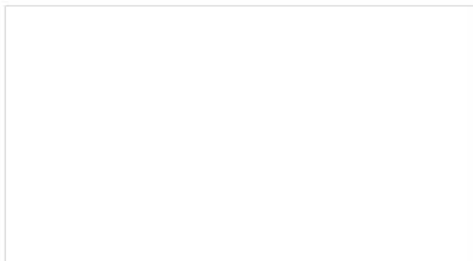


Clifton Scannell Emerson
Associates

Engineering Report - Drainage & Water Services

OLDBRIDGE 110 kV SUBSTATION & TRANSMISSION LINE



Client: CAP Developments LLC

Date: 17th September 2020

Job Number: 20_057

Civil
Engineering

Structural
Engineering

Transport
Engineering

Environmental
Engineering

Project
Management

Health
and Safety

CONSULTING ENGINEERS



Document Control Sheet

Project Name: OLDBRIDGE 110 kV SUBSTATION & TRANSMISSION LINE
Project Number: 20_057
Report Title: Engineering Report - Drainage & Water Services
Filename: CAP-CSE-00-XX-RP-C-10000
CSEA Reference: RPT-20_057-003

Issue No.	Issue Status	Date	Prepared by	Checked by
P01	DRAFT	16/09/2020	SE	PM
P02	FOR REVIEW	08/10/2020	SE	PM
P03	FINAL	13/10/2020	SE	PM
P04	FINAL	14/10/2020	SE	PM
P05	SID Issue	10/11/20	SE	PM

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1 Introduction

The following report is being submitted as part of the planning application at the IDA Business and Technology Park site at Drogheda, Co. Meath. The report outlines the proposals for drainage services and water supply for the development.

1.1 Development Description

The proposed development is to be located on a site within the Drogheda IDA Business and Technology Park, Donore Road, Drogheda, Co. Meath. The development is located to the north of the data storage facility permitted under Reg. Ref.: LB/191735. The site is situated within the townland of Rathmullan and comprises an area of c. 3.1 hectares.

The proposed development primarily comprises the provision of a substation compound and associated dropdown 110kV transmission lines, along with associated and ancillary works and is described as follows:

The proposed substation compound is subdivided into two parts. The western part of the compound will accommodate a two storey 110kV GIS substation building (with a gross floor area of c. 1,447 sq.m). The eastern part of the compound will accommodate four transformers and a single storey client control building (with a gross floor area of c. 423 sq.m) and associated underground services. Both parts of the substation compound are enclosed within 2.6 metre high security fencing.

The proposed dropdown 110kV transmission lines will connect the proposed 110kV GIS substation building to existing 110kV overhead transmission lines traversing the subject site to the west of the proposed substation and will comprise the provision of two dropdown masts (c. 16 metres in height) and associated overhead transmission lines, transitioning to underground transmission lines set within ducts that will subsequently progress into the 110kV GIS Substation building, which will in turn connect to the four transformers.

The development includes access paths, landscaping, security fencing, provision of internal access roads and car parking within the GIS substation compound, provision of a 49kVa electricity connection (c. 544 metres in length, connecting to existing electrical services in the main avenue of the Drogheda IDA Business and Technology Park) for the GIS substation building, a unit substation, lightning masts, services, all associated construction works, and all ancillary works.



Figure 1 Site Subject to Planning Application (in RED)

1.2 Permitted Infrastructure on Landholding

1.2.1 Surface Water Drainage

The proposed surface water network service to the 110kV GIS substation collects runoff from roofs, roads, and other hard standing areas in a sealed system of pipes and gullies. The surface water drainage system service to the adjacent internal road has been granted permission under Meath County Council (MCC) Planning Register Ref: **LB/191735**.

Under the same permitted development, surface water drainage serving the 110kV GIS substation catchment area has been accounted for as part of the overall catchment. The overall permitted development, proposed development and future development catchment area of 18.6 ha will ultimately flow to the permitted attenuation basin of 7549 m³ located in the eastern side of the site. The proposed attenuation system outfalls via a carrier drain which discharges attenuated flows to the existing drainage network in the IDA Estate Road which discharges to Meath County Council (MCC) network

1.3 Water & Wastewater

Watermain and wastewater drainage network services to the permitted development, proposed development and future development has been granted a permission under Meath County Council (MCC) Planning Register Ref: **LB/191735**. The proposed 110kV GIS Substation has a single wastewater & water connection to the GIS building which services a single toilet and tea-station which has been accounted for as part of the permitted development.

A connection application has been submitted to Irish Water which has received a connection offer which has been paid and returned to Irish Water for the permitted development campus, refer to **Appendix A**.

2 Proposed Surface Water Drainage

2.1 Overview

The proposed surface water is designed in accordance with the requirements of the Greater Dublin Strategic Drainage Study (GDSDS). All surface water works including connections will be carried out in accordance with the Code of Practice for Development Works – Drainage. Roads and all underground utilities south of the site has been granted permission under Meath County Council (MCC) Planning Register Ref: LB/191735. The documentation provided in support of that application addressed pre-development greenfield run-off rates for the entire landholding which includes the site subject to this planning application.

The catchment area of the Substation Compound subject to this planning application comprises different proposed surface finish as shown in Table 1 below:

Table 1 Proposed Catchment Surface Finish

Ground Finish	Area m ²
Road Hardstand	2,170.0
Roofs	1,321.8
Stone Fill & Gravel	5,647.3
Concrete Footpath	525.2
Transformers Concrete Base	642.8
Green Open Space	1,226.7

The proposed connection point for positive drainage serving the 110kV GIS substation will be to the permitted manholes which are located in the adjacent road, as shown in drawing No. CAP-CSE-00-XX-DR-C-2110. The catchment area of the transformers will be excluded from discharge to the proposed surface water network and will be connected to the proposed foul network (will be discussed further in

Section 3). Asphalt/Tarmac strips for earthing purposes under the proposed masts and along fence lines will discharge to ground via the adjacent stone fill and gravel areas.

2.2 Proposed Surface Water Network

The pipe network is designed in accordance with the requirement of Table 6.4 of the Greater Dublin Strategic Drainage Study (GSDSDS) – See Figure 2 below.

Parameter	Surface Water Sewers
Minimum depth	1.2m cover under highways 0.9m elsewhere
Maximum depth	Normally 5m
Minimum sewer size	225mm
Runoff factors for pipe sizing	100% paved and roof surfaces 0% off pervious surfaces
Rainfall for initial pipe sizing	50mm/hr rainfall intensity
Minimum velocity (pipe full)	1.0m/s
Flooding	Checks made for adequate protection * No flooding for return period less than 30 years except where explicitly planned Simulation modelling is required for sites greater than 24ha**
Roughness – ks	0.6mm

Figure 2 Extract from GSDSDS - Pipe Design Criteria

Manholes shall be provided at junctions in the network, at changes of direction and gradient and at no more than 90m centres. The surface water pipe network has been modelled using Microdrainage™ software and the results are contained in **Appendix B**.

3 Proposed Wastewater Drainage

3.1 Proposed Wastewater Network

The proposed wastewater drainage network collects domestic wastewater flows from the buildings within the Substation Compound. In addition, rainfall which pass through in the transformers is collected in the wastewater network which discharges to treatment unit (see Section 3.3) before connecting to the main wastewater pipe network.

The proposed wastewater network ties-in to the permitted drainage network before out-falling to the FCC Network will discharge into the foul manhole (Ø225mm pipe) in the adjacent road to the south of the site. Due to site topography it is necessary to provide a wastewater pumping station to serve the proposed Substation Compound.

The proposed foul pipe network has pipe sizes of Ø150mm and Ø225mm. the gradient of these pipes is in accordance to Section 3.6 of Irish Water Code of Practice IW-CDS-5030-03 (Revision 2 – 2020).

3.2 Proposed Wastewater Pumping Station

Due to site topography and the need to maintain pipe gradients which maintain adequate self-cleansing velocity it is necessary to provide a wastewater pumping station to serve the proposed Substation Compound. The pumping station will discharge via an 80mm \varnothing rising main. This rising main outfalls via a stand-off manhole to the south east of 110kV GIS Substation where it outfalls to the permitted gravity system.

The key design parameters for the wastewater pumping station and rising main are summarised as follows:

Low Inlet Invert Level = 51.16 ODm
Sump Level = 50.46 ODm
Stand-off Manhole Outlet = 50.78 ODm
Emergency Storage Volume Available = 1700 litres
Flow Rate (Q) = 6 litres/sec
Rising Main Diameter = Ductile-Iron DN80
Rising Main Length = 185m
Mean Rising Main Velocity = 1.2 m/sec
Roughness Value (Ks) = 0.15mm
Static Head = 0.32 m
Total Estimated Design Head = 5 m approx. (Subject to Detailed Design).

It is envisaged that a proprietary package pumping station solution will be developed at detailed design stage which takes account of the above design criteria (Klargester Pumping System or similar approved).

Reference to Drawing No. CAP-CSE-00-XX-DR-C-2111.

3.3 Pollution Control Measures on Wastewater Network

An additional foul sewer is to be provided to the west of the transformers area in order to capture possible contaminated rainwater from the transformers, the drainage from transformers will pass into Full Retention interceptor (Type NSFA010, 100 litres oil storage capacity; or equivalent) located at downstream of Manhole FMH05. Details of the full retention separator are provided in **Appendix C**. The transformers' bunds will provide surface water storage during the 1 in 30 years storm event prior to discharge into the foul main. Reference to Drawing No. CAP-CSE-00-XX-DR-C-2111.

4 Proposed Water Supply

4.1 Proposed Potable Water

As noted in Section 1.3 of this report, a connection application has been submitted to Irish Water and has received a connection offer. It is proposed to take an 80mm connection from the external watermain in the south east corner of the site. This main is to feed buildings in the site which was accounted for as part of the overall campus water demand calculations, refer to Appendix A.

4.2 Fire Hydrant Main

The proposed development will be served by a \varnothing 250mm fire hydrant main which part of previously permitted development. The fire hydrants will be provided at appropriate locations in accordance with the specialist fire protection contractors design and Meath County Council requirements.

5 Accompanied Information

5.1 Planning Drawings:

This report should be read in conjunction with the following planning drawings issued in support of this application:

Table 2 Planning Drawings list

Drawing Number	Title
CAP-CSE-00-XX-DR-C-0000	COVER SHEET & DRAWING SCHEDULE
CAP-CSE-00-XX-DR-C-2100	SITE LOCATION MAP
CAP-CSE-00-XX-DR-C-2101	SITE LOCATION MAP WITH PROPOSED LAYOUT
CAP-CSE-00-XX-DR-C-2102	OSI MAPPING & EXISTING WAYLEAVES
CAP-CSE-00-XX-DR-C-2103	OVERALL PROPOSED SITE LAYOUT
CAP-CSE-00-XX-DR-C-2104	PROPOSED SITE LAYOUT AND SITE LEVELS
CAP-CSE-00-XX-DR-C-2105	PROPOSED SITE LAYOUT AND SITE LEVELS
CAP-CSE-00-XX-DR-C-2106	PROPOSED FENCING PLAN
CAP-CSE-00-XX-DR-C-2107	PROPOSED 16.5m ARTIC HGV AUTOTRACKING SHEET 1 OF 2
CAP-CSE-00-XX-DR-C-2108	PROPOSED 16.5m ARTIC HGV AUTOTRACKING SHEET 1 OF 2
CAP-CSE-00-XX-DR-C-2109	PROPOSED 10mHGV AUTOTRACKING
CAP-CSE-00-XX-DR-C-2110	PROPOSED & EXISTING SURFACE WATER DRAINAGE LAYOUT
CAP-CSE-00-XX-DR-C-2111	PROPOSED & EXISTING FOUL WATER DRAINAGE LAYOUT
CAP-CSE-00-XX-DR-C-2112	PROPOSED & EXISTING WATERMAIN LAYOUT
CAP-CSE-00-XX-DR-C-2121	PROPOSED GRID CONNECTION CABLE ROUTE - SHEET 1
CAP-CSE-00-XX-DR-C-2122	PROPOSED RURAL SUPPLY CABLE ROUTE - SHEET 1
CAP-CSE-00-XX-DR-C-2123	PROPOSED RURAL SUPPLY CABLE ROUTE - SHEET 2
CAP-CSE-00-XX-DR-C-2124	PROPOSED TRANSMISSION LINE - TYPICAL CROSS SECTIONS
CAP-CSE-00-XX-DR-C-2150	DRAINAGE DETAILS
CAP-CSE-00-XX-DR-C-2151	SECURITY FENCE DETAILS
CAP-CSE-00-XX-DR-C-2152	ROAD DETAILS
CAP-CSE-00-XX-DR-C-2153	FOOTPATH DETAILS
CAP-CSE-00-XX-DR-C-2154	PROPOSED GATE DETAILS - SHEET 1
CAP-CSE-00-XX-DR-C-2155	PROPOSED GATE DETAILS - SHEET 2
CAP-CSE-00-XX-DR-C-2161	TYPICAL DETAILS FOR C2 CHAMBER

5.2 Report Appendices

The report appendices are as listed below:

Table 3 Report Appendices

Appendix	Description
Appendix A	Irish Water Connection Application / Offer
Appendix B	Surface Water Microdrainage Calculations
Appendix C	Proposed Full Retention Separator
Appendix D	Permitted Development Drainage Report

Project Number: 20_057

Project: Oldbridge 110kV Substation & Transmission Line

Title: Engineering Report - Drainage & Water Services

Appendix A: Irish Water Connection

3 Agent details (if applicable):

Contact name: P a u r a i c M a t t h e w s

Company name (if applicable): C S E A

Postal address: S e a f o r t L o d g e
C a s t l e d a w s o n A v e .
B l a c k r o c k C o . D u b l i n

Eircode: A 9 4 P 7 6 8

Telephone: 0 1 2 8 8 5 0 0 6

Email: p a u r a i c . m a t t h e w s @ c s e a . i e

4 *Please indicate whether it is the applicant or the agent who should be contacted relation to the enquiry:

Applicant Agent

Section B | Site details

5 *Site address: D r o g h e d a I D A B u s . P a r k .
D o n o r e R d , D r o g h e d a , C o . L o u t h

6 *Irish Grid co-ordinates of site: Eastings (X) 3 0 6 7 5 0 Northings (Y) 2 7 4 0 0 0
Eg. co-ordinates of GPO, O'Connell St., Dublin: E(X) 315,878 N(Y) 234,619

7 *Local Authority:
Local Authority that granted planning permission (if applicable):
M e a t h C o u n t y C o u n c i l

8 *Planning reference (current reference and any previous planning reference that may be applicable):
L B 1 9 1 7 3 5

Note: The development must have full planning permission before this form is submitted, or enter "EXEMPT" for exempted developments.

9 *Has full planning permission been granted? Yes No

If 'Yes', please provide the date it was granted 2 0 / 0 3 / 2 0 2 0

- 10 *Type of premises:** New Existing
 If 'Existing', please specify existing use of premises:
- 10.1** Date that previous development was last occupied (if applicable): / /
- 10.2** If 'Existing', please provide the WPRN number if known.
- 11 Are there potential contaminated land issues?** Yes No
 If 'Yes', please include a detailed site-specific report on the approach being taken to deal with contaminated land and the measures being taken to mitigate the impact on infrastructure.

Section C | Development details

12 Please outline the industry/business use proposed:

Property type	Select	Property type	Select	Property type	Select
Office	1	School	-	Retail unit	-
Residential care home	-	Institution	-	Industrial unit	1
Hotel	-	Factory	-	Other	-
Other (please specify type)					

13 *Approximate start date of proposed development: / /

14 *Please indicate the type of connection required by ticking the appropriate box below:

- Water** Please go to Section D
Wastewater Please go to Section E
Both Please complete both Sections D and E

Section D | Water connection and demand details

- 15 *Is there an existing connection to public water mains at the site?** Yes No
- 15.1** If yes, is this application for an additional connection to one already installed? Yes No
- 15.2** If yes, is this application to increase the size of an existing water connection? Yes No
- 15.3** Please indicate pre-development water demand (if applicable):

Pre-development peak hour water demand	N/A	l/s
Pre-development average hour water demand	N/A	l/s

Pre-development refers to brownfield sites only. Please include calculations on the attached sheet provided.

Section E | Wastewater connection and discharge details

- 25 ***Is there an existing connection to a public sewer at the site?** Yes No
- 25.1 If yes, is this application for an additional connection to the one already installed? Yes No
- 25.2 If yes, is this application to increase the size of an existing connection? Yes No
- 25.3 Please indicate pre-development wastewater discharge (if applicable):

Pre-development peak discharge	N/A	I/s
Pre-development average discharge	N/A	I/s

Pre-development refers to brownfield sites only. Please include calculations on the attached sheet provided.

- 26 ***Approximate date that wastewater connection is required:** / /

- 27 ***What diameter of wastewater connection is required to service the development?** mm

Please note that the connection size provided may be used to determine the connection charge.

- 28 ***Please indicate the business wastewater hydraulic load (shops, offices, schools, hotels, restaurants, etc.):**

Post-development peak discharge	0.54	I/s
Post-development average discharge	0.09	I/s

Please include calculations on the attached sheet provided.

- 29 ***Please indicate the industrial wastewater hydraulic load (industry-specific discharge requirements):**

Post-development peak discharge	N/A	I/s
Post-development average discharge	N/A	I/s

Please include calculations on the attached sheet provided.

Section F | Supporting documentation

Please provide clear and legible versions of the following mandatory documents (all mandatory):

- > Site location map: A site location map to a scale of 1:1000, which clearly identifies the land or structure to which the application relates. The map shall include the following details: X
 - a) The scale shall be clearly indicated on the map.
 - b) The boundaries shall be delineated in red.
 - c) The site co-ordinates shall be marked on the site location map.
- > Site layout map(s) to a scale of 1:500 showing layout of proposed development, water network and wastewater network layouts, additional water/wastewater infrastructure if proposed, connection points to Irish Water infrastructure. X
- > All design submissions as outlined in the **Irish Water Codes of Practice for Water Infrastructure** and the **Irish Water Codes of Practice for Wastewater Infrastructure**, including the layout of all other services to be provided within the site (for example: gas, electricity, telecommunications). X
- > All design calculations as outlined in the **Irish Water Codes of Practice for Water Infrastructure** and the **Irish Water Codes of Practice for Wastewater Infrastructure**. X
- > Conceptual design of the connecting asset to the proposed development to the existing Irish Water infrastructure including service conflicts, gradients, pipe sizes and invert levels. X
- > Any other information that would help Irish Water assess this application. X

Section G | Declaration

I/We hereby make this application to Irish Water for a water and/or wastewater connection as detailed on this form.

I/We understand that any alterations made to this application must be declared to Irish Water.

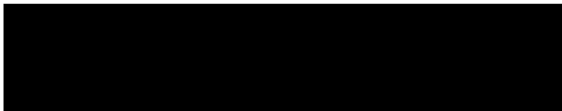
The details that I/we have given with this application are accurate.

I/We have enclosed all the necessary supporting documentation.

Any personal data you provide will be stored and processed by Irish Water and may be transferred to third parties for the purposes of the water and/or wastewater connection process. I hereby give consent to Irish Water to store and process my personal data and to transfer my personal data to third parties, if required, for the purposes of the connection process.

If you wish to revoke consent at any time or wish to see Irish Water's full Data Protection Notice, please see <https://www.water.ie/privacy-notice/>

Signature:



Date:

0 1 / 0 4 / 2 0 2 0

Your full name (in BLOCK CAPITALS):



Irish Water will carry out a formal assessment based on the information provided on this form. Any future connection offer made by Irish Water will be based on the information that has been provided here.

Please submit the completed form to newconnections@water.ie or alternatively, post to:

Irish Water
PO Box 860
South City Delivery Office
Cork City

Please note that if you are sending us your application form and any associated documentation by email, the maximum file size that we can receive in any one email is 35MB.

Please note, if mandatory fields are not completed the application will be returned.

Irish Water is subject to the provisions of the Freedom of Information Act 2014 ("FOIA") and the codes of practice issued under FOIA as may be amended, updated or replaced from time to time. The FOIA enables members of the public to obtain access to records held by public bodies subject to certain exemptions such as where the requested records may not be released, for example to protect another individual's privacy rights or to protect commercially sensitive information. Please clearly label any document or part thereof which contains commercially sensitive information. Irish Water accepts no responsibility for any loss or damage arising as a result of its processing of freedom of information requests.

Calculations

Water demand

INDUSTRIAL COOLING WATER:

Water demand and storage capacities were calculated based on the final build-out of the campus.

Peak Demand per building (adiabatic coolers) = 100,000 L/day

Peak Demand total (adiabatic coolers) = 320,000 L/day

Storage Replenishment Criteria = 24 hours at peak demand

Storage Replenishment Rate = 3.7 l/s

+0.2 L/S for other site uses = 3.90 l/s

+safety margin - total peak usage = 6.00 l/s

Approx. average water use is 1.0 litres / sec

Peak is only needed when temperatures are at a maximum.

STAFF ACCOMMODATION:

Number of Staff - 150 for the full campus

Daily consumption (G) = 45 litre per head per day (Irish Water Code of Practice for Water Infrastructure Doc. No. IW-CDS-5020-03 Section 3.28)

Pf Ind = $1.25 \times 5 = 6.25$ (Section 3.7.2 of IW-CDS-5020-03)

Dry Weather Flow (DWF) = $150 \times 45 / (24 \times 60 \times 60) = 0.08$ litres / sec

Design Flow = DWF x Pf Ind = $0.08 \times 6.25 = 0.5$ litres / sec

On site storage

First Building Storage - 100,000 liters
Total Campus Storage - 320,000 liters

Fire flow requirements

450,000 litres fire sprinkler tank on-site will be filled on building occupancy, infrequent topups thereafter

Number of Staff - 150 for full campus

Daily Consumption (G) = 50 litre per head per day (Irish Water Code of Practice for Wastewater Infrastructure, Document No. IW-CDS-5030-03, Appendix D)

Pf Ind = 6.0 (Section 6.2.5 of IW-TEC-800-01)

Dry Weather Flow (DWF) = $150 \times 50 / (24 \times 60 \times 60) = 0.09$ litres / sec

Design Flow = DWF x Pf Ind = $0.09 \times 6.0 = 0.54$ litres / sec

N/A

Table 1: Wastewater characteristic form

(Only to be filled out if a Trade Effluent Discharge to Sewer Licence is required).

Wastewater characteristic:	Prior to treatment	As discharged
Temperature (oC)		
pH		
Colour (degrees Hazen)		
BOD (mg/l)		
COD (mg/l)		
Suspended solids (mg/l)		
Settleable solids (mg/l)		
Dissolved solids (mg/l)		
Ammonia (as N) (mg/l)		
Nitrates (as N) (mg/l)		
Phosphorus (as P) (mg/l)		
Sulphates (as SO ₄) (mg/l)		
Chlorides (as Cl) (mg/l)		
Phenols (as C ₆ H ₅ OH) (mg/l)		
Detergents (as lauryl sulphate)		
Fats, oils and grease (mg/l)		
Metals (specify each) (mg/l)		
Organohalogen compounds (specify each)		
Organophosphorus compounds (specify each)		
Organotin compounds (specify each)		
Mineral oils or hydrocarbons of petroleum origin (mg/l)		
Other relevant characteristics		

Guide to completing the application form

This form should be completed by customers requiring a business water and/or wastewater connection to Irish Water infrastructure.

The Irish Water Codes of Practice are available at www.water.ie for reference.

Section A | Applicant details

- Question 1:** Please state the Pre-Connection Enquiry (PCE) reference number provided during the Pre-Connection Enquiry Phase if applicable.
- Question 2:** This question requires the applicant or company applying for a connection to identify themselves, their postal address, and to provide their contact details.
- Question 3:** If the applicant has employed a consulting engineer or an agent to manage the application on their behalf, the agent's address and contact details should be recorded here.
- Question 4:** Please indicate whether it is the applicant or the agent who should receive future correspondence in relation to the enquiry.

Section B | Site details

- Question 5:** This is the address of the site requiring the water/wastewater service connection and for which this application is being made.
- Question 6:** Please provide the Irish Grid co-ordinates of the proposed site. Irish grid positions on maps are expressed in two dimensions as Eastings (E or X) and Northings (N or Y) relative to an origin. You will find these coordinates on your Ordnance Survey map which is required to be submitted with the application.
- Question 7:** Please identify the Local Authority that is dealing with your planning application, for example Cork City Council.
- Question 8:** Please provide the planning reference number granting planning approval for your proposed development.
- Question 9:** Please indicate if full planning permission has been granted. If "yes" enter the date it was granted.
- Question 10:** Please indicate if there is an existing premises, and where there is, please specify the current use of the premises, for example commercial or industrial business type. If greenfield, please state 'agricultural'. This will help us to determine the current water demand and wastewater discharge.
- Question 10.1:** Please specify the date that the development site was last occupied. Your answer will help us to determine the previous water usage/wastewater load of the development. If the site was previously greenfield, then this question does not need to be completed.
- Question 10.2:** Water Point Reference Number (WPRN) is a unique number assigned to every single water services connection in the country. The WPRN is prominently displayed on correspondence received from Irish Water, and can be found on water bills, previous connection offers, or previous enquiries in relation to the site. Existing customers and brownfield sites should have a WPRN. New customers are not required to answer this question.
- Question 11:** Please provide details in relation to contaminated land on your site (if any); this will determine what pipe material will be appropriate in the vicinity of the contaminated ground.

Section C | Development details

- Question 12:** Please tick relevant property/premises type in the table provided and if other is selected please specify property/premises type.
- Question 13:** Please indicate the approximate commencement date of works on the development.
- Question 14:** Please indicate the type of connection required by ticking the appropriate box and proceed to complete the appropriate section or sections.

Section D | Water connection and demand details

- Question 15:** Please indicate if a water connection already exists for this site.
- Question 15.1:** Please indicate if this enquiry concerns an additional connection to one already installed on the site.
- Question 15.2:** Please indicate if you are proposing to upgrade the water connection to facilitate an increase in water demand. Irish Water will determine what impact this will have on our infrastructure.
- Question 15.3:** If the site was previously in use, please provide details of the pre-development peak hour and average hour water demand.
- Question 16:** Please indicate the approximate date that the proposed connection to the water infrastructure will be required.
- Question 17:** Please indicate what diameter of water connection is required to service this development.
- Question 18:** If this connection application is for a business premises, please provide calculations for the water demand and include your calculations on the attached sheet provided. Business premises include shops, offices, hotels, schools, etc. Demand rates (peak and average) are site specific. Average demand is the total daily volume divided by a 24-hour time period and expressed in litres per second (l/s). The peak demand for sizing the pipe network will be as per the specific industry's production requirements. For design purposes, please refer to the Irish Water Codes of Practice for Water Infrastructure.
- Question 19:** If this connection application is for an industrial premises, please calculate the water demand and include your calculations on the attached sheet provided. Demand rates (peak and average) are site specific. Average demand is the total daily volume divided by a 24-hour time period and expressed in litres per second (l/s). The peak demand for sizing the pipe network will be as per the specific business production requirements. For design purposes, please refer to the Irish Water Codes of Practice for Water Infrastructure.
- Question 20:** Please specify the ground level at the location where connection to the public water mains will be made. This is required in order to determine if there is sufficient pressure in the existing water infrastructure to serve your proposed development. Levels should be quoted in metres relative to Malin Head Ordnance Datum.
- Question 21:** Please specify the highest finished floor level on site. This is required in order to determine if there is sufficient pressure in the existing water infrastructure to serve your proposed development. Levels should be quoted in metres relative to Malin Head Ordnance Datum.
- Question 22:** If storage is required, water storage capacity of 24-hour water demand must usually be provided at the proposed site. In some cases, 24-hour storage capacity may not be required, for example 24-hour storage for a domestic house would be provided in an attic storage tank. Please calculate the 24-hour water storage requirements and include your calculations on the attached sheet provided. Please also confirm that on-site storage is being provided by ticking the appropriate box.
- Question 23:** The water supply system shall be designed and constructed to reliably convey the water flows that are required of the development including fire flow requirements by the Fire Authority. The Fire Authority will provide the requirement for fire flow rates that the water supply system will have to carry. Please note that while flows in excess of your required demand may be achieved in the Irish Water network and could be utilised in the event of a fire, Irish Water cannot guarantee a flow rate to meet your fire flow requirement. To guarantee a flow to meet the Fire Authority requirements, you should provide adequate fire storage capacity within your development. Please include your calculations on the attached sheet provided, and further provide confirmation of the Fire Authority requirements.
- Question 24:** Please identify proposed additional water supply sources, that is, do you intend to connect to the public water mains or the public mains and supplement from other sources. If supplementing public water supply with a supply from another source, please provide details as to how the Irish Water potable water supply is to be protected from cross contamination at the premises.

Section E | Wastewater connection and discharge details

- Question 25:** Please indicate if a wastewater connection to a public sewer already exists for this site.
- Question 25.1:** Please indicate if this application is for an additional wastewater connection to one already installed.
- Question 25.2:** Please indicate if you are proposing to upgrade the wastewater connection to facilitate an increased discharge. Irish Water will determine what impact this will have on our infrastructure.
- Question 25.3:** If the site was previously in use, please provide details of the pre-development peak and average wastewater discharge.
- Question 26:** Please specify the approximate date that the proposed connection to the wastewater infrastructure will be required.
- Question 27:** Please indicate what diameter of wastewater connection is required to service this development.
- Question 28:** If this connection application is for a business premises, please provide calculations for the wastewater and include your calculations on the attached sheet provided. Business premises include shops, offices, hotels, schools, etc. Discharge rates (peak and average) are site specific. Average discharge is the total daily volume divided by a 24-hour time period and expressed in litres per second (l/s). The peak discharge for sizing the pipe network will be as per the specific business production requirements. Please refer to the Irish Water Codes of Practice for Wastewater Infrastructure.
- Question 29:** If this connection application is for an industrial premises, please calculate the wastewater and include your calculations on the attached sheet provided. Discharge rates (peak and average) are site specific. Average discharge is the total daily volume divided by a 24-hour time period and expressed in litres per second (l/s). The peak discharge for sizing the pipe network will be as per the specific industry's production requirements. Please refer to the Irish Water Codes of Practice for Wastewater Infrastructure.
- Question 30:** Please specify the maximum and average concentrations and the maximum daily load of each of the wastewater characteristics listed in the wastewater organic load table, and also specify if any other significant concentrations are expected in the effluent. Please complete the table and provide additional supporting documentation if relevant. Note that the concentration shall be in mg/l and the load shall be in kg/day. Note that for business premises (shops, offices, schools, hotels, etc.) for which only domestic effluent will be discharged (excluding discharge from canteens/restaurants which would require a Trade Effluent Discharge to Sewer Licence), there is no need to complete this question.
- Question 31:** Where a Trade Effluent Discharge to Sewer Licence is required, it will need to be applied for separately - visit www.water.ie/tradeeffluent Note however that a full suite of quality analysis of the proposed discharge should be provided as part of this application by filling out Table 1 above. If you do not need a Trade Effluent Discharge to Sewer Licence, please do not fill out this form.
- Question 32:** In exceptional circumstances, such as brownfield sites, where the only practical outlet for storm/surface water is to a combined sewer, Irish Water will consider permitting a restricted attenuated flow to the combined sewer. Storm/surface water will only be accepted from brownfield sites that already have a storm/surface water connection to a combined sewer and the applicant must demonstrate how the storm/surface water flow from the proposed site is minimised using sustainable urban drainage system (SUDS). This type of connection will only be considered on a case by case basis. Please advise if the proposed development intends discharging surface water to the combined wastewater collection system.
- Question 33:** If the development needs to pump its wastewater discharge to gain access to the Irish Water infrastructure, then please specify the pump flow rate, timings of discharge, and provide justification for the pumped solution.
- Question 34:** Please specify the ground level at the location where connection to the public sewer will be made. This is required in order to determine if the development can be connected to the public sewer via gravity discharge. Levels should be quoted in metres relative to Malin Head Ordnance Datum.
- Question 35:** Please specify the lowest floor level of the proposed development. This is required in order to determine if the development can be connected to the public sewer via gravity discharge. Levels should be quoted in metres relative to Malin Head Ordnance Datum.
- Question 36:** Please specify the proposed invert level of the pipe exiting the property to the public road.

Section F | Supporting documentation

Please provide additional information as listed.

Section G | Declaration

Please review the declaration, sign, and return the completed application form to Irish Water by email or by post using the contact details provided in Section G.

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A large, empty rectangular box with a thin black border, occupying most of the page. It is intended for the user to write their notes.



Shannon Building
Burlington Road, Dublin 4
Dublin
D04HH21

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

CONNECTION OFFER

To:

Amazon Data Services LTD (ADSIL)

Shannon Building
Burlington Road, Dublin 4
Dublin
D04HH21

(the “Customer”)

Connection Reference: CDS2000232101

Date: 28 May 2020

SUBJECT TO CONTRACT

Re: Providing a Water & Wastewater Service Connection between

the “Network(s)”

AND

Drogheda IDA Business Park
Donore Road, Drogheda

Louth

(the “Customer’s Premises”)

Dear Sir/Madam,

Following receipt of your application for a connection to the Network(s) (the “**Customer Application**”), Irish Water is pleased to offer you (“**You**” or the “**Customer**”), a connection between the Network(s) and the Customer’s Premises, subject to and in accordance with the conditions set out in this Connection Offer (the “**Connection Offer**”), the General Conditions for a Water and/or Wastewater Connection (the “**General Conditions**”, copy attached in Appendix 2) and any Special Conditions pertaining to this connection (the “**Special Conditions**”, as may be attached in Appendix 3).

Stiúrthóirí / Directors: Cathal Marley (Chairman), Níall Gleeson, Eamon Gallen, Yvonne Harris, Brendan Murphy, Maria O’Dwyer

Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin 1, D01 NP86

Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Irish Water is a designated activity company, limited by shares.

Uimhir Chláraithe in Éirinn / Registered in Ireland No.: 530363

This Connection Offer is conditional upon payment of the Connection Charge and the return of the signed Letter of Acceptance (the form of which is included at Appendix 1 to this Connection Offer).

(Please note that capitalised terms not otherwise defined within this Connection Offer shall have the meaning given to them in the General Conditions)

1. Connection Agreement

We enclose a Letter of Acceptance for your consideration.

We would encourage You to read the entirety of this Connection Offer and the Connection Agreement. If You are satisfied with these and wish to proceed, please:

- sign the Letter of Acceptance and return it to **Irish Water, PO Box 860, South City Delivery Office, Cork City**. Alternatively, You can send back a scanned version of the signed Letter of Acceptance to newconnections@water.ie; and
- pay the Connection Charge in accordance with section 3 below.

You and Irish Water acknowledge that there shall be no intention to create any legally binding contract between You and Irish Water unless and until You have completed the above steps.

If, in the opinion of Irish Water, You have not returned the Letter of Acceptance or paid the Connection Charge, no contract shall come into force.

Once the signed Letter of Acceptance has been returned **and** the Connection Charge has been paid, the Connection Agreement shall become legally binding on You and Irish Water and the Connection Works can be carried out. The Connection Agreement is comprised of this Connection Offer, the General Conditions and any Special Conditions. In the event of any conflict or inconsistency between these documents, they shall apply in the following order:

- i. Special Conditions
- ii. General Conditions
- iii. Connection Offer.

Any decision by Irish Water to enter into a Connection Agreement with You is made in reliance on the information in and with Your Customer Application. If the information supplied is incorrect or incomplete, Irish Water reserves the right to apply additional Connection Charges and contract terms.

Irish Water's decision to make a Connection Offer to You is made in reliance on the information contained in and submitted with the Connection Application. If the information supplied is incorrect or found to be materially inaccurate in any way, Irish Water reserves the right to apply additional Connection Charges, to impose additional contract terms and/or take any steps in accordance with the General Conditions.

This Connection Offer is based on a high-level desk top analysis carried out by Irish Water on the feasibility of a connection for your Development. Once the Connection Offer has been accepted by You, Irish Water will begin a detailed design of the connection. If during the process of detailed design Irish Water, at its discretion, forms the opinion (acting reasonably) that either:

- A. a connection to your Development is not feasible or practicable or safe to complete;
or
- B. a connection to your Development would involve the expenditure by Irish Water of monies in excess of that provided for by way of the Connection Charge,

then the Connection Agreement may be terminated by Irish Water in accordance with General Condition 18.

The Connection Agreement shall constitute the entire agreement between You and Irish Water.

Any reference in this Connection Offer to an Appendix is to an appendix to this Connection Offer.

2. Validity of Connection Offer

You have 90 days from the date of this Connection Offer to accept the Connection Offer by returning the Letter of Acceptance **and** paying the Connection Charge. Thereafter, the Connection Offer shall lapse unless otherwise agreed in writing by Irish Water.

3. Connection Charge

The Connection Charge(s) shall be determined in accordance with Irish Water's Connection Charging Policy as set out in the Water Charges Plan (which can be found at www.water.ie/connections)

The Water Connection charge is €123,372.81

The Wastewater Connection charge is €23,344.00

The Total Connection Charge is €146,716.81 ("**Connection Charge**"). A breakdown of the Connection Charge is set out in Appendix 4.

Payment of the Connection Charge can be made by:

- A. Cheque, made payable to "Irish Water" or
- B. Money Transfer, by EFT to the following bank account:

Allied Irish Bank, 40/41 Westmoreland Street, Dublin 2, Ireland.

Account Name	BIC	IBAN
IW AR-EFT	AIBKIE2D	IE29 AIBK 9333 8464 3085 94

Please note that You must quote the Irish Water reference number specified above in any communications and when making payment (see 'Our Reference' on the first page of this letter). The Connection Charge will only be deemed paid when funds have cleared in Irish Water's bank account.

4. Connection Works

Once the Connection Offer has been validly accepted, Irish Water or its agent shall make contact with You to schedule the Connection.

5. Distribution System, Drains and Service Connection

You are responsible for providing, maintaining and renewing the Distribution System and/or Drains and Service Connection required for the provision of Water Services (see General Condition 10).

6. Cancellation by the Customer

You may cancel the proposed Connection by writing to Irish Water at the contact address set out below within fourteen (14) Business Days of returning the Letter of Acceptance:

- noting that you wish to cancel the Connection; and
- quoting the reference number set out above (see 'Our Reference' on the first page of this letter);

No charges will be incurred by You unless the Connection or part thereof has already been carried out with your agreement. If You cancel the Connection in accordance with this paragraph, Irish Water will refund any payment which You have already made for the proposed Connection, subject to any costs that may have already been incurred by Irish water in the provision of the Connection.

7. Queries

If You have any queries in relation to the payment of the Connection Charge or otherwise, please contact Irish Water's Customer Service Department at:

Telephone: 1850 278 278 or +353 1 707 2828

Email: newconnections@water.ie

Web: www.water.ie/contact-us

8. Disputes

Any dispute in respect of the terms of this Connection Offer (including in relation to the Connection Charge) may be referred to the Commission for Regulation of Utilities for determination.

Once a legally binding Connection Agreement comes into force, all disputes in relation to your agreement with Irish Water shall be resolved pursuant to General Condition 30 of the General Conditions (attached).

9. Next Steps

- **Accepting the Offer:** sign and return the Letter of Acceptance and pay the Connection Charge.
- **Customer Construction Phase:** If required, Irish Water or its agent will contact You in relation to the connection assets required to facilitate your connection to the Network(s).
- **Connection to Network(s):** Irish Water or its agent will contact You to arrange a suitable time to complete the Connection Works.

We look forward to hearing from You.

Yours sincerely,



Maria O'Dwyer,
Connections and Developer Services Manager
For and on behalf of Irish Water

Appendix 1

Letter of Acceptance

Letter of Acceptance

[to be returned to Irish Water]

Irish Water
PO Box 860
South City Delivery Office
Cork City

I/we have read, understood, accept and agree to comply in full with the terms of the Connection Offer dated 28 May 2020, the General Conditions and any Special Conditions (which together constitute the Connection Agreement).

I/we further understand and acknowledge that there shall be no intention to create any legally binding contract between me/us and Irish Water unless and until I/we have completed, signed and returned this Letter of Acceptance and paid the Connection Charge.

I/we have made payment for Connection Reference CDS2000232101 via

Electronic Funds Transfer EFT
Cheque

Customer address: One Burlington Plaza, Burlington Road, Dublin 4, Ireland

Customer's signature: [Redacted Signature]

For and on behalf of: Amazon Data Services Ireland Limited

Print full name of Customer in BLOCK letters: [Redacted Name]

Date: July 31, 2020

Connection Reference: CDS2000232101

Letter of Acceptance

[Customer Copy]

[to be retained by Customer]

I/we have read, understood, accept and agree to comply in full with the terms of the Connection Offer dated [__insert date__], the General Conditions and any Special Conditions (which together constitute the Connection Agreement).

I/we further understand and acknowledge that there shall be no intention to create any legally binding contract between me/us and Irish Water unless and until I/we have completed, signed and returned this Letter of Acceptance and paid the Connection Charge.

I/we have made payment for Connection Reference CDS2000232101 via

- Electronic Funds Transfer EFT
- Cheque

Customer address: _____

Customer's signature: _____

For and on behalf of: _____

Print full name of Customer in BLOCK letters: _____

Date: _____

Connection Reference: CDS2000232101

APPENDIX 2

General Conditions



IRISH WATER

General Conditions for a Water and/or Wastewater Connection

(Version 0.2)

February 2019

General Conditions for a Water and/or Wastewater Connection (the “General Conditions”)

1. Definitions: In these General Conditions the following definitions apply:

“**Affiliate**” of a Person means any subsidiary or holding company (within the meaning given to such expressions by the Companies Act 2014) of such Person or any subsidiary of any such holding company;

“**Applicable Law**” means all Acts of the Oireachtas, statutory instruments, regulations, orders and other legislative provisions which in any way relate to the Connection Agreement, including the Water Services Acts, the Building Regulations, the Construction Regulations and any code or guidance as may be issued from time to time by any Regulator or relevant industry authority. Any reference to “Applicable Law” or any enactment or statutory provision is a reference to it as it may have been, or may from time to time be amended, modified, consolidated or re-enacted;

“**Building Regulations**” mean the Building Control Acts 1990 to 2014 and all subordinate legislation and regulations made pursuant to the said Acts including, without limitation the Building Control Regulations 1997 to 2017 and relevant codes of practice, and any amendment, update or replacement or repeal thereof;

“**Business Day**” means every day other than a Saturday or Sunday or bank or public holiday in Ireland;

“**Competent Authority**” means any local or national or supra-national agency, authority, department, inspectorate, ministry, official or public or statutory Person (whether autonomous or not) or regulatory authority of Ireland or of the European Union which has jurisdiction over any of the Parties to the Connection Agreement and the subject matter of the Connection Agreement, including the Commission for Regulation of Utilities but excluding a court or tribunal of competent jurisdiction;

“**Connection Charging Policy**” means the Irish Water Connection Charging Policy which may be found at www.water.ie/connections;

“**Connection Offer**” means the conditional offer letter issued by Irish Water to the Customer relating to the connection of the Customer’s Premises to the Network(s) and which forms part of the Connection Agreement;

“**Connection Agreement**” means the agreement between the Customer and Irish Water to facilitate the connection of the Customer’s Premises to the Network(s), which shall be comprised of the Connection Offer (including the appendices thereto), the General Conditions and the Special Conditions (if any);

“**Connection Charge**” means the charge for connecting to the Irish Water Waterworks and/or Wastewater Works (as the case may be), as specified in the Connection Offer. The Connection Charge shall only be deemed paid when funds have cleared in Irish Water’s bank account;

“**Connection Facilities**” means the facilities (including the Service Connection(s)) required

to be constructed and/or upgraded and installed by Irish Water in order to connect the Customer's Pipe Work to the Network(s);

“Connection Point(s)” means a location or locations to be determined by Irish Water (which may be outside the boundary to the curtilage of the Customer's Premises) at which the Customer's Pipe Work is to be connected to the Waterworks (where, as specified in the Connection Offer, the Customer requires connection to the Waterworks) or the Wastewater Works (where, as specified in the Connection Offer, the Customer requires connection to the Wastewater Works) (via the Service Connection(s)). Connection Points may differ for both the Waterworks and Wastewater Works;

“Connection Works” means the permanent and temporary works and services to be performed by or on behalf of Irish Water in the acquisition, design, procurement, construction and installation of the Connection Facilities and the obtaining of permits and the tie-in and commissioning of a Connection Point(s) in accordance with the requirements of this Connection Agreement;

“Construction Regulations” means the Safety Health and Welfare at Work Act 2005, the Safety Health and Welfare at Work (General Application) Regulations 2007 to 2016 as amended, the Safety Health and Welfare at Work (Construction) Regulations 2013 as amended and any guidance requirements issued from time to time from the Health and Safety Authority;

“Customer” means the person or entity to whom the Connection Offer is addressed and who has entered into the Connection Agreement with Irish Water;

“Customer's Pipe Work” means the pipe, relating fittings and associated accessories to be laid by the Customer within the boundary of the Customer's Premises in accordance with Relevant Standards and Applicable Laws, , and the Distribution System (if connecting to the Waterworks) and the Drain (if connecting to the Wastewater Works), to be used to connect the Customer's Premises at a Connection Point;

“Customer's Premises” means the premises identified as such in the Connection Offer, including any part of any public or private building, vessel, vehicle, structure or land (whether or not there are structures on the land and whether or not the land is covered with water), and any plant or related accessories on or under such land, or any hereditament of tenure, together with any out-buildings and curtilage and which is:

- receiving Water Services; or
- specified in an application for Water Services completed by the Customer; or
- a premises deemed to be a premises by Irish Water; or
- such other premises as may be notified by the Customer to Irish Water and accepted in writing by Irish Water from time to time, but does not include land which is a Public Road, a road which is the subject of an order under Section 11 of the Roads Act 1993 or a road which has been taken in charge by a local

authority pursuant to a non-statutory local authority taking in charge scheme;

“Deed(s) of Grant of Wayleaves and Easements” means the Deed(s) of Grant of Wayleaves and Easements referred to in Clause 10 hereof;

“Dispute” means a difference or dispute between the Parties arising out of or in connection with this Connection Agreement;

“Distribution System” means a pipe and its related fittings, that is used or to be used as the case may be to convey water into or through one or more Customer’s Premises (including any related internal or external taps) excluding a Service Connection;

“Drain” means a drainage pipe, or system of such pipes and related fittings for collection of Wastewater, that is not owned by, vested in or controlled by Irish Water, and that is not a Service Connection, which is used or to be used as the case may be, to convey Wastewater from one or more Customer’s Premises or to any wastewater treatment system on a Customer’s Premises where the Wastewater is generated;

“Environment” means the environment generally, including all physical, biological and ecological aspects of the environment and:

- (a) air, including that within buildings or natural or man-made structures above or below ground;
- (b) water, including the open sea, coastal or inland waters, ground waters, aquifers, drains and sewers;
- (c) land, including the seabed or riverbed under any water as described above, and any surface land and sub-surface land; and
- (d) human and animal health, and plant life;

“Environmental Law” means any statute or common law, or other requirement having the effect of law, in Ireland relating to the Environment, including without limitation the provisions of the Water Services Acts and Local Government (Water Pollution) Acts 1977 to 2007;

“Environmental Protection Agency” means the Environmental Protection Agency established pursuant to the Environmental Protection Agency Act, 1992;

“Force Majeure” means any event not within the reasonable control of a Party and which could not have been prevented or the consequences of which could not have been prevented by a Party acting and having acted as a Reasonable and Prudent Operator and which has the effect of preventing a Party from complying with its obligations under this Connection Agreement, including:

- acts of terrorists;
- war declared or undeclared, blockade, protest, revolution, riot, insurrection, civil commotion, invasion or armed conflict;

- sabotage or acts of vandalism, criminal damage or the threat of such acts;
- extreme weather or environmental conditions including drought, extreme storms, lightning, fire, landslip, accumulation of snow or ice, natural disasters and phenomena including meteorites, the occurrence of pressure waves caused by aircraft or other aerial devices travelling at supersonic speeds, impact by aircraft, volcanic eruption, explosion including nuclear explosion, radioactive or chemical contamination or ionising radiation;
- any change of legislation, governmental order, restraint or directive having the effect of preventing or delaying the performance of any obligation hereunder;
- a strike or any other form of industrial actions by persons employed by the affected Party or by any local authority or by any contractor, subcontractor or agent of the affected Party;
- any strike which is part of a labour dispute of a national character occurring in Ireland or elsewhere;
- the act or omission of any contractor, subcontractor or supplier of either Party but only if due to an event which, but for the contractor, subcontractor or supplier not being a Party to the Connection Agreement, would have been Force Majeure;
- an outbreak of foot and mouth or any other restrictions put in place as part of a strategy to contain a communicable disease in Ireland; and
- the collapse of the euro currency;

provided that the following shall not constitute Force Majeure:

- lack of funds and/or the inability of a Party to pay; and
- mechanical or electrical breakdown or failure of machinery or plant owned or operated by either Party other than as a result of the circumstances identified above;

“Irish Water” means Irish Water (Uisce Éireann) a designated activity company incorporated in Ireland (company registration number 530363) and having its registered office at 24-26 Talbot Street, Dublin 1;

“Legal Requirement” means any Applicable Law, legislation or directive, regulation, requirement, instruction, direction or rule of any Competent Authority binding on either or all of the Parties to this Connection Agreement and includes any modification, extension or replacement thereof then in force;

“Network(s)” means the Waterworks and/or the Wastewater Works, as applicable and

specified on the face of the Connection Offer, and any related lands, which are owned by, vested in, controlled or used by Irish Water;

“PRA Compliant Map” means ordinance survey plans, suitable for registration of any Deed of Grant of Wayleaves and Easements relating to property intended to be taken in charge by the local authority and the Connection Facilities to be vested in Irish Water together with all easements relating thereto suitably identified by the relevant symbols and/or colours designated by the Property Registration Authority.

“Public Road” means a road over which a public right of way exists and the responsibility for the maintenance of which lies on a road authority;

“Reasonable and Prudent Operator” means a person acting in good faith with the intention of performing its contractual obligations hereunder and in so doing and who in the general conduct of its undertaking exercises that degree of skill and diligence which would reasonably and ordinarily be exercised by a skilled and experienced operator complying with Applicable Law engaged in the same type of undertaking under the same or similar circumstances and conditions and the expression **“Standard of a Reasonable and Prudent Operator”** shall be construed accordingly;

“Regulator” means, where applicable, all present and future regulatory bodies having jurisdiction over Irish Water including, but not limited to, the Commission for Regulation of Utilities, the Environmental Protection Agency, the Minister of Housing, Planning and Local Government, the Office of the Data Protection Commissioner, the Competition and Consumer Protection Commission and/or any other statutory body or regulatory authority which regulates on an on-going basis or from time to time the business or operations of Irish Water;

“Relevant Standards” means the Connections and Developer Services Standard Details and Codes of Practice published and amended from time to time by Irish Water which are applicable to the Customer’s Pipe Work and which are available on the Irish Water website (www.water.ie/Connections);

“Service Connection” means a water supply pipe or drainage pipe, together with any accessories and related fittings, extending from a Waterworks (where, as specified in the Connection Offer, the Customer requires connection to the Waterworks) or Wastewater Works (where, as specified in the Connection Offer, the Customer requires connection to the Wastewater Works) to the outer edge of the boundary to the curtilage of the Customer’s Premises and used, or to be used as the case may be, for the purpose of connecting the Customer Premises with a Waterworks and/or Wastewater Works (as the case may be), and, if used or to be used for connecting more than one such premises it shall extend to the outer edge of the boundary to the curtilage of the premises which is furthest from the said Waterworks and/or Wastewater Works (as the case may be);

“Sewage” and **“Sewage Effluent”** have the meanings assigned to them by the Local Government (Water Pollution) Acts 1977 to 2007;

“Sewers” means sewers of every description, excluding Storm Water Sewers, owned by,

vested in or controlled by Irish Water, but does not include a Drain or Service Connection;

“Special Conditions” means any special conditions attached to the Connection Offer or as may be agreed from time to time;

“Storm Water” means run-off rainwater that enters any pipe;

“Storm Water Sewer” means any pipe or other conduit (a) used solely for the conveyance of Storm Water; or (b) designed or intended to be used for the conveyance of Storm Water (whether or not it is connected to a sewer by a ‘storm water overflow’ within the meaning of the Waste Water Discharge (Authorisation) Regulations 2007;

“Wastewater” means Sewage or other Sewage Effluent discharged, or to be discharged, to a Drain, Service Connection or Sewer but does not include Storm Water;

“Wastewater Works” means Sewers and their accessories, and all other associated physical elements used for collection, storage, measurement or treatment of Wastewater, and any related lands, which are owned by, vested in, controlled or used by Irish Water;

“Water Main” means water supply pipes owned by, vested in or controlled by Irish Water but does not include pipes, fittings and appliances to which the terms "Service Connection" or "Distribution System" apply;

“Water Services” means all services, including the provision of water intended for human consumption, which provide storage, measurement, treatment or distribution of surface water, ground water, and/or Wastewater collection, storage, measurement, treatment or disposal;

“Water Services Acts” means the Water Services Acts 2007 to 2017;

“Waterworks” means water sources, Water Mains and their accessories, and all other associated physical elements used for the abstraction, treatment, storage, measurement or distribution of water, and any related land, which are owned by, vested in, controlled or used by Irish Water;

“Water Supply Maintenance Point” means the point at which a Service Connection for water supply enters the boundary to the curtilage of the Customer’s Premises.

2. Interpretation: Unless the context otherwise requires, any reference in this Connection Agreement to:

2.1 any gender includes the other;

- 2.2 a statute, bye laws, regulation, delegated legislation or order is to the same as amended, modified or replaced from time to time and to any bye law, regulation, delegated legislation or order made thereunder;
- 2.3 any agreement, instrument or code is to the same as amended, novated, modified, supplemented or replaced from time to time;
- 2.4 unless otherwise specified any reference in this Connection Agreement to a "Clause" or "Appendix" is a reference to a Clause or Appendix in this Connection Agreement;
- 2.5 **"including"** means comprising but not by way of limitation to any event, class, list or category;
- 2.6 a **"Person"** shall be construed as a reference to any natural or legal person, firm, company, corporation, Government or Agency of a State or any association or partnership (whether or not having separate legal personality). A Person includes that person's legal or personal representative, permitted assigns and successors;
- 2.7 **"Party"** means a party to this Connection Agreement and **"Parties"** shall be construed accordingly;
- 2.8 the singular shall include the plural and vice versa;
- 2.9 words not otherwise defined that have well-known and generally acceptable technical or trade meanings in the water industry are used in this Connection Agreement in accordance with such recognised meanings;
- 2.10 where a word or expression is defined in this Connection Agreement, related words and expressions shall be construed accordingly;
- 2.11 headings are for ease of reference only and shall not affect its construction;
- 2.12 time shall be construed by reference to whatever time is applicable in Ireland; and
- 2.13 where a Party is required to use **"all reasonable endeavours"** that Party should explore all avenues reasonably open to it, and explore them all to the extent reasonable, but the Party is neither obliged to disregard its own commercial interests, nor required to continue trying to comply if it is clear that all further efforts would be futile; and
- 2.14 references to the "Commission for Regulation of Utilities" shall include any Competent Authority which may replace or succeed the Commission and assume its functions in relation to the regulation of the water industry in Ireland.

3. Defined Terms in Connection Offer: Terms which appear in uppercase in these General Conditions which are not otherwise defined shall have the meaning given to them in the Connection Offer.

4. Order of Precedence: In the event of inconsistency or conflict between the Connection Offer, the General Conditions and the Special Conditions, the following order of precedence will apply: (1) Special Conditions (2) General Conditions (3) Connection Offer.

5. Regulated Entity: Irish Water operates within a regulatory framework governed by the Regulators.

6. **New Connection:** Irish Water shall charge and the Customer has agreed to pay in full the Connection Charge notified to the Customer in the Connection Offer. Following payment by the Customer, Irish Water shall perform or procure a third party to perform its obligations under the Connection Agreement and the Customer shall perform its obligations under the Connection Agreement.
7. **Sub-contractors/Agents:** The Customer acknowledges that Irish Water may sub-contract or engage an agent to perform certain of the obligations of Irish Water pursuant to the Connection Agreement, in which case, Irish Water shall not be relieved of any obligation or liability with respect to its rights or obligations under the Connection Agreement. The Customer shall have no recourse to any such third party; the Customer's sole recourse shall be to Irish Water in accordance with the Connection Agreement.
8. **Rights and obligations under law.** Nothing in this Connection Agreement shall affect or prejudice any rights, duties or obligations of the Parties under Applicable Laws.
9. **Principal Obligations:**
 - 9.1 Subject to the terms of this Connection Agreement, Irish Water will carry out (or procure the carrying out) of Connection Works to facilitate the connection of the Customer's Premises to the Waterworks and/or Wastewater Works as specified in the Connection Offer).
 - 9.2 The Customer will:
 - 9.2.1 carry out its obligations pursuant to Clause 10 to facilitate the connection of the Customer's Premises to the Waterworks and/or Wastewater Works (as the case may be and as specified in the Connection Offer);
 - 9.2.2 comply with all Relevant Standards and Applicable Laws and obtain all necessary easements, licences, permits or authorisations that may be required in connection with the performance of its obligations and its receipt of the Water Services pursuant to this Connection Agreement.
10. **Customer's Connection Obligations:**
 - 10.1 The Customer shall:
 - 10.1.1 make payment to Irish Water of the Connection Charge set out in the Connection Offer;
 - 10.1.2 in a timely manner, provide, install, test and commission within the boundary to the curtilage of the Customer's Premises all Customer Pipework necessary to connect the Customer's Premises, Distribution System (if connection is to Waterworks) and Drain(s) (if connection is to Wastewater Works) to the Network(s) at the Connection Point(s) in accordance with Relevant Standards and Applicable Law;
 - 10.1.3 provide safe, free and unrestricted access (which access may not be exclusive) for Irish Water and, and all parties acting on its behalf, to any

land or premises of the Customer when reasonably required for the purposes of Irish Water's functions or in relation to this Connection Agreement;

10.1.4 if required by Irish Water in the Connection Offer and at the Customer's own cost, procure adequate way-leaves and easements from third party landowners for the Customer Pipe Work and the Connection Facilities (so that Irish Water and all parties acting on its behalf can establish and carry out the Connection Works) and if required by Irish Water:

10.1.4.1 deliver for approval by Irish Water the PRA Compliant Map;

10.1.4.2 where the Connection Facilities are not entirely comprised within the boundaries of the lands owned by the Customer, the Customer shall deliver to Irish Water a Deed of Grant of Wayleaves and Easements (in duplicate) for the benefit of Irish Water and the Connection Facilities, duly executed by the applicable landowner (to include without limitation a protected strip of ten metres, five metres on either side of the Connection Facilities, in respect of the full length of the Connection Facilities, unless an alternative strip width has been agreed in writing with Irish Water) **TOGETHER WITH** the PRA Compliant Map. The required form of Deed of Grant of Wayleaves and Easements will be provided by Irish Water on request;

10.1.4.3 irrevocably instruct its appointed solicitor to use best endeavours to stamp and register the Deed(s) of Wayleaves and Easements in the Property Registration Authority as soon as practicable at the Customer's expense and to provide notice of the relevant dealing number and evidence of such registration to Irish Water immediately following completion of registration **PROVIDED THAT** if requested by Irish Water the Customer shall consent to Irish Water taking over the registration process, and the Customer undertakes and agrees to assist Irish Water with this registration process following written request to do so;

10.1.4.4 specifically include reference and notice of the Deed(s) of Wayleaves and Easements in favour of Irish Water in any transfers, conveyances, assignment, lease and/or licence which it may have with any third party.

10.1.5 inform Irish Water, and all parties acting on its behalf, of any relevant safety precautions before entry to the Customer's Premises. Since Irish Water will not be aware of the specific hazards present on the Customer's Premises, the Customer is obliged to inform Irish Water of such hazards. The Customer must ensure that Irish Water, and all parties acting on its behalf, are either accompanied at all times by the Customer, or has been adequately briefed as to the presence of any specific hazards, the precautions that must be taken and what to do in the event of an accident or emergency;

- 10.1.6 co-operate with and assist Irish Water, and all parties acting on its behalf;
 - 10.1.7 not unreasonably interfere with or restrict the carrying out of Irish Water's obligations in accordance with this Connection Agreement;
 - 10.1.8 not do or cause or permit to be done anything which causes, or could reasonably be expected to cause, damage or destruction to any part of the Connection Works or in any way interferes with its operation or materially interferes with Irish Water's (and all parties' acting on its behalf) access to same;
 - 10.1.9 be solely responsible at all times for maintaining and keeping excavations and reinstatements on its property in a safe and secure condition and will indemnify and keep indemnified Irish Water, its servants, agents and contractors against all claims, demands, proceedings, damages and expenses whatsoever in respect thereof;
 - 10.1.10 where there is to be a connection to the Waterworks, accept liability for the care, maintenance, renewal and repair of the Customer Pipework and the plumbing fixtures and fittings and associated pipework of the Distribution System up to the Connection Point where the Service Connection connects with the Distribution System, to ensure that such infrastructure complies at all times with Applicable Law including but not limited to European Union (Drinking Water) Regulations 2014 and any regulations that may be made under Section 54 of the Water Services Act 2007 or any bye-laws made by Irish Water. Irish Water shall accept no responsibility for the maintenance, renewal, adequacy, safety or other characteristics of such infrastructure, save that, in terms of water supply, Irish Water shall maintain and repair that part of the Service Connection extending from the Waterworks up to the Water Supply Maintenance Point;
 - 10.1.11 where there is to be a connection to the Wastewater Works, accept liability for the care, maintenance, renewal and repair of the Customer Pipe Work and the plumbing fixtures and fittings and associated pipework of any Drains up to the Connection Point with the Service Connection to which those Drains are connected. Irish Water shall accept no responsibility for the maintenance, renewal, adequacy, safety or other characteristics of such infrastructure. Any Drain or Drains located within the boundary to the curtilage of the Customer's Premises and/or any system of Drains that drains more than one premises within the boundary to the curtilage of those Customer's Premises shall be the sole responsibility of the Customer; and
 - 10.1.12 agree the timing of any works to be carried out by the Customer with Irish Water.
- 10.2 The Customer shall take such steps as Irish Water may notify from time to time to prevent a risk to human health or the environment, to facilitate the reasonable conservation of water, to ensure the proper and effective management of Water Services, to prevent contamination of any Waterworks (where there is to be a connection to the Waterworks), and to protect the Wastewater Works (where there

is to be a connection to the Wastewater Works).

- 10.3 The Customer shall not allow discharge of rainwater runoff from roofs, paved areas or other surfaces into any Drain or Sewer, except as may be agreed in advance in writing with Irish Water.
- 10.4 During the duration of this Connection Agreement, Irish Water may specify any technical requirements or standards necessary to minimise the risk of leakage or to protect the integrity of any Waterworks or Wastewater Works.
- 10.5 For the avoidance of doubt, the Customer is prohibited from using the Service Connection and/or using any other mechanism to supply Water Services onwards to another location or premises other than the Customer's Premises notified to Irish Water by the Customer to which the Service Connection applies. Irish Water shall in no way be liable for a breach of this provision by the Customer or by any other third party, including any adverse consequences arising directly or indirectly as a result of such a breach and all costs, damages or claims arising therefrom.
- 10.6 The Customer hereby indemnifies Irish Water and its servants, agents and contractors in respect of any loss, damage or injury that may result from the laying or use of pipes within the boundary to the curtilage of the Customer's Premises. The Customer indemnifies Irish Water and its servants, agents and contractors in respect of any loss, damage or injury caused as a result of any leakage of Wastewater from Drains or Service Connections or water from the Distribution System up to the Connection Point where Service Connection connects with the Distribution System.
- 10.7 The Customer shall be solely responsible for preventing any backflow, back syphonage or blowback from the Distribution System of the Customer's Premises into the Water Main or Waterworks.
- 10.8 Where a connection is made to the Wastewater Works, Irish Water shall be entitled to take spot samples of the Wastewater discharged by the Customer for the purposes of testing compliance with the terms of this Connection Agreement and/or for general research or compliance purposes. If, in the opinion of Irish Water, the characteristics of the Customer's Wastewater are such that it is likely to produce what Irish Water determines to be a significant impact upon the Wastewater Works, then Irish Water may require the Customer to enter into a separate end-user agreement containing additional conditions in connection with the treatment of the Customer's Wastewater. The Customer acknowledges and agrees that it will, if requested to do so by Irish Water, cease discharging its Wastewater to the Network pending entry into the end-user agreement

11. Use of Water:

- 11.1 Where in the opinion of Irish Water, waste or deliberate misuse of water occurs on the Customer's Premises, Irish Water may restrict or reduce the pressure of the Water Services temporarily until satisfied that the waste or misuse has been rectified.

11.2 The Customer may in times of water scarcity be required to limit the use of Water for essential purposes only as prescribed by Irish Water.

11.3 With the exception of customers covered under the Irish Water Domestic Customer Vulnerable Code of Practice, the Customer shall be responsible for installing and maintaining sufficient storage to provide a reserve water supply if that is necessary for any special needs which the Customer has for a specific rate of flow or pressure or if, taking account of any interruption to the Water Services which might occur due to works, a burst or any other reason, a prudent customer acting reasonably in order to protect its business needs would provide such storage.

11.4 The Customer shall ensure so far as practicable that all water is drawn at a reasonably regular rate of flow and pressure and shall use its storage facility to reduce peak demands being made upon the Waterworks by the Customer.

11.5 The provisions of this Clause 11 shall survive the termination or expiry of this Connection Agreement.

12. Time for Completion/Delays: Irish Water shall use commercially reasonable endeavours to ensure that the Connection Works are completed in a timely manner but Irish Water shall not be liable for any loss or damage suffered by the Customer in respect of delays resulting from any cause whatsoever.

13. Third Party Losses: The Customer shall indemnify Irish Water and its servants, agents and contractors, and hold Irish Water and its servants, agents and contractors harmless at all times from any and all losses of any third party incurred, suffered or sustained pursuant to this Connection Agreement, but only to the extent any such loss was not caused by Irish Water's breach of this Connection Agreement or the negligence of Irish Water in undertaking its obligations under this Connection Agreement.

14. Liability:

14.1 **Immunity:** Nothing in this Connection Agreement shall affect any immunity that Irish Water benefits from Applicable Law.

14.2 **Death or Personal Injury:** Subject to Clause 14.1 above, nothing in this Connection Agreement will exclude or limit the liability of either Party for death or personal injury resulting from the negligence of that Party or any other loss that cannot be excluded or limited under Applicable Law.

14.3 **Reasonable and Prudent Operator:** Subject to Clause 14.2, where the obligations of Irish Water are performed in accordance with the Standard of a Reasonable and Prudent Operator, Irish Water shall have no liability whatsoever to the Customer in respect of this Connection Agreement.

14.4 **No liability for Force Majeure:** Neither Party shall be liable for any breach of this Connection Agreement directly or indirectly caused by Force Majeure.

14.5 **No Liability:** Neither Party shall be liable to the other Party in contract, tort, warranty, strict liability or any other legal theory for: (a) any loss of profit, revenue,

use, contract (other than this Connection Agreement), opportunity, or goodwill; or (b) punitive or exemplary damages; or (c) any indirect, consequential, incidental or special damages (including punitive damages).

14.6 No implied warranties: All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from this Connection Agreement.

15. Assignment: The Customer shall not be entitled to assign the benefit or transfer the burden of this Connection Agreement without the prior written consent of Irish Water. Nothing shall prevent Irish Water from assigning the benefit or transferring the burden of this Connection Agreement to an Affiliate.

16. Sub-contractors: Either Party shall have the right to sub-contract or delegate the performance of any of its obligations or duties arising under this Connection Agreement without the prior consent of the other Party. Such subcontracting by Irish Water or the Customer of the performance of any obligations or duties under this Connection Agreement shall not relieve Irish Water or the Customer (as the case may be) from liability for performance of such obligation or duty.

17. Customer's Authority: The Customer represents and warrants to Irish Water that it has full power and authority to enter into and to exercise its rights and perform its obligations under this Connection Agreement and has obtained all authorisations and consents necessary for it to so enter, exercise rights and perform obligations and such authorisations and consents are in full force and effect.

18. Term & Termination:

18.1 This Connection Agreement shall commence upon the date that the Customer returns the Customer Acceptance Form and pays the Connection Charge (and if these occur on different days, the Connection Agreement shall commence on the later date) and shall continue in full force and effect until the Parties' respective obligations under Clause 9 have been performed in full unless it is earlier terminated in accordance with the provisions of this Connection Agreement.

18.2 The Connection Offer and this Connection Agreement is based on a high-level desk top analysis carried out by Irish Water on the feasibility of a carrying out the Connection Works for the Customer Premises. Once the Connection Offer has been accepted by You, Irish Water will begin a detailed design of the Connection Works. If during the process of detailed design Irish Water, at its discretion, forms the opinion (acting reasonably) that either:

- A. the Connection Works are not feasible or practicable or safe to complete; or
- B. the acquisition of all rights for the laying of the Customer Pipe Work and/or the Connection Works are not possible or commercially practicable; or
- C. the Connection Works would involve the expenditure by Irish Water of monies in excess of that provided for by way of the Connection Charge,

then the Connection Agreement may be terminated by Irish Water by way of written notice to the Customer. In the event that Irish Water exercises its right to terminate the Connection Agreement on the basis of the foregoing then Irish Water shall return

any Connection Charge paid by the Customer, less (if deemed appropriate by Irish Water) any outstanding costs and expenses incurred by Irish Water as at the date of termination. This provision is additional to and does not replace any other provisions relating to termination.

- 18.3 Irish Water shall be entitled to terminate this Connection Agreement by written notice to the Customer if the Customer sells the Customer Premises to a third party.
- 18.4 The Customer shall be entitled to terminate this Connection Agreement upon written notice to Irish Water within 14 days of the date of this Connection Agreement.
- 18.5 Either Party shall be entitled to terminate this Connection Agreement upon written notice to the other Party where:
- 18.5.1 there is in any material breach by the other Party of its obligations under this Connection Agreement and the breach cannot be remedied or if it is capable of being remedied, it has not been remedied by such Party within 28 days of the issue of a notice to it by the other Party identifying the breach and requiring it to be remedied; and
- 18.5.2 an event of Force Majeure persists for a period of 180 days or more, provided at least 14 days' notice of termination has been given in writing.
- 18.6 In the event that either Party exercises its right to terminate under this Clause before the Connection Works commence, Irish Water shall return any Connection Charge paid by the Customer, less any outstanding costs and expenses incurred by Irish Water as at the date of termination, including, but not limited to, costs of construction, and any legal or financing costs.
- 18.7 Termination of this Connection Agreement shall not prejudice or affect any right of action or remedy which shall have accrued or shall thereafter accrue to either Party under this Connection Agreement.
- 18.8 Without prejudice to Clause 18.7, in particular, the following clauses:
- Clause 4 (Order of Precedence);
Clauses 10.1.1, 10.1.9, 10.1.10, 10.1.11, 10.2, 10.3, 10.5, 10.6, 10.7 and 10.8;
Clause 11 (Use of Water);
Clause 13 (Third Party Losses);
Clause 14 (Liability);
Clause 18 (Term and Termination);
Clause 20 (Insurance);
Clause 26 (Entire Agreement);
Clause 21 (Data Protection);
Clause 29 (Governing Law); and
Clause 30 (Disputes),
- of this Connection Agreement shall continue in full force and effect and be fully binding on the Parties notwithstanding termination or expiry.

19. Notices:

- 19.1 Notices or other communications given pursuant to this Connection Agreement shall be in writing and shall be sufficiently given if delivered by hand or sent by e-mail or pre-paid registered post to the e-mail or postal address referred to below of the Party to which the notice or communication is being given or to such other address and as such Party shall communicate from time to time to the Party giving the notice or communication.
- 19.2 The Customer's address for service is as set out in the Connection Offer.
- 19.3 Any notice required or permitted to be given by the Customer shall be in writing addressed to Irish Water at Irish Water, PO Box 860, South City Delivery Office, Cork City or by email to newconnections@water.ie or such other address or electronic mail address as may be notified by the Customer to Irish Water from time to time.
- 19.4 Every notice given in accordance shall be deemed to have been received as follows:

Means of Dispatch	Deemed Received
Hand Delivery	The time of delivery.
Post	48 hours after posting (and proof that the envelope containing the notice or communication was properly addressed and sent by pre-paid registered post will be sufficient evidence that the notice or other communication has been duly served or given).
Email	Upon receipt by the addressee of the complete text in legible form.

provided that if, in accordance with the above provisions, any such notice or other communication would otherwise be deemed to be given or made outside working hours (being 9am to 5.30pm on a Business Day) such notice or other communication shall be deemed to be given or made at the start of working hours on the next Business Day.

20. Insurance:

- 20.1 The following insurance obligations will apply in the alternative depending on whether the Customer's Premises is a:
- 20.1.1 single domestic unit (see Clause 20.2 below); or
- 20.1.2 a small non-domestic development (where the connection to the Customer's Premises is proposed to be a 25mm water supply Service Connection and/or a 100mm Wastewater Service Connection)(see Clause 20.2 below); or
- 20.1.3 a development other than a single domestic unit or a small non-domestic unit (see Clause 20.3 below).
- 20.2 Where this Connection Agreement relates to a single domestic unit or a small non-domestic development, the Customer shall ensure that any Contractor engaged by

them in relation to the Customer's Pipe Work has appropriate and adequate insurance cover in place throughout the duration of the works in relation to the matters referred to in Clause 10.

20.3 Where this Connection Agreement relates to developments *other than* a single domestic unit or a small non-domestic development, the Customer shall ensure that any Contractor engaged by them in relation to the Customer's Pipe Work has appropriate and adequate insurance cover in place throughout the duration of the works in relation to the matters referred to in Clauses 10. In particular, the Customer shall, within five days following a written request from Irish Water, furnish Irish Water with evidence that the insurances referred to below are being maintained by the Contractor:

20.3.1 **Employers Liability** insurance cover with a minimum indemnity limit of €13 million any one accident/occurrence unlimited in the period of insurance;

20.3.2 **Public/Products/Pollution Liability** insurance cover with a minimum indemnity limit of €6.5 million any one accident/occurrence unlimited in the period of insurance under the Public Liability and in the aggregate in respect of Products & Pollution Liability;

20.3.3 **Contractors "All Risks"** insurance for the full reinstatement value of the proposed works in respect of any one claim; and

20.3.4 **Motor** insurance cover with a minimum third party property damage limit of €6.5m for all vehicles owned, leased, rented or run (to include tool of trade use) by the Contractor in connection with the services to be provided by it.

The Insurance policies detailed in this Clause 20.3 with the exception of Motor must include a specific indemnity to Irish Water.

21. Data Protection:

21.1 It is necessary for Irish Water to collect and use personal data relating to the Customer in respect of this Connection Agreement, such as your name, address, contact details and financial information (depending on payment method). This data will be used to enable Irish Water to carry out its obligations under this Connection Agreement and manage its relationship with the Customer, such as arranging payments, visits to the Customer's Premises and scheduling construction activities. Irish Water may keep the Customer's data for a reasonable period after the Customer ceases to be supplied with Water Services but will not keep it for any longer than is necessary and/or as required by law.

21.2 Irish Water may share the Customer's data with other members of the Ervia group and agents who act on behalf of Irish Water in connection with the activities referred to above. Such agents are only permitted to use the Customer's data as instructed by Irish Water. They are also required to keep the Customer's data safe and secure.

21.3 From time to time the Customer may speak to employees of Irish Water (or agents acting on its behalf) by telephone. To ensure that Irish Water can provide a quality service, telephone conversations with the Customer may be recorded. Irish Water will treat the recorded information as confidential and will only use it for staff training/quality control purposes, confirming details of the Customer's conversations with Irish Water or any other purposes mentioned in this notice.

- 21.4 The Customer has various rights under data privacy laws, which include the right to request a copy of his/her personal data. If the Customer wishes to avail of this right or for further information please contact Irish Water in writing at FREEPOST, Irish Water, Data Protection Officer, PO Box 6000, Talbot Street, Dublin 1 or via email to dataprotection@ervia.ie.
- 21.5 Irish Water endeavours to use appropriate technical and physical security measures to protect your personal data which is transmitted, stored or otherwise processed by Irish Water, from accidental or unlawful destruction, loss, alteration, unauthorised disclosure of, or access. Irish Water's service providers are also selected carefully and required to use appropriate protective measures.
- 21.6 As effective as modern security practices are, no physical or electronic security system is entirely secure. The transmission of information via the internet is not completely secure. Although Irish Water will do its best to protect your data, Irish Water cannot guarantee the security of your data transmitted to Irish Water's Site. Any transmission of data is at your own risk. Once Irish Water receives your data, Irish Water will use appropriate security measures to seek to prevent unauthorised access. Irish Water will continue to revise policies and implement additional security features as new technologies become available.
- 21.7 In the event that there is an interception or unauthorised access to your personal data, Irish Water will not be liable or responsible for any resulting misuse of your personal information.
- 21.8 For further information on how Irish Water treats the Personal Data of Customers when providing Water Services, please see our Privacy Notice on www.water.ie. Alternatively, please contact us at the details above for Irish Water's Privacy Notice.
- 21.9 In order to evaluate and improve our Customer's experience, we or agents on our behalf, may from time to time issue surveys to the Customer in relation to the services provided. If you do not wish to receive a survey, please let us know.
- 21.10 Irish Water reserves the right to change and/or update its Privacy Notice at any time in Irish Water's sole discretion. If Irish Water makes changes, Irish Water will publish same on www.water.ie.

22. Safety, Health and Welfare at Work (Construction) Regulations 2013: It is acknowledged and agreed that the works carried out for, or on behalf of, the Customer in relation to the Customer's Pipe Work are entirely separate and distinct to the Connection Works carried out for and on behalf of Irish Water. The Customer shall ensure full compliance with all applicable health and safety legislation including, if necessary and applicable, the Safety, Health and Welfare at Work (Construction) Regulations 2013 in respect of the works to the Customer's Pipe Work. The Customer acknowledges that, as client, it may have certain obligations under the Safety, Health and Welfare at Work (Construction) Regulations 2013 in relation to the works to the Customer's Pipe Work and, as such, will ensure full compliance with those obligations. Irish Water shall ensure full compliance with all applicable health and safety legislation including, if necessary and applicable, the Safety, Health and Welfare at Work (Construction) Regulations 2013 in respect of the Connection Works. Irish Water acknowledges that, as client, it may have

certain obligations under the Safety, Health and Welfare at Work (Construction) Regulations 2013 in relation to the Connection Work and, as such, will ensure full compliance with those obligations.

- 23. No Waiver:** No forbearance, indulgence or relaxation on the part of a Party shown or granted to the other Party shall in any way affect, diminish, restrict or prejudice the rights or powers of Irish Water or operate as or be deemed to be a waiver of any breach of conditions. None of the provisions of this Connection Agreement shall be considered waived by a Party unless such waiver is given in writing and signed by a duly authorised representative of the Party making the waiver. No such waiver shall be a waiver of any past or future default or breach nor shall such waiver constitute a modification of any term provision condition or covenant of the contract unless expressly so provided in such waiver.
- 24. Severability:** All of the provisions contained in this Connection Agreement are distinct and severable, and if any provision is held or declared to be unenforceable, illegal or void in the whole or in part by any court, regulatory authority or other Competent Authority it will, to that extent only, be deemed not to form part of this Connection Agreement and the enforceability, legality and validity of the remainder of these terms and conditions will not in any event be affected.
- 25. Force Majeure:** If either Party is by reason of Force Majeure rendered unable wholly or in part to carry out its obligations under this Connection Agreement, then upon notice in writing of such Force Majeure from the Party affected to the other Party, as soon as possible after the occurrence of the cause relied on, the Party affected shall be released from its obligations (other than the obligations to pay money) and suspended from the exercise of its rights under the Connection Agreement to the extent to which they are affected by the circumstances of Force Majeure and for the period during which those circumstances exist PROVIDED THAT the Party affected shall use all reasonable endeavours to prevent, avoid, overcome or mitigate the effects of such occurrence.
- 26. Entire Agreement:**
- 26.1 This Connection Agreement shall be the entire agreement between the Parties with respect to the subject matter and expressly excludes any warranty, condition or other undertaking implied at law or by custom and supersedes all previous agreements and understandings between the Parties (other than as provided for in this Connection Agreement) with respect to its subject matter.
- 26.2 The Customer acknowledges and confirms that it does not enter into this Connection Agreement in reliance on any representation, any misrepresentation, warranty or other undertaking by Irish Water not fully reflected in this Connection Agreement.
- 26.3 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from this Connection Agreement.
- 27. Amendments:** This Connection Agreement may be updated at any time by Irish Water with replacement terms and conditions published on www.water.ie.
- 28. No Derogation from Statutory Responsibilities:**

The Customer acknowledges and accepts:

- 28.1 their obligations and duties under the Water Services Acts in relation to the protection of human health, repair of leaks and the reasonable conservation of water and the management, consumption and use of water on or at the Customer's Premises to ensure that water is not wasted or consumed in excessive amounts;
- 28.2 that notwithstanding this Connection Agreement, Irish Water is not limited from exercising its powers under the Water Services Acts in relation to the Customer;
- 28.3 without prejudice to Clauses 10.1.10 and 10.1.11 of these General Conditions and notwithstanding the carrying out of Connection Works, the Customer Pipe Work (in terms of ownership, maintenance, repair, renewal or otherwise) will remain the sole responsibility of the Customer unless ownership is transferred to Irish Water.

29. Governing Law: The Connection Agreement shall be governed and construed in accordance with the laws of Ireland and, subject to Clause 30, the courts of Ireland shall have exclusive jurisdiction to decide disputes arising between the Customer and Irish Water.

30. Dispute Resolution:

- 30.1 **Notification of a Dispute:** Any Dispute between the Parties shall be resolved, if possible, by negotiation. In the event that no agreement is reached within fifteen (15) days of the date on which either Party first notified the other Party that a Dispute exists, either Party shall have the right to have the Dispute determined in accordance with Clause 30.2.
- 30.2 **Mediation:** The mediator is to be appointed by agreement between the Parties and, in the absence of agreement within five (5) working days of the receipt by one Party of a written notice to concur in the appointment of a mediator, by the Centre for Effective Dispute Resolution ("CEDR"). The mediation will be in Dublin and the costs of the mediation shall be shared equally between the Parties. In the event that the matter is not resolved within three (3) months of being referred to the mediator under this Clause 30.2, then either Party may (but for the avoidance of doubt not be obliged to do so) commence court proceedings for the determination of the Dispute in question.
- 30.3 **Performance to Continue During Dispute:** Insofar as practicable, the Parties shall continue to implement the terms of this Connection Agreement notwithstanding the initiation of mediation or Court proceedings and any pending Dispute. No payment due to or payable by Irish Water or the Customer shall be withheld on account of a pending reference to the dispute resolution mechanism except to the extent that such payment is the subject of such dispute. However, Irish Water shall not be obliged to carry out the Connection Works unless it is in receipt of the Connection Costs.
- 30.4 **Survival:** The provisions of Clause 30.2 and 30.3 shall continue after the termination of this Connection Agreement where notice of the existence of the Dispute was given under Clause 30.1 prior to termination. Nothing in this Connection Agreement is intended to prejudice the referral of a dispute to the

Commission for Regulation of Utilities for determination in accordance with Irish Water's Customer Handbook.

31. New Industry Structure

31.1 If, after execution of this Connection Agreement, there shall be enacted and brought into force any Legal Requirement for:

31.1.1 the further reorganisation of the water industry in Ireland or any material part of it;

31.1.2 the further facilitation of the introduction of third party interests into the affairs of the water industry in Ireland or any part of it; or

31.1.3 the amendment or variation of any policy of Irish Water or the manner in which the Network(s) and any agreements or protocols related thereto are organised;

which necessitates a variation to this Connection Agreement, the Parties shall effect such changes as are reasonably necessary so as to ensure that the operations contemplated by this Connection Agreement shall be conducted in a manner which is consistent with the effect of the new Legal Requirement and most closely reflects the intentions of the same with effect from the date thereof provided that any such amendment will be of no greater extent than is required by reason of the same.

31.2 If any variation proposed under Clause 31.1 has not been agreed by the Parties within three (3) months of it being proposed (the Parties acting as soon as reasonably practicable), either Party may refer to the Commission for Regulation of Utilities for determination and the Parties agree to abide by and to give effect to the Commission's determination, if necessary by entering into an agreement supplemental to this Connection Agreement.

APPENDIX 3**Special Conditions**

<u>Notes</u>		
SECTION 3.0 – Special Conditions pertaining to the Water/Wastewater Service Connection(s)		
SECTION 3.1 - Water Service Connection(s)		
1	Distance from Customer's Premises to Connection Point in metres (Service Connection).	22.00 m
2	Diameter of Service Connection required (external diameter in mm).	150.00 mm
3	Diameter of meter required (external diameter in mm).	150.00 mm
4	Distance from Service Connection Point to the existing mains in metres (Mains Extension).	m
5	Irish Water will deliver the full physical connection works on the public side from its Network(s) to your property boundary	
6		
7	The design & construction of the new proposed water connection to be in accordance with the IW Codes of Practice and Standard Details. These are available from the IW website	
8	Once the offer has been accepted with payment and signed counterpart returned, Irish Water will commence the design of the Connection Works and obtain all relevant statutory approvals including obtaining a Road Opening Licence (ROL) to allow the Works commence. It may take some time to obtain the ROL. Once these approvals are in place and design stage is complete we will contact you 14 days in advance of the proposed connection works taking place.	
SECTION 3.2 - Wastewater Service Connection(s)		
1	Distance from Customer's Premises to Connection Point in metres (Service Connection).	0.00 m
2	Diameter of Service Connection required (internal diameter in mm).	225.00 mm
3	Distance from Service Connection Point to the existing mains in metres (Mains Extension).	m
4	Discharge Licence must be obtained prior to any physical connection to IW infrastructure being made.	
5	The Customer is responsible for delivering the full connection works including obtaining a Road Opening Licence from the relevant Authority. Irish Water/Local Authority Water Services Department (Agents to IW) will supervise the physical connection to the Irish Water network.	
6	The customer should contact the Meath County Council water services department (Agents to Irish Water) to organise the physical connection on .	
7	The design & construction of the new proposed wastewater connection to be in accordance with the IW Codes of Practice and Standard Details. These are available from the IW website	
8	No storm runoff shall drain to the public foul sewer	
9		
10		

APPENDIX 4**Connection Charge**

Connection Charge		
Water Connection Charge		
	Standard Charge	€113,545.00
	Standard Charge – Additional Service Length	€0.00
	Quotable Charge	€9,827.81
	Sub total	€123,372.81
Wastewater Connection Charge		
	Standard Charge	€23,344.00
	Standard Charge – Additional Service Length	€0.00
	Quotable Charge	
	Sub total	€23,344.00
Total Connection Charge		€146,716.81

Project Number: 20_057

Project: Oldbridge 110kV Substation & Transmission Line

Title: Engineering Report - Drainage & Water Services

Appendix B: Surface Water Microdrainage Calculations

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes Pipe Manhole Sizes Manhole

FSR Rainfall Model - Scotland and Ireland

Return Period (years)	30	PIMP (%)	100
M5-60 (mm)	15.800	Add Flow / Climate Change (%)	10
Ratio R	0.300	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.500
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits











Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.027	4-8	0.018

Total Area Contributing (ha) = 0.045


Total Pipe Volume (m³) = 5.126

Network Design Table for Storm


PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	12.860	0.161	79.9	0.023	5.00	0.0	1.500	o	150	Pipe/Conduit	
1.001	12.483	0.156	80.0	0.011	0.00	0.0	1.500	o	150	Pipe/Conduit	
1.002	13.501	0.169	79.9	0.011	0.00	0.0	1.500	o	150	Pipe/Conduit	
1.003	36.310	0.363	100.0	0.000	0.00	0.0	1.500	o	225	Pipe/Conduit	
1.004	4.107	0.041	100.2	0.000	0.00	0.0	1.500	o	225	Pipe/Conduit	
1.005	7.936	0.189	42.0	0.000	0.00	0.0	1.500	o	225	Pipe/Conduit	
2.000	19.921	0.332	60.0	0.000	5.00	2.0	1.500	o	150	Pipe/Conduit	
2.001	26.482	0.441	60.0	0.000	0.00	0.0	1.500	o	150	Pipe/Conduit	
2.002	9.380	0.156	60.1	0.000	0.00	0.0	1.500	o	150	Pipe/Conduit	
2.003	53.983	0.940	57.4	0.000	0.00	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.22	52.460	0.023	0.0	0.0	0.3	0.98	17.3	3.4
1.001	50.00	5.43	52.299	0.034	0.0	0.0	0.5	0.98	17.3	5.0
1.002	50.00	5.66	52.143	0.045	0.0	0.0	0.6	0.98	17.3	6.6
1.003	50.00	6.19	51.899	0.045	0.0	0.0	0.6	1.15	45.6	6.6
1.004	50.00	6.25	51.536	0.045	0.0	0.0	0.6	1.15	45.6	6.6
1.005	50.00	6.32	51.345	0.045	0.0	0.0	0.6	1.77	70.5	6.6
2.000	50.00	5.29	53.100	0.000	2.0	0.0	0.2	1.13	20.0	2.2
2.001	50.00	5.68	52.768	0.000	2.0	0.0	0.2	1.13	20.0	2.2
2.002	50.00	5.82	52.327	0.000	2.0	0.0	0.2	1.13	20.0	2.2
2.003	50.00	6.60	52.171	0.000	2.0	0.0	0.2	1.16	20.5	2.2

Clifton Scannell Emerson Associates		Page 2
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Network Design Table for Storm


PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.006	14.510	0.242	60.0	0.000	0.00	0.0	1.500	o	225	Pipe/Conduit	


Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.006	50.00	6.76	51.156	0.045	2.0	0.0	0.8	1.48	59.0	8.8

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., I*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
5.7	54.110	1.650	Open Manhole	1200	1.000	52.460	150				
5.6	54.000	1.701	Open Manhole	1200	1.001	52.299	150	1.000	52.299	150	
5.5	54.140	1.997	Open Manhole	1200	1.002	52.143	150	1.001	52.143	150	
5.4	54.060	2.161	Open Manhole	1200	1.003	51.899	225	1.002	51.974	150	
5.3	53.550	2.014	Open Manhole	1200	1.004	51.536	225	1.003	51.536	225	
Full Retention	54.000	2.655	Open Manhole	1200	1.005	51.345	225	1.004	51.495	225	150
5.11	54.750	1.650	Open Manhole	1200	2.000	53.100	150				
5.10	54.920	2.152	Open Manhole	1200	2.001	52.768	150	2.000	52.768	150	
5.9	54.400	2.073	Open Manhole	1200	2.002	52.327	150	2.001	52.327	150	
5.8	54.570	2.399	Open Manhole	1200	2.003	52.171	150	2.002	52.171	150	
Pumping Station	54.000	2.844	Open Manhole	1200	1.006	51.156	225	1.005	51.156	225	
	54.000	3.086	Open Manhole	0		OUTFALL		2.003	51.231	150	
								1.006	50.914	225	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
5.7	706430.340	774227.584	706430.340	774227.584	Required	
5.6	706432.602	774214.924	706432.602	774214.924	Required	
5.5	706434.701	774202.619	706434.701	774202.619	Required	
5.4	706437.011	774189.317	706437.011	774189.317	Required	
5.3	706472.786	774195.528	706472.786	774195.528	Required	
Full Retention	706473.558	774191.494	706473.558	774191.494	Required	
5.11	706390.556	774198.758	706390.556	774198.758	Required	
5.10	706393.963	774179.130	706393.963	774179.130	Required	
5.9	706420.053	774183.669	706420.053	774183.669	Required	
5.8	706421.658	774174.428	706421.658	774174.428	Required	
Pumping Station	706474.845	774183.663	706474.845	774183.663	Required	
	706489.139	774186.162			No Entry	

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Seefort Lodge Castledawson Avenue Blackrock County Dublin		
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Micro Drainage		Network 2019.1

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Surface Water

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - Scotland and Ireland

Return Period (years)	30	PIMP (%)	100
M5-60 (mm)	16.000	Add Flow / Climate Change (%)	10
Ratio R	0.300	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Surface Water at outfall SMH.17 (pipe 1.005)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.145	4-8	0.155

Total Area Contributing (ha) = 0.300

Total Pipe Volume (m³) = 20.713







Time Area Diagram at outfall SMH.17 (pipe 4.003)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.071	4-8	0.033

Total Area Contributing (ha) = 0.104

Total Pipe Volume (m³) = 6.372












Network Design Table for Surface Water

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	10.834	0.054	200.0	0.014	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	57.539	0.230	250.0	0.108	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.002	14.997	0.060	250.0	0.037	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.003	17.559	0.059	300.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.000	70.692	0.283	250.0	0.069	5.00	0.0	0.600	o	300	Pipe/Conduit	
1.004	10.282	0.032	320.0	0.009	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.20	52.865	0.014	0.0	0.0	0.2	0.92	36.6	2.2
1.001	50.00	6.16	52.736	0.122	0.0	0.0	1.7	0.99	70.0	18.2
1.002	50.00	6.42	52.506	0.159	0.0	0.0	2.2	0.99	70.0	23.7
1.003	50.00	6.74	52.446	0.159	0.0	0.0	2.2	0.90	63.8	23.7
2.000	50.00	6.19	52.670	0.069	0.0	0.0	0.9	0.99	70.0	10.3
1.004	50.00	6.94	52.387	0.237	0.0	0.0	3.2	0.87	61.7	35.3

Network Design Table for Surface Water









PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
3.000	51.526	0.240	214.7	0.048	5.00	0.0	0.600	o	300	Pipe/Conduit	
3.001	13.996	0.047	300.0	0.014	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.005	50.342	0.458	109.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
4.000	29.937	0.578	51.8	0.045	5.00	0.0	0.600	o	225	Pipe/Conduit	
4.001	28.952	0.290	100.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
4.002	15.211	0.061	250.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
5.000	18.041	0.241	75.0	0.035	5.00	0.0	0.600	o	225	Pipe/Conduit	
5.001	31.677	0.422	75.0	0.025	0.00	0.0	0.600	o	225	Pipe/Conduit	
5.002	10.060	0.101	100.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
5.003	5.240	0.052	100.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
4.003	9.304	0.572	16.3	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
3.000	50.00	5.80	52.570	0.048	0.0	0.0	0.7	1.07	75.6	7.2
3.001	50.00	6.06	52.330	0.062	0.0	0.0	0.8	0.90	63.8	9.3
1.005	50.00	7.50	52.283	0.300	0.0	0.0	4.1	1.50	106.0	44.6
4.000	50.00	5.27	52.374	0.045	0.0	0.0	0.6	1.82	72.4	6.6
4.001	50.00	5.64	51.797	0.045	0.0	0.0	0.6	1.31	52.0	6.6
4.002	50.00	5.90	51.432	0.045	0.0	0.0	0.6	0.99	70.0	6.6
5.000	50.00	5.20	52.271	0.035	0.0	0.0	0.5	1.51	60.1	5.2
5.001	50.00	5.55	52.031	0.060	0.0	0.0	0.8	1.51	60.1	8.9
5.002	50.00	5.68	51.608	0.060	0.0	0.0	0.8	1.31	52.0	8.9
5.003	50.00	5.74	51.508	0.060	0.0	0.0	0.8	1.31	52.0	8.9
4.003	50.00	5.95	51.371	0.104	0.0	0.0	1.4	3.26	129.6	15.5

Manhole Schedules for Surface Water

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	Pipe Out		Pipes In		Backdrop (mm)	
					PN	Invert Level (m)	Diameter (mm)	PN		Invert Level (m)
SMH.01	54.428	1.563	Open Manhole	1050	1.000	52.865	225			
SMH.02	54.546	1.810	Open Manhole	1050	1.001	52.736	300	1.000	52.811	225
SMH.03	54.563	2.057	Open Manhole	1050	1.002	52.506	300	1.001	52.506	300
SMH.04	55.108	2.663	Open Manhole	1050	1.003	52.446	300	1.002	52.446	300
SMH.07	54.341	1.671	Open Manhole	1050	2.000	52.670	300			
SMH.05	54.649	2.262	Open Manhole	1050	1.004	52.387	300	1.003	52.387	300
								2.000	52.387	300
SMH.10	54.174	1.604	Open Manhole	1050	3.000	52.570	300			
SMH.11	54.057	1.727	Open Manhole	1050	3.001	52.330	300	3.000	52.330	300
SMH.06	54.272	1.988	Open Manhole	1050	1.005	52.283	300	1.004	52.355	300
								3.001	52.283	300
SMH.17	53.320	1.494	Open Manhole	1050		OUTFALL		1.005	51.825	300
SMH.12	53.874	1.500	Open Manhole	1050	4.000	52.374	225			
SMH.13	53.907	2.111	Open Manhole	1050	4.001	51.797	225	4.000	51.797	225
SMH.15	53.402	1.970	Open Manhole	1050	4.002	51.432	300	4.001	51.507	225
SMH.14	53.827	1.555	Open Manhole	1050	5.000	52.271	225			
SMH.18	53.929	1.899	Open Manhole	1050	5.001	52.031	225	5.000	52.031	225
SMH.19	53.868	2.260	Open Manhole	1050	5.002	51.608	225	5.001	51.608	225
SMH.20	53.466	1.958	Open Manhole	1050	5.003	51.508	225	5.002	51.508	225
SMH.16	53.271	1.899	Open Manhole	1050	4.003	51.371	225	4.002	51.371	300
								5.003	51.455	225
SMH.17	53.320	2.520	Open Manhole	1050		OUTFALL		4.003	50.800	225

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SMH.01	706401.791	774240.079	706401.791	774240.079	Required	
SMH.02	706391.117	774238.226	706391.117	774238.226	Required	
SMH.03	706400.957	774181.534	706400.957	774181.534	Required	
SMH.04	706407.375	774167.980	706407.375	774167.980	Required	
SMH.07	706412.586	774240.633	706412.586	774240.633	Required	
SMH.05	706424.675	774170.983	706424.675	774170.983	Required	
SMH.10	706427.538	774237.443	706427.538	774237.443	Required	
SMH.11	706436.351	774186.677	706436.351	774186.677	Required	

Seefort Lodge Castledawson Avenue
 Blackrock
 County Dublin

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Micro Drainage

Network 2019.1

Manhole Schedules for Surface Water

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SMH.06	706434.801	774172.767	706434.801	774172.767	Required	
SMH.17	706484.392	774181.425			No Entry	
SMH.12	706458.301	774246.113	706458.301	774246.113	Required	
SMH.13	706463.163	774216.574	706463.163	774216.574	Required	
SMH.15	706467.818	774187.999	706467.818	774187.999	Required	
SMH.14	706481.247	774245.968	706481.247	774245.968	Required	
SMH.18	706486.416	774228.683	706486.416	774228.683	Required	
SMH.19	706491.818	774197.470	706491.818	774197.470	Required	
SMH.20	706481.905	774195.754	706481.905	774195.754	Required	
SMH.16	706482.806	774190.593	706482.806	774190.593	Required	
SMH.17	706484.392	774181.425			No Entry	

Project Number: 20_057

Project: Oldbridge 110kV Substation & Transmission Line

Title: Engineering Report - Drainage & Water Services

Appendix C: Proposed Full Retention Separator

Full Retention NSF RANGE

APPLICATION

Full retention separators are used in high risk spillage areas such as:

- Fuel distribution depots.
- Vehicle workshops.
- Scrap Yards

PERFORMANCE

Kingspan Klargester were the first UK manufacturer to have the required range (3-30 l/sec) certified to EN 858-1 in the UK. The NSF number denotes the flow at which the separator operates.

The British Standards Institute (BSI) have witnessed the performance tests of the required range of separators and have certified their performance, in relation to their flow and process performance to ensure that they met the effluent quality requirements of EN 858-1. Larger separator designs have been determined using the formulas extrapolated from the test range.

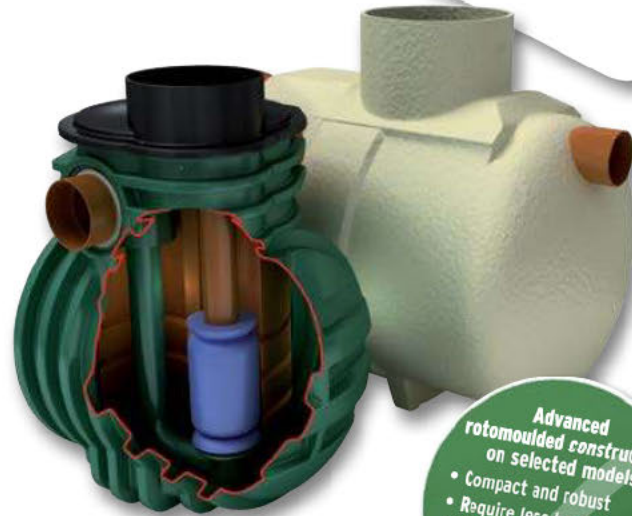
Each full retention separator design includes the necessary volume requirements for:

- Oil separation capacity.
- Silt storage capacity.
- Automatic closure device.
- Oil storage volume.
- Coalescer (Class I units only).

Klargester full retention separators treat the whole of the specified flow.

FEATURES

- Light and easy to install.
- Class I and Class II designs.
- 3-30 l/sec range independently tested and performance sampled, certified by the BSI.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.



- Oil alarm system available.
- Vent points within necks.
- Extension access shafts for deep inverts.
- Maintenance from ground level.
- GRP or rotomoulded construction (subject to model).

To specify a nominal size full retention separator, the following information is needed:-

- The calculated flow rate for the drainage area served. Our designs are based on the assumption that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator and that the influent is not pumped.
- The required discharge standard. This will decide whether a Class I or Class II unit is required.
- The drain invert inlet depth.
- Pipework type, size and orientation.

SIZES AND SPECIFICATIONS

UNIT NOMINAL SIZE	FLOW (l/s)	DRAINAGE AREA (m ²) PPG-3 (0.018)	STORAGE CAPACITY (litres)		UNIT LENGTH (mm)	UNIT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT	MIN. INLET INLET (mm)	STANDARD PIPEWORK DIA. (mm)
			SILT	OIL						
NSFP003	3	170	300	30	1700	1350	1420	1345	500	160
NSFP006	6	335	600	60	1700	1350	1420	1345	500	160
NSFA010	10	555	1000	100	2610	1225	1050	1000	500	200
NSFA015	15	835	1500	150	3910	1225	1050	1000	500	200
NSFA020	20	1115	2000	200	3200	2010	1810	1760	1000	315
NSFA030	30	1670	3000	300	3915	2010	1810	1760	1000	315
NSFA040	40	2225	4000	400	4640	2010	1810	1760	1000	315
NSFA050	50	2780	5000	500	5425	2010	1810	1760	1000	315
NSFA065	65	3610	6500	650	6850	2010	1810	1760	1000	315
NSFA080	80	4445	8000	800	5744	2820	2500	2450	1000	300
NSFA100	100	5560	10000	1000	6200	2820	2500	2450	1000	400
NSFA125	125	6945	12500	1250	7365	2820	2500	2450	1000	450
NSFA150	150	8335	15000	1500	8675	2820	2550	2450	1000	525
NSFA175	175	9725	17500	1750	9975	2820	2550	2450	1000	525
NSFA200	200	11110	20000	2000	11280	2820	2550	2450	1000	600

Full Retention Separators

NSF RANGE



Performance

Kingspan were the first UK manufacturer to have the required range (3-30 l/sec) certified to BS EN 858-1 in the UK. The NSF number denotes the flow at which the separator operates. The British Standards Institute (BSI) have witnessed the performance tests of the required range of separators and have certified their performance, in relation to their flow and process performance to ensure that they meet the effluent quality requirements of BS EN 858-1. Larger separator designs have been determined using the formulas extrapolated from the test range.

Each full retention separator design includes the necessary volume requirements for:

- Oil separation capacity
- Oil storage volume
- Silt storage capacity
- Coalescer (Class I units only)
- Automatic closure device.

Kingspan full retention separators treat the whole of the specified flow.

Features

- Light and easy to install
- 3-30 l/sec range independently tested and performance sampled, certified by the BSI
- Inclusive of silt storage volume
- Fitted inlet/outlet connectors
- Oil alarm system available

- Vent points within necks
- Extension access shafts for deep inverts
- Maintenance from ground level
- GRP or rotomoulded construction (subject to model)

To specify a nominal size full retention separator, the following information is needed:

- The calculated flow rate for the drainage area served. Our designs are based on the assumptions that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator and that the influent is not pumped
- The required discharge standard
- The drain invert inlet depth
- Pipework type, size and orientation.

Technical Specifications

Unit Nominal Size	Flow (l/s)	Drainage Area (m ²) PPG-3 (0.018)	Storage Capacity (Litres)		Maximum Total Capacity (litres)	Length (mm)	Unit Dia. (mm)	Base to Inlet Invert (mm)	Base to Outlet Invert (mm)	Min. Inlet Invert (mm)	Standard Pipework Dia. (mm)	No. of Coalescer Assemblies
			Silt	Oil								
NSFA210	210	11,667	21,000	2100	59,000	11,991	2820	2550	2450	1000	600	5
NSFA225	225	12,500	22,500	2250	63,000	12,760	2820	2550	2450	1000	600	5
NSFA240	240	13,333	24,000	2400	67,000	13,527	2820	2550	2450	1000	600	5
NSFA255	255	14,167	23,500	2350	71,000	14,193	2820	2550	2450	1000	600	6
NSFA270	270	15,000	21,000	2700	75,000	15,065	2820	2550	2450	1000	600	6
NSFA285	285	15,833	28,500	2850	79,000	15,833	2820	2550	2450	1000	600	6

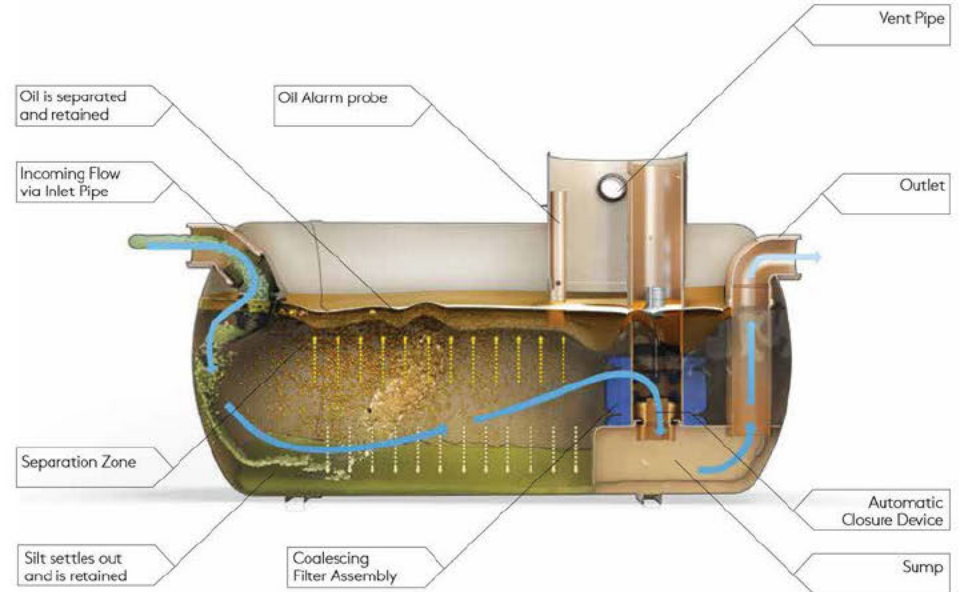
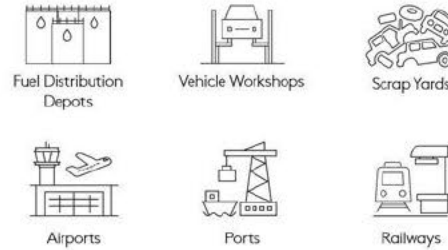
Model Reference	Flow (l/s)	Drainage Area (m ²) PPG-3 (0.018)	Storage Capacity (Litres)		Length (mm)	Diameter (mm)	Manhole Cover Dimensions (mm)	Base Inlet Invert (mm)	Base to Outlet Invert (mm)	Min Inlet Invert (mm)	Standard Pipework Diameter (mm)	
			Silt	Oil								
Polyethylene Chamber Construction												
NSFP003	3	170	300	30	1700	1350	600	1410	1335	550	160	
NSFP006	6	335	600	60	1700	1350	600	1410	1335	550	160	
GRP Chamber Construction												
NSFA010	10	505	1000	100	2610	1225	600	1050	1000	500	200	
NSFA015	15	835	1500	150	3910	1225	600	1050	1000	1000	200	
NSFA020	20	1115	2000	200	3200	2010	600	1810	1760	1000	315	
NSFA030	30	1670	3000	300	3915	2010	600	1810	1760	1000	315	
NSFA040	40	2225	4000	400	4640	2010	600	1810	1760	1000	315	
NSFA050	50	2780	5000	500	5425	2010	600	1810	1760	1000	315	
NSFA065	65	3360	6500	650	6850	2010	600	1810	1760	1000	315	
NSFA080	80	4445	8000	800	5744	2820	600	2500	2450	1000	315	
NSFA100	100	5560	10000	1000	6200	2820	600	2500	2450	1000	400	
NSFA125	125	6945	12500	1250	7365	2820	600	2500	2450	1000	450	
NSFA150	150	8335	15000	1500	8675	2820	600	2500	2450	1000	525	
NSFA175	175	9725	17500	1750	9975	2820	600	2500	2450	1000	525	
NSFA200	200	11110	20000	2000	11280	2820	600	2500	2450	1000	600	

* Systems to cater for larger flow rates are available on request. Email water-ME@kingspan.com for further information
 * Some units have more than one access shaft - diameter of largest shown.



Applications

Full retention separators are used in high risk spillage areas such as:

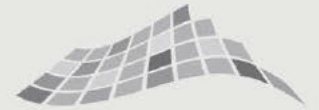


Project Number: 20_057

Project: Oldbridge 110kV Substation & Transmission Line

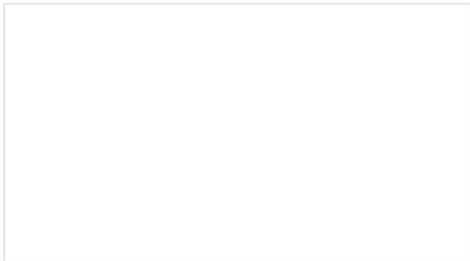
Title: Engineering Report - Drainage & Water Services

Appendix D: Permitted Development Drainage Report



Clifton Scannell Emerson
Associates

**Engineering Planning Report - Drainage & Water
Services
Data Storage Facility at IDA Business Park,
Drogheda**



Client: CAP Development LLC

Date: 13th December 2019

Job Number: 19_131

Civil
Engineering

Structural
Engineering

Transport
Engineering

Environmental
Engineering

Project
Management

Health
and Safety

CONSULTING ENGINEERS



Document Control Sheet

Project Name: Data Storage Facility at IDA Business Park, Drogheda
Project Number: 19_131
Report Title: Engineering Planning Report - Drainage & Water Services
Filename: RPT-19_131-001

Issue No.	Issue Status	Date	Prepared by	Checked by
1.0	DRAFT	18/11/2019	SE	PM
2.0	Planning Draft	06/12/2019	SE	PM
2.1	Planning Final Draft	13/12/2019	SE	PM
3.0	FINAL	18/12/2019	PM	PM

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1 Introduction

The following report is being submitted as part of the planning application for CAP Developments LLC for the proposed development on site at IDA Business Park, Donore, Rathmullan, Co. Meath. The report outlines the proposals for drainage services and water supply for the development.

We note a number of preplanning meetings/discussion were held with Meath County Council prior to this submission.

1.1 Development Description

A proposed development at Drogheda IDA Business and Technology Park, Donore Road, Drogheda, Co. Meath. The site is bound to the east by an existing estate road, to the west by the M1 Motorway, to the north by undeveloped lands, and to the south by an emergency access road and Donore Road.

The proposed development consists of the following:

- Alterations to existing road infrastructure within the site and clearance of the site (including removal of existing internal roadways and removal / diversion of services) to make way for the proposed development;
- Construction of a two storey (with mezzanine levels at both storeys) data storage facility building with a maximum overall height of c. 25 metres, containing data halls, associated electrical and AHU Plant Rooms, a loading bay, maintenance and storage space, office administration areas, screened plant and solar panels at roof level, all within a building with a total gross floor area (GFA) of c. 28,573 sq.m;
- Emergency generators (26 no.), emission stacks and associated plant are provided in a fenced compound adjacent to the data storage facility, along with a single emergency house supply generator;
- A 6 MVA substation and associated 6MVA electricity connection;
- A water sprinkler pump room, MV Building, unit substation, water storage tanks, humidifier tanks and diesel tanks and filling area;
- Modification of the existing entrance to the subject site (from the estate road to the east), which will function as a secondary entrance providing for emergency and construction access. A new main entrance and access control point to the lands is proposed (also from the estate road to the east) and a single-storey gate house / security building at this entrance with a GFA of c. 29.5 sq.m.;
- Construction of internal road network and circulation areas, footpaths, provision of 50 no. car parking spaces and 26 no. cycle parking spaces within a bicycle shelter;
- Landscaping and planting (including provision of an additional planted berm to the northern boundary, and alterations to existing landscaping adjacent to the entrance to the Business and Technology Park), boundary treatments, lighting, security fencing, bollards and camera poles, bin store, and all associated site works including underground foul and storm water drainage network, attenuation areas, and utility cables, on an application site area measuring 19.46 hectares.

1.2 Existing Land Use

The existing site is currently a greenfield site which was previously used as agricultural land. It is located within an IDA Business Park as a serviced site.

2 Surface Water Drainage

2.1 General

The proposed development will provide attenuation in compliance with the requirements of the Greater Dublin Strategic Drainage Study (GSDSDS). The following section outlines the surface water drainage proposals for the development. All SUDS elements have been designed as per the recommendation of the SuDS Manual 2015.

All surface water works including connections will be carried out in accordance with the Code of Practice for Development Works – Drainage.

The documentation provided in support of that application addressed pre-development greenfield run-off rates for 18.6-hectare catchment area. This issue is discussed further in Section 2.5.4 of this report.

2.2 Drawings

The following drawings provided in support of this planning application are applicable to surface water drainage:

- CAP-CSE-00-XX-DR-C-1100 Overall Proposed Surface Water Drainage Layout
- CAP-CSE-00-XX-DR-C-1110 Proposed Surface Water Drainage Layout – Sheet 1
- CAP-CSE-00-XX-DR-C-1111 Proposed Surface Water Drainage Layout – Sheet 2
- CAP-CSE-00-XX-DR-C-1112 Proposed Surface Water Drainage Layout – Sheet 3

2.3 Existing Surface Water Drainage Network

There is an existing 525mm diameter sewer/pipe under the existing IDA Business Park Estate Road runs along the eastern boundary of the site. The invert levels of existing manholes is 4 to 5 m deep. The adjacent manhole to the proposed attenuation pond location have an invert level of 44.14m.

2.4 Cooling Water Discharge

Irish climatic conditions generally allow for the data storage facilities to be cooled using air cooling however there will be an occasional requirement to use evaporative cooling. Typically, evaporative cooling is required when temperatures exceed 28°C (Approximately 5% of the year). Residual cooling water, associated with the evaporative cooling process, is to be discharged from the air handling units to the surface water drainage network.

When evaporative cooling is required the average rate of demand for Building '1' is 106m³/day. Of the water supplied only 40% will be discharged to the surface water system as the remainder will be lost to evaporation in the cooling process. This results in an average daily discharge of 42.4m³/day for Building '1'. Hence, the peak rate of discharge for Building '1' equals 3.92 l/s. It should be noted that peak water usage and discharge only occur on days when the temperature exceeds 28°C.

See the Table 2.1 below for the expected average and peak daily potable water demand for the proposed development as well as future campus buildings.

Building	Expected Cooling Water Discharge		
	Average Daily Discharge (m ³)	Peak Daily Discharge (Temperature above 28°C only) (l/s)	Peak Daily Discharge (from November to April) (l/s)
Building '1'	42.4	3.92	0
Building '2'	42.4	3.92	0
Building '3'	42.4	3.92	0
Total	127.5	11.76	0

Table 2.1 – Cooling Water Discharge Rates

As noted above that the cooling water will only be required during periods of hot dry weather (i.e. temperature 28°C) and therefore the discharge to the surface water network will not coincide with any rainfall events.

2.5 Proposed Surface Water Drainage Network

2.5.1 Overview

The proposed surface water network for the development collects runoff from roofs, roads and other hard standing areas in a sealed system of pipes and gullies. The surface water drainage pipe network follows the proposed site topography and falls west at an average gradient of approximately 1.0%.

The pipe network outfalls to a surface water attenuation basin located in the East adjacent to the site entrance. The proposed attenuation system outfalls via a carrier drain which discharges attenuated flows to the existing IDA Estate surface water system. The existing system runs north in the Estate Road in IDA Drogheda Business Park as shown in Meath County Council Record Drawings (Refer to **Appendix A & A1**).

2.5.2 Surface Water Network Design

The pipe network is designed in accordance with the requirement of Table 6.4 of the Greater Dublin Strategic Drainage Study (GDSDS) – See Fig 2.1 below.

Parameter	Surface Water Sewers
Minimum depth	1.2m cover under highways 0.9m elsewhere
Maximum depth	Normally 5m
Minimum sewer size	225mm
Runoff factors for pipe sizing	100% paved and roof surfaces 0% off pervious surfaces
Rainfall for initial pipe sizing	50mm/hr rainfall intensity
Minimum velocity (pipe full)	1.0m/s
Flooding	Checks made for adequate protection * No flooding for return period less than 30 years except where explicitly planned Simulation modelling is required for sites greater than 24ha**
Roughness – ks	0.6mm

Fig 2.1 – GDSDS Pipe Design Criteria

Manholes shall be provided at junctions in the network, at changes of direction and gradient and at no more than 90m centres.

The surface water pipe network has been modelled using WinDes™ software and the results are contained in **Appendix B**.

2.5.3 Pollution Control Measures

Three different types of pollution control elements will be implemented as part of surface water infrastructure in the development as following:

- A. It is proposed to provide a Class 1 full retention separators (Model No. NSFA010) downstream of any used in high risk spillage areas in accordance with Section 20 of the Greater Dublin Regional Code of Practice. The full retention separator is designed to treat the full design flow that can be delivered in the drainage system, which is normally equivalent to the flow generated by a rainfall intensity of 50mm/hour. This is provided at the fuel refill area.
- B. It is proposed to provide a Class 1 bypass interceptor (Model No. NSBE100) upstream of the surface water attenuation system upstream of the surface water attenuation system to capture the remainder of the roads and car parking areas. The bypass separator is designed to fully treat all flows generated by rainfall rates up to 5mm/hour. This covers 99% of all rainfall events.
- C. Hydrodynamic solid separator is proposed within the drainage network to screen rubbish, debris and sediment from the surface water runoff before it enters the attenuation pond and upstream of the bypass separator as discussed in (B) above.

Details of the full retention and bypass interceptors proposed are provided in **Appendix C** to this report.

Details of the hydrodynamic solid separator proposed are provided in **Appendix D** to this report.

2.5.4 SuDS Implementation



Classification	Area (hectares)	Percentage Run-off %
Stone-fill	0.45	0
Green Area With SuDS Type (1): Swals	1.01	10
Green Area SuDS Type (2): Filter-drains	6.272	30
Green Area Without SuDS	1.41	35
Permeable Paving in Parking Areas	0.20	40
Attenuation Basin	0.42	100
Hardstanding	9.753	100
Total Catchment Area	18.605 ha	

2.5.5 Surface Water Attenuation

The surface water network has been designed to provide sufficient capacity to contain and convey all surface water runoff associated with the 1 in 100 year event to the attenuation basins without any overland flooding. This is in compliance with Criterion 3 of Table 6.3 of Volume 2 of the GSDSDS.

It is proposed to provide an attenuation basin in the east of development site to attenuate flows from the Building '1', Building '2', Building '3' and future proposed substation.

All calculations have allowed for an additional allowance of 20% in rainfall intensities to allow for climate change as per Table 6.1 of Volume 2 of the GSDSDS.

The allowable discharge rate from the site (Q_{BAR}) has been calculated in accordance with the following equation as per Section 6.3.1.2.2 of the GSDSDS:-

$$Q_{\text{BAR}} = 0.00108 \text{ AREA}^{0.89} \text{ SAAR}^{1.17} \text{ SOIL}^{2.17}$$

Where:

Q_{BAR} = Mean Annual Flood Flow (m³/s)

AREA = Area of catchment (km²) (Initially calculated based on 50 hectares and adjusted pro-rata to catchment area).

SAAR = Standard Annual Rainfall (mm) Calculated based on Met Eireann Data)

SOIL = Soil index (based on site investigation data and Table D1 in Appendix D to Volume 2 of the GSDSDS)

The proposed allowable discharge rates from the entire development will be (Q_{BAR}) is 39.07 l/s for the entire Site Catchment Area of 18.6 ha (We note this is the Site Catchment Area which is different from the planning red line area). Discharge from the site will be controlled by means of an online hydrobrake vortex control (Unit Reference MD-SHE-0186-1990-1800-1990).

Analysis of the Windes™ results for the data storage facility's drainage network identified the 2880 minute winter storm during the 1 in 100 year return period as the critical storm in terms of attenuation storage volume. The attenuation basin design information is outlined below. See **Appendix E** for details of the Windes™ calculations.

- Basin Invert Level = 46.50m OD
- Proposed Ground Level at Basin = 49.0m approx.
- Basin base area = 4154.0 m²
- Side Slopes = 1H:3V and vertical retaining wall to the inner side
- Discharge Rate = 39.07 l/s
- Design Head = 1.5m
- Critical Storm Event = 2160 Minute, Winter
- High Water Level during 1 in 100 year event = 48.3m
- Storage Volume required for proposed development = 7549m³

3 Wastewater Drainage

3.1 General

A pre-connection enquiry (PCE) form was submitted to Irish Water on 18th of October 2019 which addressed water and wastewater demand for the development of the masterplan for the entire 16.4 ha landholding on a multi-phase basis. Irish Water provided a confirmation of feasibility (CoF) for the development on 5th November 2019 (IW Reference Number: CDS19007702).

The proposed development, subject to this planning application, constitutes Phases 1 of the overall and, as such, the overall wastewater discharge associated with the proposed development are in accordance the demand/discharge rates outlined in the PCE subject to any adjustment in staff numbers.

In relation to wastewater demand calculations EPA's "Wastewater Treatment Manuals: Treatment Systems for Small Communities, Business, Leisure Centres and Hotels" has been used in order to maintain consistency with the calculations provided in previously submitted documentation.

3.2 Drawings

The following drawings provided in support of this planning application are applicable to wastewater drainage:-

- CAP-CSE-00-XX-DR-C-1200 Overall Proposed Foul Drainage Layout
- CAP-CSE-00-XX-DR-C-1210 Proposed Foul Drainage Layout – Sheet 1
- CAP-CSE-00-XX-DR-C-1211 Proposed Foul Drainage Layout – Sheet 2
- CAP-CSE-00-XX-DR-C-1212 Proposed Foul Drainage Layout – Sheet 3

3.3 Existing Infrastructure

There is an existing 225mm diameter connection to the external foul water system under the IDA Business Park Estate Road runs along the eastern boundary of the site. The invert levels of existing foul manholes is approximately 4 to 5 m deep. The adjacent manhole to the proposed main entrance location have an invert level of 45.8m.

3.4 Proposed Wastewater Drainage Network

3.4.1 Overview

The proposed wastewater drainage network collects domestic wastewater flows from the administration block of the proposed Data Centre Storage Facility. In addition rainfall which pass through in the generator exhaust stacks is collected in the wastewater network which discharges to hydrocarbon interceptor before connecting to the main wastewater pipe network.

3.4.2 Wastewater Demand

As noted in Section 3.1 of this Report in order to maintain consistency with previous documentation submitted to Irish Water wastewater demand for the proposed development has been estimated using (Irish Water Code of Practice for Wastewater Infrastructure, Document No. IW-CDS-5030-03, Appendix D). The aforementioned document states that the recommended wastewater loading rate for industrial developments without canteen facilities is 50 litres per person.

The staff occupancy of Building '1 - 3' is 50 persons thus the wastewater loading for the proposed development is calculated as follows:-

- Occupancy (Building '1') = 50 persons
- Occupancy (Building '2') = 50 persons
- Occupancy (Building '3') = 50 persons
- Total Occupancy = 150 persons
- Daily Wastewater Discharge DWF = $150 \times 50 / (24 \times 60 \times 60) = 0.09$ litres / sec

3.4.3 Wastewater Pipe Design

The network has been designed to ensure that the foul discharge maintains a self-cleansing velocity. The proposed network adheres to the minimum pipe gradients set out in Table 6 of the "Building Regulations Technical Guidance Document H". It is proposed to take all foul drainage from the buildings by means of 100mm \varnothing pipes with minimum gradients of 1:60 which connect to 150mm \varnothing pipes laid at minimum gradients of 1:100. The key design parameters are summarised as follows:-

- Minimum Self-Cleansing Velocity for Gravity Sewer = 0.75 m/s;
- Minimum gradient of gravity sewer = 1:100 for \varnothing 150mm and 1:150 for \varnothing 225mm pipe;
- Roughness Co-efficient for Gravity Sewer (k_s) = 1.5mm
- Peak Design Flow = 6 DWF (as per (Irish Water Code of Practice for Wastewater Infrastructure, Document No. IW-CDS-5030-03, Appendix D)
- The peak design flow from the site is calculated as follows:
Design Flow = DWF x Pf Ind = $0.09 \times 6.0 = 0.54$ litres / sec

Based on the Colebrook-White Equation a 150mm \varnothing pipe at a gradient of 1:100 has a capacity of 15 l/s and a velocity of 0.875 m/s when flowing full. Thus the pipe network has adequate capacity to convey the design peak flows and has a self-cleansing velocity in excess of 0.75 m/s.

3.4.4 Pollution Control Measures on Wastewater Network

An additional foul sewer is to be provided to the north of the proposed building in order to capture possible contaminated rainwater from the generator flue stacks. The drainage from flues is to pass into a Class 1 full retention separator Model NSFP003 located upstream of the proposed Manhole No. FHM-20 (serving Building '1'), Details of the full retention separator are provided in Appendix C.

4 Water Supply

4.1 Existing Infrastructure

The site is served by a 300mm diameter ductile iron water main that is located in the existing IDA estate road.

4.2 Drawings

The following drawings provided in support of this planning application are applicable to water supply

- CAP-CSE-00-XX-DR-C-1300 Overall Proposed Water Supply Layout
- CAP-CSE-00-XX-DR-C-1310 Proposed Water Supply Layout – Sheet 1
- CAP-CSE-00-XX-DR-C-1311 Proposed Water Supply Layout – Sheet 2
- CAP-CSE-00-XX-DR-C-1312 Proposed Water Supply Layout – Sheet 3

4.3 Proposed Water Supply

It is proposed to take a 150mm connection from the external watermain on the east side of the site. This main is to feed a number of 150mm mains that will serve the proposed data storage facilities and security building with potable water.

As noted in Section 3 of this report a pre-connection enquiry (PCE) form was submitted to Irish Water on 18th of October 2019 which addressed water and wastewater demand for the development of the masterplan for the entire 16.4 ha landholding on a multi-phase basis. Irish Water provided a confirmation of feasibility (CoF) for the development on 5th November 2019 (IW Reference Number: CDS19007702) **Appendix G**.

The proposed development, subject to this planning application, constitutes Phase 1 of the overall development of the entire site and, as such, the overall water demand associated with the proposed development are in accordance the demand/discharge rates agreed with Irish Water.

It should be noted that the air handling units (AHUs) which constitute the primary water demand are to be provided with 24 hours of storage. The storage provided for the development is to be 106 m³/day for Building '1' as discussed in section 2.4.

Average water demand for the development of the multi-phase masterplan development was calculated as 1.0 litres/sec whilst peak water demand was calculated as 6 litres/sec based on the replenishment of 320,000 litres (320m³) cooling storage over a 24 hour period with allowance for other site uses and a factor of safety. The foregoing calculations are included in the PCE previously provided to Irish Water (Refer to **Appendix F**).

4.3.1 Fire Hydrant Main

The proposed development will be served by a 250mm \varnothing fire hydrant main which is connected to a sprinkler tank (Capacity 450,000 litres, Refer to PCE included in Appendix F) and the associated pump house which forms part of the proposed development.

The fire hydrants will be provided at appropriate locations in accordance with the specialist fire protection contractors design and Meath County Council requirements.

Project Number: 19_131

Project: Data Storage Facility at IDA Business Park, Drogheda

Title: Engineering Planning Report - Drainage & Water Services

5 Appendices

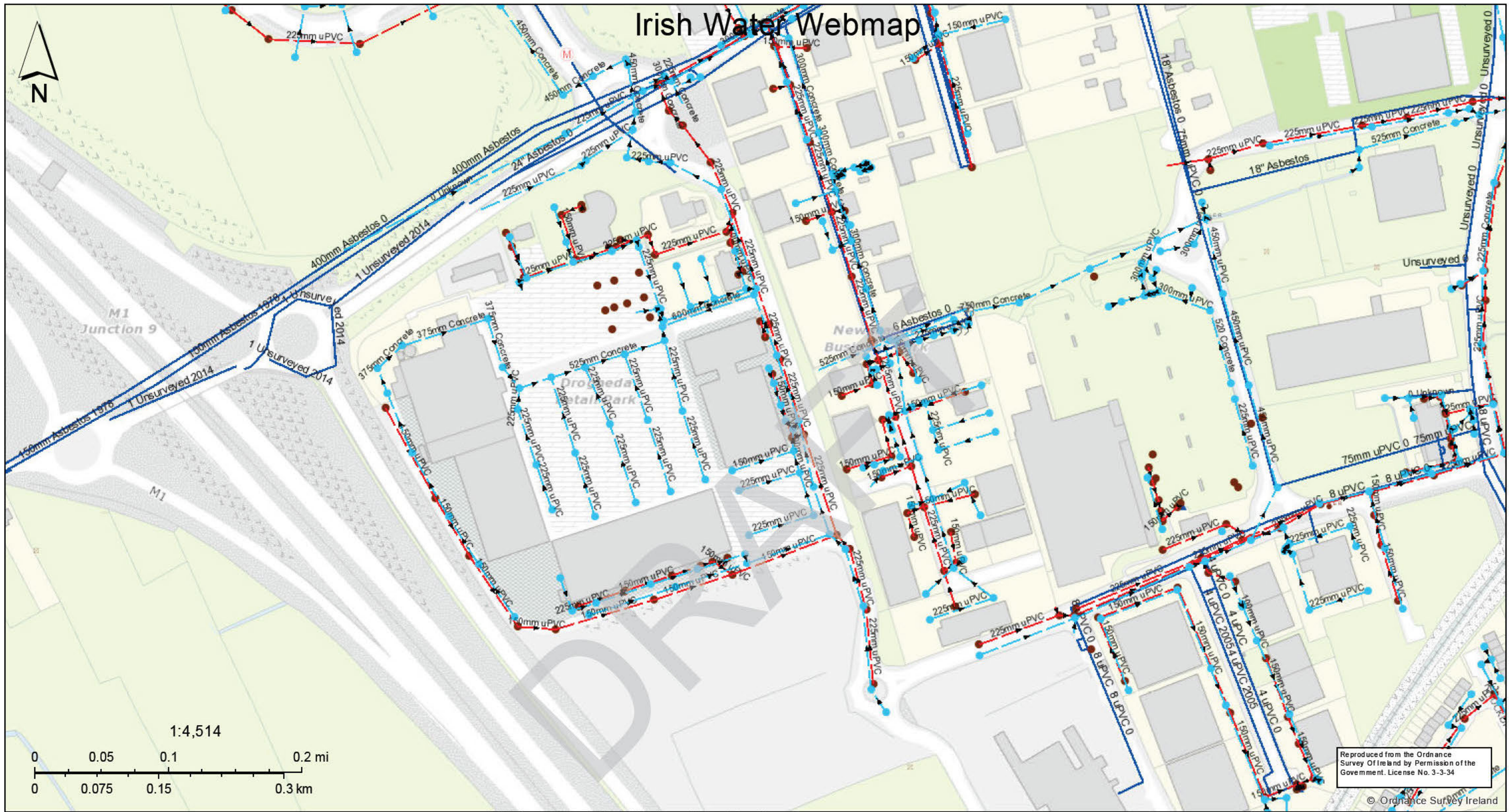
Project Number: 19_131

Project: Data Storage Facility at IDA Business Park, Drogheda

Title: Engineering Planning Report - Drainage & Water Services



5.1 Appendix A – Meath County Council Record Drawings



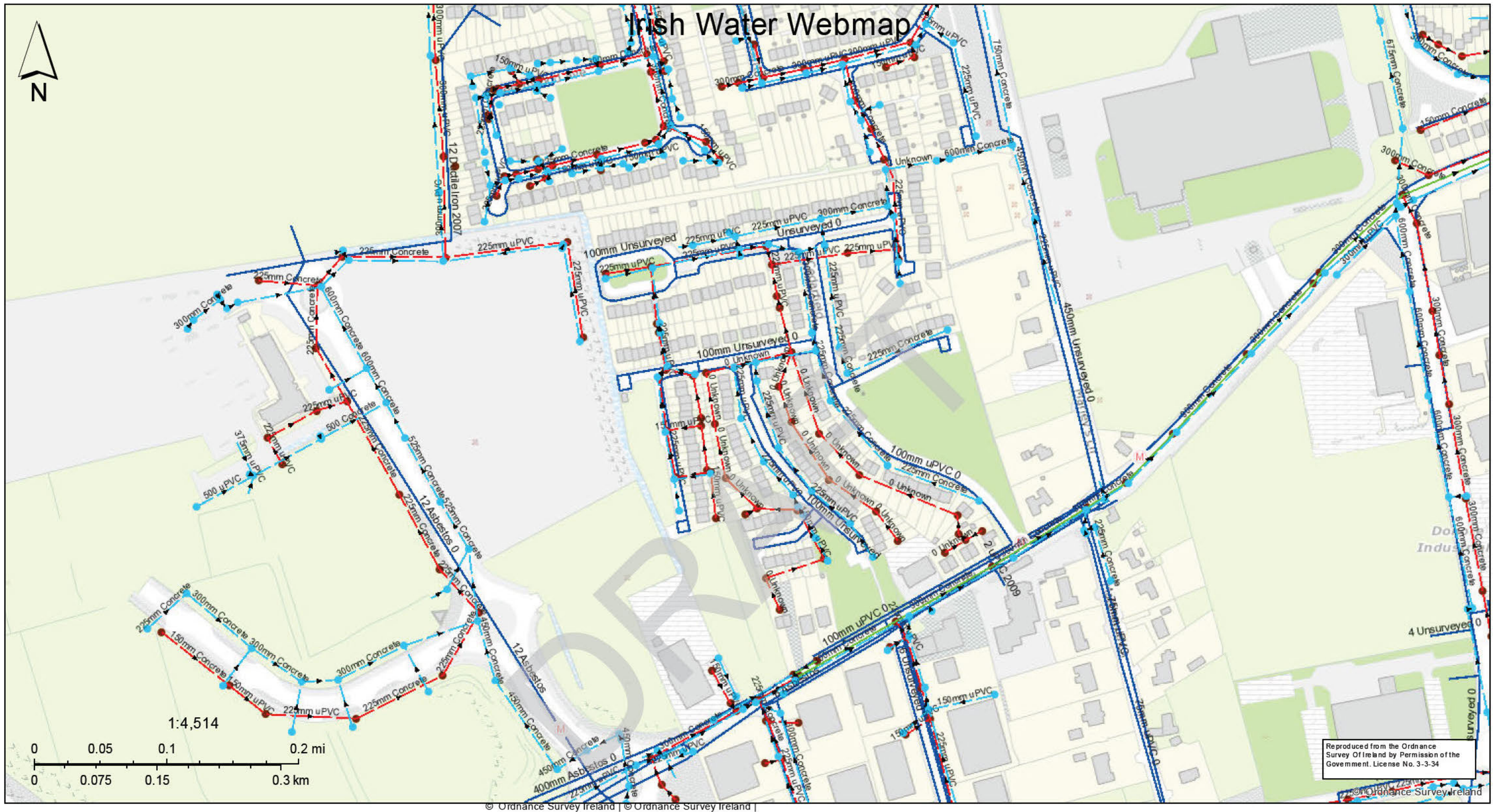
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- Legend**
- Stormwater Gravity Mains (Irish Water Owned)**
 - Surface
 - Stormwater Gravity Mains (Non-Irish Water Owned)**
 - Surface
 - Storm Manholes**
 - Cascade
 - Catchpit
 - Hatchbox

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. It should not be relied upon in the event of excavations or other works being carried out in the vicinity of the network. The onus is on the parties carrying out the works to ensure the exact location of the network is identified prior to mechanical works being carried out. Service pipes are not generally shown but their presence should be anticipated. © Irish Water



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Legend

Stormwater Gravity Mains (Irish Water Owned)

— Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

— Surface

Storm Manholes

■ Cascade

○ Catchpit

▭ Hatchbox

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. It should not be relied upon in the event of excavations or other works being carried out in the vicinity of the network. The onus is on the parties carrying out the works to ensure the exact location of the network is identified prior to mechanical works being carried out. Service pipes are not generally shown but their presence should be anticipated. © Irish Water



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2/8/2019, 9:47:12 AM

Legend

Stormwater Gravity Mains (Irish Water Owned)

— Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

— Surface

Storm Manholes

▣ Cascade

▣ Catchpit

▣ Hatchbox

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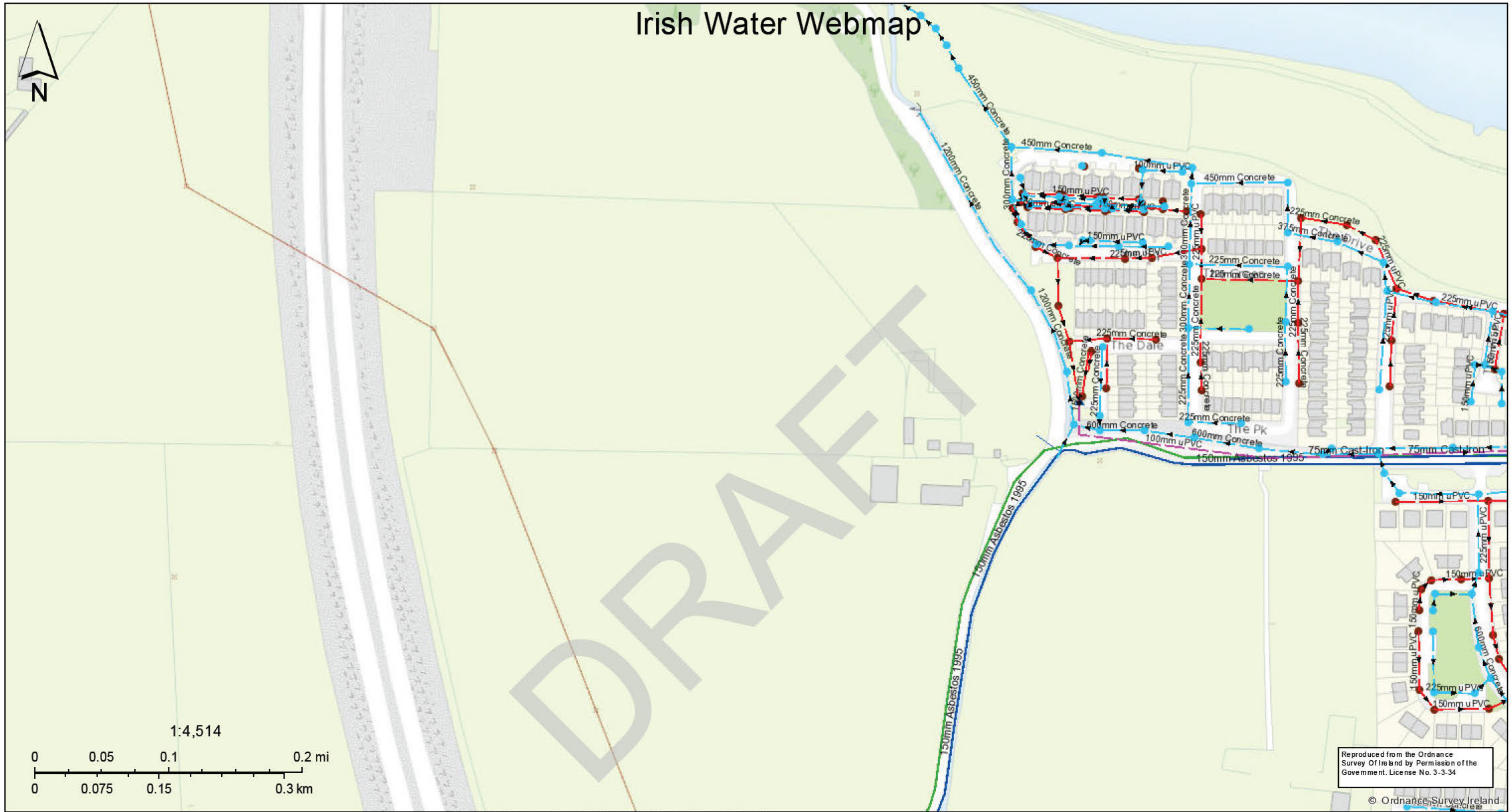
- Legend**
- Stormwater Gravity Mains (Irish Water Owned)**
 - Surface
 - Stormwater Gravity Mains (Non-Irish Water Owned)**
 - Surface
 - Storm Manholes**
 - Cascade
 - Catchpit
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Irish Water Webmap



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 - Surface
 - Stormwater Gravity Mains (Non-Irish Water Owned)**
 - Surface
 - Storm Manholes**
 - Cascade
 - Catchpit
 - Hatchbox

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Legend

Stormwater Gravity Mains (Irish Water Owned)

— Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

— Surface

Storm Manholes

▣ Cascade

▣ Catchpit

▣ Hatchbox

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2/8/2019, 9:50:08 AM

Legend

Stormwater Gravity Mains (Irish Water Owned)

Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

Surface

Storm Manholes

Cascade

Catchpit

Hatchbox

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Irish Water Webmap



2/8/2019, 9:50:57 AM

Legend

Stormwater Gravity Mains (Irish Water Owned)

— Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

— Surface

Storm Manholes

▣ Cascade

▣ Catchpit

▣ Hatchbox

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Irish Water Webmap



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Legend

Stormwater Gravity Mains (Irish Water Owned)

— Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

— Surface

Storm Manholes

▣ Cascade

▣ Catchpit

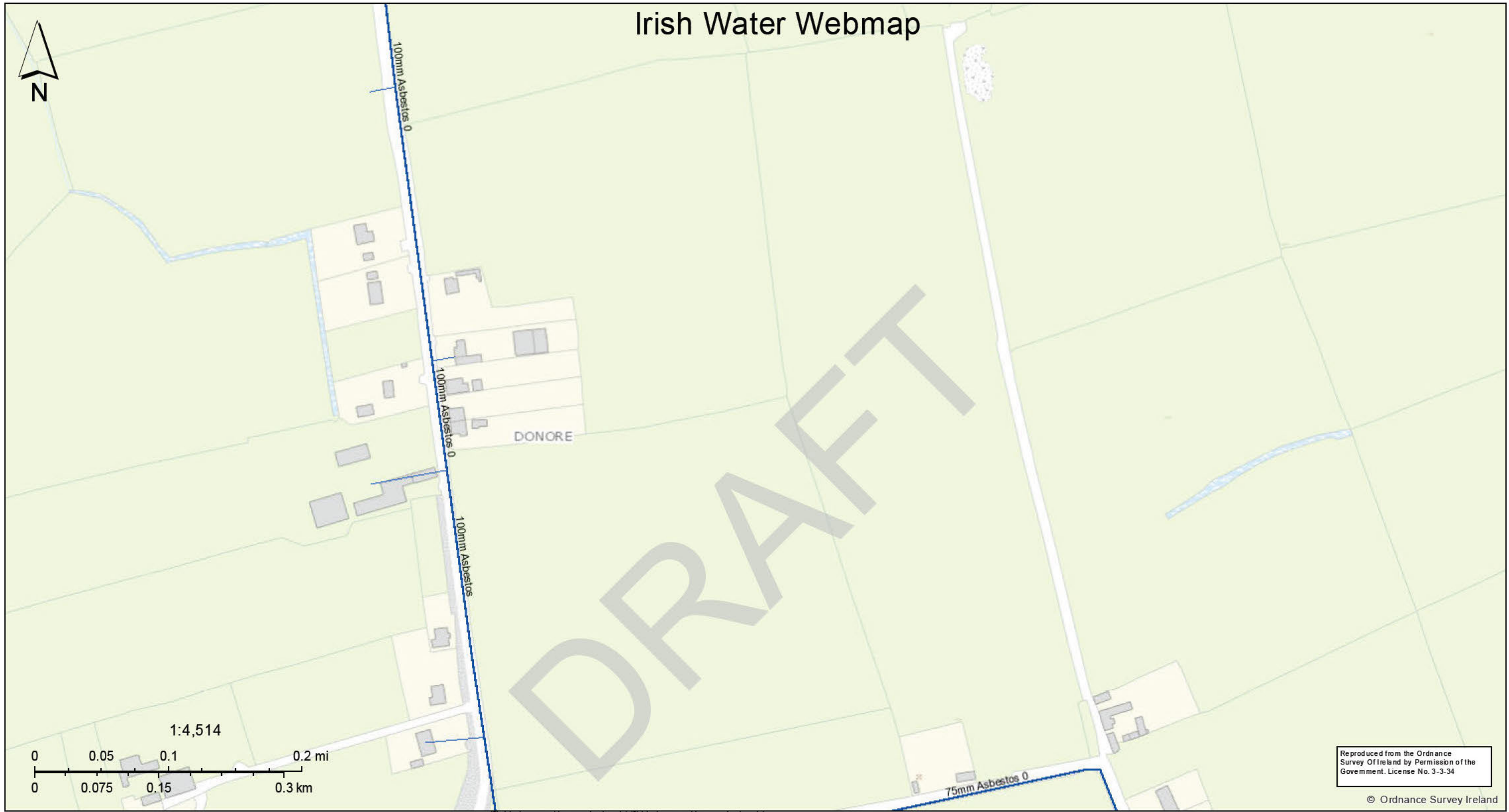
▣ Hatchbox

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Irish Water Webmap



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2/8/2019, 10:01:27 AM

- Legend**
- Stormwater Gravity Mains (Irish Water Owned)**
 - Surface
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Irish Water Webmap



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Legend

Stormwater Gravity Mains (Irish Water Owned)

— Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

— Surface

Storm Manholes

▣ Cascade

▣ Catchpit

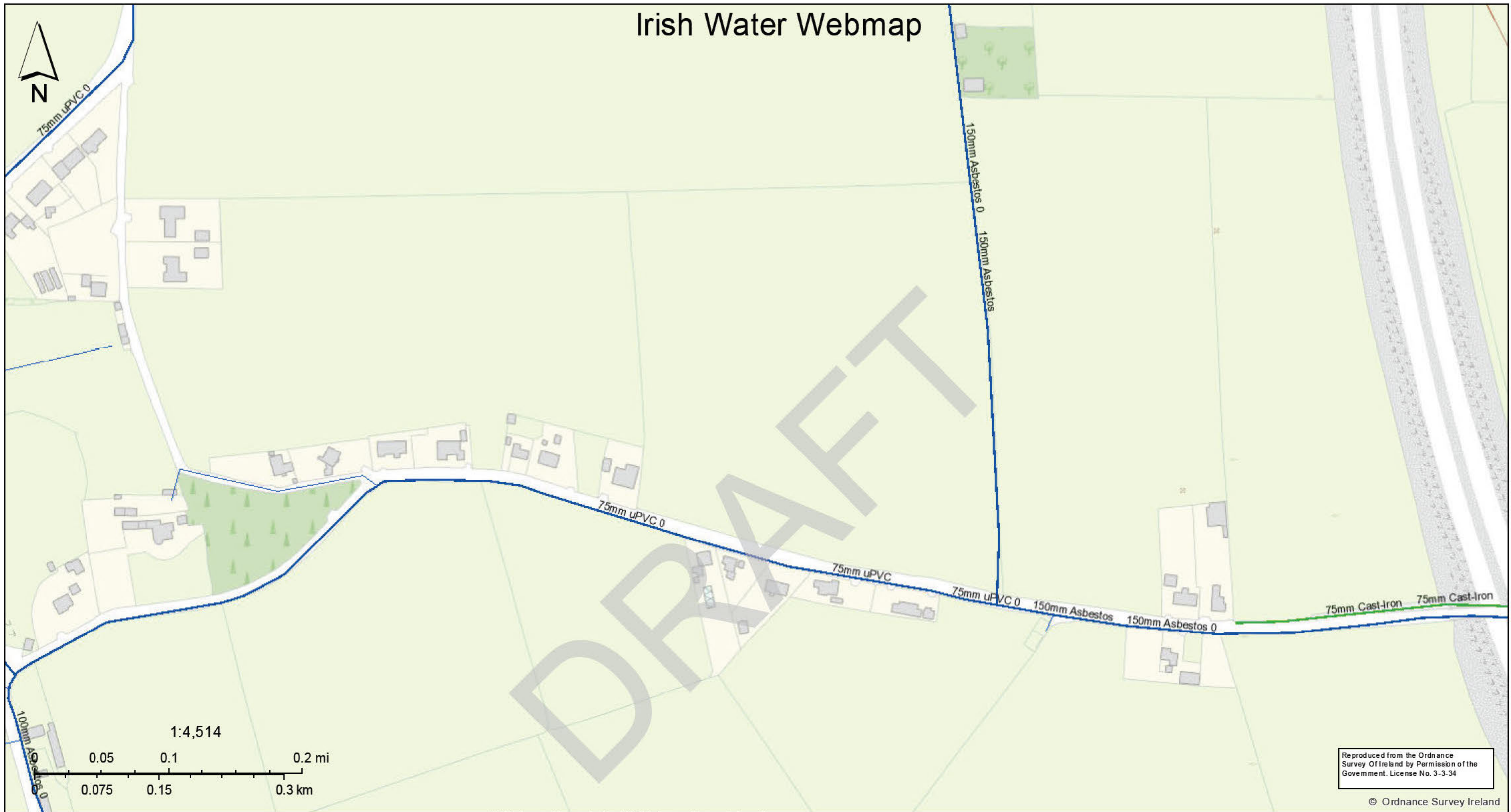
▣ Hatchbox

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Irish Water Webmap



2/8/2019, 10:02:59 AM

Legend

Stormwater Gravity Mains (Irish Water Owned)

Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

Surface

Storm Manholes

Cascade

Catchpit

Hatchbox

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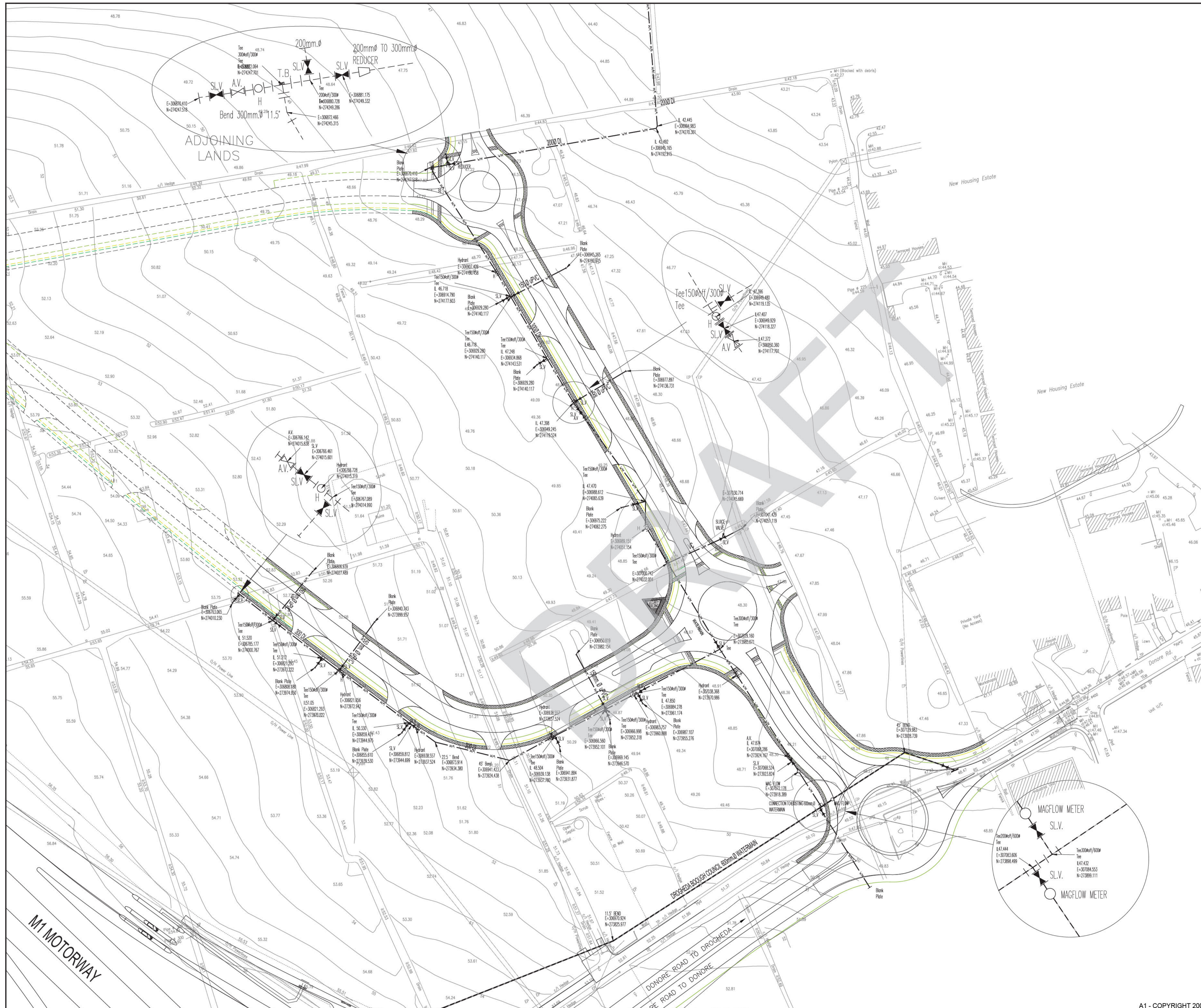
Project Number: 19_131

Project: Data Storage Facility at IDA Business Park, Drogheda

Title: Engineering Planning Report - Drainage & Water Services



5.2 Appendix 1A – IDA Estate As-Built Record Drawings



NOTE:
ALL CROSSING IS 150mm.Ø uPVC.

LEGEND

WATERMAIN	— — — — —
HYDRANT	— — — — —
SLUICE VALVE	— — — — —
AIR VALVE	— — — — —
BLANK END	— — — — —
'T' PIECE	— — — — —
ANGLE PIECE	— — — — —
THRUST BLOCK	— — — — —

<p>CLIFTON SCANNELL EMERSON ASSOCIATES</p>	<p>Drawing Status DRAFT AS CONSTRUCTION</p>
	<p>Date OCTOBER 2003</p>
	<p>Issued By CSEA</p>
	<p>Blank</p>

Revision	Description	Initials	Date

<p>CLIFTON SCANNELL EMERSON ASSOCIATES</p>	<p>CLIFTON SCANNELL EMERSON ASSOCIATES Consulting Engineers</p>
	<p><small>Shelford Lodge, Castlenewton Ave, Blackrock, Co. Dublin, Ireland. Tel. +353 (0)1 298 9006 Fax. +353 (0)1 298 3498 Email. info@csae.ie</small></p>
	<p>Blank</p>

Architect	INDUSTRIAL DEVELOPMENT AGENCY		
Client	IDA DROGHEDA BUSINESS PARK		
Project	WATERMAIN LAYOUT AS CONSTRUCTED		
Dwg. Title			
Drawn By	LT	Date	29/09/03
Checked by	MC	Scale	1:1000
Dwg. No.	99_072/001		



NOTE:
ATTENTION MUST BE PROVIDED TO ALL SITES
PRIOR TO DISCHARGE TO DRAINAGE NETWORK IN
ACCORDANCE WITH DROGHEDA BOROUGH
COUNCIL/ MEATH COUNTY COUNCIL
REQUIREMENTS.

LEGEND:

—	SURFACE WATER
○	SURFACE WATER MANHOLE
□	SILT TRAP

	Drawing Status	DRAFT
		AS
		CONSTRUCTED
	Date	OCTOBER 2003
	Issued By	CSEA


Revision	Description	Initials	Date

	CLIFTON SCANNELL EMERSON ASSOCIATES
	Consulting Engineers
Shelton Lodge, Castlenewson Ave, Blackrock, Co. Dublin, Ireland. Tel. +353 (0)1 288 9006 Fax. +353 (0)1 289 3488 Email. info@csea.ie	

Architect	INDUSTRIAL DEVELOPMENT AGENCY		
Client	IDA DROGHEDA BUSINESS PARK		
Project	SURFACE WATER LAYOUT		
Dwg. Title			
Drawn By	LT	Date	1/10/03
Checked by	MC	Scale	1:1000
Dwg. No.	99_72/005		



LEGEND:
 — FS FOUL SEWER
 ○ FOUL SEWER MANHOLE


 Drawing Status
DRAFT AS CONSTRUCTED
 Date
 OCTOBER 2003
 Issued By
 CSEA

Revision	Description	Initials	Date


CLIFTON SCANNELL EMERSON ASSOCIATES
 Consulting Engineers
Shelford Lodge, Castledean Ave, Blackrock, Co. Dublin, Ireland.
 Tel. +353 (0)1 289 6006 Fax. +353 (0)1 289 3486 Email. info@csea.ie

Architect	INDUSTRIAL DEVELOPMENT AGENCY		
Client	IDA DROGHEDA BUSINESS PARK		
Project	FOUL LAYOUT		
Dwg. Title			
Drawn By	LT	Date	1/10/03
Checked by	MC	Scale	1:1000
Dwg. No.	9972/006		


Project Number: 19_131

Project: Data Storage Facility at IDA Business Park, Drogheda

Title: Engineering Planning Report - Drainage & Water Services



5.3 Appendix B – Windes Surface Water Network Calculations

Clifton Scannell Emerson Associates		Page 1
Seefort Lodge Castledawson ... Blackrock County Dublin		
Date 13/12/2019 16:58 File Dub-62-19_131-Surface W...	Designed by siddig.elshareef Checked by	
Micro Drainage	Network 2019.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes Pipe Manhole Sizes Manhole

FSR Rainfall Model - Scotland and Ireland

Return Period (years)	30	PIMP (%)	100
M5-60 (mm)	16.500	Add Flow / Climate Change (%)	10
Ratio R	0.300	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm at outfall SW-OUTFALL-1 (pipe 1.009)

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	2.895	4-8	2.970	8-12	0.268

Total Area Contributing (ha) = 6.134

Total Pipe Volume (m³) = 157.814


Time Area Diagram at outfall SW-OUTFALL-2 (pipe 9.007)

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	1.136	4-8	2.161	8-12	0.261

Total Area Contributing (ha) = 3.558

Total Pipe Volume (m³) = 134.079














Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	45.460	0.504	90.2	0.446	6.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table


PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	6.46	51.450	0.446	0.0	0.0	6.0	1.66	117.1	66.4

Network Design Table for Storm

















PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
2.000	14.440	0.144	100.3	0.033	6.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	72.036	0.600	120.0	0.488	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.002	90.048	0.600	150.0	0.149	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.003	55.348	0.369	150.0	0.558	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.004	24.183	0.242	100.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
3.000	18.013	0.120	150.1	0.083	6.00	0.0	0.600	o	225	Pipe/Conduit	
3.001	14.339	0.143	100.0	0.074	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.005	55.034	0.550	100.0	0.098	0.00	0.0	0.600	o	450	Pipe/Conduit	
4.000	46.859	0.469	99.9	0.087	6.00	0.0	0.600	o	225	Pipe/Conduit	
1.006	40.240	0.402	100.0	0.062	0.00	0.0	0.600	o	450	Pipe/Conduit	
5.000	90.710	0.908	99.9	0.167	6.00	0.0	0.600	o	225	Pipe/Conduit	
6.000	30.786	0.383	80.4	0.028	6.00	0.0	0.600	o	225	Pipe/Conduit	
5.001	34.866	0.349	100.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
2.000	50.00	6.18	51.240	0.033	0.0	0.0	0.4	1.31	51.9	4.9
1.001	50.00	7.18	50.871	0.967	0.0	0.0	13.1	1.65	182.6	144.0
1.002	50.00	8.09	50.196	1.116	0.0	0.0	15.1	1.66	263.6	166.3
1.003	50.00	8.65	49.595	1.674	0.0	0.0	22.7	1.66	263.6	249.4
1.004	50.00	8.84	49.226	1.674	0.0	0.0	22.7	2.03	323.4	249.4
3.000	50.00	6.28	51.500	0.083	0.0	0.0	1.1	1.06	42.3	12.3
3.001	50.00	6.46	51.380	0.157	0.0	0.0	2.1	1.31	52.0	23.3
1.005	50.00	9.30	48.985	1.929	0.0	0.0	26.1	2.03	323.4	287.3
4.000	50.00	6.60	51.500	0.087	0.0	0.0	1.2	1.31	52.0	12.9
1.006	50.00	9.62	48.434	2.077	0.0	0.0	28.1	2.03	323.4	309.4
5.000	50.00	7.16	52.325	0.167	0.0	0.0	2.3	1.31	52.0	24.9
6.000	50.00	6.35	51.800	0.028	0.0	0.0	0.4	1.46	58.0	4.1
5.001	50.00	7.60	51.417	0.195	0.0	0.0	2.6	1.31	52.0	29.1

Clifton Scannell Emerson Associates		Page 3
Seefort Lodge Castledawson ... Blackrock County Dublin		
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Micro Drainage		Network 2019.1

















Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
5.002	60.361	0.662	91.1	0.300	0.00	0.0	0.600	o	300	Pipe/Conduit	
7.000	34.744	0.347	100.1	0.037	6.00	0.0	0.600	o	225	Pipe/Conduit	
7.001	9.351	0.167	56.0	0.154	0.00	0.0	0.600	o	225	Pipe/Conduit	
5.003	79.660	0.797	100.0	0.759	0.00	0.0	0.600	o	450	Pipe/Conduit	
5.004	84.268	0.843	100.0	0.941	0.00	0.0	0.600	o	525	Pipe/Conduit	
1.007	27.930	0.279	100.0	0.292	0.00	0.0	0.600	o	675	Pipe/Conduit	
1.008	53.410	0.712	75.0	0.223	0.00	0.0	0.600	o	675	Pipe/Conduit	
8.000	24.361	0.162	150.0	0.133	6.00	0.0	0.600	o	225	Pipe/Conduit	
8.001	33.958	0.226	150.0	0.124	0.00	0.0	0.600	o	225	Pipe/Conduit	
8.002	34.452	0.230	150.0	0.154	0.00	0.0	0.600	o	300	Pipe/Conduit	
8.003	38.088	0.254	150.0	0.347	0.00	0.0	0.600	o	375	Pipe/Conduit	
8.004	35.504	0.237	150.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
8.005	30.235	0.202	150.0	0.219	0.00	0.0	0.600	o	375	Pipe/Conduit	
8.006	46.523	0.310	150.0	0.016	0.00	0.0	0.600	o	375	Pipe/Conduit	
8.007	18.257	0.122	150.0	0.096	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.009	14.437	0.144	100.0	0.067	0.00	0.0	0.600	o	675	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
5.002	50.00	8.21	50.993	0.495	0.0	0.0	6.7	1.65	116.5	73.7
7.000	50.00	6.44	50.920	0.037	0.0	0.0	0.5	1.31	52.0	5.5
7.001	50.00	6.53	50.573	0.191	0.0	0.0	2.6	1.75	69.6	28.5
5.003	50.00	8.86	50.181	1.445	0.0	0.0	19.6	2.03	323.4	215.2
5.004	50.00	9.49	49.309	2.385	0.0	0.0	32.3	2.24	484.9	355.3
1.007	50.00	9.80	47.807	4.754	0.0	0.0	64.4	2.62	938.0	708.2
1.008	50.00	10.10	47.528	4.977	0.0	0.0	67.4	3.03	1083.8	741.4
8.000	50.00	6.38	51.275	0.133	0.0	0.0	1.8	1.07	42.4	19.8
8.001	50.00	6.91	51.113	0.257	0.0	0.0	3.5	1.07	42.4	38.3
8.002	50.00	7.36	50.811	0.411	0.0	0.0	5.6	1.28	90.6	61.2
8.003	50.00	7.79	50.507	0.758	0.0	0.0	10.3	1.48	163.1	112.9
8.004	50.00	8.19	50.253	0.758	0.0	0.0	10.3	1.48	163.1	112.9
8.005	50.00	8.53	50.016	0.977	0.0	0.0	13.2	1.48	163.1	145.5
8.006	50.00	9.06	49.814	0.993	0.0	0.0	13.4	1.48	163.1	147.9
8.007	50.00	9.26	49.504	1.089	0.0	0.0	14.7	1.48	163.1	162.2
1.009	50.00	10.19	46.815	6.134	0.0	0.0	83.1	2.62	938.0	913.6

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section	Type	Auto Design
9.000	48.275	0.483	99.9	0.085	6.00	0.0	0.600	o	225	Pipe/Conduit		
9.001	36.308	0.363	100.0	0.091	0.00	0.0	0.600	o	225	Pipe/Conduit		
10.000	41.919	0.419	100.0	0.114	6.00	0.0	0.600	o	225	Pipe/Conduit		
10.001	35.004	0.492	71.2	0.041	0.00	0.0	0.600	o	225	Pipe/Conduit		
9.002	58.263	0.583	100.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit		
9.003	46.249	0.462	100.0	0.087	0.00	0.0	0.600	o	300	Pipe/Conduit		
9.004	73.506	0.735	100.0	0.080	0.00	0.0	0.600	o	300	Pipe/Conduit		
9.005	59.878	0.599	100.0	0.063	0.00	0.0	0.600	o	300	Pipe/Conduit		
9.006	39.445	0.394	100.0	0.126	0.00	0.0	0.600	o	300	Pipe/Conduit		
11.000	90.453	0.905	99.9	0.122	6.00	0.0	0.600	o	225	Pipe/Conduit		
12.000	9.529	0.200	47.6	0.092	6.00	0.0	0.600	o	225	Pipe/Conduit		
11.001	85.514	0.855	100.0	0.111	0.00	0.0	0.600	o	300	Pipe/Conduit		
11.002	8.259	0.083	100.0	0.006	0.00	0.0	0.600	o	300	Pipe/Conduit		
13.000	25.412	0.169	150.0	0.133	6.00	0.0	0.600	o	225	Pipe/Conduit		
13.001	25.150	0.168	150.0	0.106	0.00	0.0	0.600	o	225	Pipe/Conduit		
13.002	25.150	0.168	150.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit		

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
9.000	50.00	6.62	51.737	0.085	0.0	0.0	1.1	1.31	52.0	12.6
9.001	50.00	7.08	51.254	0.175	0.0	0.0	2.4	1.31	52.0	26.1
10.000	50.00	6.53	51.802	0.114	0.0	0.0	1.5	1.31	52.0	16.9
10.001	50.00	6.91	51.383	0.155	0.0	0.0	2.1	1.55	61.7	23.1
9.002	50.00	7.82	50.891	0.330	0.0	0.0	4.5	1.31	52.0	49.2
9.003	50.00	8.31	50.233	0.418	0.0	0.0	5.7	1.57	111.1	62.2
9.004	50.00	9.09	49.771	0.498	0.0	0.0	6.7	1.57	111.1	74.2
9.005	50.00	9.72	49.036	0.561	0.0	0.0	7.6	1.57	111.1	83.6
9.006	50.00	10.14	48.437	0.687	0.0	0.0	9.3	1.57	111.1	102.3
11.000	50.00	7.15	50.092	0.122	0.0	0.0	1.7	1.31	52.0	18.2
12.000	50.00	6.08	49.387	0.092	0.0	0.0	1.2	1.90	75.5	13.6
11.001	50.00	8.06	49.112	0.325	0.0	0.0	4.4	1.57	111.1	48.5
11.002	50.00	8.15	48.257	0.331	0.0	0.0	4.5	1.57	111.1	49.3
13.000	50.00	6.40	50.500	0.133	0.0	0.0	1.8	1.07	42.4	19.7
13.001	50.00	6.79	50.331	0.238	0.0	0.0	3.2	1.07	42.4	35.5
13.002	50.00	7.18	50.163	0.238	0.0	0.0	3.2	1.07	42.4	35.5










Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
13.003	25.150	0.168	150.0	0.105	0.00	0.0	0.600	o	300	Pipe/Conduit	👍
13.004	25.150	0.168	150.0	0.100	0.00	0.0	0.600	o	300	Pipe/Conduit	👍
13.005	25.150	0.168	150.0	0.210	0.00	0.0	0.600	o	375	Pipe/Conduit	👍
13.006	46.408	0.309	150.0	0.102	0.00	0.0	0.600	o	375	Pipe/Conduit	👍
11.003	7.340	0.073	100.0	0.067	0.00	0.0	0.600	o	375	Pipe/Conduit	👍
14.000	22.719	0.259	87.7	0.018	6.00	0.0	0.600	o	225	Pipe/Conduit	👍
11.004	23.382	0.192	121.8	0.031	0.00	0.0	0.600	o	375	Pipe/Conduit	👍
15.000	33.297	0.333	100.0	0.209	6.00	0.0	0.600	o	225	Pipe/Conduit	👍
15.001	25.120	0.167	150.0	0.152	0.00	0.0	0.600	o	300	Pipe/Conduit	👍
15.002	25.200	0.168	150.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	👍
15.003	25.100	0.167	150.0	0.155	0.00	0.0	0.600	o	300	Pipe/Conduit	👍
15.004	25.100	0.167	150.0	0.150	0.00	0.0	0.600	o	375	Pipe/Conduit	👍
15.005	25.180	0.168	150.0	0.308	0.00	0.0	0.600	o	375	Pipe/Conduit	👍
15.006	15.863	0.106	150.0	0.161	0.00	0.0	0.600	o	450	Pipe/Conduit	👍
15.007	16.647	0.111	150.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	👍
15.008	16.942	0.113	150.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	👍
15.009	34.461	0.536	64.3	0.048	0.00	0.0	0.600	o	450	Pipe/Conduit	👍

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
13.003	50.00	7.51	49.920	0.343	0.0	0.0	4.6	1.28	90.6	51.1
13.004	50.00	7.84	49.753	0.443	0.0	0.0	6.0	1.28	90.6	66.0
13.005	50.00	8.12	49.510	0.653	0.0	0.0	8.8	1.48	163.1	97.3
13.006	50.00	8.65	49.342	0.755	0.0	0.0	10.2	1.48	163.1	112.5
11.003	50.00	8.71	48.099	1.153	0.0	0.0	15.6	1.81	200.1	171.8
14.000	50.00	6.27	48.435	0.018	0.0	0.0	0.2	1.40	55.5	2.7
11.004	50.00	8.95	48.026	1.202	0.0	0.0	16.3	1.64	181.2	179.0
15.000	50.00	6.42	50.021	0.209	0.0	0.0	2.8	1.31	52.0	31.2
15.001	50.00	6.75	49.613	0.362	0.0	0.0	4.9	1.28	90.6	53.9
15.002	50.00	7.08	49.446	0.362	0.0	0.0	4.9	1.28	90.6	53.9
15.003	50.00	7.41	49.278	0.517	0.0	0.0	7.0	1.28	90.6	77.0
15.004	50.00	7.69	49.035	0.667	0.0	0.0	9.0	1.48	163.1	99.4
15.005	50.00	7.97	48.868	0.975	0.0	0.0	13.2	1.48	163.1	145.2
15.006	50.00	8.13	48.625	1.136	0.0	0.0	15.4	1.66	263.6	169.2
15.007	50.00	8.30	48.519	1.136	0.0	0.0	15.4	1.66	263.6	169.2
15.008	50.00	8.47	48.408	1.136	0.0	0.0	15.4	1.66	263.6	169.2
15.009	50.00	8.70	48.295	1.184	0.0	0.0	16.0	2.54	403.9	176.3

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
16.000	13.036	0.130	100.0	0.010	6.00	0.0	0.600	o	225	Pipe/Conduit	
11.005	31.357	0.157	200.0	0.155	0.00	0.0	0.600	o	600	Pipe/Conduit	
11.006	14.565	0.218	66.9	0.039	0.00	0.0	0.600	o	600	Pipe/Conduit	
17.000	26.723	0.356	75.0	0.018	6.00	0.0	0.600	o	225	Pipe/Conduit	
17.001	26.020	0.347	75.0	0.042	0.00	0.0	0.600	o	225	Pipe/Conduit	
17.002	24.476	0.401	61.0	0.032	0.00	0.0	0.600	o	225	Pipe/Conduit	
11.007	37.974	0.190	200.0	0.056	0.00	0.0	0.600	o	600	Pipe/Conduit	
11.008	52.121	0.104	500.0	0.090	0.00	0.0	0.600	o	750	Pipe/Conduit	
9.007	10.403	0.052	200.0	0.042	0.00	0.0	0.600	o	750	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
16.000	50.00	6.17	48.500	0.010	0.0	0.0	0.1	1.31	52.0	1.5
11.005	50.00	9.26	47.609	2.551	0.0	0.0	34.5	1.72	485.8	380.0
11.006	50.00	9.34	47.452	2.591	0.0	0.0	35.1	2.98	842.9	385.9
17.000	50.00	6.29	48.714	0.018	0.0	0.0	0.2	1.51	60.1	2.7
17.001	50.00	6.58	48.358	0.060	0.0	0.0	0.8	1.51	60.1	8.9
17.002	50.00	6.82	48.011	0.092	0.0	0.0	1.2	1.68	66.7	13.7
11.007	50.00	9.71	47.234	2.739	0.0	0.0	37.1	1.72	485.8	408.0
11.008	50.00	10.40	46.895	2.829	0.0	0.0	38.3	1.24	549.9	421.4
9.007	50.00	10.49	46.790	3.558	0.0	0.0	48.2	1.98	872.6	530.0

Project Number: 19_131

Project: Data Storage Facility at IDA Business Park, Drogheda

Title: Engineering Planning Report - Drainage & Water Services



5.4 Appendix C – Petrol Interceptor Details

SEPARATORS

A RANGE OF FUEL/OIL SEPARATORS
FOR PEACE OF MIND



Klargester.

The Klargester logo is a blue, stylized wave shape pointing to the right, with the word "Klargester." written in red, italicized, sans-serif font across it.

60 YEARS OF
Expertise &
1955-2015 Innovation

A blue wave graphic is positioned below the text.

Separators

A RANGE OF FUEL/OIL SEPARATORS FOR PEACE OF MIND

Surface water drains normally discharge to a watercourse or indirectly into underground waters (groundwater) via a soakaway. Contamination of surface water by oil, chemicals or suspended solids can cause these discharges to have a serious impact on the receiving water.

The Environment Regulators, Environment Agency, England and Wales, SEPA, Scottish Environmental Protection Agency in Scotland and Department of Environment & Heritage in Northern Ireland, have published guidance on surface water disposal, which offers a range of means of dealing with pollution both at source and at the point of discharge from site (so called 'end of pipe' treatment). These techniques are known as 'Sustainable Drainage Systems' (SuDS).

Where run-off is draining from relatively low risk areas such as car-parks and non-operational areas, a source control approach, such as permeable surfaces or infiltration trenches, may offer a suitable means of treatment, removing the need for a separator.

Oil separators are installed on surface water drainage systems to protect receiving waters from pollution by oil, which may be present due to minor leaks from vehicles and plant, from accidental spillage.

Effluent from industrial processes and vehicle washing should normally be discharged to the foul sewer (subject to the approval of the sewerage undertaker) for further treatment at a municipal treatment works.

SEPARATOR STANDARDS AND TYPES

A British (and European) standard (EN 858-1 and 858-2) for the design and use of prefabricated oil separators has been adopted. New prefabricated separators should comply with the standard.

SEPARATOR CLASSES

The standard refers to two 'classes' of separator, based on performance under standard test conditions.

CLASS I

Designed to achieve a concentration of less than 5mg/l of oil under standard test conditions, should be used when the separator is required to remove very small oil droplets.

CLASS II

Designed to achieve a concentration of less than 100mg/l oil under standard test conditions and are suitable for dealing with discharges where a lower quality requirement applies (for example where the effluent passes to foul sewer).

Both classes can be produced as full retention separators. The oil concentration limits of 5 mg/l and 100 mg/l are only applicable under standard test conditions. It should not be expected that separators will comply with these limits when operating under field conditions.

FULL RETENTION SEPARATORS

Full retention separators treat the full flow that can be delivered by the drainage system, which is normally equivalent to the flow generated by a rainfall intensity of 65mm/hr.

On large sites, some short term flooding may be an acceptable means of limiting the flow rate and hence the size of full retention systems.

Get in touch for a **FREE** professional site visit and a representative will contact you within 5 working days to arrange a visit.

helpingyou@klargester.com to make the right decision or call **028 302 66799**

BYPASS SEPARATORS

Bypass separators fully treat all flows generated by rainfall rates of up to 6.5mm/hr. This covers over 99% of all rainfall events. Flows above this rate are allowed to bypass the separator. These separators are used when it is considered an acceptable risk not to provide full treatment for high flows, for example where the risk of a large spillage and heavy rainfall occurring at the same time is small.

FORECOURT SEPARATORS

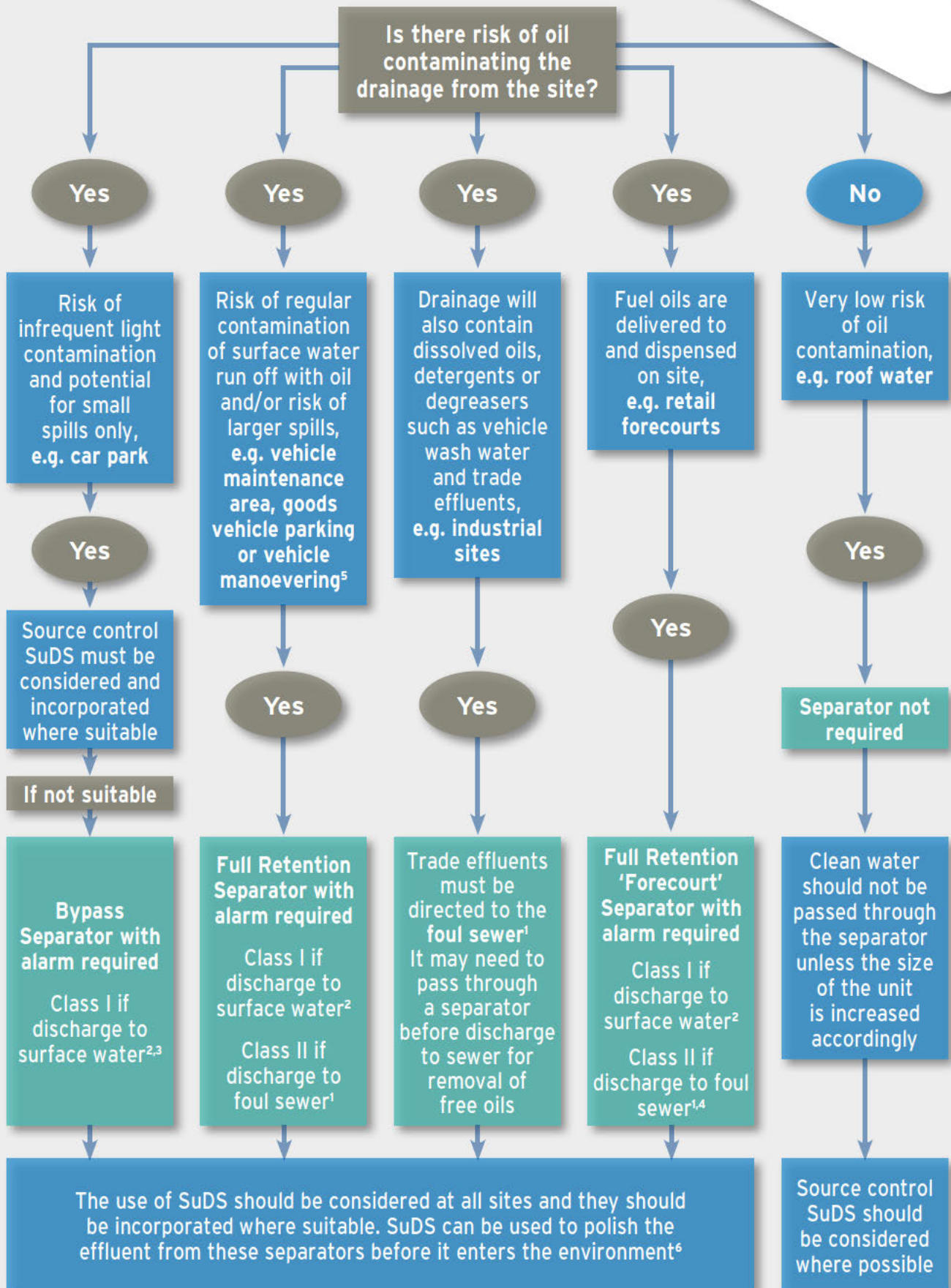
Forecourt separators are full retention separators specified to retain on site the maximum spillage likely to occur on a petrol filling station. They are required for both safety and environmental reasons and will treat spillages occurring during vehicle refuelling and road tanker delivery. The size of the separator is increased in order to retain the possible loss of the contents of one compartment of a road tanker, which may be up to 7,600 litres.

SELECTING THE RIGHT SEPARATOR

The chart on the following page gives guidance to aid selection of the appropriate type of fuel/oil separator for use in surface water drainage systems which discharge into rivers and soakaways.

For further detailed information, please consult the Environment Agency Pollution Prevention Guideline 03 (PPG 3) 'Use and design of oil separators in surface water drainage systems' available from their website.

Kingspan Klargester has a specialist team who provide technical assistance in selecting the appropriate separator for your application.



1 You must seek prior permission from your local sewer provider before you decide which separator to install and before you make any discharge.
 2 You must seek prior permission from the relevant environmental body before you decide which separator to install.
 3 In this case, if it is considered that there is a low risk of pollution a source control SuDS scheme may be appropriate.
 4 In certain circumstances, the sewer provider may require a Class 1 separator for discharges to sewer to prevent explosive atmospheres from being generated.
 5 Drainage from higher risk areas such as vehicle maintenance yards and goods vehicle parking areas should be connected to foul sewer in preference to surface water.
 6 In certain circumstances, a separator may be one of the devices used in the SuDS scheme. Ask us for advice.

Bypass NSB RANGE

APPLICATION

Bypass separators are used when it is considered an acceptable risk not to provide full treatment, for very high flows, and are used, for example, where the risk of a large spillage and heavy rainfall occurring at the same time is small, e.g.

- Surface car parks.
- Roadways.
- Lightly contaminated commercial areas.

PERFORMANCE

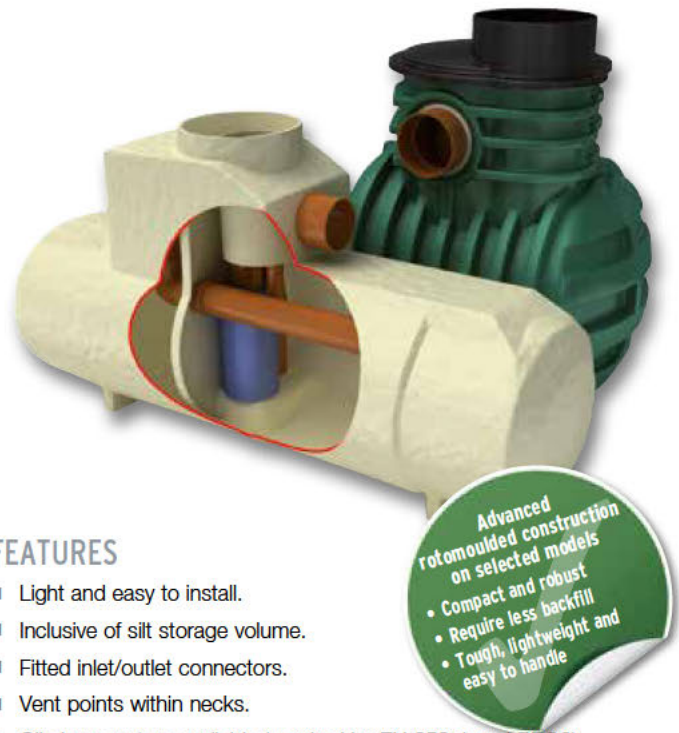
Klargester were one of the first UK manufacturers to have separators tested to EN 858-1. Klargester have now added the NSB bypass range to their portfolio of certified and tested models. The NSB number denotes the maximum flow at which the separator treats liquids. The British Standards Institute (BSI) tested the required range of Kingspan Klargester Bypass separators and certified their performance in relation to their flow and process performance assessing the effluent qualities to the requirements of EN 858-1. Klargester bypass separator designs follow the parameters determined during the testing of the required range of bypass separators.

Each bypass separator design includes the necessary volume requirements for:

- Oil separation capacity.
- Oil storage volume.
- Silt storage capacity.
- Coalescer.

The unit is designed to treat 10% of peak flow. The calculated drainage areas served by each separator are indicated according to the formula given by PPG3 $NSB = 0.0018A(m^2)$. Flows generated by higher rainfall rates will pass through part of the separator and bypass the main separation chamber.

Class I separators are designed to achieve a concentration of 5mg/litre of oil under standard test conditions.



FEATURES

- Light and easy to install.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.
- Vent points within necks.
- Oil alarm system available (required by EN 858-1 and PPG3).
- Extension access shafts for deep inverts.
- Maintenance from ground level.
- GRP or rotomoulded construction (subject to model).

To specify a nominal size bypass separator, the following information is needed:-

- The calculated flow rate for the drainage area served. Our designs are based on the assumption that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator and that the flow is not pumped.
- The drain invert inlet depth.
- Pipework type, size and orientation.

SIZES AND SPECIFICATIONS

UNIT NOMINAL SIZE	FLOW (l/s)	PEAK FLOW RATE (l/s)	DRAINAGE AREA (m ²)	STORAGE CAPACITY (litres)		UNIT LENGTH (mm)	UNIT DIA. (mm)	ACCESS SHAFT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT (mm)	STANDARD FALL ACROSS (mm)	MIN. INLET INVERT (mm)	STANDARD PIPEWORK DIA.
NSBP003	3	30	1670	300	45	1700	1350	600	1420	1320	100	500	160
NSBP004	4.5	45	2500	450	60	1700	1350	600	1420	1320	100	500	160
NSBP006	6	60	3335	600	90	1700	1350	600	1420	1320	100	500	160
NSBE010	10	100	5560	1000	150	2069	1220	750	1450	1350	100	700	315
NSBE015	15	150	8335	1500	225	2947	1220	750	1450	1350	100	700	315
NSBE020	20	200	11111	2000	300	3893	1220	750	1450	1350	100	700	375
NSBE025	25	250	13890	2500	375	3575	1420	750	1680	1580	100	700	375
NSBE030	30	300	16670	3000	450	4265	1420	750	1680	1580	100	700	450
NSBE040	40	400	22222	4000	600	3230	1920	600	2185	2035	150	1000	500
NSBE050	50	500	27778	5000	750	3960	1920	600	2185	2035	150	1000	600
NSBE075	75	750	41667	7500	1125	5841	1920	600	2235	2035	200	950	675
NSBE100	100	1000	55556	10000	1500	7661	1920	600	2235	2035	200	950	750
NSBE125	125	1250	69444	12500	1875	9548	1920	600	2235	2035	200	950	750

Rotomoulded chamber construction
 GRP chamber construction
 * Some units have more than one access shaft – diameter of largest shown.

Full Retention NSF RANGE

APPLICATION

Full retention separators are used in high risk spillage areas such as:

- Fuel distribution depots.
- Vehicle workshops.
- Scrap Yards

PERFORMANCE

Kingspan Klargester were the first UK manufacturer to have the required range (3-30 l/sec) certified to EN 858-1 in the UK. The NSF number denotes the flow at which the separator operates.

The British Standards Institute (BSI) have witnessed the performance tests of the required range of separators and have certified their performance, in relation to their flow and process performance to ensure that they met the effluent quality requirements of EN 858-1. Larger separator designs have been determined using the formulas extrapolated from the test range.

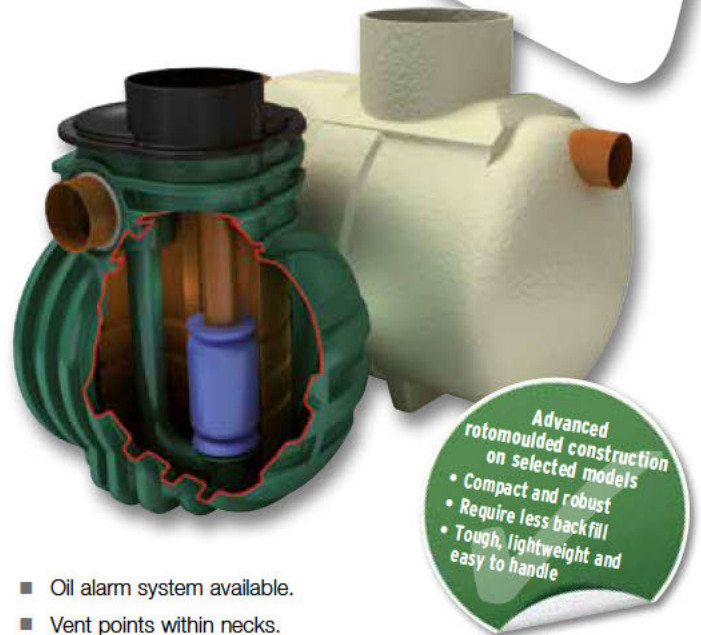
Each full retention separator design includes the necessary volume requirements for:

- Oil separation capacity.
- Oil storage volume.
- Silt storage capacity.
- Coalescer (Class I units only).
- Automatic closure device.

Klargester full retention separators treat the whole of the specified flow.

FEATURES

- Light and easy to install.
- Class I and Class II designs.
- 3-30 l/sec range independently tested and performance sampled, certified by the BSI.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.



- Oil alarm system available.
- Vent points within necks.
- Extension access shafts for deep inverts.
- Maintenance from ground level.
- GRP or rotomoulded construction (subject to model).

To specify a nominal size full retention separator, the following information is needed:-

- The calculated flow rate for the drainage area served. Our designs are based on the assumption that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator and that the influent is not pumped.
- The required discharge standard. This will decide whether a Class I or Class II unit is required.
- The drain invert inlet depth.
- Pipework type, size and orientation.

SIZES AND SPECIFICATIONS

UNIT NOMINAL SIZE	FLOW (l/s)	DRAINAGE AREA (m ² PPG-3 (0.018))	STORAGE CAPACITY (litres)		UNIT LENGTH (mm)	UNIT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT	MIN. INLET (mm)	STANDARD PIPEWORK DIA. (mm)
			SILT	OIL						
NSFP003	3	170	300	30	1700	1350	1420	1345	500	160
NSFP006	6	335	600	60	1700	1350	1420	1345	500	160
NSFA010	10	555	1000	100	2610	1225	1050	1000	500	200
NSFA015	15	835	1500	150	3910	1225	1050	1000	500	200
NSFA020	20	1115	2000	200	3200	2010	1810	1760	1000	315
NSFA030	30	1670	3000	300	3915	2010	1810	1760	1000	315
NSFA040	40	2225	4000	400	4640	2010	1810	1760	1000	315
NSFA050	50	2780	5000	500	5425	2010	1810	1760	1000	315
NSFA065	65	3610	6500	650	6850	2010	1810	1760	1000	315
NSFA080	80	4445	8000	800	5744	2820	2500	2450	1000	300
NSFA100	100	5560	10000	1000	6200	2820	2500	2450	1000	400
NSFA125	125	6945	12500	1250	7365	2820	2500	2450	1000	450
NSFA150	150	8335	15000	1500	8675	2820	2550	2450	1000	525
NSFA175	175	9725	17500	1750	9975	2820	2550	2450	1000	525
NSFA200	200	11110	20000	2000	11280	2820	2550	2450	1000	600

■ Rotomoulded chamber construction ■ GRP chamber construction

Washdown & Silt

APPLICATION

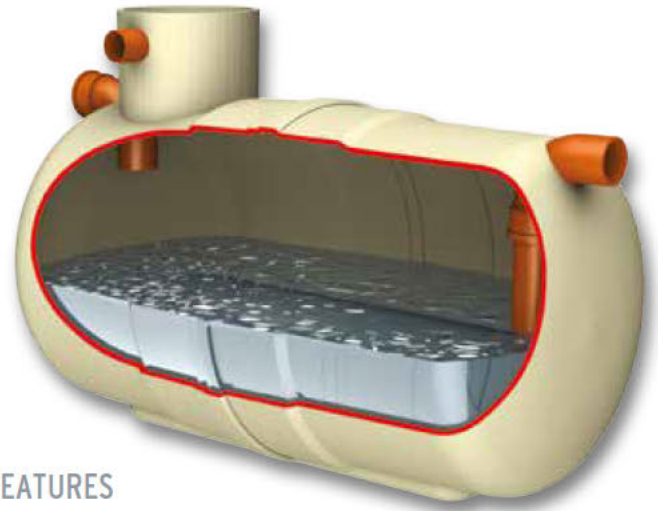
This unit can be used in areas such as car wash and other cleaning facilities that discharge directly into a foul drain, which feeds to a municipal treatment facility.

If emulsifiers are present the discharge must not be allowed to enter an NS Class I or Class II unit.

- Car wash.
- Tool hire depots.
- Truck cleansing.
- Construction compounds cleansing points.

PERFORMANCE

Such wash down facilities must not be allowed to discharge directly into surface water but must be directed to a foul connection leading to a municipal treatment works as they utilise emulsifiers, soaps and detergents, which can dissolve and disperse the oils.



FEATURES

- Light and easy to install.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.
- Vent points within necks.
- Extension access shafts for deep inverts.
- Maintenance from ground level.

SIZES AND SPECIFICATIONS

REF.	TOTAL CAPACITY (litres)	MAX. REC. SILT	MAX. FLOW RATE (l/s)	LENGTH (mm)	DIAMETER (mm)	ACCESS SHAFT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT (mm)	STANDARD FALL ACROSS UNIT (mm)	MIN. INLET INVERT (mm)	STANDARD PIPEWORK DIA. (mm)	APPROX EMPTY (kg)
WI/010	1000	500	3	1123	1225	460	1150	1100	50	500	160	60
WI/020	2000	1000	5	2074	1225	460	1150	1100	50	500	160	120
WI/030	3000	1500	8	2952	1225	460	1150	1100	50	500	160	150
WI/040	4000	2000	11	3898	1225	460	1150	1100	50	500	160	180
WI/060	6000	3000	16	4530	1440	600	1360	1310	50	500	160	320
WI/080	8000	4000	22	3200	2020	600	2005	1955	50	500	160	585
WI/100	10000	5000	27	3915	2020	600	2005	1955	50	500	160	680
WI/120	12000	6000	33	4640	2020	600	2005	1955	50	500	160	770
WI/150	15000	7500	41	5435	2075	600	1940	1890	50	500	160	965
WI/190	19000	9500	52	6865	2075	600	1940	1890	50	500	160	1200

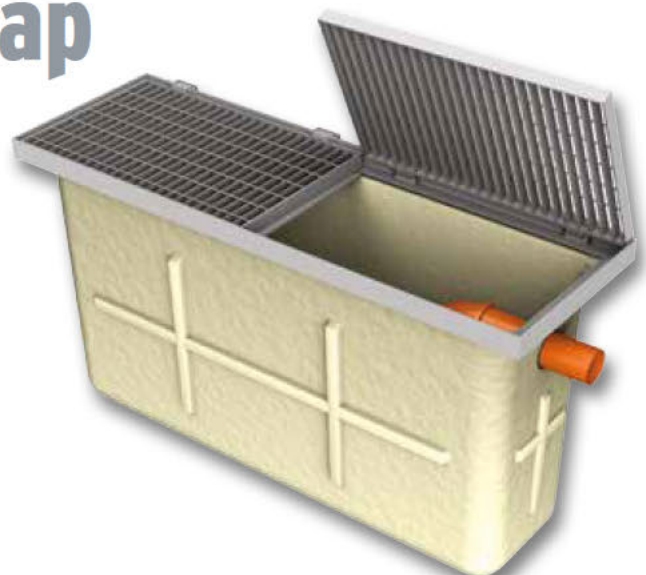
Car Wash Silt Trap

APPLICATION

Car Wash silt trap is designed for use before a separator in car wash applications to ensure effective silt removal.

FEATURES

- FACTA Class B covers.
- Light and easy to install.
- Maintenance from ground level.



Forecourt

APPLICATION

The forecourt separator is designed for installation in petrol filling station forecourts and similar applications. The function of the separator is to intercept hydrocarbon pollutants such as petroleum and oil and prevent their entry to the drainage system, thus protecting the environment against hydrocarbon contaminated surface water run-off and gross spillage.

PERFORMANCE

Operation ensures that the flow cannot exit the unit without first passing through the coalescer assembly.

In normal operation, the forecourt separator has sufficient capacity to provide storage for separated pollutants within the main chamber, but is also able to contain up to 7,600 litres of pollutant arising from the spillage of a fuel delivery tanker compartment on the petrol forecourt. The separator has been designed to ensure that oil cannot exit the separator in the event of a major spillage, subsequently the separator should be emptied immediately.

FEATURES

- Light and easy to install.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.
- Vent points within necks.
- Extension access shafts for deep inverts.
- Maintenance from ground level.

SIZES AND SPECIFICATIONS

ENVIROCEPTOR CLASS	TOTAL CAP. (litres)	DRAINAGE AREA (m ²)	MAX. FLOW RATE (l/s)	LENGTH (mm)	DIAMETER (mm)	ACCESS SHAFT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT (mm)	STD. FALL ACROSS UNIT (mm)	MIN. INLET INVERT (mm)	STD. PIPEWORK (mm)	EMPTY WEIGHT (kg)
I	10000	555	10	3963	1920	600	2110	2060	50	400	160	500
II	10000	555	10	3963	1920	600	2110	2060	50	400	160	500
I	10000	1110	20	3963	1920	600	2110	2060	50	400	200	500
II	10000	1110	20	3963	1920	600	2110	2060	50	400	200	500



- Class I and Class II design.
- Oil storage volume.
- Coalescer (Class I unit only).
- Automatic closure device.
- Oil alarm system available.

INSTALLATION

The unit should be installed on a suitable concrete base slab and surrounded with concrete or pea gravel backfill. See sales drawing for installation.

If the separator is to be installed within a trafficked area, then a suitable cover slab must be designed to ensure that loads are not transmitted to the unit.

The separator should be installed and vented in accordance with Health and Safety Guidance Note HS(G)41 for filling stations, subject to Local Authority requirements.

Alarm Systems

British European Standard EN 858-1 and Environment Agency Pollution Prevention Guideline PPG3 requires that all separators are to be fitted with an oil level alarm system and that it should be installed and calibrated by a suitably qualified technician so that it will respond to an alarm condition when the separator requires emptying.

- Easily fitted to existing tanks.
- Excellent operational range.
- Visual and audible alarm.
- Additional telemetry option.



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- Advice on system design and product selection
- Assistance on gaining environmental consents and building approvals
- Tank and drainage system installation
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- Waste emptying and disposal

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Klargester

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Visit our website www.kingspanenviro.com/klargester



Certificate No. FM 575486



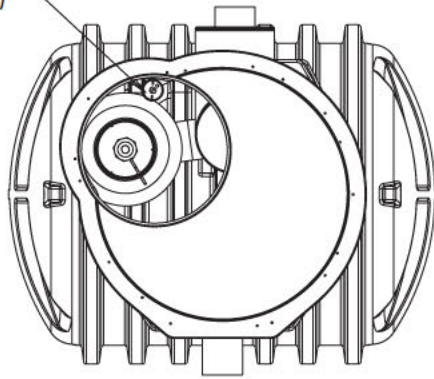
Certificate No. OHS 575489



In keeping with Company policy of continuing research and development and in order to offer our clients the most advanced products, Kingspan Environmental reserves the right to alter specifications and drawings without prior notice.

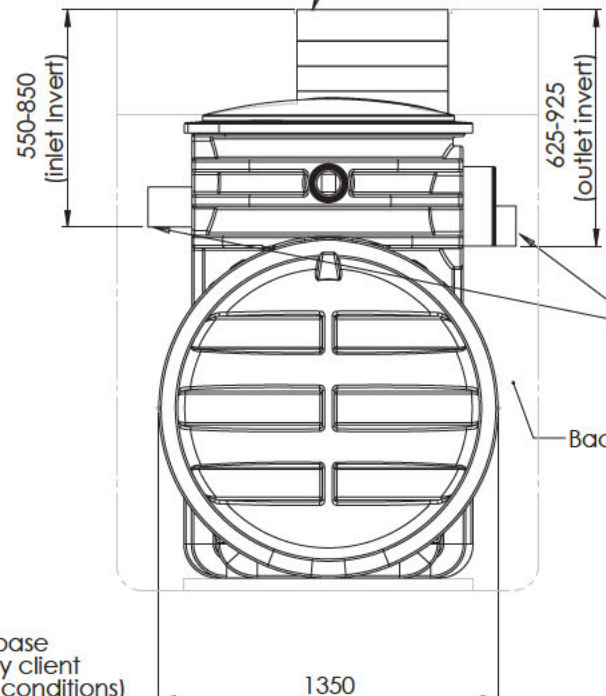
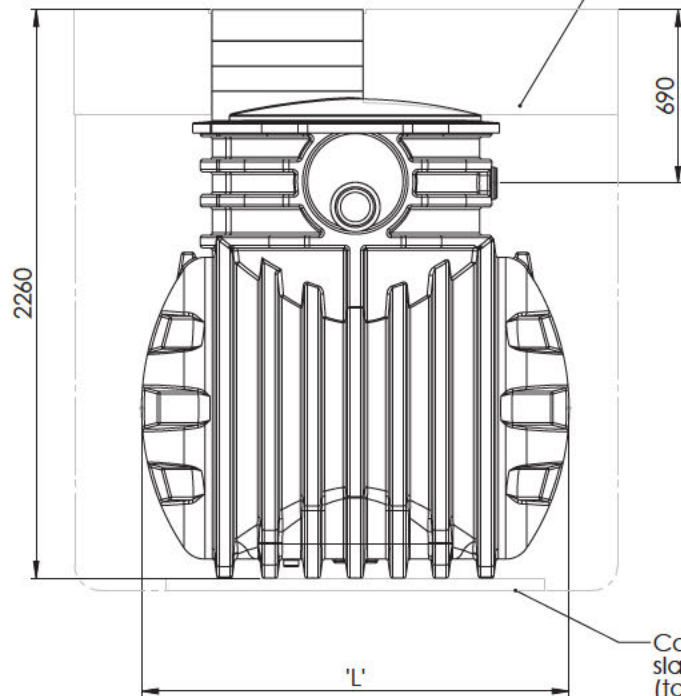
Issue No. 21: September 2015

Alarm Probe Tube
(see note 7)



Concrete cover slab cast by client
(to suit wet site conditions)

Neck can be trimmed down to required invert



Ø160 mm inlet/outlet plain pipe

Backfill (see note 8)

Concrete base slab cast by client
(to suit site conditions)

Unit Ref No	Nominal Flow	Dim L (mm)	Approx Empty Weight (kgs)	Fall across unit
NSFP003	3 L/s	1700	180	75
NSFP006	6 L/s	1700	180	75

Notes:-

1. Inlet/Outlet pipes are plain pipe Ø160 mm PVCu. The standard EN 858 states minimum connection sizes units ordered with different sized connections are not fully compliant with the standard.

2. Extension necks for deeper inverts can be provided. These can be cut in 200 mm sections. Max 2.0m Invert recommended. Please ask our sales department for further details.

3. All units require appropriate cover and frame to suit applied loadings.

4. This drawing should be used for dimensional information only. It is essential that this drawing is read in conjunction with the installation guidelines supplied with the unit. (Copies are available from our sales dept.).

5. This drawing is also available on our website www.kingspanenv.com.

6. A Ø76 mm tube (internal) is supplied to house an oil alarm probe.

7. Wet site conditions - Concrete Backfill
Dry site conditions - Pea Shingle Backfill

Please refer to installation manual for details of correct backfilling.

Please check with Kingspan Environmental that this drawing is the latest issue

Issue	Date	Drawn by	Approved by	Description
04	15/12/10	S Gill		CC934
03	24/02/10	S Gill		CC794
02	23/09/09	S Gill		Drawing Description Changed/Table Corrected
01	19/03/09	S Gill		Initial Release

Material : n/a
Finish : n/a
Weight : Kgs n/a

Tolerance : n/a
Thickness : n/a
Surface Area : n/a

Drawing : NSFP 003-006 Sales Drawing

Page 1 of 1

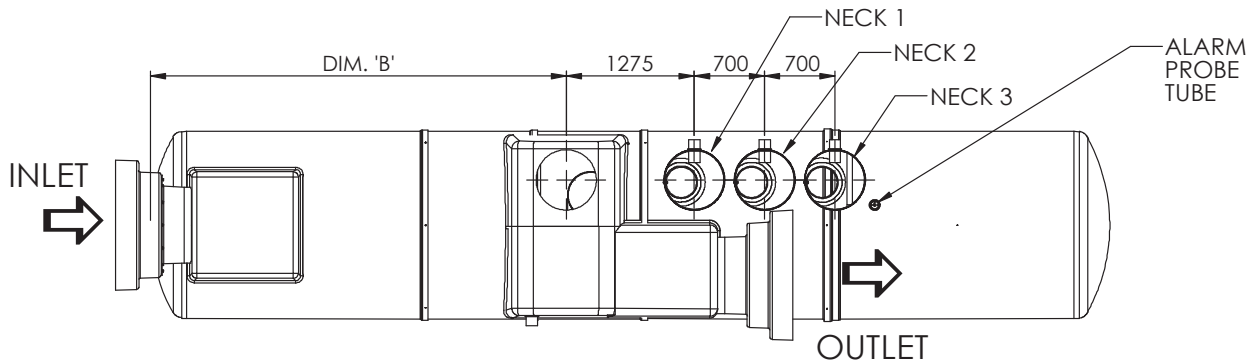
Drg No - DSO992

All dimensions in mm

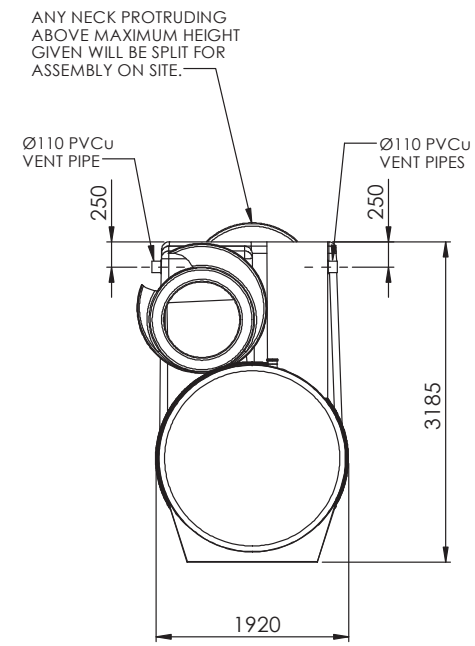
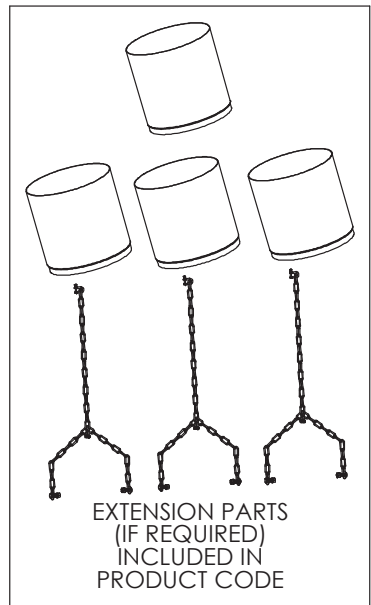
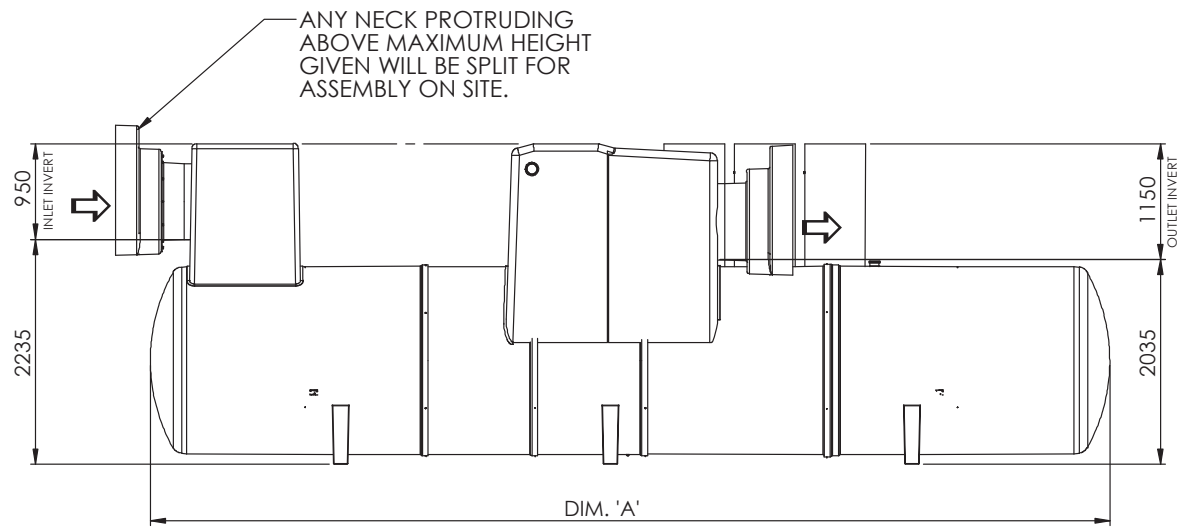
Scale: Not to scale

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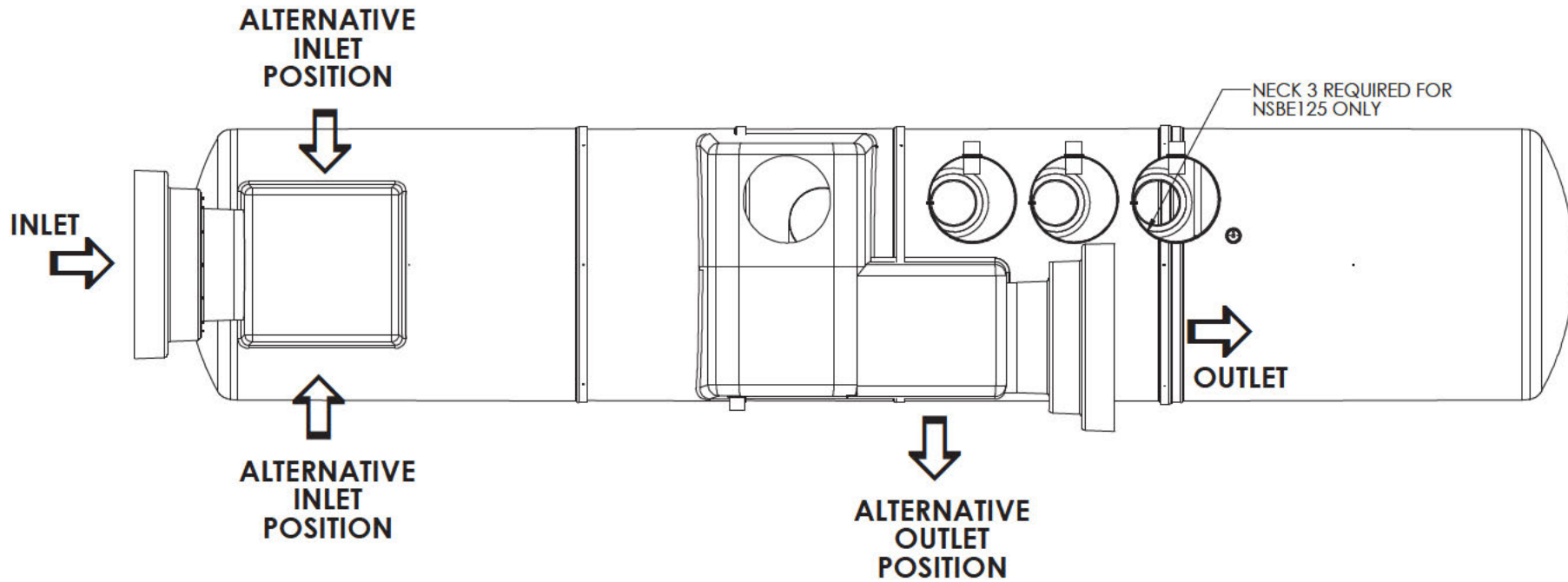
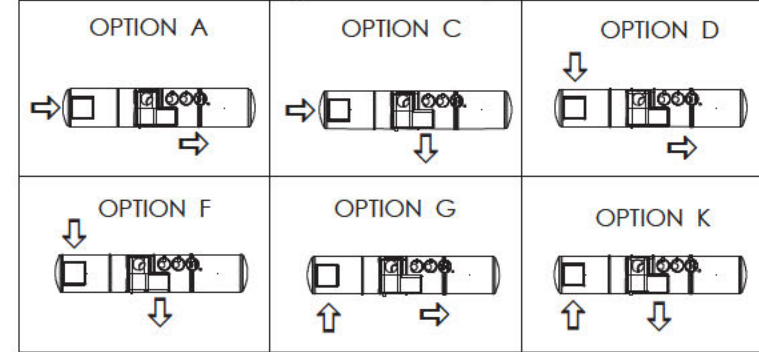
- NOTES
1. UNITS ARE SUPPLIED WITH THE STANDARD (MINIMUM) PIPEWORK SIZE AND ORIENTATION SHOWN ON THE DRAWING. THE STANDARD EN858-1 STATES MINIMUM CONNECTION SIZES. UNITS ORDERED WITH DIFFERENT SIZE CONNECTIONS MAY NOT BE FULLY COMPLIANT WITH THE STANDARD. PLEASE CONSULT OUR SALES DEPARTMENT FOR DETAILS OF AVAILABLE OPTIONS BUT PLEASE NOTE WE DO NOT ALTER INTERNAL PIPEWORK.
 2. ALL UNITS SUPPLIED ARE CLASS 1 AND INCLUDE A COALESCER.
 3. EXTENSION PARTS FOR DEEPER INVERTS CAN BE PROVIDED FOR ON SITE ASSEMBLY.
 4. ALL UNITS REQUIRE APPROPRIATE CONCRETE BASE COVER AND FRAME TO SUIT APPLIED LOADINGS.
 5. THIS DRAWING SHOULD BE USED FOR DIMENSIONAL INFORMATION ONLY.
 6. A Ø76mm TUBE IS SUPPLIED TO HOUSE AN OIL ALARM PROBE.



UNIT	NOMINAL FLOW (l/sec.)	DIM.'A'	DIM.'B'	STD. PIPE Ø	NECK 1 FITTED	NECK 2 FITTED	NECK 3 FITTED	APPROX. EMPTY WEIGHT (kg)	FALL ACROSS UNIT
NSBE075	75.0	5841	2333	675	✓	✓		1122	200
NSBE100	100.0	7661	3122	750	✓	✓		1300	200
NSBE125	125.0	9548	4136	750	✓	✓	✓	1560	200

Please Check with Environmental Treatment Systems Limited For The Latest Issue Of This Drawing				Material : Unfilled Spray		Tolerance (unless stated) : ±0.5mm		Drawing : DS1225	Page 1 of 2
Issue	Date	Drawn by	Approved by	Finish : n/a		Thickness : 3mm			
02	15 02 18	T Kelly		Description		Surface Area : EXT 2.02 m ²		NSBE075 - NSBE125 Bypass Separators	
01	03 03 14	T Kelly		CC1405 - Coalescer Extension Chains were Pipes		Modelled By :			
All Dimensions In mm			Scale: Do Not Scale		 Third Angle Projection		Kingspan Environmental reserve the right to alter the details of this drawing without prior notice. This drawing is copyright and may not be reproduced or used without the written permission of Kingspan Environmental		
R:\Drawing Data\02 - Sales Drawings\DS\DS - 12\DS1225									

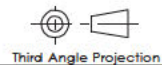
z = Pipe Orientation Options



Material : Various	Tolerance (unless stated) :	Drawing : DS1225	Page 2 of 2
Finish :	Thickness : n/a		
Weight : 1351.68 Kg	Surface Area : m ²	NSBE075 - NSBE125 Bypass Separators	
Modelled By :			

All Dimensions In mm

Scale: Do Not Scale



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Project Number: 19_131

Project: Data Storage Facility at IDA Business Park, Drogheda

Title: Engineering Planning Report - Drainage & Water Services

5.5 Appendix D – Hydrodynamic Solid separator

CDS Dimensions (mm)

	CDS10404	CDS0604	CDS0606	CDS0804	CDS0806	CDS0808	CDS1010	CDS1012	CDS1015
A	370	370	370	370	370	370	500	500	500
B	444	815	615	810	830	810	800	800	830
C	1250	1985	1985	2080	2300	2480	2800	3000	3330
D	800	1200	200	1500	1500	1500	2000	2000	2000
E	1112	1665	1665	1966	1966	1966	2475	2475	2475
F	400	700	700	700	700	800	1000	1000	1000
G (dia)	400	600	600	800	800	800	1000	1000	1000
H	400	400	600	400	600	800	1000	1200	1500

Selection Table — CDS Polypropylene Manhole Units

Model Reference	Hydraulic Peak Flow Rate l/s	Treatment Flow Rate l/s	Drainage Area — Impermeable m ²	Chamber Diameter (mm)	Internal Pipe Diameter (mm)
CDS 0404	30	12.5	2,000	900	150/225
CDS 0604	70	23	5,000	1200	225
CDS 0606/01	140	38	10,000	1200	225-375
CDS 0606/02	200	38	15,000	1200	225-375
CDS 0806	350	49	25,000	1500	450
CDS 0808	400	72	30,000	1500	450
CDS 1010	480	116	35,000	2000	450
CDS 1012	550	152	40,000	2000	450/750
CDS 1015	700	211	50,000	2000	450/750
CDS 0804	275	31	20,000	1500	300

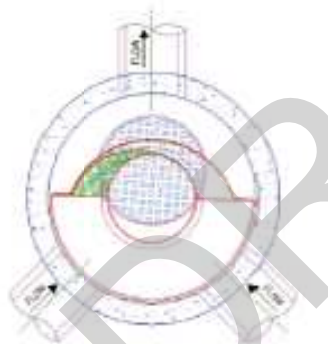
Proposed Peak Flow Rate for each model calculated using Rational Lloyd Davis with a rainfall intensity of 50mm/hr. For greater flows — special design/ construction required.

In-Line CDS

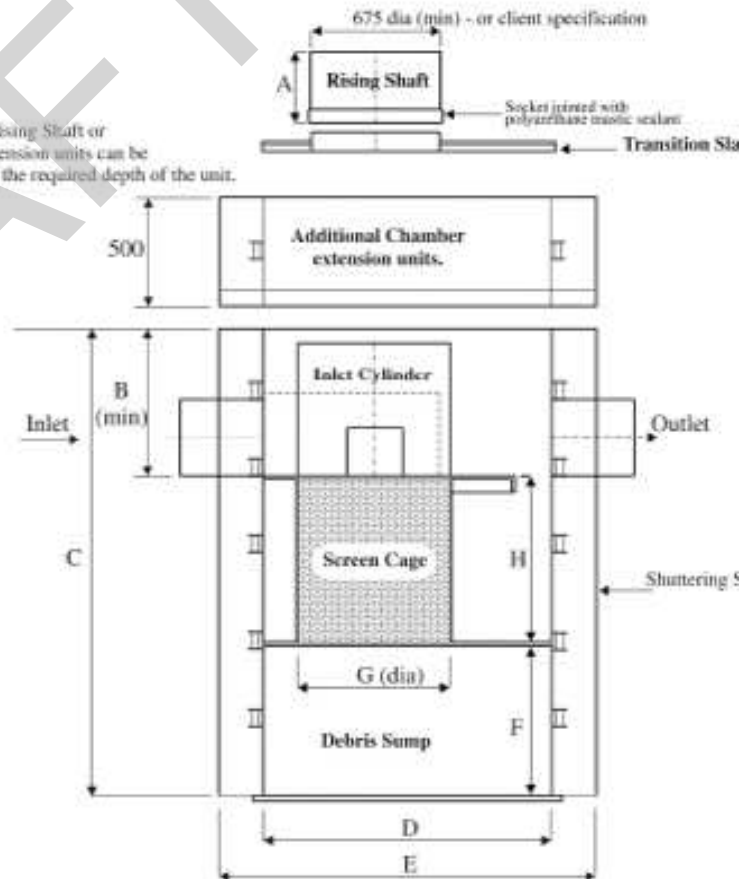
For small catchment, these units are used within the drainage system in-line and are supplied as BBA Approved* complete manhole polypropylene units from the selection table above.

Off-Line CDS

Larger catchment areas and retrofit projects designed with larger surface runoff conveyance capacity can receive treatment using a CDS unit placed adjacent to the storm pipeline. Water is channeled to these offline CDS configurations using a diversion structure. The diversion structure and its weir send the water quality flow to the offline CDS unit and also ensure larger flow events from less frequent storm events properly bypass the offline unit without cause flooding upstream of the unit.



Note: Additional Rising Shaft or Chamber extension units can be added to suit the required depth of the unit.



Model Designation

A four digit number representing the screen diameter and screen height then follows to give the standard model designation for a CDS screen for installation into standard commercially available pre-fabricated manhole chambers. Example: CDS 0806 designates a separation screen dia. 0.8 m and screen height of 0.6m.

Support

- Drawings and specifications are available at contechstormwater.com.
- Site-specific design support is available from our engineers.

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The product(s) described may be protected by one or more of the following US patents: 5,322,629; 5,624,576; 5,707,527; 5,759,415; 5,788,848; 5,985,157; 6,027,639; 6,350,374; 6,406,218; 6,641,720; 6,511,595; 6,649,048; 6,991,114; 6,998,038; 7,186,858; 7,296,692; 7,297,266 related foreign patents or other patents pending.

CDS is a trademark of CONTECH Construction Products Inc.

800.338.1122

contechstormwater.com



Project Number: 19_131

Project: Data Storage Facility at IDA Business Park, Drogheda


Title: Engineering Planning Report - Drainage & Water Services

5.6 Appendix E – Windes Attenuation Calculations

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
15 min Summer	46.910	0.410	34.2	1635.0	O K
30 min Summer	47.039	0.539	34.4	2151.5	O K
60 min Summer	47.191	0.691	34.4	2763.0	O K
120 min Summer	47.376	0.876	34.4	3510.9	O K
180 min Summer	47.473	0.973	34.4	3905.7	O K
240 min Summer	47.543	1.043	34.4	4190.1	O K
360 min Summer	47.639	1.139	34.4	4582.2	O K
480 min Summer	47.701	1.201	34.4	4835.8	O K
600 min Summer	47.744	1.244	34.4	5009.3	O K
720 min Summer	47.774	1.274	34.4	5130.9	O K
960 min Summer	47.808	1.308	34.4	5272.1	O K
1440 min Summer	47.825	1.325	34.4	5341.4	O K
2160 min Summer	47.821	1.321	34.4	5324.8	O K
2880 min Summer	47.801	1.301	34.4	5243.5	O K
4320 min Summer	47.739	1.239	34.4	4990.6	O K
5760 min Summer	47.665	1.165	34.4	4686.2	O K
7200 min Summer	47.582	1.082	34.4	4349.8	O K
8640 min Summer	47.485	0.985	34.4	3955.0	O K
10080 min Summer	47.396	0.896	34.4	3593.7	O K
15 min Winter	46.959	0.459	34.4	1831.7	O K
30 min Winter	47.129	0.629	34.4	2514.7	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	86.185	0.0	1439.8	29
30 min Summer	58.857	0.0	1898.3	38
60 min Summer	37.800	0.0	2705.5	68
120 min Summer	23.578	0.0	3509.1	130
180 min Summer	17.744	0.0	3950.0	190
240 min Summer	14.470	0.0	4274.9	250
360 min Summer	10.825	0.0	4730.6	368
480 min Summer	8.799	0.0	5022.3	488
600 min Summer	7.488	0.0	5178.0	606
720 min Summer	6.561	0.0	5198.9	726
960 min Summer	5.324	0.0	5078.4	964
1440 min Summer	3.963	0.0	4817.2	1296
2160 min Summer	2.950	0.0	8126.3	1672
2880 min Summer	2.392	0.0	8708.8	2068
4320 min Summer	1.777	0.0	8947.7	2904
5760 min Summer	1.438	0.0	10745.5	3752
7200 min Summer	1.220	0.0	11386.9	4608
8640 min Summer	1.066	0.0	11928.9	5360
10080 min Summer	0.951	0.0	12370.6	6064
15 min Winter	86.185	0.0	1618.4	29
30 min Winter	58.857	0.0	2215.4	43

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Micro Drainage	Source Control 2019.1	

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
60 min Winter	47.301	0.801	34.4	3210.9	O K
120 min Winter	47.484	0.984	34.4	3952.2	O K
180 min Winter	47.596	1.096	34.4	4406.7	O K
240 min Winter	47.675	1.175	34.4	4729.6	O K
360 min Winter	47.784	1.284	34.4	5173.5	O K
480 min Winter	47.856	1.356	34.4	5468.0	O K
600 min Winter	47.907	1.407	34.4	5675.8	O K
720 min Winter	47.943	1.443	34.4	5826.4	O K
960 min Winter	47.990	1.490	34.4	6016.4	O K
1440 min Winter	48.021	1.521	34.4	6145.7	O K
2160 min Winter	48.006	1.506	34.4	6082.9	O K
2880 min Winter	47.978	1.478	34.4	5968.1	O K
4320 min Winter	47.883	1.383	34.4	5578.7	O K
5760 min Winter	47.767	1.267	34.4	5105.4	O K
7200 min Winter	47.641	1.141	34.4	4588.7	O K
8640 min Winter	47.485	0.985	34.4	3953.7	O K
10080 min Winter	47.341	0.841	34.4	3370.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
60 min Winter	37.800	0.0	3152.5	72
120 min Winter	23.578	0.0	3922.8	130
180 min Winter	17.744	0.0	4397.2	188
240 min Winter	14.470	0.0	4734.7	246
360 min Winter	10.825	0.0	5163.6	362
480 min Winter	8.799	0.0	5325.9	480
600 min Winter	7.488	0.0	5296.9	596
720 min Winter	6.561	0.0	5241.7	710
960 min Winter	5.324	0.0	5131.0	936
1440 min Winter	3.963	0.0	4942.6	1374
2160 min Winter	2.950	0.0	9063.6	1748
2880 min Winter	2.392	0.0	9638.5	2200
4320 min Winter	1.777	0.0	9316.2	3152
5760 min Winter	1.438	0.0	12036.0	4048
7200 min Winter	1.220	0.0	12753.1	4976
8640 min Winter	1.066	0.0	13364.7	5792
10080 min Winter	0.951	0.0	13875.6	6464

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	Scotland and Ireland	Cv (Winter)	0.840
M5-60 (mm)	16.000	Shortest Storm (mins)	15
Ratio R	0.300	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20


Pipe Network

Volume in Pipe Network (m³)	100	Dia of Outfall Pipe (m)	0.8
Slope of Outfall Pipe (1:X)	500	Roughness of Outfall Pipe (mm)	0.600

Time Area Diagram

Total Area (ha) 10.435

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
From:	To:	From:	To:	From:	To:
0	4	3.705	4	8	5.832
				8	12
					0.899

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Model Details

Storage is Online Cover Level (m) 48.500

Tank or Pond Structure

Invert Level (m) 46.500

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	3968.0	2.000	4160.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0244-3450-1550-3450
Design Head (m)	1.550
Design Flow (l/s)	34.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	244
Invert Level (m)	46.500
Minimum Outlet Pipe Diameter (mm)	300
Suggested Manhole Diameter (mm)	1800

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.550	34.4
Flush-Flo™	0.486	34.4
Kick-Flo®	1.062	28.7
Mean Flow over Head Range	-	29.5

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	8.0	1.200	30.4	3.000	47.3	7.000	71.3
0.200	24.9	1.400	32.8	3.500	50.9	7.500	73.7
0.300	33.1	1.600	34.9	4.000	54.3	8.000	76.1
0.400	34.2	1.800	37.0	4.500	57.5	8.500	78.3
0.500	34.4	2.000	38.9	5.000	60.5	9.000	80.5
0.600	34.2	2.200	40.7	5.500	63.4	9.500	82.7
0.800	33.1	2.400	42.4	6.000	66.1		
1.000	30.4	2.600	44.1	6.500	68.7		

Seefort Lodge Castledawson ...
 Blackrock
 County Dublin

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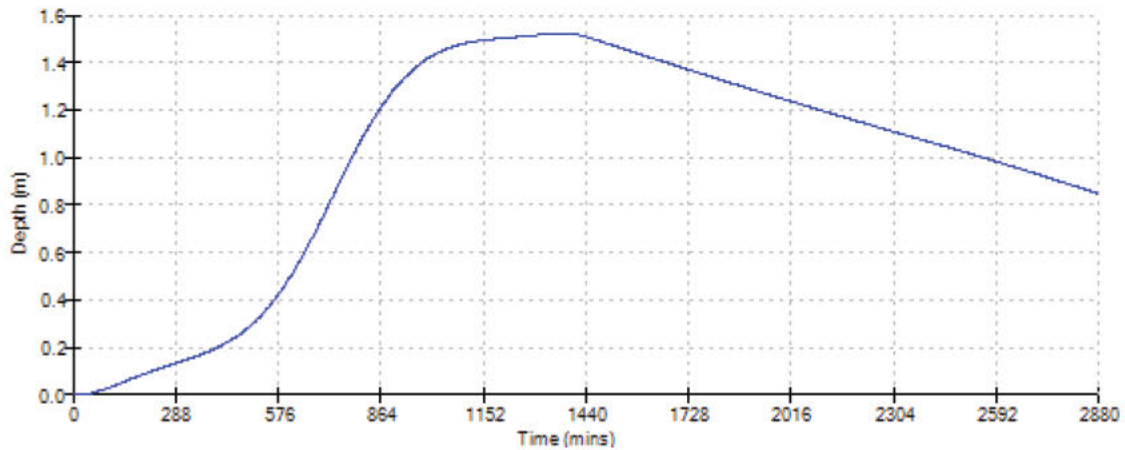
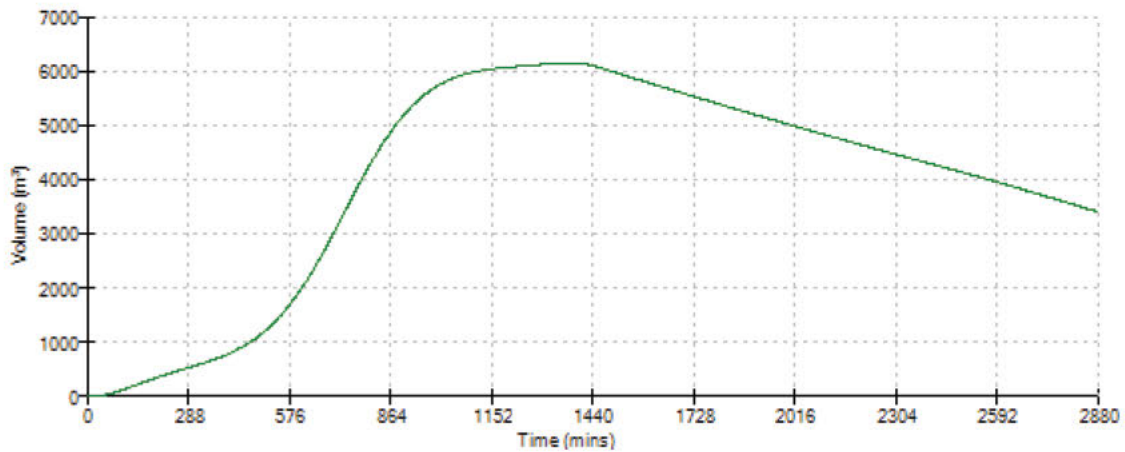
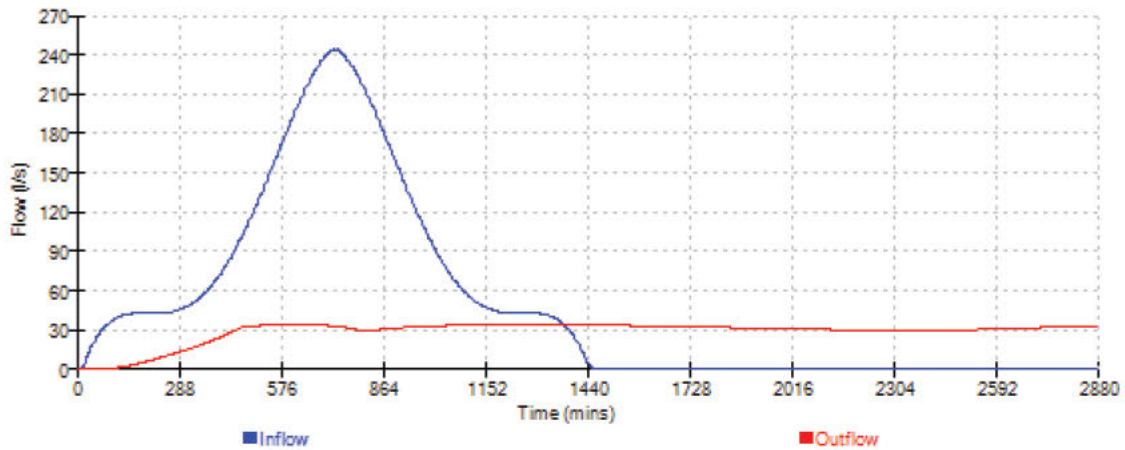
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Micro Drainage

Source Control 2019.1

Event: 1440 min Winter



Project Number: 19_131

Project: Data Storage Facility at IDA Business Park, Drogheda

Title: Engineering Planning Report - Drainage & Water Services



5.7 Appendix F – Irish Water Pre-Connection Enquiry (PCE)



Clifton Scannell Emerson
Associates

Our Ref: LTR-19_131-002

Date: 18 October 2019

Irish Water
PO Box 860
South City Delivery Office
Cork City

Re: 19_131 – Proposed development at IDA Business Park, Drogheda

Subject: Irish Water Pre-Connection Enquiry

Dear Sir/Madam,

Please find attached a completed Irish Water Pre-Connection Enquiry Form and supporting documentation for a proposed development at IDA business Park, Drogheda which is due to be submitted for planning early December 2019.

Please note our application includes the following;

- Completed Application Form
- Site Location Map (showing boundary in red & site coordinates, scale 1:5000 to encompass site)
- Calculations (included as part of application form)
- Existing Surface Water, Watermain and Foul Sewer as constructed drawings within the IDA Business Park with indicative site boundary and indicative site boundary shown.
- Meath County Council Drainage Records with indicative site boundary shown.

We confirm no planning and development exemptions in relation to drainage are currently applicable.

We note that this project is at preplanning stage with site layout not yet determined.

If you have any queries or questions or required any further information do not hesitate to contact us.

We trust the above is in order and this application can be processed without delay.

Yours sincerely,

Pauraic Matthews
Clifton Scannell Emerson Associates

Clifton Scannell Emerson Associates Limited, Consulting Engineers, Seafort Lodge, Castledawson Avenue, Blackrock, Co. Dublin, Ireland.
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Ronan Geoghegan B.E., Dip. Proj. Man., C.Eng., MIEI
Pauraic Matthews B.Eng., Dip.Fire Cert., C.Eng., MIEI, MISE
Caroline Butler B.E., M.Eng.Sc., C.Eng., MIEI

Consultant

Aidan J. Smith B.Sc.Eng., M.Sc.Eng., Dip.Eng., C.Eng., MIEI, FConsEI, A.IOSH

Enc.

- a) Completed Application Form (incl. calculations)
- b) Site Location Map
- c) IDA Business Park As constructed Drawings
- d) Meath County Council Drainage Records

Pre-connection enquiry form

Business developments, mixed use developments, housing developments



This form is to be filled out by applicants enquiring about the feasibility of a water and/or wastewater connection to Irish Water infrastructure. If completing this form by hand, please use BLOCK CAPITALS and black ink.

Please refer to the **Guide to completing the pre-connection enquiry form** on page 13 of this document when completing the form.

*** Denotes mandatory/ required field. Please note, if mandatory fields are not completed the application will be returned.**

Section A | Applicant details

1 *Applicant details:

Registered company name (if applicable):

Trading name (if applicable):

Company registration number (if applicable):

If you are not a registered company/business, please provide the applicant's name:

*Contact name:

*Postal address:

*Eircode:

*Telephone:

Mobile:

*Email:

2 Agent details (if applicable):

Contact name:

Company name (if applicable):

Postal address:

Eircode:

Telephone:

Email:

3 *Please indicate whether it is the applicant or agent who should receive future correspondence in relation to the enquiry:

Applicant

Agent

Section B | Site details

4 *Site address:

D	r	o	g	h	e	d	a		I	D	A		B	u	s	.		P	a	r	k	,							
D	o	n	o	r	e		R	d	,		D	r	o	g	h	e	d	a	,		C	o	.		L	o	u	t	h

5 *Irish Grid co-ordinates of site: Eastings (X)

3	0	6	7	5	0
---	---	---	---	---	---

 Northings (Y)

2	7	4	0	0	0
---	---	---	---	---	---

Eg. co-ordinates of GPO, O'Connell St., Dublin: E(X) 315,878 N(Y) 234,619

6 *Local Authority:
Local Authority that granted planning permission (if applicable):

M	e	a	t	h		C	o	u	n	t	y		C	o	u	n	c	i	l										
---	---	---	---	---	--	---	---	---	---	---	---	--	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--

7 *Has full planning permission been granted? Yes No
If 'Yes', please provide the current or previous planning reference number:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Section C | Development details

8 Please outline the domestic and/or industry/business use proposed:

Property type	Number of units	Property type	Number of units	Property type	Number of units
House	-	Apartments	-	Agricultural	-
Office	3	School	-	Retail unit	-
Residential care home	-	Institution	-	Industrial unit	3
Hotel	-	Factory	-	Other	-
Other (please specify type)	-				

9 *Approximate start date of proposed development:

0 1 / 0 6 / 2 0 2 0

10 *Is the development multi-phased?

Yes No

If 'Yes', application must include a master-plan identifying the development phases and the current phase number.

If 'Yes', please provide details of variations in water demand volumes and wastewater discharge loads due to phasing requirements.

11 *Please indicate the type of connection required by ticking the appropriate box below:

Water Please go to Section D

Wastewater Please go to Section E

Both Please complete both Sections D and E

Section D | Water connection and demand details

- 12 ***Is there an existing connection to public water mains at the site?** Yes No
- 12.1 If yes, is this enquiry for an additional connection to one already installed? Yes No
- 12.2 If yes, is this enquiry to increase the size of an existing connection? Yes No

13 **Approximate date water connection is required:** 01 / 01 / 2021

14 ***What diameter of water connection is required to service the development?** 150 mm

- 15 ***Is more than one connection required to the public infrastructure to service this development?** Yes No
- If 'Yes', how many?

16 **Please indicate the business water demand (shops, offices, schools, hotels, restaurants, etc.):**

Post-development peak hour water demand	0.5	l/s
Post-development average hour water demand	0.08	l/s

Please include calculations on the attached sheet provided. Where there will be a daily/weekly/seasonal variation in the water demand profile, please provide all such details.

17 **Please indicate the industrial water demand (industry-specific water requirements):**

Post-development peak hour water demand	6.0	l/s
Post-development average hour water demand	1.0	l/s

Please include calculations on the attached sheet provided. Where there will be a daily/weekly/seasonal variation in the water demand profile, please provide all such details.

18 **What is the existing ground level at the property boundary at connection point (if known) above Malin Head Ordnance Datum?**

48.50 m

19 **What is the highest finished floor level of the proposed development above Malin Head Ordnance Datum?**

51.75 m

20 **Is on-site water storage being provided?** Yes No

Please include calculations on the attached sheet provided.

Section F | Supporting documentation

Please provide the following additional information (all mandatory):

- > Site location map: A site location map to a scale of 1:1000, which clearly identifies the land or structure to which the enquiry relates. The map shall include the following details:

 - i. The scale shall be clearly indicated on the map.
 - ii. The boundaries shall be delineated in red.
 - iii. The site co-ordinates shall be marked on the site location map.

- > Details of planning and development exemptions (if applicable).
- > Calculations (calculation sheets provided below).
- > Site layout map to a scale of 1:500 showing layout of proposed development, water network and wastewater network layouts, additional water/wastewater infrastructure if proposed, connection points to Irish Water infrastructure.
- > Conceptual design of the connection asset from the proposed development to the existing Irish Water infrastructure, including service conflicts, gradients, pipe sizes and invert levels.
- > Any other information that might help Irish Water assess this pre-connection enquiry.

Section G | Declaration

I/We hereby make this application to Irish Water for a water and/or wastewater connection as detailed on this form.

I/We understand that any alterations made to this application must be declared to Irish Water.

The details that I/we have given with this application are accurate.

I/We have enclosed all the necessary supporting documentation.

Any personal data you provide will be stored and processed by Irish Water and may be transferred to third parties for the purposes of the water and/or wastewater connection process. I hereby give consent to Irish Water to store and process my personal data and to transfer my personal data to third parties, if required, for the purposes of the connection process.

If you wish to revoke consent at any time or wish to see Irish Water's full Data Protection Notice, please see <https://www.water.ie/privacy-notice/>

Signature:

Date: / /

Your full name (in BLOCK CAPITALS):

Irish Water will carry out a formal assessment based on the information provided on this form. Any future connection offer made by Irish Water will be based on the information that has been provided here.

Please submit the completed form to newconnections@water.ie or alternatively, post to:

Irish Water
PO Box 860
South City Delivery Office
Cork City

Please note that if you are sending us your application form and any associated documentation by email, the maximum file size that we can receive in any one email is 35MB.

Please note, if mandatory fields are not completed the application will be returned.

Irish Water is subject to the provisions of the Freedom of Information Act 2014 (“FOIA”) and the codes of practice issued under FOIA as may be amended, updated or replaced from time to time. The FOIA enables members of the public to obtain access to records held by public bodies subject to certain exemptions such as where the requested records may not be released, for example to protect another individual’s privacy rights or to protect commercially sensitive information. Please clearly label any document or part thereof which contains commercially sensitive information. Irish Water accepts no responsibility for any loss or damage arising as a result of its processing of freedom of information requests.

Calculations

Water demand

INDUSTRIAL COOLING WATER:

Peak Demand (adiabatic coolers) = 320,000 L/day
Storage Replenishment Criteria = 24 hours at peak demand
Storage Replenishment Rate = 3.7 l/s

+0.2 L/S for other site uses = 3.90 l/s
+safety margin = 6.00 l/s

Approx. average water use is 1.0 litres / sec
Peak is only needed when temperatures are at a maximum.

STAFF ACCOMMODATION:

Number of Staff - 150 for the full campus

Daily consumption (G) = 45 litre per head per day (Irish Water Code of Practice for Water Infrastructure Doc. No. IW-CDS-5020-03 Section 3.28)

Pf Ind = $1.25 \times 5 = 6.25$ (Section 3.7.2 of IW-CDS-5020-03)

Dry Weather Flow (DWF) = $150 \times 45 / (24 \times 60 \times 60) = 0.08$ litres / sec
Design Flow = DWF x Pf Ind = $0.08 \times 6.25 = 0.5$ litres / sec

On-site storage

24 hours AHU/CRAH water demand storage @ 3.9 l/s = $3.9 \text{ l/s} * 24 \text{ hours} * 3600 \text{ s/hr} = 337,000 \text{ L}$

Site storage tanks:

2No. 50,000 Liter Storage Tanks

Fire flow requirements

450,000 litres fire sprinkler tank on-site will be filled on building occupancy, infrequent topups thereafter

Number of Staff - 150 for full campus

Daily Consumption (G) = 50 litre per head per day (Irish Water Code of Practice for Wastewater Infrastructure, Document No. IW-CDS-5030-03, Appendix D)

Pf Ind = 6.0 (Section 6.2.5 of IW-TEC-800-01)

Dry Weather Flow (DWF) = $150 \times 50 / (24 \times 60 \times 60) = 0.09$ litres / sec

Design Flow = DWF x Pf Ind = $0.09 \times 6.0 = 0.54$ litres / sec

N/A

Guide to completing the pre-connection enquiry form

This form should be completed by applicants enquiring about the feasibility of a water and/or wastewater connection to Irish Water infrastructure.

The Irish Water Codes of Practice are available at www.water.ie for reference.

Section A | Applicant Details

- Question 1:** This question requires the applicant or company enquiring about the feasibility of a connection to identify themselves, their postal address, and to provide their contact details.
- Question 2:** If the applicant has employed a consulting engineer or an agent to manage the enquiry on their behalf, the agent's address and contact details should be recorded here.
- Question 3:** Please indicate whether it is the applicant or the agent who should receive future correspondence in relation to the enquiry.

Section B | Site details

- Question 4:** This is the address of the site requiring the water/wastewater service connection and for which this enquiry is being made.
- Question 5:** Please provide the Irish Grid co-ordinates of the proposed site. Irish grid positions on maps are expressed in two dimensions as Eastings (E or X) and Northings (N or Y) relative to an origin. You will find these coordinates on your Ordnance Survey map which is required to be submitted with an application.
- Question 6:** Please identify the Local Authority that is or will be dealing with your planning application, for example Cork City Council.
- Question 7:** Please indicate if planning permission has been granted for this application, and if so, please provide the planning permission reference number.

Section C | Development details

- Question 8:** Please specify the number of different property/premises types by filling in the tables provided.
- Question 9:** Please indicate the approximate commencement date of works on the development.
- Question 10:** Please indicate if a phased building approach is to be adopted when developing the site. If so, please provide details of the phase master-plan and the proposed variation in water demand/wastewater discharge as a result of the phasing of the development.
- Question 11:** Please indicate the type of connection required by ticking the appropriate box and proceed to complete the appropriate section or sections.

Section D | Water connection and demand details

- Question 12:** Please indicate if a water connection already exists for this site.
- Question 12.1:** Please indicate if this enquiry concerns an additional connection to one already installed on the site.
- Question 12.2:** Please indicate if you are proposing to upgrade the water connection to facilitate an increase in water demand. Irish Water will determine what impact this will have on our infrastructure.
- Question 13:** Please indicate the approximate date that the proposed connection to the water infrastructure will be required.
- Question 14:** Please indicate what diameter of water connection is required to service this development.
- Question 15:** Please indicate if more than one connection is required to service this development. Please note that the connection size provided may be used to determine the connection charge.
- Question 16:** If this connection enquiry concerns a business premises, please provide calculations for the water demand and include your calculations on the calculation sheet provided. Business premises include shops, offices, hotels, schools, etc. Demand rates (peak and average) are site specific. Average demand is the total daily volume divided by a 24-hour time period and expressed in litres per second (l/s). For design purposes, please refer to the Irish Water Codes of Practice for Water Infrastructure.

- Question 17:** If this connection enquiry is for an industrial premises, please calculate the water demand and include your calculations on the calculation sheet provided. Demand rates (peak and average) are site specific. Average demand is the total daily volume divided by a 24-hour time period and expressed in litres per second (l/s). The peak demand for sizing of the pipe network will be as per the specific business production requirements. For design purposes, please refer to the Irish Water Codes of Practice for Water Infrastructure.
- Question 18:** Please specify the ground level at the location where connection to the public water mains will be made. This is required in order to determine if there is sufficient pressure in the existing water infrastructure to serve your proposed development. Levels should be quoted in metres relative to Malin Head Ordnance Datum.
- Question 19:** Please specify the highest finished floor level on site. This is required in order to determine if there is sufficient pressure in the existing water infrastructure to serve your proposed development. Levels should be quoted in metres relative to Malin Head Ordnance Datum.
- Question 20:** If storage is required, water storage capacity of 24-hour water demand must usually be provided at the proposed site. In some cases, 24-hour storage capacity may not be required, for example 24-hour storage for a domestic house would be provided in an attic storage tank. Please calculate the 24-hour water storage requirements and include your calculations on the attached sheet provided. Please also confirm that on-site storage is being provided by ticking the appropriate box.
- Question 21:** The water supply system shall be designed and constructed to reliably convey the water flows that are required of the development including fire flow requirements by the Fire Authority. The Fire Authority will provide the requirement for fire flow rates that the water supply system will have to carry. Please note that while flows in excess of your required demand may be achieved in the Irish Water network and could be utilised in the event of a fire, Irish Water cannot guarantee a flow rate to meet your fire flow requirement. To guarantee a flow to meet the Fire Authority requirements, you should provide adequate fire storage capacity within your development. Please include your calculations on the attached sheet provided, and further provide confirmation of the Fire Authority requirements.
- Question 22:** Please identify proposed additional water supply sources, that is, do you intend to connect to the public water mains or the public mains and supplement from other sources? If supplementing public water supply with a supply from another source, please provide details as to how the potable water supply is to be protected from cross contamination at the premises.

Section E | Wastewater connection and discharge details

- Question 23:** Please indicate if a wastewater connection to a public sewer already exists for this site.
- Question 23.1:** Please indicate if this enquiry relates to an additional wastewater connection to one already installed.
- Question 23.2:** Please indicate if you are proposing to upgrade the wastewater connection to facilitate an increased discharge. Irish Water will determine what impact this will have on our infrastructure.
- Question 24:** Please specify the approximate date that the proposed connection to the wastewater infrastructure will be required.
- Question 25:** Please indicate what diameter of wastewater connection is required to service this development.
- Question 26:** Please indicate if more than one connection is required to service this development. Please indicate number required.
- Question 27:** If this enquiry relates to a business premises, please provide calculations for the wastewater discharge and include your calculations on the attached sheet provided. Business premises include shops, offices, hotels, schools, etc. Discharge rates (peak and average) are site specific. Average discharge is the total daily volume divided by a 24-hour time period and expressed in litres per second (l/s). For design purposes, please refer to the Irish Water Codes of Practice for Wastewater Infrastructure.
- Question 28:** If this enquiry relates to an industrial premises, please provide calculations for the wastewater discharge and include your calculations on the calculation sheet provided. Discharge rates (peak and average) are site specific. Average discharge is the total daily volume divided by a 24-hour time period and expressed in litres per second (l/s). The peak discharge for sizing of the pipe network will be as per the specific business production requirements. For design purposes, please refer to the Irish Water Codes of Practice for Wastewater Infrastructure.

- Question 29:** Please specify the maximum and average concentrations and the maximum daily load of each of the wastewater characteristics listed in the wastewater organic load table (if not domestic effluent), and also specify if any other significant concentrations are expected in the effluent. Please complete the table and provide additional supporting documentation if relevant. Note that the concentration shall be in mg/l and the load shall be in kg/day. Note that for business premises (shops, offices, schools, hotels, etc.) for which only domestic effluent will be discharged (excluding discharge from canteens/restaurants which would require a Trade Effluent Discharge licence), there is no need to complete this question.
- Question 30:** In exceptional circumstances, such as brownfield sites, where the only practical outlet for storm/surface water is to a combined sewer, Irish Water will consider permitting a restricted attenuated flow to the combined sewer. Storm/surface water will only be accepted from brownfield sites that already have a storm/surface water connection to a combined sewer and the applicant must demonstrate how the storm/surface water flow from the proposed site is minimised using sustainable urban drainage system (SUDS). This type of connection will only be considered on a case by case basis. Please advise if the proposed development intends discharging surface water to the combined wastewater collection system.
- Question 31:** Please specify if the development needs to pump its wastewater discharge to gain access to Irish Water infrastructure.
- Question 32:** Please specify the ground level at the location where connection to the public sewer will be made. This is required to determine if the development can be connected to the public sewer via gravity discharge. Levels should be quoted in metres relative to Malin Head Ordnance Datum.
- Question 33:** Please specify the lowest floor level of the proposed development. This is required in order to determine if the development can be connected to the public sewer via gravity discharge. Levels should be quoted in metres relative to Malin Head Ordnance Datum.
- Question 34:** Please specify the proposed invert level of the pipe exiting the property to the public road.

Section F | Supporting documentation

Please provide additional information as listed.

Section G | Declaration

Please review the declaration, sign, and return the completed application form to Irish Water by email or by post using the contact details provided in Section G.

A large, empty rectangular box with a thin black border, occupying most of the page. It is intended for the user to write their notes.

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N = 275438.4067

E = 307751.0812
N = 275438.4067




E = 306,750.000
N = 274,500.000

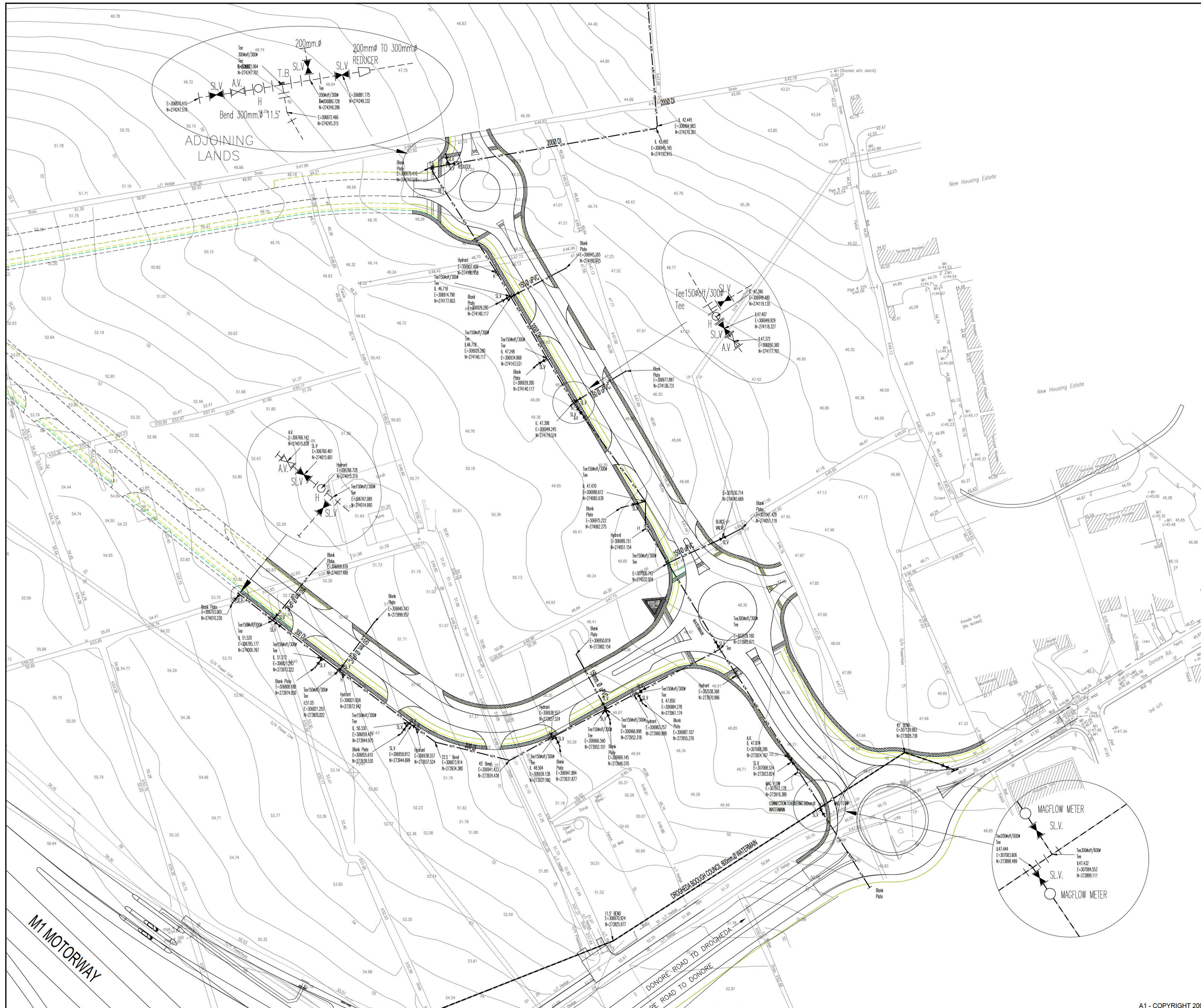
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Y = 272718.9861

E = 305575.4034
Y = 272718.9861

LEGEND:

—— Site Boundary

Rev	Description	Drawn	Checked	Date
 <p>Clifton Scannell Emerson Associates</p> <p>Clifton Scannell Emerson Associates Limited Consulting Engineers, Seabird Lodge, Castledawson Avenue, Blackrock, Co. Dublin, Ireland, A94 P788 T: +353 1 238 5006 F: +353 1 253 3466 E: info@csea.ie W: www.csea.ie</p>				
Client				
IRISH WATER PRE APP ENQUIRY				
Project				
Site Location Map				
Dwg. Title				
Drawn By	PM	Checked By	PM	Date 18/10/2019
Project Code	Originator	Zone/Phase	Level	Type
18186 - CSE - 00 - ZZ - DR - C - 1006				
S0	WORK IN PROGRESS	1:5000		
Status Code	Suitability Description	Scale @ A1		
P00	PRELIMINARY	18_186		
Revision	Project Status	CSEA Job No.		



NOTE:
ALL CROSSING IS 150mm.Ø uPVC.

LEGEND

- WATERMAIN ————
- HYDRANT ———— H ————
- SLUICE VALVE ———— SLV ————
- AIR VALVE ———— A.V. ————
- BLANK END ————
- T' PIECE ————
- ANGLE PIECE ————
- THRUST BLOCK ———— T.B. ————

Drawing Status
**DRAFT
AS
CONSTRUCTION**

Date
OCTOBER 2003

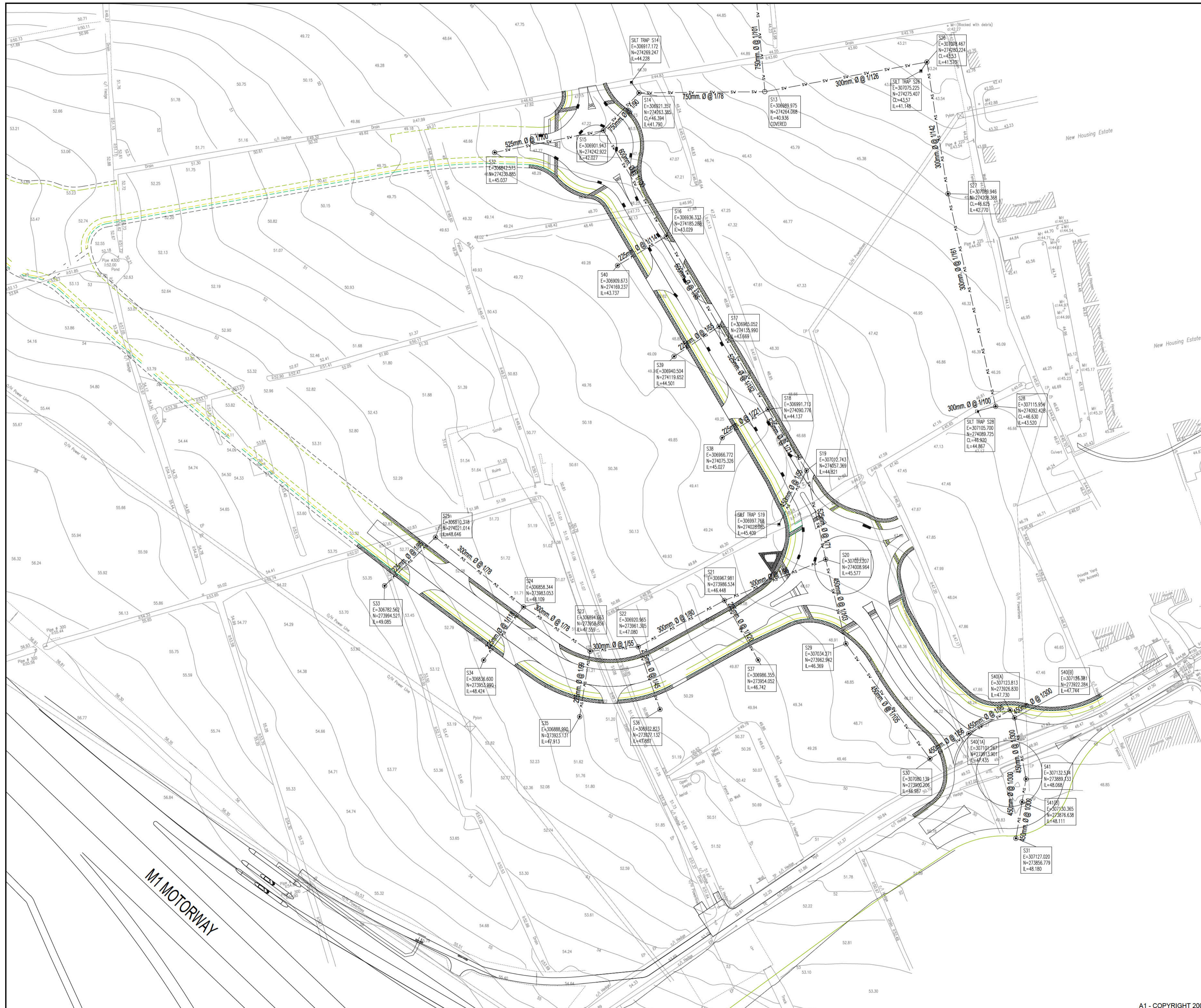
Issued By
CSEA

Revision	Description	Initials	Date

CLIFTON SCANNELL EMERSON ASSOCIATES
Consulting Engineers

Shelford Lodge, Castlenewton Ave, Blackrock, Co. Dublin, Ireland.
Tel. +353 (0)1 298 9006 Fax. +353 (0)1 298 3498 Email. info@csea.ie

Architect	INDUSTRIAL DEVELOPMENT AGENCY		
Client	IDA DROGHEDA BUSINESS PARK		
Project	WATERMAIN LAYOUT AS CONSTRUCTED		
Dwg. Title			
Drawn By	LT	Date	29/09/03
Checked by	MC	Scale	1:1000
Dwg. No.	99_072/001		



NOTE:
ATTENTION MUST BE PROVIDED TO ALL SITES
PRIOR TO DISCHARGE TO DRAINAGE NETWORK IN
ACCORDANCE WITH DROGHEDA BOROUGH
COUNCIL/ MEATH COUNTY COUNCIL
REQUIREMENTS.

LEGEND:

—	SURFACE WATER
○	SURFACE WATER MANHOLE
○	SILT TRAP

	Drawing Status	DRAFT
		AS
		CONSTRUCTED
	Date	OCTOBER 2003
	Issued By	CSEA

Revision	Description	Initials	Date

	CLIFTON SCANNELL EMERSON ASSOCIATES
	Consulting Engineers
	Shelford Lodge, Castlenewan Ave, Blackrock, Co. Dublin, Ireland. Tel. +353 (0)1 288 8006 Fax. +353 (0)1 283 3488 Email. info@csea.ie

Architect	INDUSTRIAL DEVELOPMENT AGENCY		
Client	IDA DROGHEDA BUSINESS PARK		
Project	SURFACE WATER LAYOUT		
Dwg. Title			
Drawn By	LT	Date	1/10/03
Checked by	MC	Scale	1:1000
Dwg. No.	99_72/005		



LEGEND:
 — FS FOUL SEWER
 ○ FOUL SEWER MANHOLE

Drawing Status
**DRAFT
 AS
 CONSTRUCTED**

Date
 OCTOBER 2003

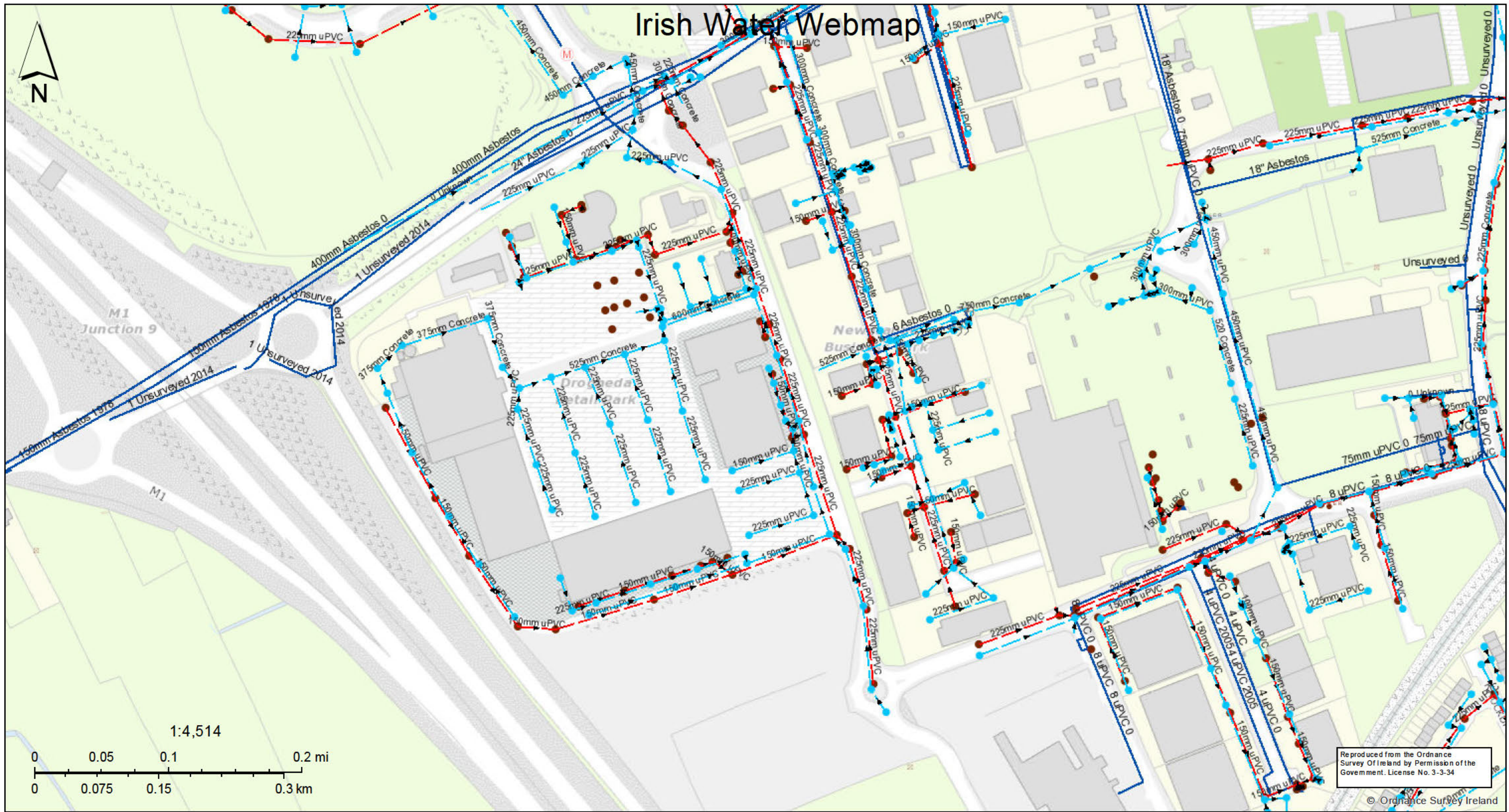
Issued By
 CSEA

Revision	Description	Initials	Date

CLIFTON SCANNELL EMERSON ASSOCIATES
 Consulting Engineers

Shelford Lodge, Castledean Ave, Blackrock, Co. Dublin, Ireland.
 Tel. +353 (0)1 288 8006 Fax. +353 (0)1 283 3488 Email. info@csea.ie

Architect	INDUSTRIAL DEVELOPMENT AGENCY		
Client	IDA DROGHEDA BUSINESS PARK		
Project	FOUL LAYOUT		
Dwg. Title			
Drawn By	LT	Date	1/10/03
Checked by	MC	Scale	1:1000
Dwg. No.	9972/006		



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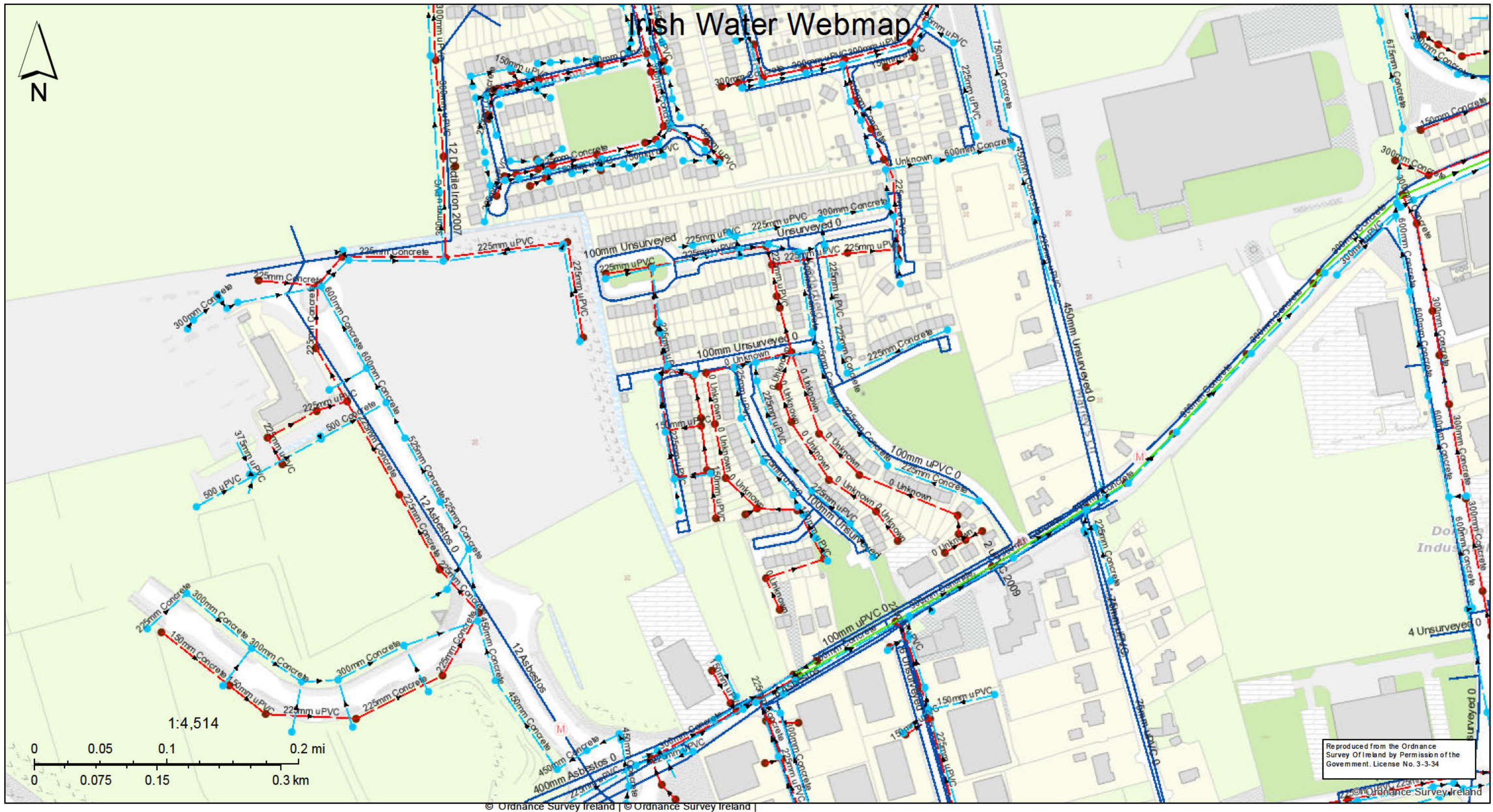
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- Legend**
- Stormwater Gravity Mains (Irish Water Owned)**
 - Surface
 - Stormwater Gravity Mains (Non-Irish Water Owned)**
 - Surface
 - Storm Manholes**
 - Cascade
 - Catchpit
 - Hatchbox

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. It should not be relied upon in the event of excavations or other works being carried out in the vicinity of the network. The onus is on the parties carrying out the works to ensure the exact location of the network is identified prior to mechanical works being carried out. Service pipes are not generally shown but their presence should be anticipated. © Irish Water



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2/8/2019, 9:45:18 AM

Legend

Stormwater Gravity Mains (Irish Water Owned)

— Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

— Surface

Storm Manholes

■ Cascade

○ Catchpit

■ Hatchbox

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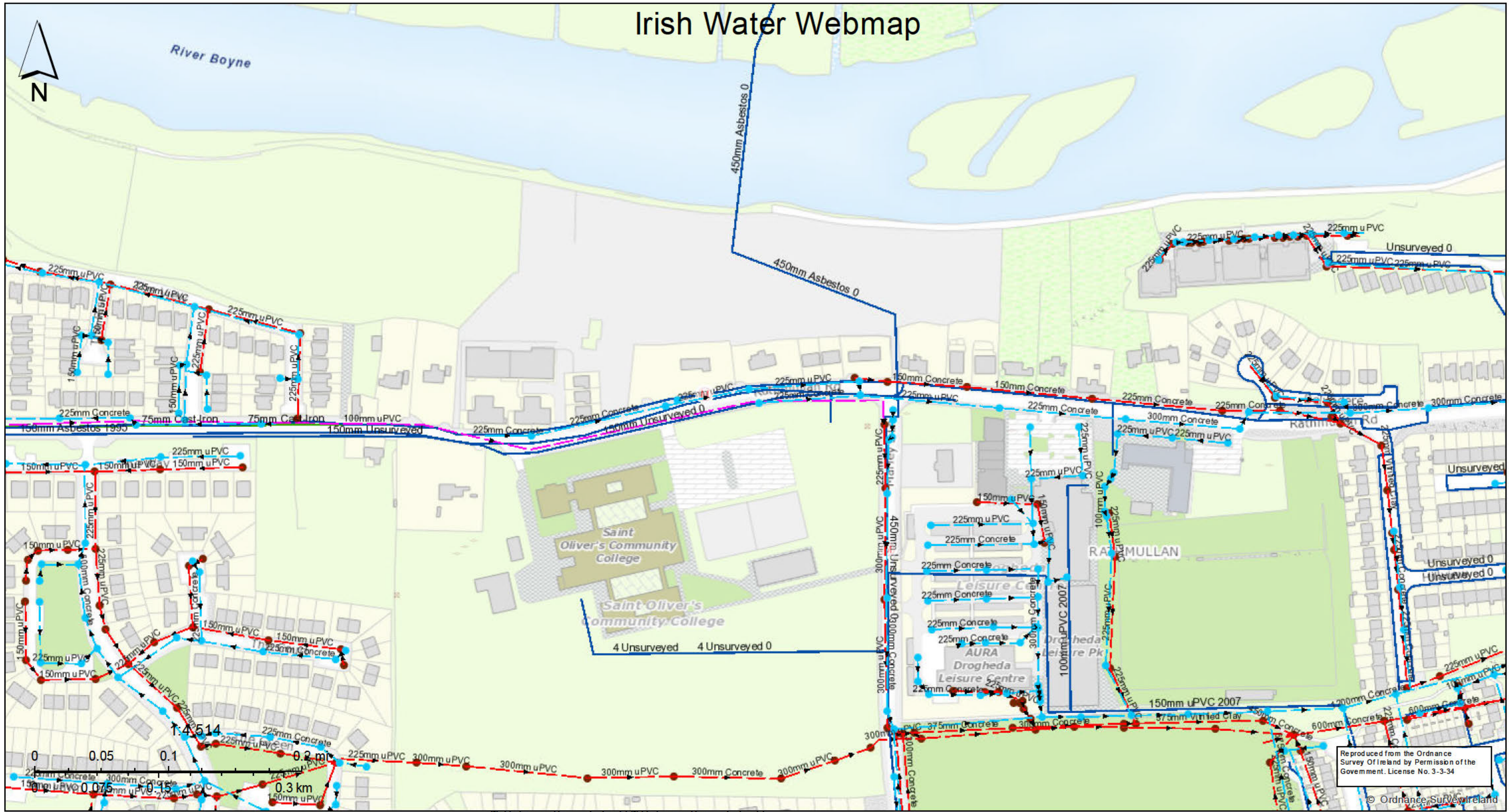
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- Legend**
- Stormwater Gravity Mains (Irish Water Owned)
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2/8/2019, 9:47:49 AM

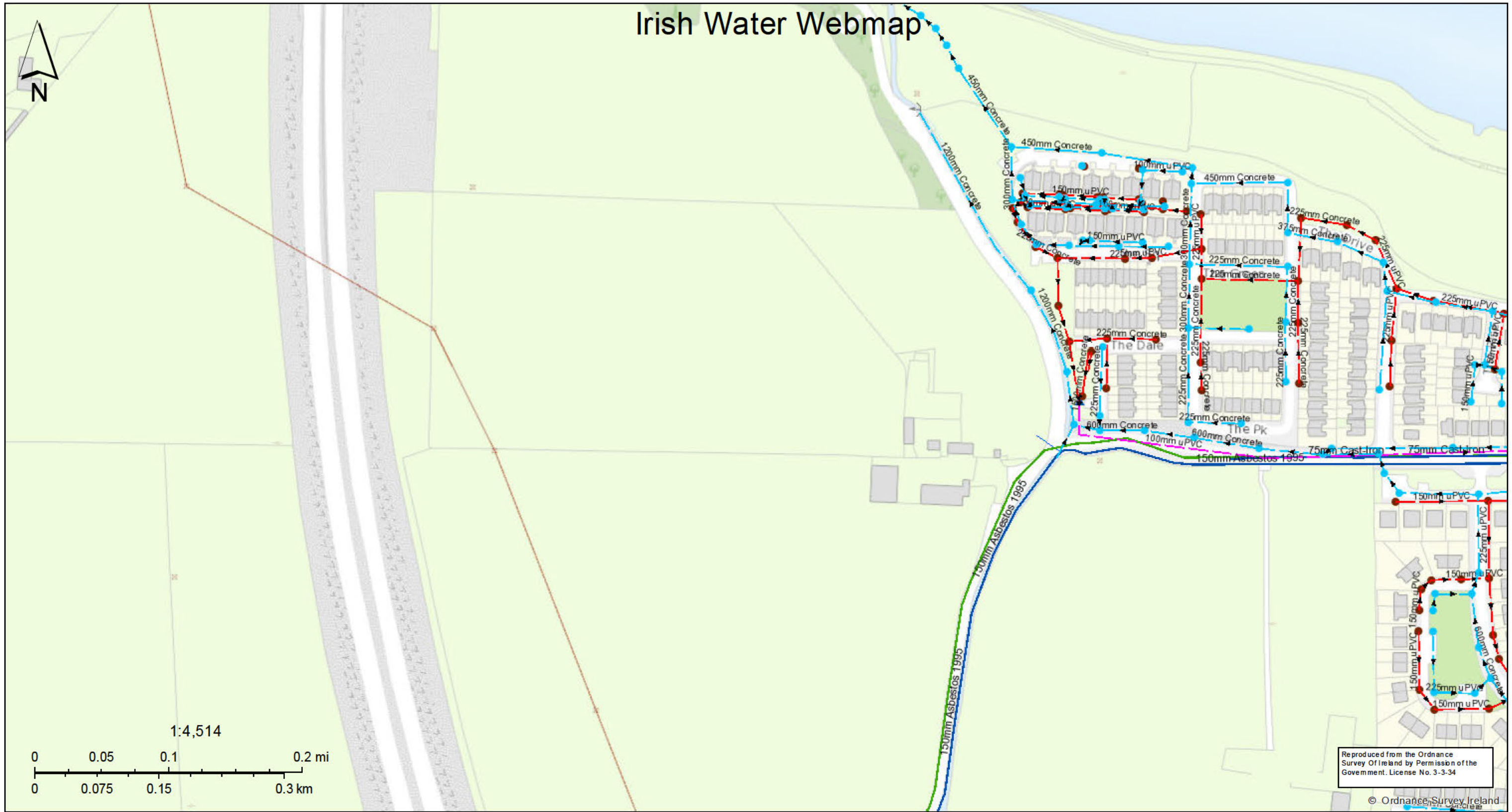
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Irish Water Webmap



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Legend

Stormwater Gravity Mains (Irish Water Owned)

— Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

— Surface

Storm Manholes

▣ Cascade

⊞ Catchpit

⊞ Hatchbox

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Legend

Stormwater Gravity Mains (Irish Water Owned)

Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

Surface

Storm Manholes

Cascade

Catchpit

Hatchbox

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Legend
Stormwater Gravity Mains (Irish Water Owned)

Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

Surface

Storm Manholes

Cascade

Catchpit

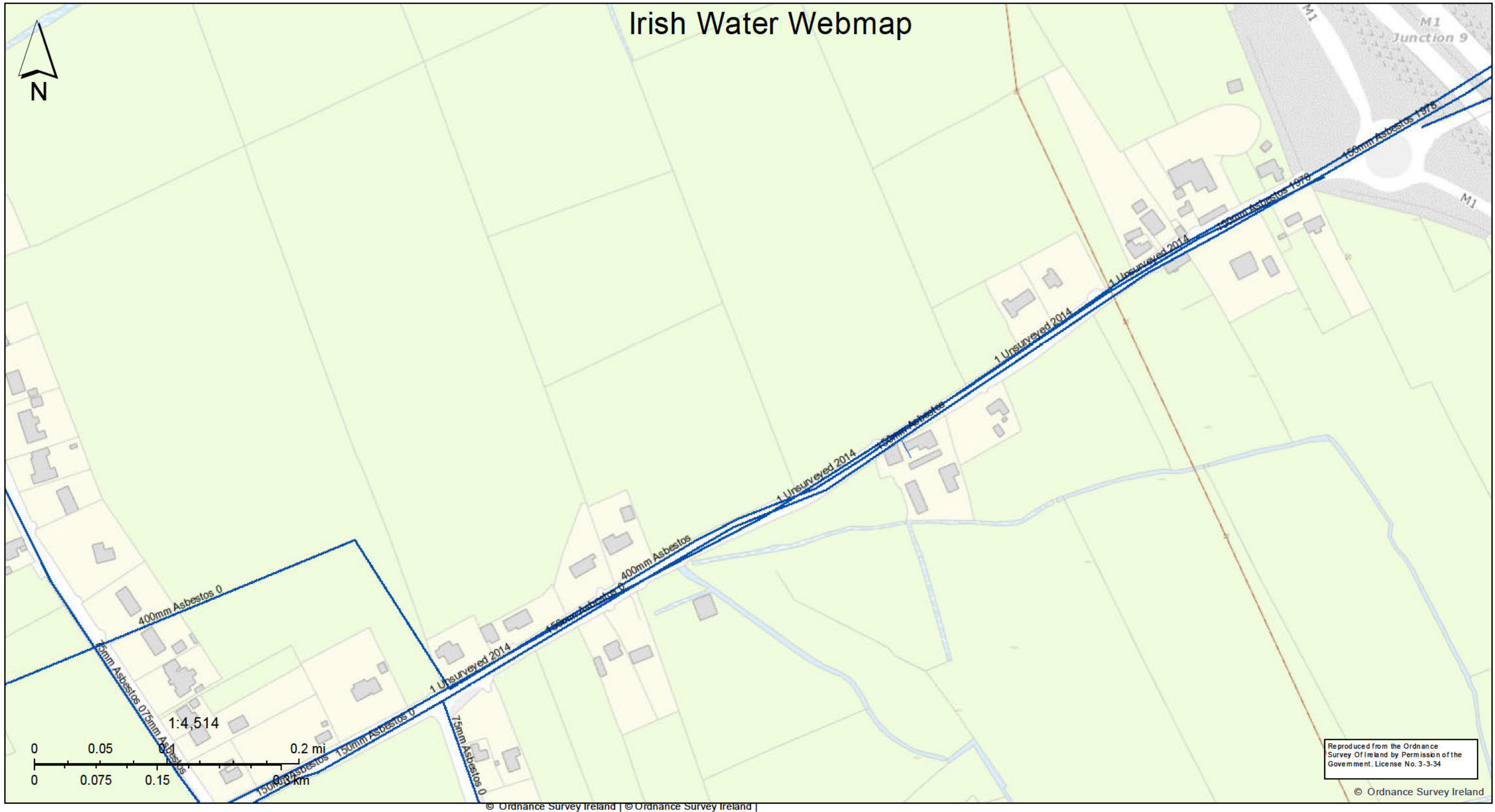
Hatchbox

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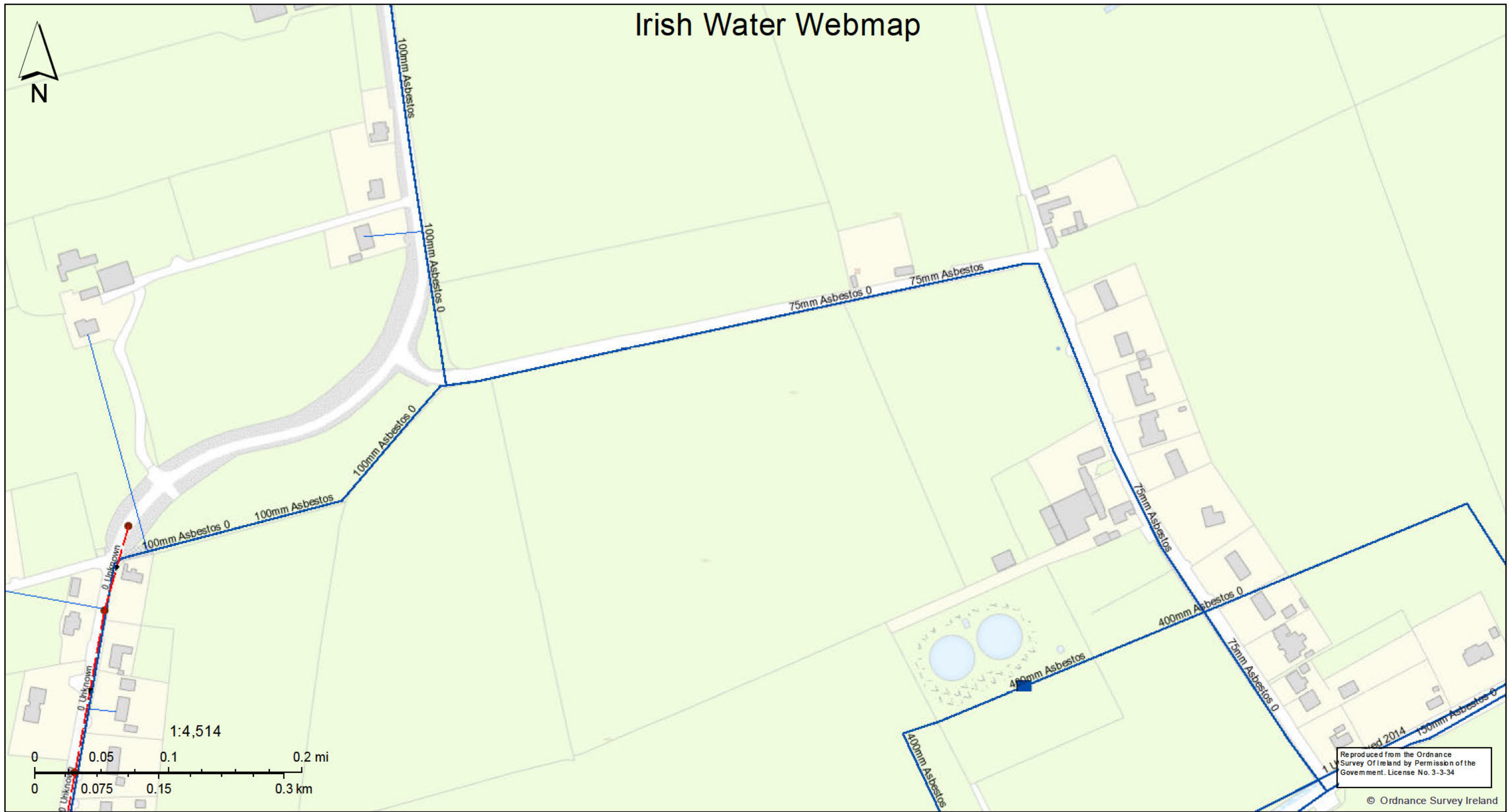
- Legend**
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2/8/2019, 9:59:46 AM

Legend

Stormwater Gravity Mains (Irish Water Owned)

Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

Surface

Storm Manholes

Cascade

Catchpit

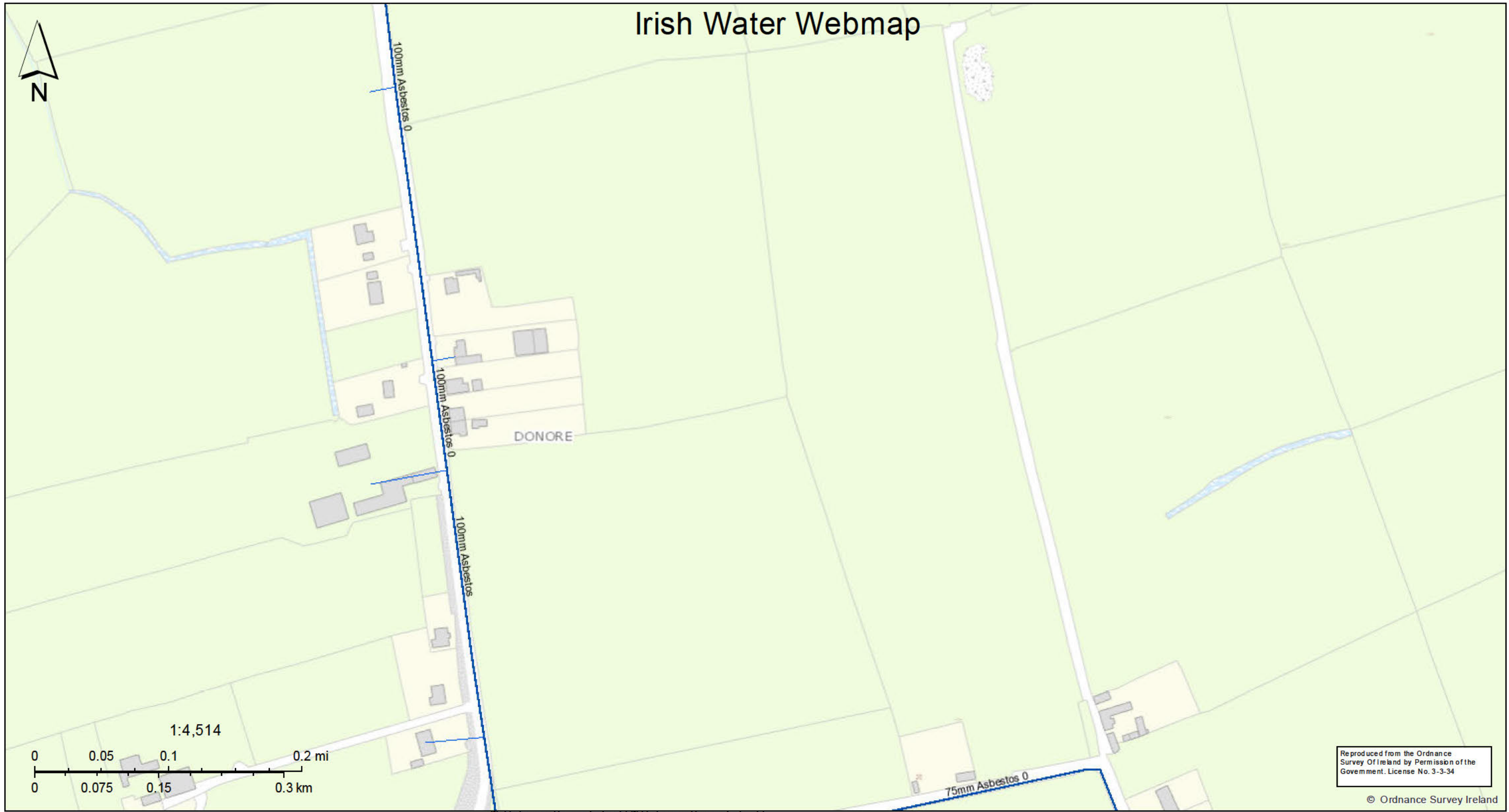
Hatchbox

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Irish Water Webmap



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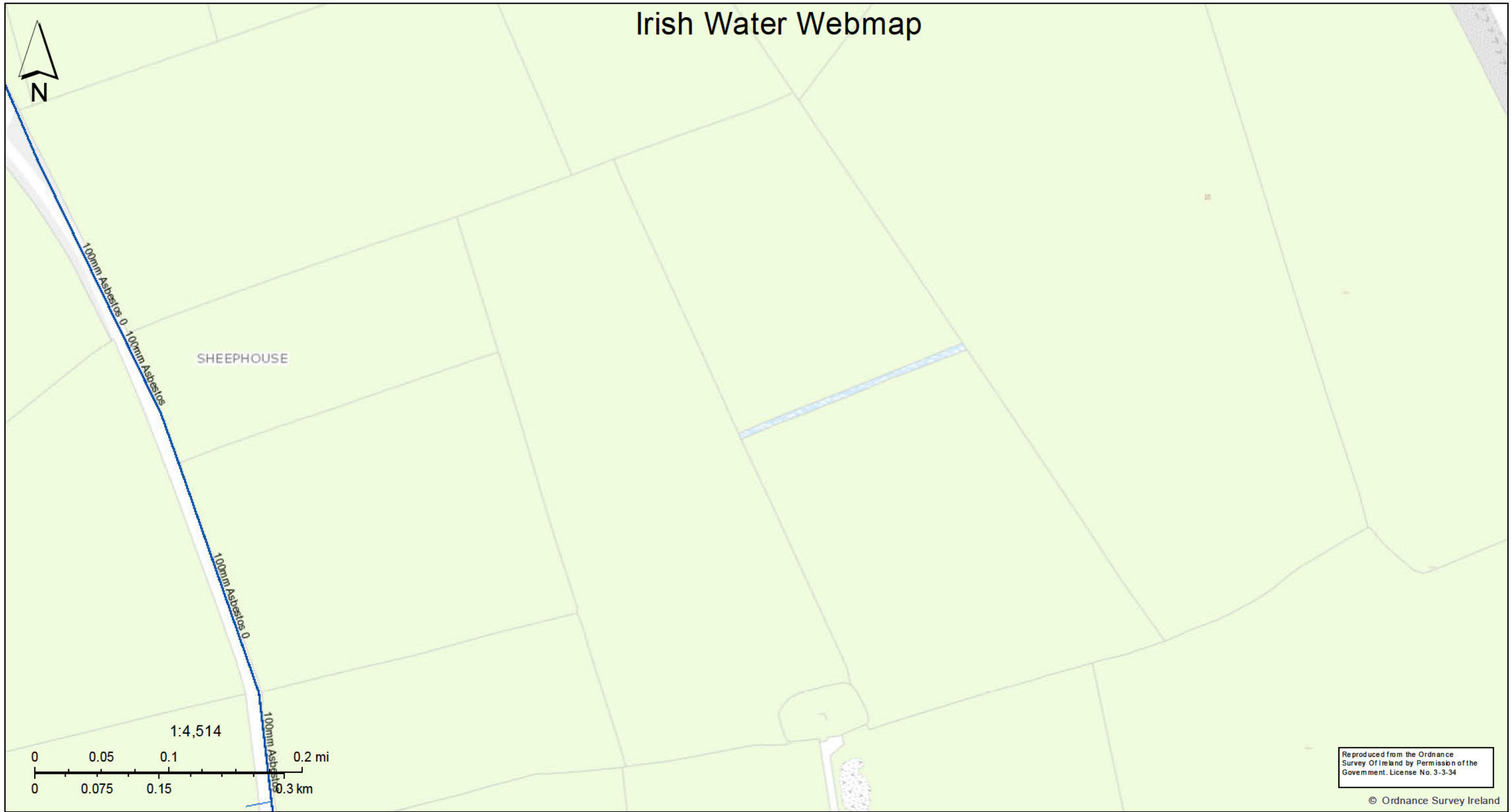
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 - Hatchbox

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Irish Water Webmap



2/8/2019, 10:02:16 AM

Legend

Stormwater Gravity Mains (Irish Water Owned)

— Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

— Surface

Storm Manholes

▣ Cascade

▣ Catchpit

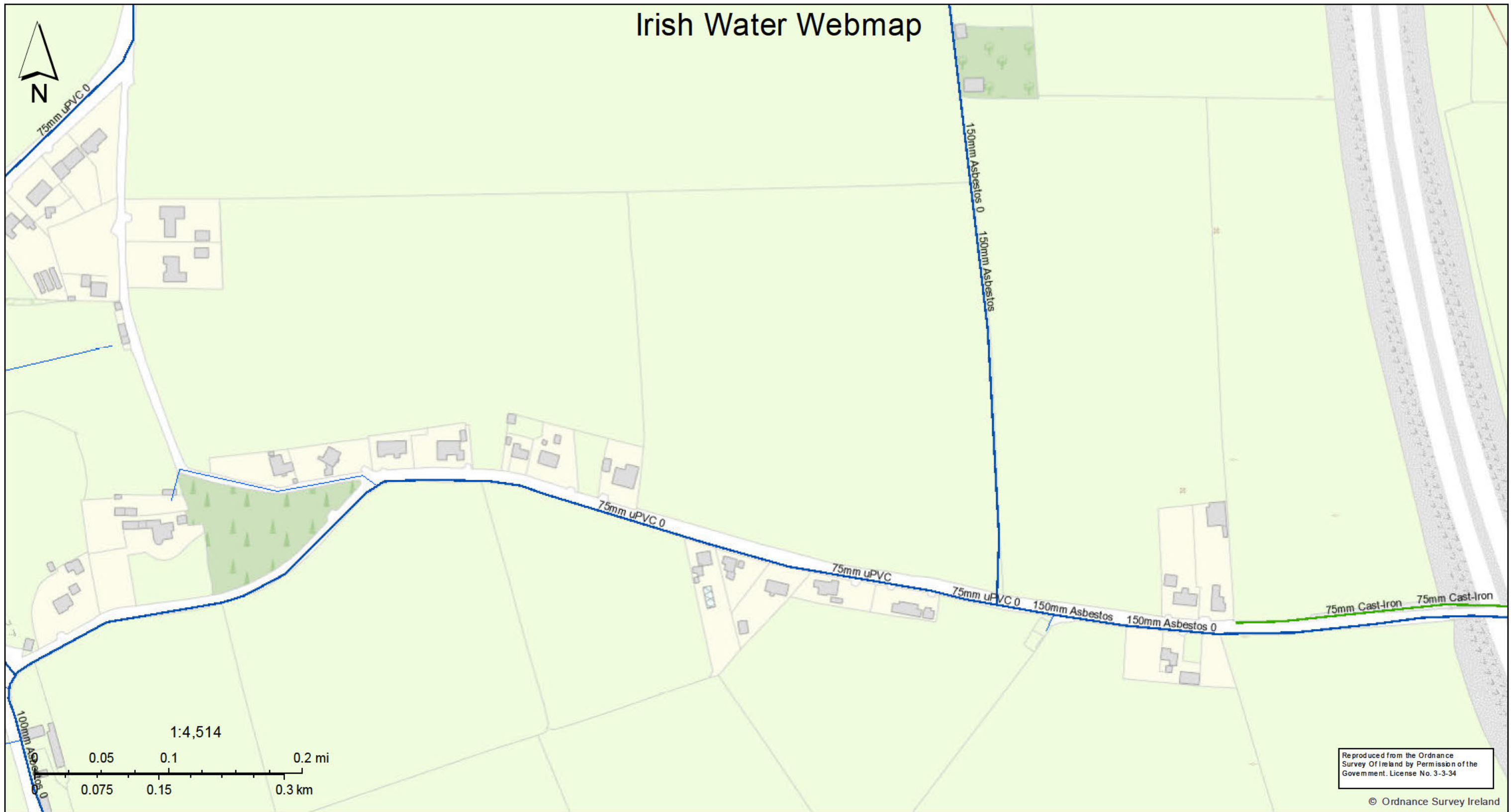
▣ Hatchbox

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Irish Water Webmap



2/8/2019, 10:02:59 AM

Legend

Stormwater Gravity Mains (Irish Water Owned)

Surface

Stormwater Gravity Mains (Non-Irish Water Owned)

Surface

Storm Manholes

Cascade

Catchpit

Hatchbox

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Project Number: 19_131

Project: Data Storage Facility at IDA Business Park, Drogheda

Title: Engineering Planning Report - Drainage & Water Services



5.8 Appendix G – Irish Water Confirmation of Feasibility Letter



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

Pauraic Matthews
Seafort Lodge
Castledawson Avenue
Blackrock
Co.Dublin
A94P768
Ireland

5 November 2019

Dear Pauraic Matthews,

**Re: Connection Reference No CDS19007702 pre-connection enquiry -
Subject to contract | Contract denied**

**Connection for Business Connection of 6 unit(s) at Drogheda IDA Business Park, Donore Road,
Co.Louth.**

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Drogheda IDA Business Park, Donore Road, Co.Louth. Based upon the details you have provided with your pre-connection enquiry and on the capacity currently available as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network can be facilitated.

You are advised that this correspondence does not constitute an offer in whole or in part to provide a connection to any Irish Water infrastructure and is provided subject to a connection agreement being signed at a later date.

A connection agreement can be applied for by completing the connection application form available at www.water.ie/connections. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities.

If you have any further questions, please contact us on **1850 278 278** or **+353 1 707 2828, 8.00am-4.30pm, Mon-Fri** or email newconnections@water.ie. For further information, visit www.water.ie/connections.

Yours sincerely,

Maria O'Dwyer

Connections and Developer Services

Clifton Scannell Emerson Associates Limited, Civil & Structural Consulting Engineers
Seafort Lodge, Castledawson Avenue, Blackrock, Co. Dublin, Ireland.

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