

# Wastewater Networks – Briefing

Howth Malahide : Fingal County Council – July 2022



# Agenda

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## WW Networks

### 1. SWO's Assessments

- *Drainage Area Plan Programme*
- *SWO Survey, Assessment & Monitoring Programme*

### 2. FCC Projects

### 3. Q&A

# Storm Water Overflows



# DAP Process

## 4 Stages in DAP Process

- Stage 1 : Data Gathering
- Stage 2 : Model Build
- Stage 3 : Risk Assessment
- Stage 4 : Assess Options & Design Development

## Key element of DAP Process under Stage 2

- Update or creation of **Hydraulic Model** of existing network based on:
  - Information system data (“GIS”)
  - Field Asset Surveys + Flow/Rainfall Monitoring



# DAPs – Why, How and Who...

## Why

- Address project drivers (SWO's, flooding, growth)
- Understand network risks
- Understand available network capacity
- Identify interventions
- Improve model/GIS coverage
- Improve customer service

## How

- DAP Standards
- Survey Standards
- Model Audits
- Software –
  - InfoWorks ICM
  - InfoNet
- Stakeholder Engagement e.g. IW AP, IW Ops, LAs

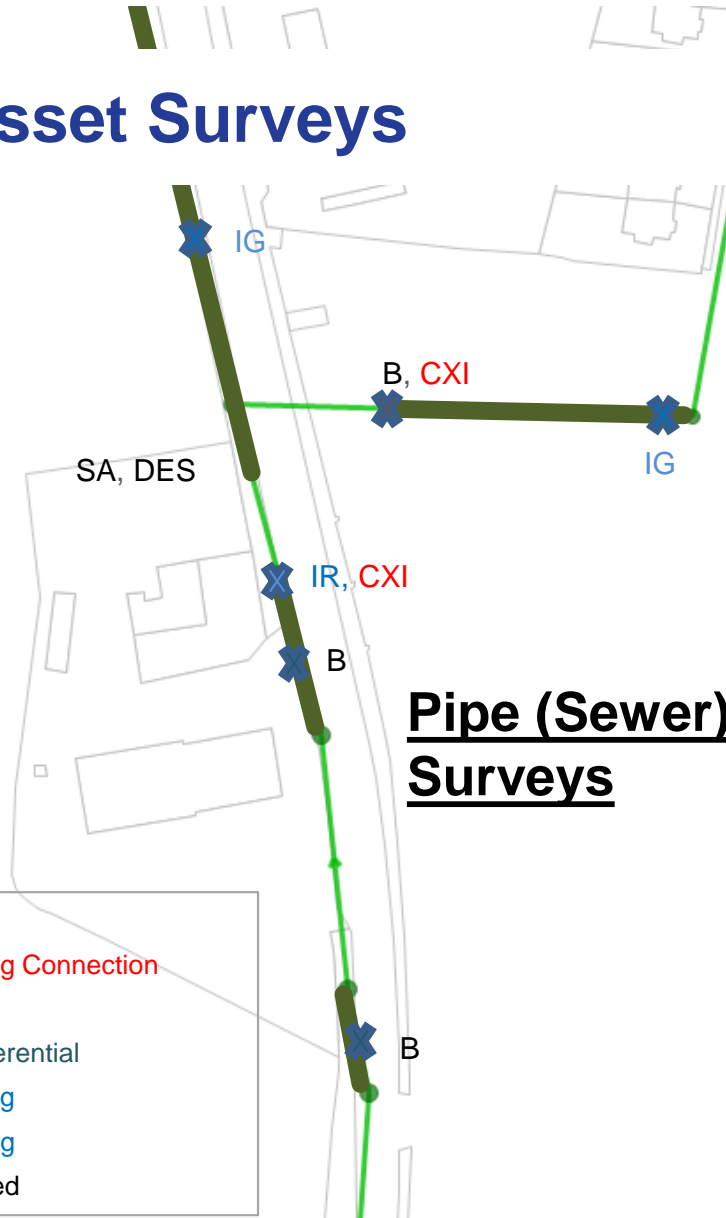
## Who

- DAP Specialist, WwNPT, AP, AD, AI, AS, Env., Ops, Customer, CDS
- 7 ESP Consultants
- 10 Contractors
- 3 ESP Auditors
- LA PMs, Operators/Curators

# DAP Stage 2 - Asset Surveys

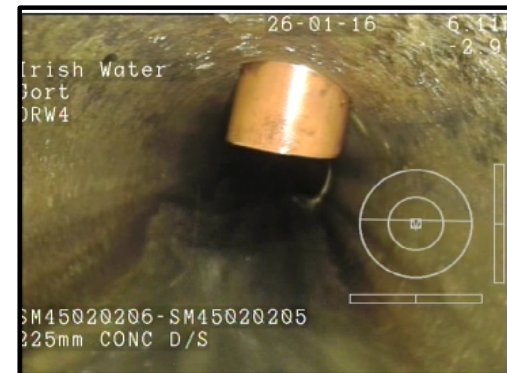
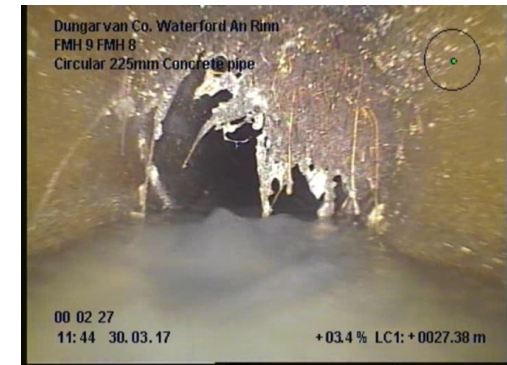


## Manhole Surveys



## Pipe (Sewer) Surveys

B	Break
CXI	Defective Intruding Connection
DES	Deposits - Silt
FC	Fracture Circumferential
IG	Infiltration Gushing
IR	Infiltration Running
SA	Survey Abandoned

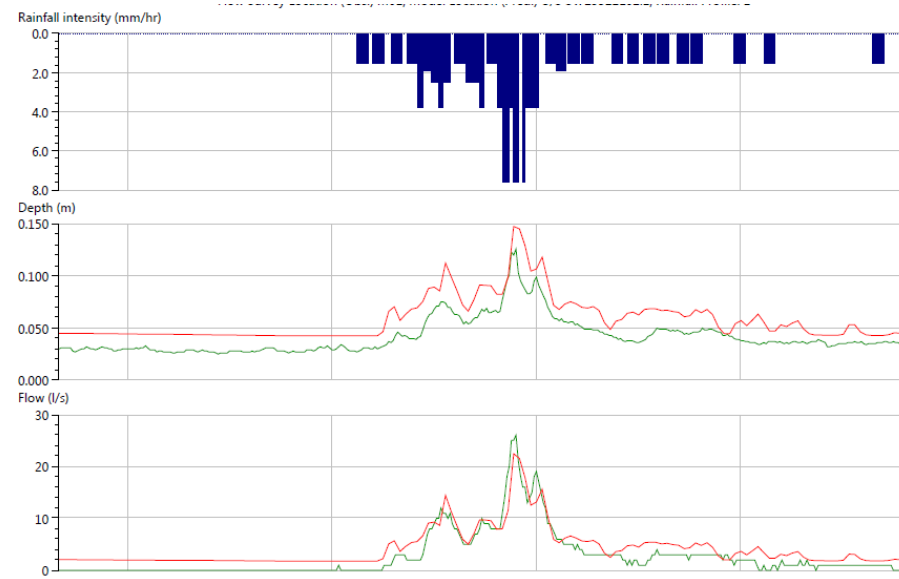


# DAP Stage 2 – High Confidence Models

## Flow Monitoring



## Model Verification



# DAPs – Where and When...

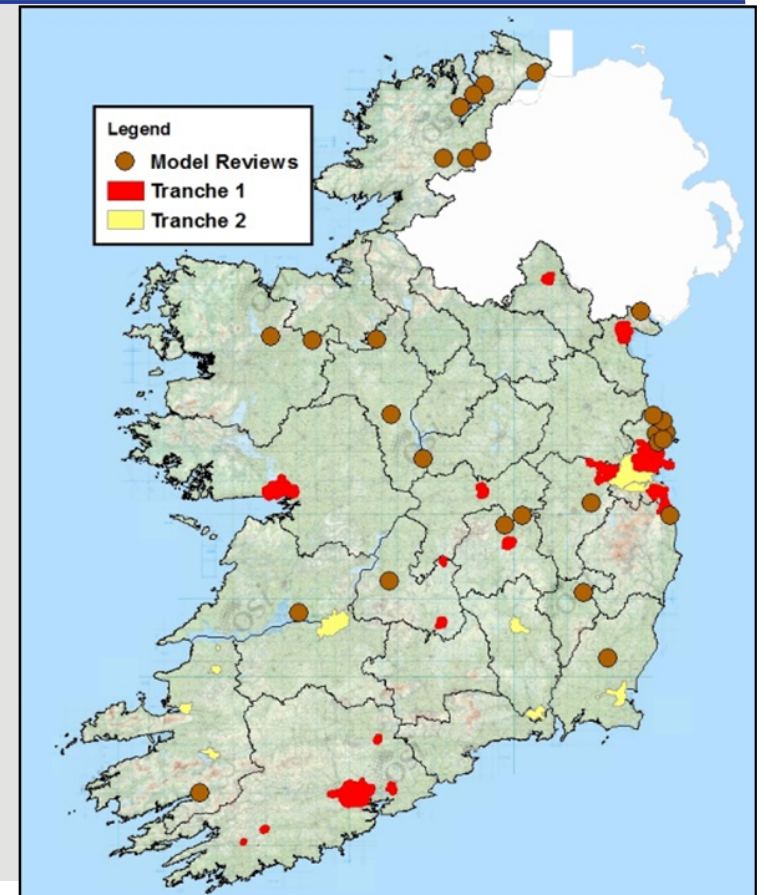
## Where

- 22 in East Midlands
- 18 in South
- 2 in North West
- Numerous ww network modelling projects to DAP standards under Infrastructure Portfolio
- Model reviews

## When

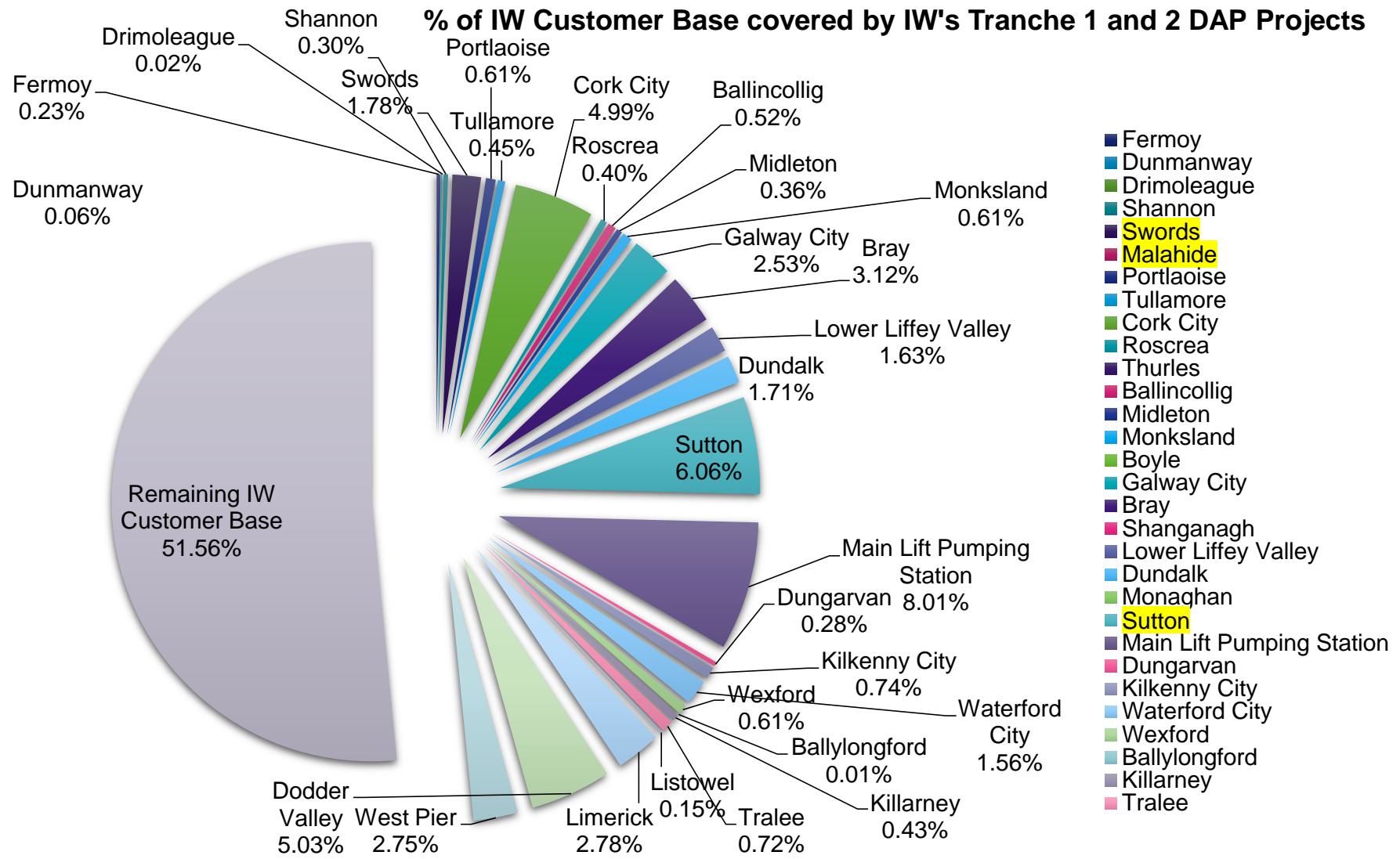
- Tranche 1 – Commenced 2016  
Majority at MBV Stage
- Tranche 2 – Commenced 2018  
Majority at survey stage
- Tranche 3 – To Start in 2022

Region	Tranche 1	Tranche 2	Tranche 3
East Midlands	14	8	7
Southern	9	9	5
North West	2	-	2





**% of IW Customer Base covered by IW's Tranche 1 and 2 DAP Projects**

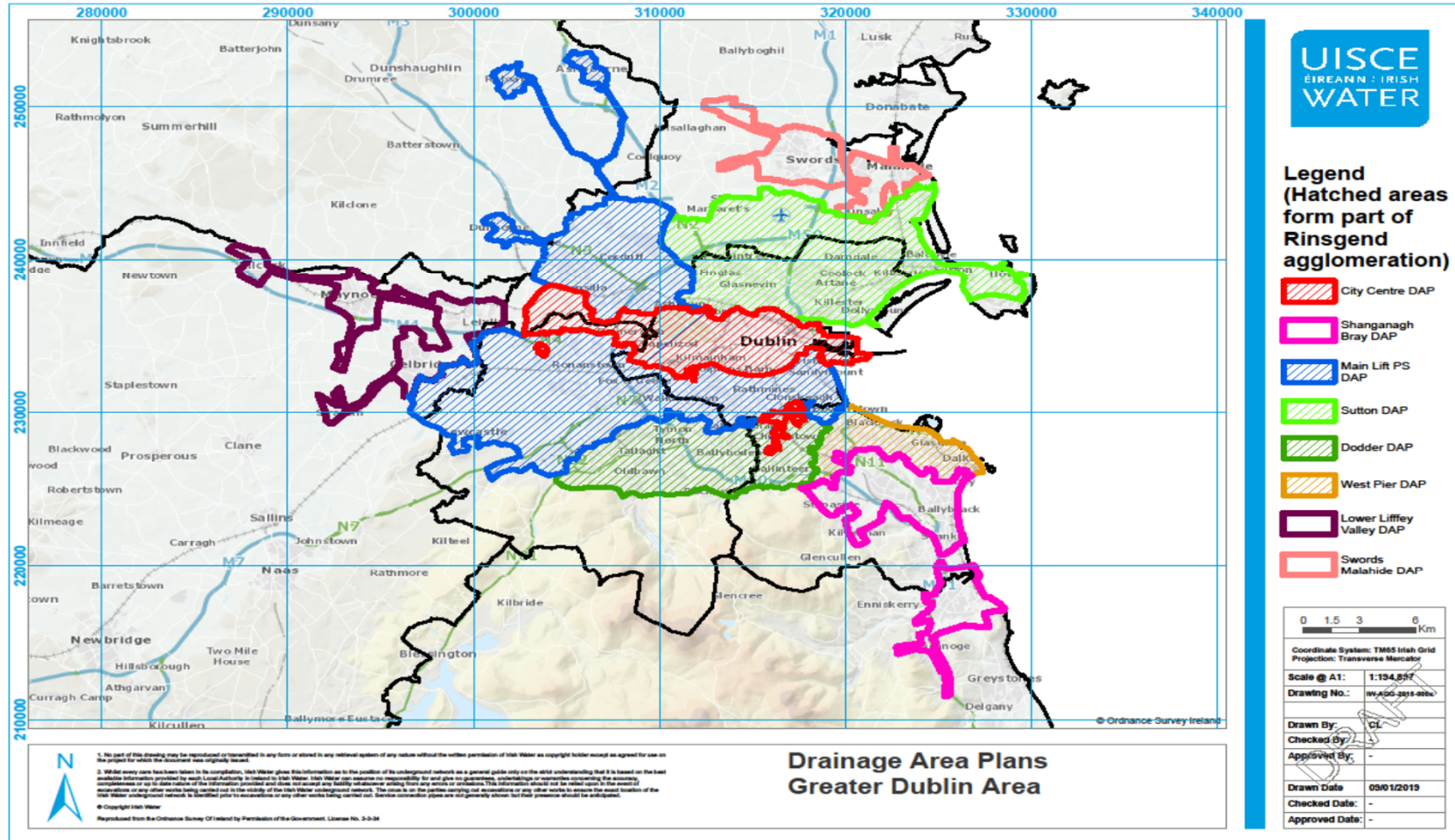


## DAP – What (we get)...

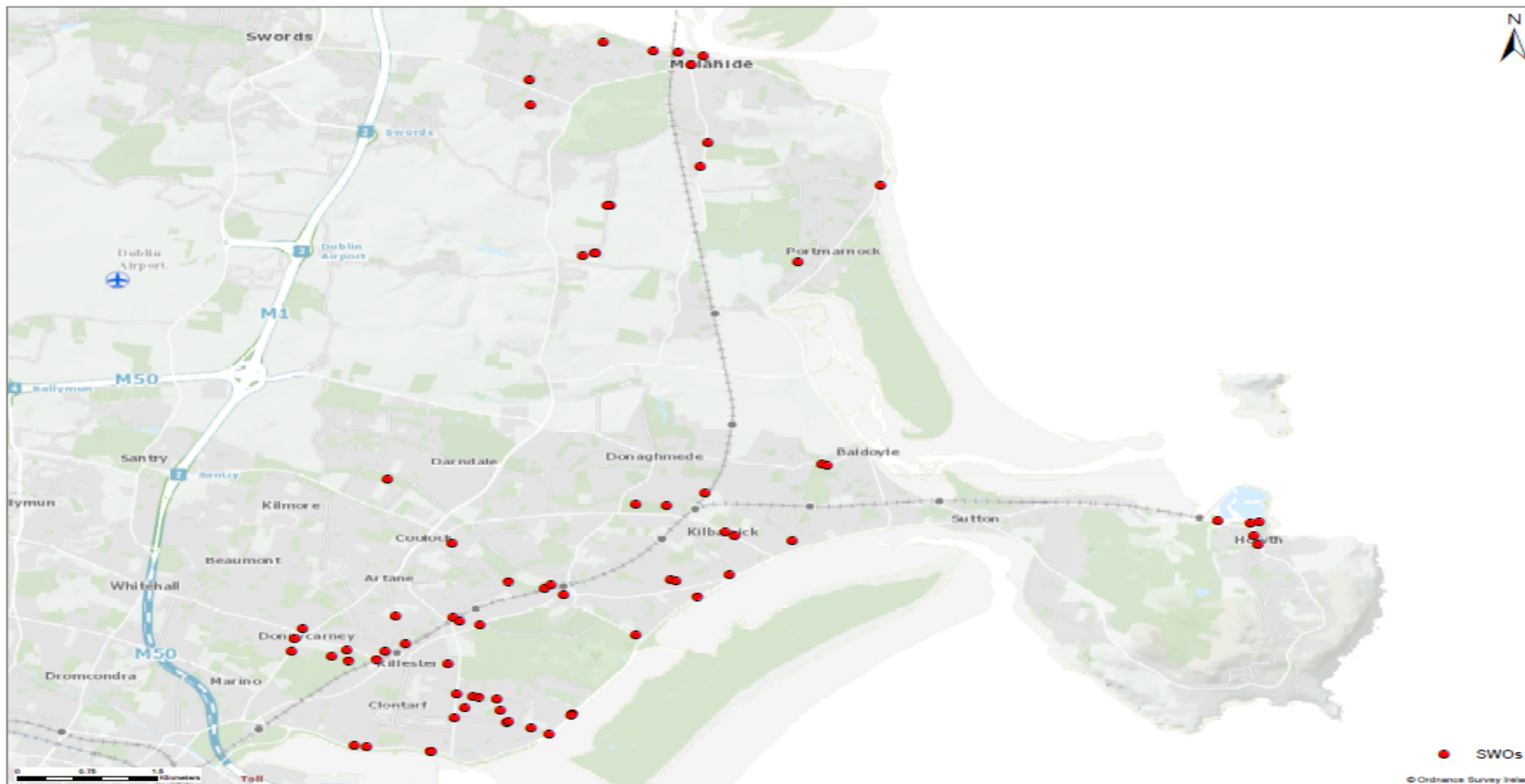
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- Current, short and strategic term hydraulic models
- Risk Assessments for each of the above
- SWO spill frequency and environmental compliance statistics
- InfoNet Asset Database
- GIS layers
- Intervention identification (at Stage 4)

# DAPs – GDA



# SWO Locations - Howth Malahide Area

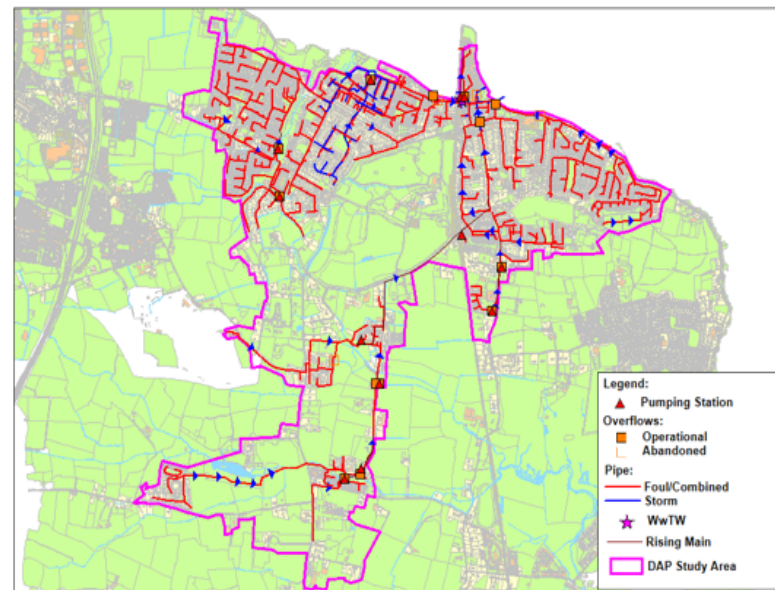


# DAP – FCC - Malahide

## INTRODUCTION AND CATCHMENT OVERVIEW

### MALAHIDE CATCHMENT

- Approximate Area of 803 ha
- Modelled Population of 17,360
- Outer suburb of Dublin
- Varying topography, ranging from -0.517mAOD to 50.42mAOD
- Approximately 60km of sewers modelled
- 1545 manholes within the hydraulic model
- 12 pumping stations (all active)
- 18 overflows (13 active, 5 abandoned)
- 3 bifurcations



# DAP – Malahide SWO Performance

Combined Sewer Overflow Name	WWDL Ref	Type of Overflow	Environmental Licence (Y/N)	Current Model			Short Term Design			Long Term Design			Receiving Watercourse	Water Quality
				SWO Passes Formula A	Annual Spill Frequency	Annual Spill Volume (m <sup>3</sup> )	SWO Passes Formula A	Annual Spill Frequency	Annual Spill Volume	SWO Passes Formula A	Annual Spill Frequency	Annual Spill Volume		
Abington PS	TBC	SWO	N	Yes	1	27.48	Yes	1	27.44	Yes	1	27.39	Gaybrook	Unassigned
Broomfield PS	No Ref	PSEO	N	Yes	0	0.00	Yes	0	0.00	Yes	0	0	Sluice	Unassigned
Coopers Wood PS	No Ref	PSEO	N	Yes	0	0.00	Yes	0	0.00	Yes	0	0	Sluice	Unassigned
Floraville PS	S8	SWO	Y	No	154	31864.26	Yes	0	0.00	Yes	0	0	Sluice	Unassigned
Galtrim Grange	TBC	SWO	N	Yes	6	493.02	Yes	6	492.93	Yes	5	491.60	Sluice	Unassigned
Inbhir Ide PS	TBC	SWO	Y	Yes	4	71.03	Yes	4	74.18	Yes	4	90.93	Broadmeadow Water	Moderate
St James Terrace	No Ref	SWO	Y	No	5	233.36	No	5	250.96	No	6	282.11	Malahide Bay	Good
Kileen PS	TBC	SWO	Y	Yes	1	4.77	Yes	1	4.98	Yes	1	5.01	Gaybrook	Unassigned
Castleway Foul	TBC	SWO	N	No	41	10706.31	No	5	1276.45	No	6	1694.21	Sluice	Unassigned
Malahide WwTW Tank_2A	SW35	SWO	Y	No	2	1132.70	No	3	1695.51	No	3	1892.04	Malahide Bay	Good
Seafield Court	TBC	SWO	N	Yes	9	609.91	No	13	870.08	No	13	956.33	Broadmeadow Water	Moderate
The Diamond	No Ref	SWO	Y	No	20	169.68	No	17	152.40	No	18	173.58	Malahide Bay	Good
Malahide Inlet SWO	SW35	SWO	Y	Yes	2	0.36	Yes	2	0.64	Yes	2	0.61	Malahide Bay	Good

Malahide	Swords & North Fringe
<p>Solution Development</p> <ul style="list-style-type: none"><li>• Bawn (Flooding)</li><li>• Castelway PS &amp; SWO upgrade</li><li>• Diamond and St. James Terrace SWO's</li><li>• WWTP Upgrade</li></ul>	<ul style="list-style-type: none"><li>• <u>Swords DAP</u></li><li>• Stage 4 solution development.</li><li>• All SWO's compliant for current and future flows.</li><li>• <u>North Fringe Sewer DAP</u></li><li>• DAP Currently in Stage 2 - Survey Contracts</li></ul>

# SWO Assessment Programme

National	Progress
<p><b>2,200 SWOs</b> assessed.</p> <ul style="list-style-type: none"><li>• <b>1,300 SWOs</b> surveyed and assessed through this Programme</li><li>• <b>900 SWOs</b> assessed through ongoing DAPs</li><li>• <b>2,200 SWO</b> outfalls to be inspected</li></ul>	<ul style="list-style-type: none"><li>• Develop SWO Outfall Impact Assessment App</li><li>• Identify all SWO locations through LA workshops</li><li>• Survey all SWOs on site - 1,300 surveyed</li><li>• Assess outfalls 2,200 Outfalls</li><li>• Create comprehensive national database of all SWOs</li></ul>



# SWO Assessment Programme – Impact App



Application created based on “*User Guide for Assessing the Impact of Combined Sewer Overflows*”, WRc (1994)

- App loaded on tablets for field assessments

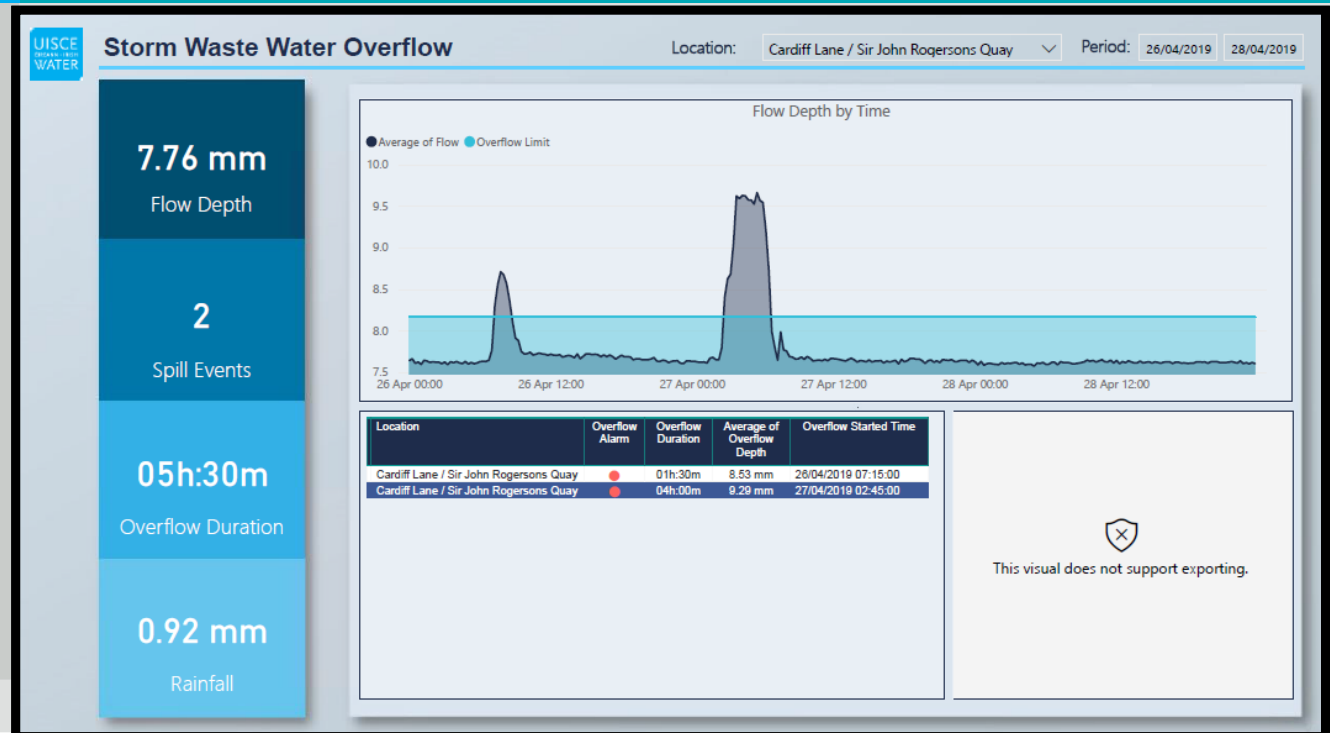
<b>Input Data from Records</b>
History of dry-weather operation
Public complaints
Pollution incidents
Receiving water body risk and urban waste water pressures*
Fishery status*
Conservation status*
Potable abstraction status*
<b>Inputs on site - Field Data</b>
Dry Weather operation
Sewage litter
Sewage fungus
Public access/amenity*
* denotes information on receiving water use
<b>Outputs</b>
Classification based on <b>Receiving Water</b> - Low, Medium or High value
Classification based on <b>Impact</b> - Satisfactory, Unsatisfactory or Very Unsatisfactory

# SWO Monitoring & Reporting

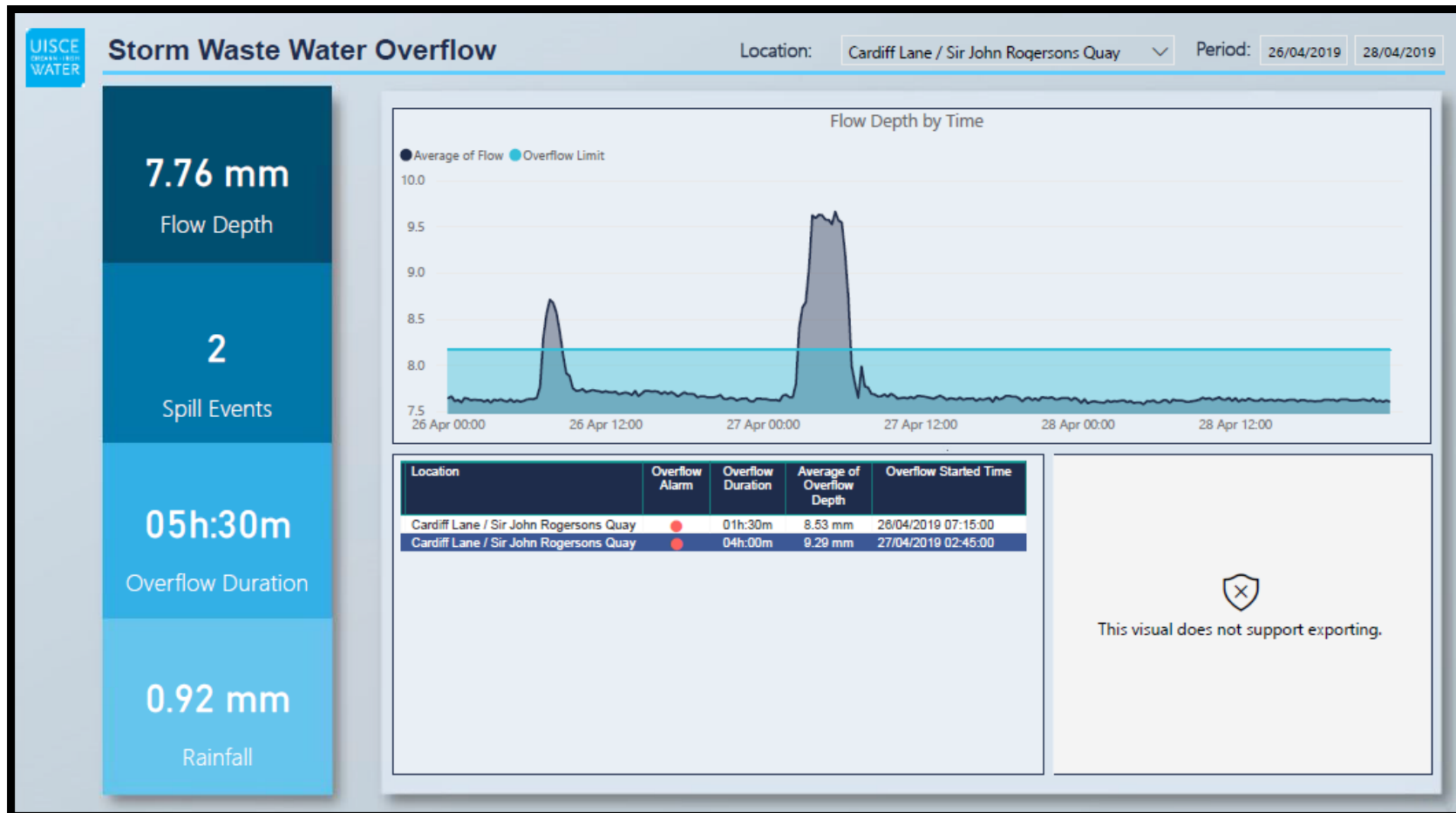
## National

## Building Data Analysis & Reporting

- SWOs prioritised for selection of Event-Duration Monitor(EDMs) installation
- Building Data Analysis and Reporting Capability



# CSO Monitoring (EDMs) – Reporting



# Projects under Design

## Waste Water Pump Stations

Scope development underway:

- Skerries Harbour WWPS
- Sutton Strand WWPS
- River Road WWPS
- Portmarnock Strand P.S and Public Toilet Re-development.

## G&D / Infrastructure Projects

Design Commenced

- Santry PS
- Turnapin Pump Station
- Quay Street Pump Station Balbriggan.
- Sewer upgrade Fosterstown, Swords
- Doldrum Bay
- Portmarnock Bridge PS

# Projects

## Network Upgrades

- Oldtown Mooretown flood alleviation storage tank to allow future development. - Planning permission stage with the developer.
- Metro North Engagement. – Ongoing.
- Drinam P.S upgrade - Complete.
- Storm water separation and pipe re-lining for infiltration removal in the Kinsealy Lane area. – Complete.
- Mayne Br P.S upgrade – Complete.

## G&D / Infrastructure Projects

### Completed:

- Rush Road Pump Station & Loughshinny in Skerries
- Rush Town –untreated discharge
- Floraville PS De-commissioned
- Kinsealy / Malahide South (Chapel Rd WWPS) – Connection to North Fringe Sewer