake™		1.6				99.2

ORS

Appendix F – Typical Attenuation System Details

RECEIVED: 29/07/2025

Meath County Council - Viewing Purposes Only!

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	



AVOURWEN PH 9

DROGHEDA, EUROPE

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-3500.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS, AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED, AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER, 2) MAXIMUM PERMANENT (75-YR) COVER LOAD, AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND, b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLOURS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- ADS DOES NOT DESIGN OR PROVIDE MEMBRANE LINER SYSTEMS. TO MINIMIZE THE LEAKAGE POTENTIAL OF LINER SYSTEMS, THE MEMBRANE LINER SYSTEM SHOULD BE DESIGNED BY A KNOWLEDGEABLE GEOTEXTILE PROFESSIONAL AND INSTALLED BY A QUALIFIED CONTRACTOR.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

- STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONESHOTTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUB-GRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE; AASHTO M43 #3, 357, 4, 467, 5, 56, OR 57.
- STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUB-SURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILISED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

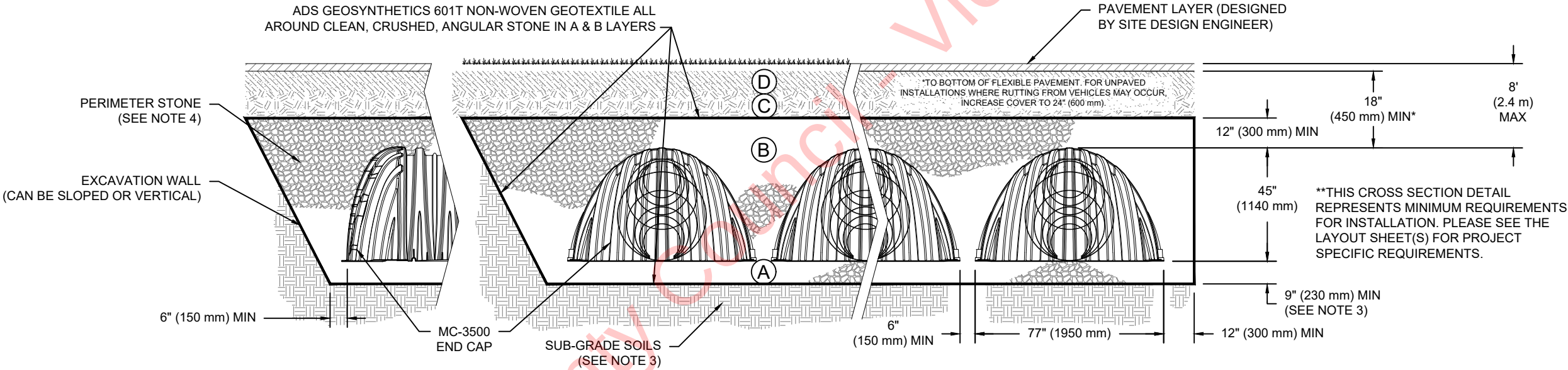
CONTACT STORMTECH AT 1-800-821-6710 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

ISOLATOR ROW PLUS COMPONENTS SHOWN ON THIS DESIGN MAY NOT BE AVAILABLE IN THE SPECIFIED PROJECT REGION. PLEASE CONTACT YOUR LOCAL ADS REPRESENTATIVE OR E-MAIL ADSINTERNATIONAL@ADS-PIPE.COM FOR FURTHER INFORMATION

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUB-BASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUB-GRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUB-BASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUB-BASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145 ¹ A-1, A-2-4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 ¹ 3, 4	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUB-GRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 ¹ 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

- PLEASE NOTE:
- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
 - STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
 - WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
 - ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUB-BASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
- MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUB-GRADE SOILS, AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT³%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23°, AND C) CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLOURS.

AVOURWEN PH 9

DROGHEDA, EUROPE

DATE: 22/09/2024

PROJECT #:

CHECKED: N/A

DESCRIPTION

CHK

DRW

DATE

StormTech®

Chamber System

1-800-821-6710 | WWW.STORMTECH.COM

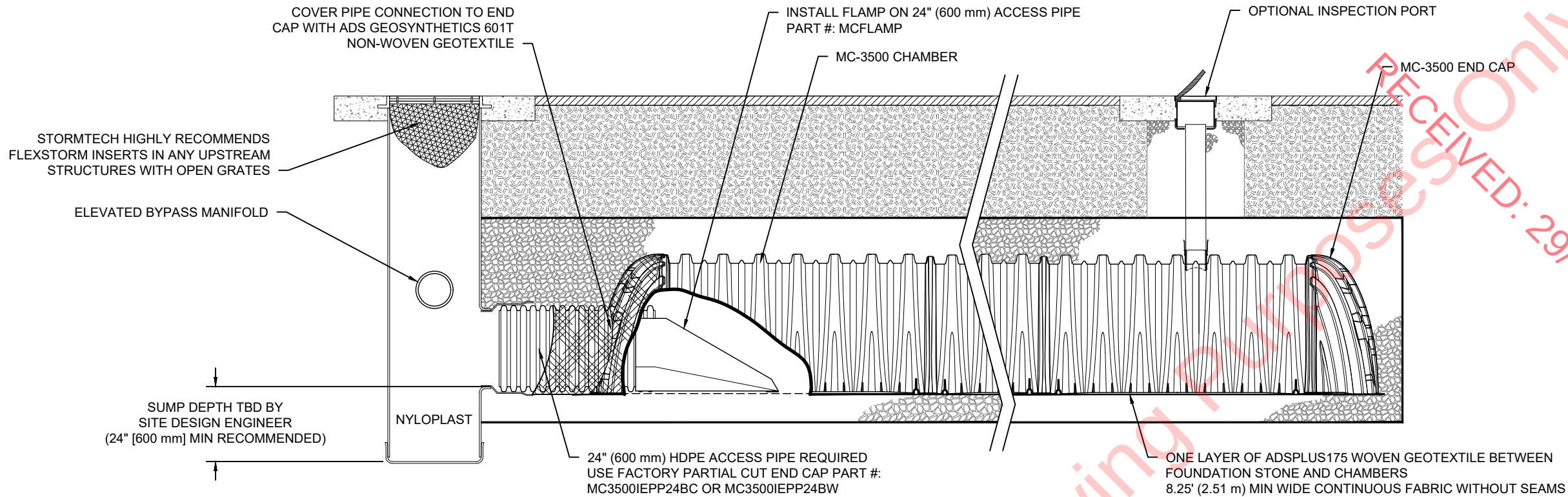
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

ADS

SHEET

3 OF 6

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS/STORMTECH UNDER THE DIRECTION OF THE PROJECT'S ENGINEER OF RECORD (EOR) OR OTHER PROJECT REPRESENTATIVE. THIS DRAWING IS NOT INTENDED FOR USE IN BIDDING OR CONSTRUCTION WITHOUT THE EOR'S PRIOR APPROVAL. EOR SHALL REVIEW THIS DRAWING PRIOR TO BIDDING AND/OR CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE EOR TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.



MC-3500 ISOLATOR ROW PLUS DETAIL
NTS

ISOLATOR ROW PLUS COMPONENTS SHOWN ON THIS DESIGN MAY NOT BE AVAILABLE IN THE SPECIFIED PROJECT REGION. PLEASE CONTACT YOUR LOCAL ADS REPRESENTATIVE OR E-MAIL ADSINTERNATIONAL@ADS-PIPE.COM FOR FURTHER INFORMATION

INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
- A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
 - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
 - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
 - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
 - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
 - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
 - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
 - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
 - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
 - B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
 - C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH-WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

AVOURWEN PH 9

DROGHEDA, EUROPE

DATE: 22/09/2024

DRAWN: U

PROJECT #:

CHECKED: N/A

DESCRIPTION

CHK

DRW

DATE

1-800-821-6710 | WWW.STORMTECH.COM

StormTech®
Chamber System

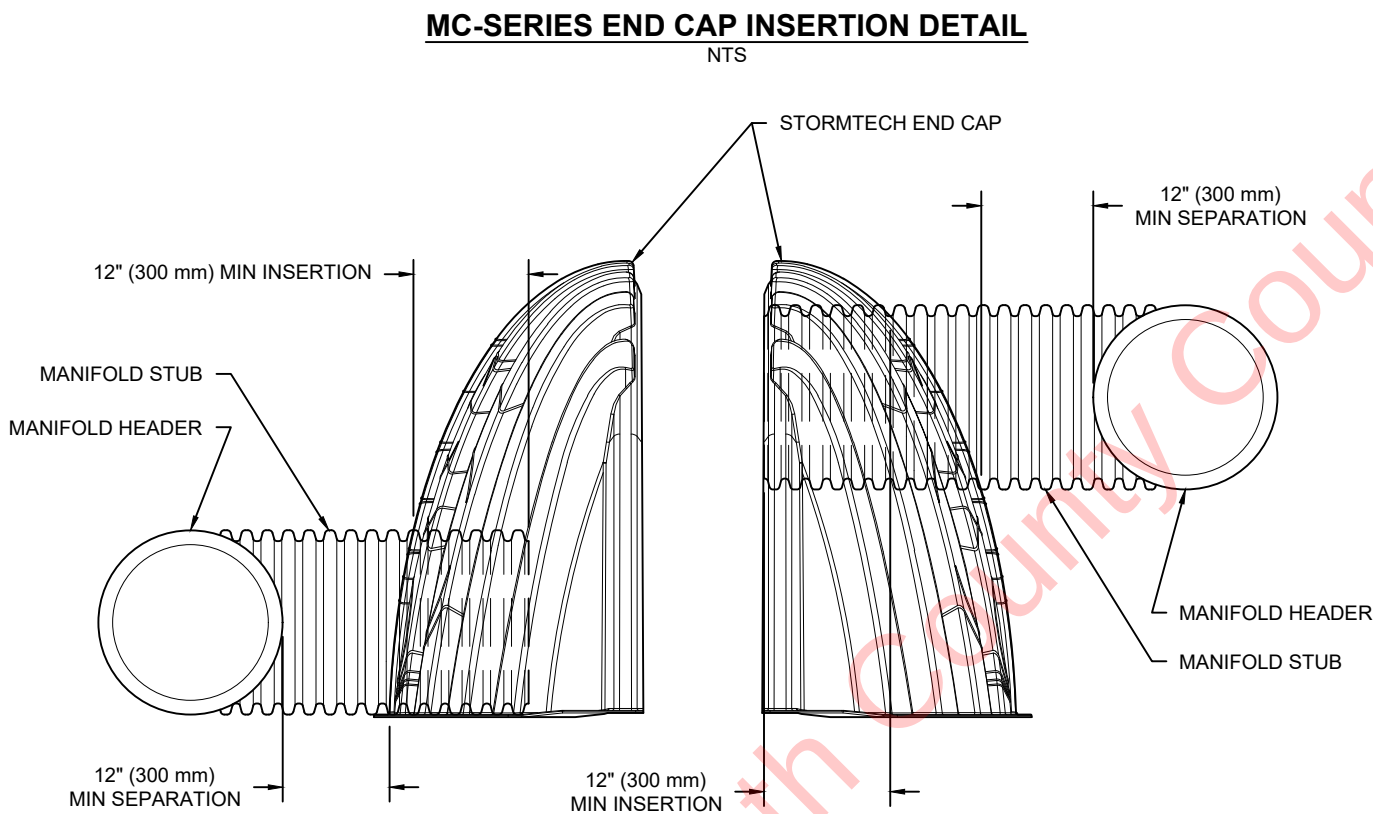
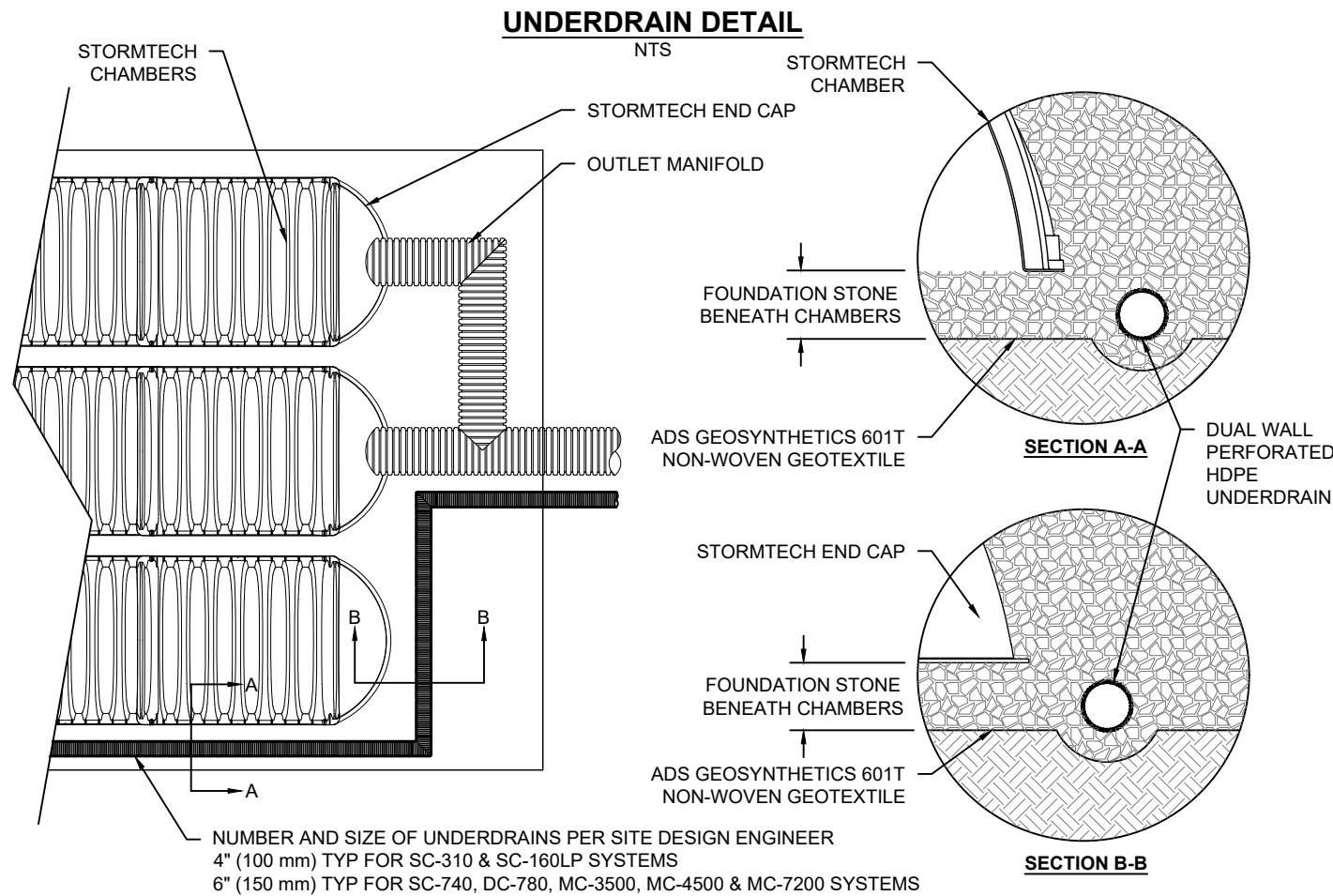
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473



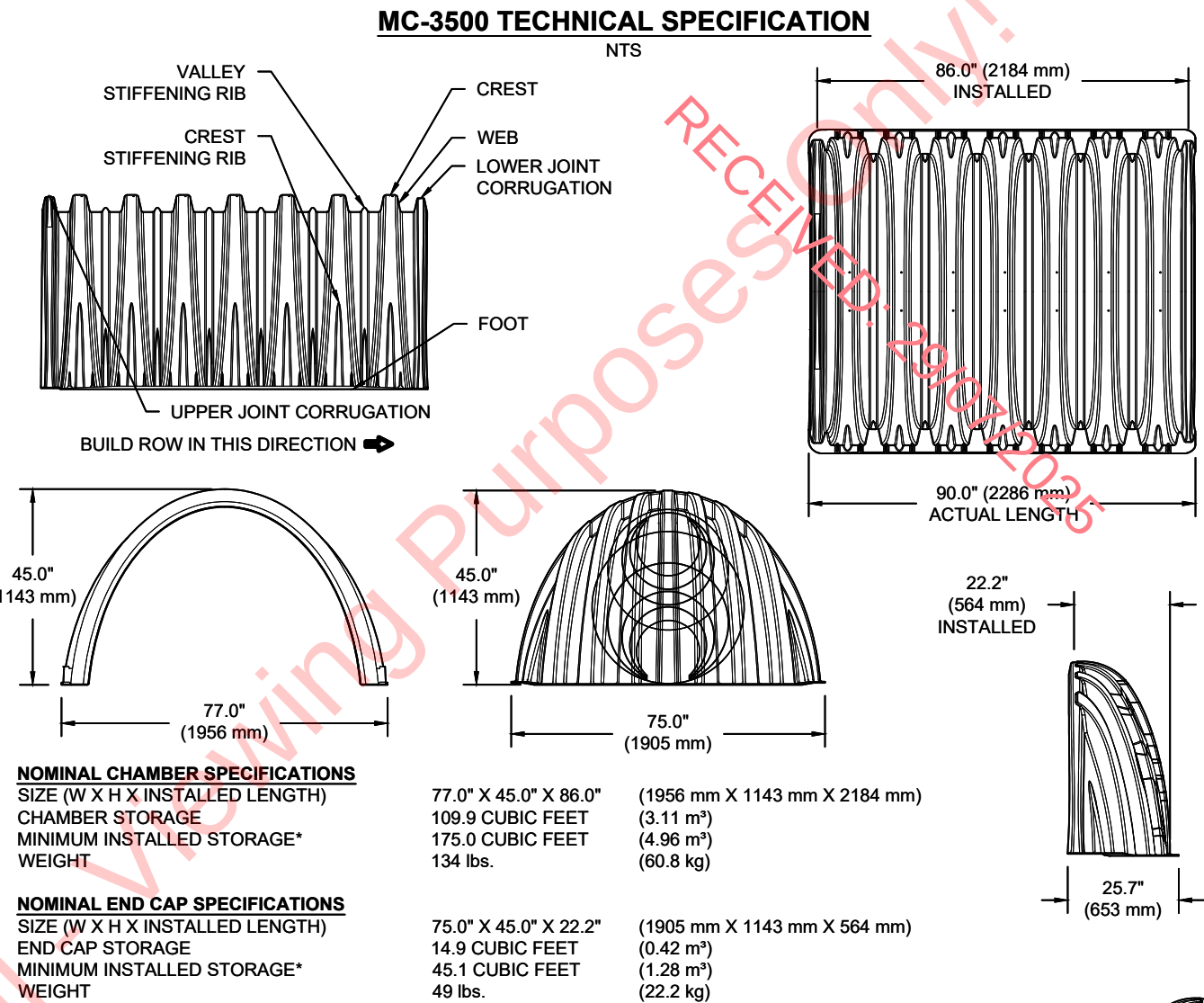
SHEET

4 OF 6

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS BY STORMTECH UNDER THE DIRECTION OF THE PROJECT'S ENGINEER OF RECORD (EOR) OR OTHER PROJECT REPRESENTATIVE. THIS DRAWING IS NOT INTENDED FOR USE IN BIDDING OR CONSTRUCTION WITHOUT THE EOR'S PRIOR APPROVAL. EOR SHALL REVIEW THIS DRAWING PRIOR TO BIDDING AND/OR CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE EOR TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.



STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

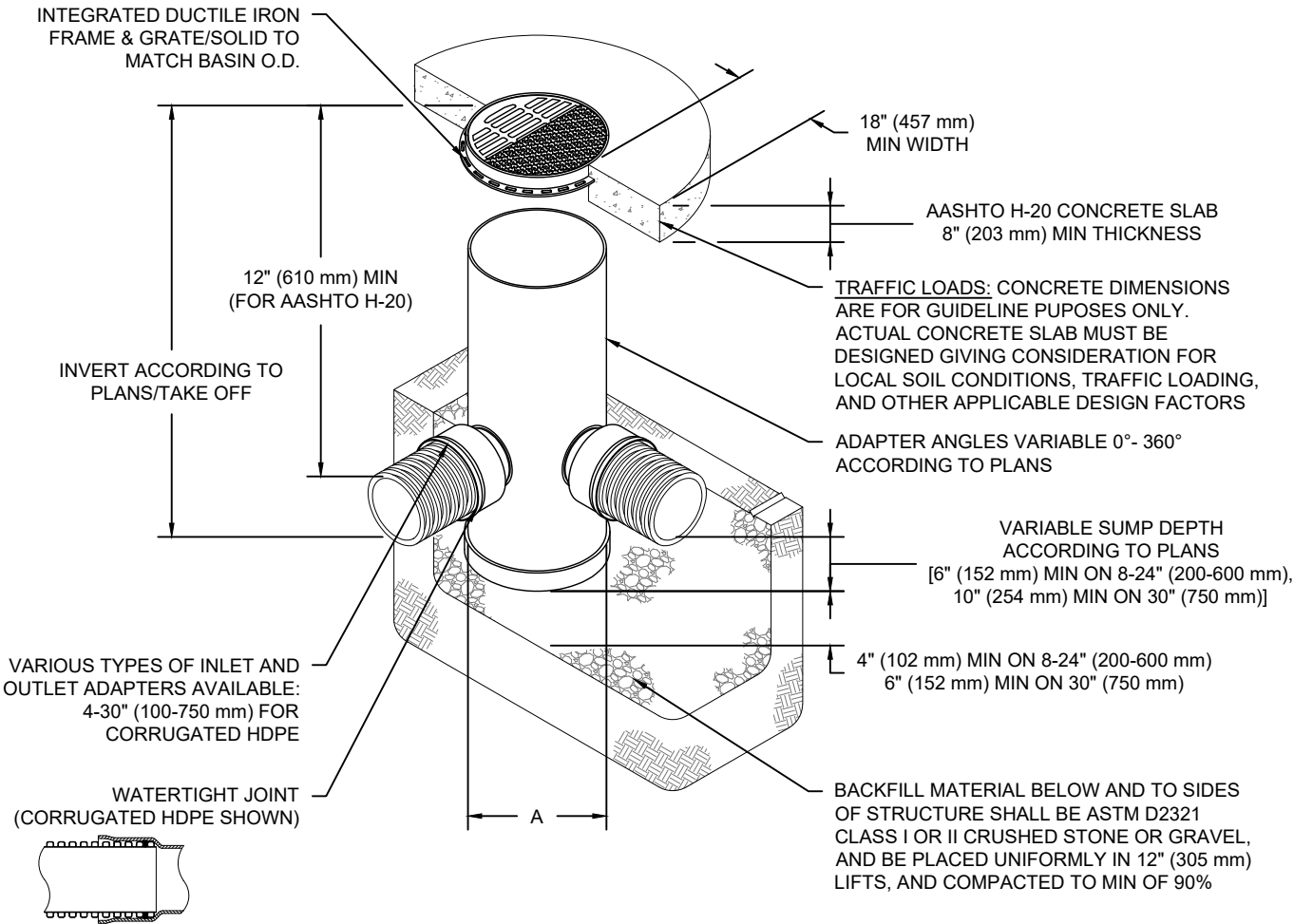
PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW		---	1.77" (45 mm)
MC3500IEPP18BC			
MC3500IEPP18BW	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TC		---	2.06" (52 mm)
MC3500IEPP24TW			
MC3500IEPP24BC			
MC3500IEPP24BW	30" (750 mm)	---	2.75" (70 mm)
MC3500IEPP30BC		---	---

NOTE: ALL DIMENSIONS ARE NOMINAL

CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

NYLOPLAST DRAIN BASIN

NTS



NOTES

- 8-30" (200-750 mm) GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
- 12-30" (300-750 mm) FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
- DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
- DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC
- FOR COMPLETE DESIGN AND PRODUCT INFORMATION: WWW.NYLOPLAST-US.COM
- TO ORDER CALL: 800-821-6710

A	PART #	GRATE/SOLID COVER OPTIONS		
8" (200 mm)	2808AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
10" (250 mm)	2810AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
12" (300 mm)	2812AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
15" (375 mm)	2815AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
18" (450 mm)	2818AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
24" (600 mm)	2824AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
30" (750 mm)	2830AG	PEDESTRIAN AASHTO H-20	STANDARD AASHTO H-20	SOLID AASHTO H-20

AVOURWEN PH 9

DROGHEDA, EUROPE

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770-932-2443 | WWW.NYLOPLAST-US.COM

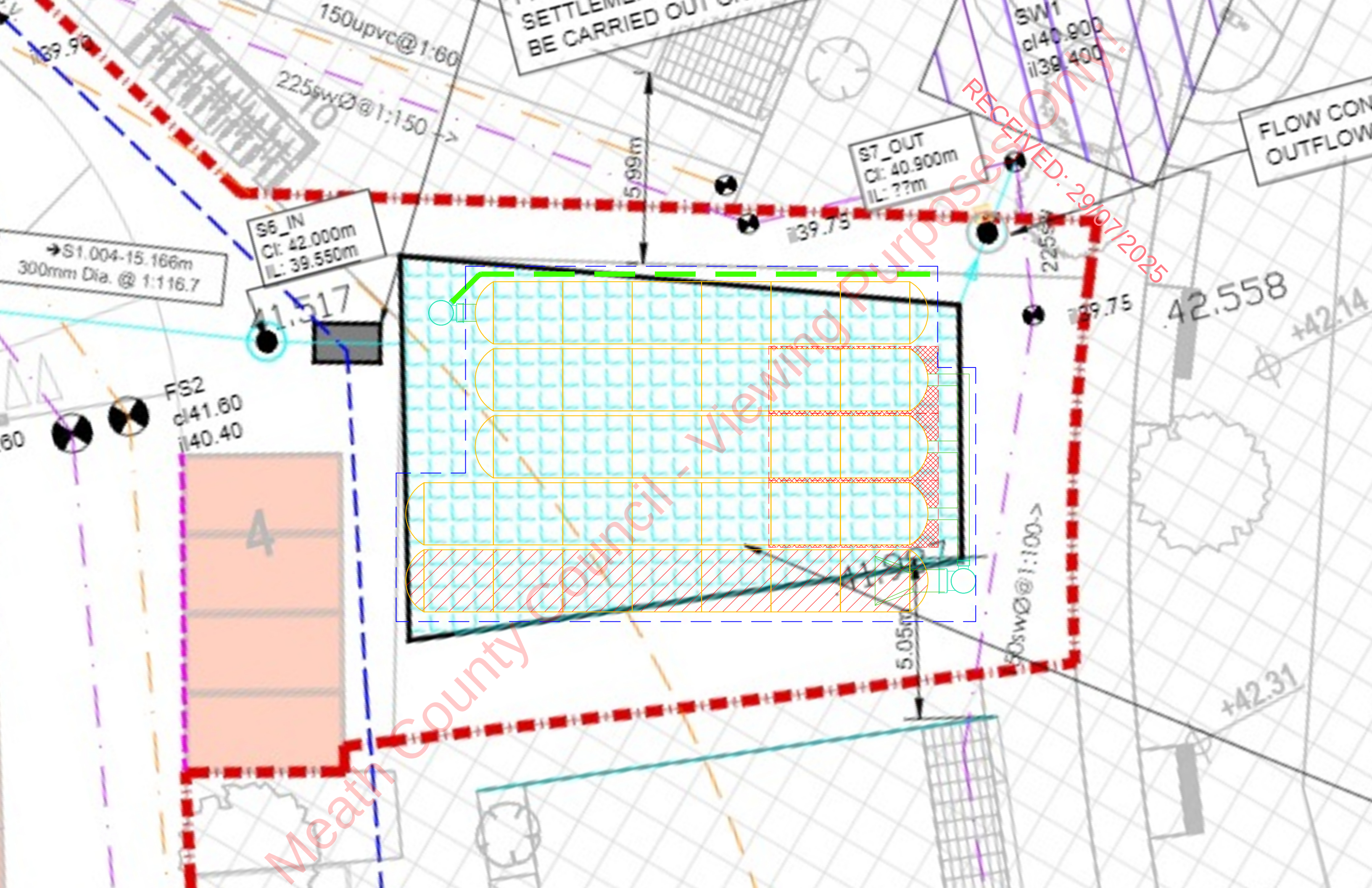
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