

16. SUMMARY OF MITIGATION MEASURES

16.1 Introduction

This Chapter presents a summary of the mitigation measures that were incorporated into the Design Stage and those that will be implemented in the Construction and Operational Stages.

16.2 Design Stage

16.2.1 Climate

The design of the surface water drainage system took into account the implications of climate change on future rainfall events.

16.2.2 Land & Soil

Given the nature of the development there are no design stage prevention and mitigation measures to reduce the effects of land take.

16.2.3 Water

16.2.3.1 Surface Water Management

The sustainable drainage features include:

- Rainwater harvesting;
- Permeable paving in car parking areas, and
- Underground storage systems where the rainwater run-off will be temporarily retained and discharged to ground.

To protect the water quality an oil interceptor, designed to remove oil to levels that do not present a significant environmental risk, will be installed upstream of the attenuation system and the permeable pavement will incorporate measures to biodegrade the small amount of oils that could occur due to leaks from parked vehicles. These mitigation measures also protect soil quality.

16.2.4 Biodiversity

It was a design objective to retain the existing boundary hedgerows. A detailed landscape plan has been prepared and it is proposed to augment the boundary hedgerows by planting native shrub species. Additional planting of native shrubs will be carried out inside the boundary to compensate for the loss of the internal hedgerow. The operational lighting scheme will be designed to minimise the impact of external lighting upon bat populations by retaining dark areas around the external boundaries.

16.2.5 Air

An odour control system will be installed in the section of the MRF where the odorous wastes will be processed and stored. The system will involve the abstraction of the air and its treatment in a dust filter to remove dusts and carbon filter to reduce odour levels before it is emitted to the air via a stack. The system will be designed to meet the most stringent odour limit value specified by the EPA. The design, installation and operation of the system will require the EPA's prior approval. Fast opening and closing doors will be fitted on the entrances to the bay where odorous wastes are handled.

16.2.6 Population & Human Health

16.2.6.1 Aviation Safety

The building and surface water drainage system design took into consideration the aviation safety limitations imposed by the proximity to Dublin Airport and the approach path to Casement Aerodrome.

16.2.6.2 Fire Safety

The separation distances between the buildings means that a fire outbreak in one will not spread to any of the others. In the MRF the internal separation distances between materials storage areas/bays will comply with the EPA guidance on fire safety. Certified automatic fire detection and alarm systems will be installed in both buildings that cover all internal areas. Six mains water supplied fire hydrants will be installed. To prevent/reduce risk of arson there will be a security fence around Phase 1.

16.2.7 Landscape & Visual Impacts

The building heights were the lowest that allow the safe internal operations and comply with aviation safety requirements. The height of the stack on the odour control system was determined by the by the air dispersion modelling. The colours of the external building materials were selected to be minimise visual intrusion. It was a design objective to retain the hedgerows around the site boundary and supplement them with additional native tree/shrub plants.

16.2.8 Cultural Heritage

Design stage measures are not required.

16.2.9 Material Assets: Built Services

16.2.9.1 Energy Conservation

The energy conservation measures include:

- Roof mounted solar panels to supplement the electricity supply;
- Insulation of pipes conveying heated water in the washing system in the FCCP;
- Provision of energy efficient artificial lighting systems, and
- Provision of electric vehicle charging points.

16.2.9.2 Water Conservation

Rainwater will be harvested for use on site as greywater in the staff toilets.

16.2.9.3 Waste Management

The design measures to minimise waste generation in the construction stage will be identified in the Detailed Resource & Waste Management Plan that will be prepared at the detailed design stage.

16.2.10 *Material Assets Traffic & Transport*

The design approach was to:

- Prioritise pedestrians and cyclists in urban settings without unduly compromising vehicle movement, and
- Provide good pedestrian access to encourage walking.

Specific design measures include:

- Use of light emitting diode (LED) luminaires to ensure a uniform lighting spread is achieved and dark corners are avoided;
- Provision of segregated footpaths and cycle lanes on the access road from North Road that will become the future link between North Road and Cappagh Road;
- Provision of shared segregated footpaths and cycle lanes on both sides of the entrance road and the use of high quality and slip resistant materials will at dropped crossings to allow access for users of all abilities, and
- The sightlines at the junctions of the service road and North Road and the development access junction will be 120m from a setback of 3m and positioning of roadside features and landscaping not to obstruct visibility for drivers approaching or emerging from these junctions.

16.3 **Construction Stage**

An Environmental Clerk of Works will be appointed for the duration of the construction stage and will be responsible for ensuring that the following mitigation measures are implemented.

16.3.1 *Climate*

As the impact of the greenhouse gas emissions from the construction stage will not be significant, mitigation measures are not needed, however the following best practices will be used to minimise emission from construction traffic, diesel powered equipment and waste generation.

- Planning routes to minimise travel distances for the delivery and removal of materials;
- Efficient use of construction equipment, and
- Minimisation of waste generated from construction activities.

16.3.2 Land & Soil

The mitigation measures include:

- Restricting the storage and handling of oils and chemicals to dedicated areas;
- Provision of appropriate storage containers and spill containment measures to retain accidental spills;
- Provision of appropriate equipment and staff training to ensure any spills are quickly cleaned up;
- Carrying out the soil stripping and stockpiling in a manner that minimises the risk of erosion, and
- Operating machinery and materials storage in ways that minimise the risk of soil compaction.

16.3.3 Water

The mitigation measures include:

- Restricting the storage and handling of oils and chemicals to appropriately constructed dedicated areas;
- The provision of appropriate storage containers and bunds to retain accidental spills;
- Provision appropriate equipment and staff training to ensure any spills are cleaned up quickly, and,
- Prohibiting the wash out of concrete delivery vehicles on-site.

16.3.4 Biodiversity

The measures to mitigate the effects on soils, water and human beings are also effective in protecting biodiversity. In addition,

- Before the start of construction works an invasive species survey will be carried out to establish if Third Schedule invasive species have entered the site since the original survey was completed. If such species are identified a site-specific Invasive Species Management Plan will be prepared and implemented during the works;
- The invasive species *Buddleia* is present but it is easy to control using a mixture of mechanical removal and herbicide treatment. As the plants are mature, the preferred method of treatment is cutting back to a basal stump or grubbing out followed by the application of herbicide;
- Site lighting will be at the lowest level needed for safety and security purposes and wherever possible will be restricted to the working area and set up to avoid overspill and shadows on sensitive habitats outside the construction area;

- Where possible trees will be not be removed between the bird breeding season of 1st March and 31st August;
- Before felling a bat specialist will inspect the trees. The felled trees will not be mulched immediately and will be left lying several hours and preferably overnight to allow any bats within the tree to emerge and avoid accidental death, and
- Treelines outside the proposed development area but adjacent to it and thus at risk, will be clearly marked by a bat specialist to avoid any inadvertent damage.

16.3.5 Air

The following measures will be implemented:

- Water spraying of exposed earthworks and haul road during dry weather using mobile units;
- Provision of a wheel cleaner at the site entrance;
- Regular inspection of the approach roads and cleaning as needed using a road sweeper;
- Control of vehicle speeds within the site;
- Minimising material drop heights;
- Planning materials delivery and waste removal routes to minimise travel distances, and
- Efficient use of construction equipment and resources.

16.3.6 Population & Human Health

16.3.6.1 Noise

Although noise emissions will be short term and will not exceed the construction noise criteria following mitigation measures will be implemented.

- Works will generally be confined to 7am to 7pm Monday to Friday and 8am to 2pm on Saturday;
- Where plant has to operate between 7am and 8am at locations within 100m of sensitive receptors, standard 'beeper' reversing alarms will be replaced with flat spectrum alarms;
- Construction machinery will be maintained in a satisfactory condition, with exhaust silencers fitted and in good working order, and
- Queuing of trucks near off-site receptors and engine idling will be prohibited.

The Environmental Clerk of Works will act as a liaison officer with the local community. Where evening or night-time works are required, the Environmental Clerk of Works will inform the residents.

16.3.7 *Landscape*

Additional tree/shrub planting will be carried out to supplement the boundary hedgerows. The habitat protection measures described in Section 16.3.4 will be implemented.

16.3.8 *Cultural Heritage*

Prior to the start of the construction works a suitably qualified and experienced archaeologist will be appointed to monitor topsoil stripping and excavations in the eastern part of Phase 1. If subsurface features of archaeological interest are identified construction works in the immediate area of such features will stop and the archaeologist consult with the National Monuments Service, Department of Housing, Local Government and Heritage to determine what actions are required and these will be implemented.

16.3.9 *Material Assets: Built Services*

The connection to the electricity grid will be managed by ESB Networks, which should limit any disruption and ensure that residents/ businesses in the affected areas receive advance notice of the planned disruptions. Construction and demolition waste will be minimised by implementing the recommendations of the Resource & Waste Management Plan.

16.3.10 *Material Assets: Roads*

A Construction Traffic Management Plan will be prepared based on a scope agreed in advance with Fingal County Council. The objective will be to minimise traffic disruption in the vicinity of the site and ensure the safety of both residents and construction staff.

16.4 **Operational Stage**

16.4.1 *Climate*

Operational mitigation measures are not required.

16.4.2 *Land & Soil*

The above ground storage tank and bund and the underground sewers will be subject to regular inspection to ensure they remain watertight. The paved areas will be regularly inspected and repaired as required to maintain the structural integrity.

16.4.3 *Water*

The above ground storage tank and bund and the underground sewers will be subject to regular inspection to ensure they remain watertight. The paved areas will be regularly inspected and repaired as required to maintain the structural integrity.

16.4.4 *Biodiversity*

The primary mitigation relates to bats, as these are considered the most sensitive species in relation to night time lighting, but it will also lessen the impact on other nocturnal species such as hedgehog and otter. The lighting scheme design will consider:

- Light emitting diode (LED) type bulbs that do not emit ultraviolet and infra-red wave lengths will be used as these are the least disruptive to the emergence of bats from roosts at dusk, and subsequent movement to foraging areas, and
- The height of the lighting columns will be kept as low as possible, bearing in mind the need to prevent damage by vandalism.

16.4.5 Air

16.4.5.1 MRF

Wastes will only be accepted and handled inside buildings. The doors of the areas where the odorous wastes are handled will only be opened to allow vehicles to enter and leave. In dry weather paved yards will be damped down to prevent dust emissions from moving vehicles. The diesel powered trucks that transport the wastes will be fitted with nitrous oxides reduction systems and engine idling will not be permitted. The EPA licence will set emission limit values for the emissions to air from the odour control unit in the MRF, derived from the odour dispersion modelling assessment.

16.4.5.2 FCCPt

Additional mitigation measures are not required.

16.4.6 Population & Human Health

16.4.6.1 Fire Safety

Members of the public will not have access to the facility and only site staff will be permitted inside the processing buildings. Site visitors will be informed of the safety and fire prevention procedures that must be followed and there will be a policy of only smoking in designated areas.

Safe systems of work will be provided and outside contractors will be obliged to undergo safety inductions before being allowed access operational areas. The inductions will address fire procedures, behaviour on site, housekeeping and specific high risk jobs i.e. hot works procedure & permits.

Fire extinguishers will be positioned at selected locations and staff will be trained to extinguish small fires with appropriate hand held fire. If staff members cannot tackle a fire safely and effectively, the evacuation of all personnel will be the primary priority.

16.4.7 *Landscape & Visual Impact Assessment*

Periodic visits will be carried out by the landscape specialist to ensure that any defects that may occur are rectified, that the planting is establishing and being correctly maintained.

16.4.8 *Cultural Heritage*

Mitigation measures are not be required.

16.4.9 *Material Assets Built Services*

Energy efficiency reviews will be conducted regularly and plant and equipment suppliers will be required to ensure that only the most energy efficient are procured. A preventative maintenance programme will be in place for all equipment to ensure their energy efficiency is optimised. To

minimise demand on the mains water supply rainwater run-off from the building roof will be used as 'grey water' in the staff toilets. The roof mounted solar panels will reduce demand on the national grid.

16.4.10 Material Assets: Traffic & Transport

Mitigation measures are not required.

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- 3.1 ENGINEERING REPORT
- 3.2 RWMP
- 3.3 CEMP
- 4.1 B.A.T
- 4.2 AERONAUTICAL ASSESSMENT
- 6.1/6.2 SITE INVESTIGATION: LAND & SOIL
- 7.1 WATER SUMMARY
- 8.1 TREE SURVEY
- 8.2 NRA GUIDELINES
- 9.1 AIR QUALITY
- 10.1 NOISE ASSESSMENT
- 10.3 GLINT & GLARE ASSESSMENT
- 11.1 LANDSCAPE PLAN
- 12.1 ARCHAEOLOGY REPORT

APPENDIX 3.1

ENGINEERING REPORT



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**Proposed Development at the
Huntstown Economic Hub, Co. Fingal
for Rathdrinagh Land ULC**

**Engineering Report
(Planning Application)**

Made: MJ

Checked:..... PC

Approved:..... PC

Revision	Description	Made	Checked	Approved	Date
Final	Planning	MJ	PC	PC	02/2023

**Proposed Industrial Units
at Huntstown Circular Economic Hub,
Huntstown, Fingal, Co Dublin**

Engineering Report (Planning Application)

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Appendix B – Surface Water and Foul Drainage Schedule

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Appendix D – Storage System Spec Sheets

Appendix E – Existing Irish Water Services

Appendix F – Irish Water Greater Dublin Orbital Sewer route

Appendix G – Irish Water Correspondence

1. INTRODUCTION

1.1. Background

This report has been prepared by Coyle Civil & Structural Ltd for a warehouse development at the Huntstown Circular Economic Hub, Huntstown, Co. Fingal.

This engineering report sets out the basis for the planning submission in terms of surface/foul drainage and water supply.

2. PROPOSED DEVELOPMENT

The development consists of a development of 2no industrial warehouse units to be constructed on an existing greenfield site at Huntstown/Coldwinters Tds. The entire site area is approximately 9.655 hectares.

3. SITE INFORMATION

3.1 Site Location

The proposed development is located in Huntstown/Coldwinters, Co Fingal.

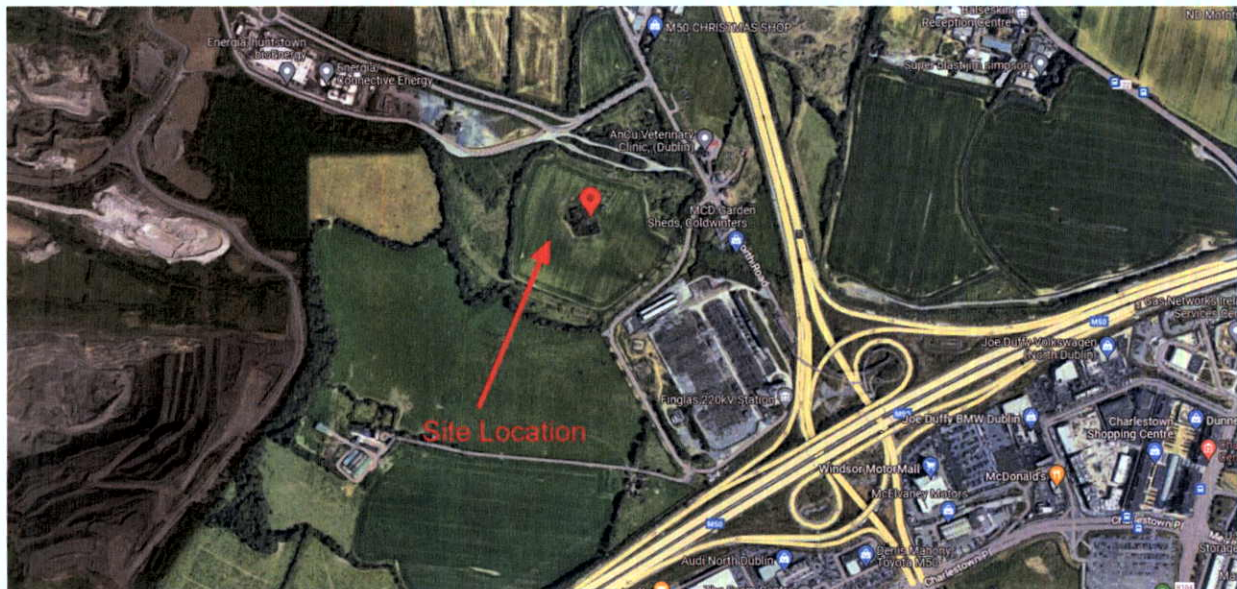


Figure 1 Site Location Map

3.2 Site Topography

The site falls from east to west with a mound to the centre of the site. Existing services to the site are as detailed in Appendix E of this report. Connection to the foul sewage and watermain supply are proposed to the North Rd via the existing services. The proposed design in Appendix A outlines the connection points.

4. WATER SUPPLY

This section describes the existing water supply in the vicinity of the site and summarises the proposed watermain infrastructure required to serve the proposed development.

4.1 Proposed Water Supply

The site will be served by new 150mm HDPE water supply ring main. The connection is proposed to be provided from the existing public road, as per the layout in Appendix A via the existing 150mm uPVC watermain. All watermain infrastructure has been designed in accordance with the Irish Water code of Practice.

Refer to Appendix A for the proposed Foul and Surface Water Drainage Layout and for Watermain Layout drawing.

5. FOUL DRAINAGE

It is proposed to provide new separate surface and foul drainage systems to serve the proposed development. This section describes the existing foul drainage services on or near the site and summarises the additional foul drainage infrastructure required to serve the proposed development.

5.1 Existing Foul Drainage

The nearest available connection to public foul sewer is located to the North Rd to the east of the site, the foul sewage connection point sits outside the site boundaries.

The existing site is not serviced by foul sewage infrastructure.

5.2 Proposed Foul Drainage

The foul sewer branch pipes conveying the effluent from the development to the main foul drainage system will generally consist of 300mm dia pipes. Given the available gradient to the outfall point a 300mm diameter pipe is required to achieve an adequate self cleansing velocity.

The proposed Irish Water Greater Dublin Orbital Sewer route passes through the site as per Appendix F. A consultation meeting was held with Irish Water on the 13th December 2022 where agreement for the proposed warehouse development was agreed in principle.

Refer to Appendix A for the proposed Foul and Surface Water Drainage Layout and for Watermain Layout drawing.

5.2.1 Hydraulic & Organic Loading

Daily foul discharge has been estimated based on the proposed development use in accordance with the EPA and Irish Water guidelines.

The projected total wastewater discharge is as shown in Table 5.1 below:

Total Population	l/person/day	l/day	BOD (g/day per person)	Organic Loading (g/day BOD5)
60	60	3600	25	1500

Table 5.1 - Water Supply & Hydraulic and Organic Loading

Max Design Flow:

= 1500 litres per day.

Assuming 6 times dry weather flow (DWF), the peak hydraulic discharge arising from this development is: 0.42 l/second.

The pipe network has been designed to ensure that sufficient hydraulic capacity and cleansing velocities are achieved, in accordance with Irish Water Code of Practice.

Max Organic Load:

=2.5kg (BOD₅)/day.

Population Equivalent Value:

= 60 P.E.

All foul drainage will be constructed in accordance with Greater Dublin Region Code of Practice for Drainage Works and Irish Water requirements.

6. SURFACE WATER DRAINAGE

It is proposed to provide new separate surface and foul drainage systems to serve the proposed development.

This section outlines the existing surface water drainage services onsite and gives our proposals for the additional surface water drainage requirements as part of the development.

6.1 Existing Surface Water Drainage

The site generally drains from east to west, all surface water is dissipated through natural infiltration. There is no natural outfall to the site.

Refer to Appendix A for the proposed Foul and Surface Water Drainage Layout and for Watermain Layout drawing.

6.2 Proposed Surface Water Drainage

The surface storm water design consists of the following components;

- SuD's infiltration soakaway with storage capacity.

- Permeable paving to carpark areas
- Rainwater harvesting to building roofs

It is proposed to harvest the rainwater from the building roofs allowing for attenuation of up to 10,000 litres per industrial unit for further use. As such 2no separate surface water drainage systems have been proposed to separate rainwater from the roof and to collect it in the rainwater harvesting tank. A separate surface water system for trafficked hardstand areas and all ground surface rainwater runoff has been proposed and to be discharged through a by-pass petrol interceptor (Klargester). All rainwater from the site will be stored and infiltrated at site, there is therefore no outfall from the site and the as such the controlled flow rate is 0.0 litres per second per hectare (0l/s/ha).

In order to comply with Fingal CoCo Development Plan requirements it is necessary to include a SuDS based storm water management system in accordance with the Greater Dublin Strategic Drainage Strategy. The above listed SuD's design items are included through the following;

1. Permeable paving to all car parking areas to allow for self infiltration to the subsoil. Given the turning of heavy duty HGV's it is not possible to provide permeable paving to all hardstand areas.
2. Rainwater harvesting is provided to all roof water in the form of underground rain harvesting butts. The retained water will be used for general washing and vehicle washing.
3. The installation of an underground storage cell with subsoil infiltration (soakaway). The drainage from the hardstand yard areas will be directed to a petrol/oil interceptor and in turn to the storage cell to allow for infiltration to the subsoil.

The surface water drainage system has been designed to ensure adequate capacity is achieved with a minimum self-cleansing velocity in the pipes when flowing half full.

It is noted the previous planning application ref FW20A/0063 made reference to open swale. Open swales or retention ponds are not a viable means of SuDs for this site. Open swales and ponds attract bird life and the proximity of the site to Dublin Airport would increase the risk to aircraft from increased bird number. This above is addressed further in the Aviation Consultants report accompanying the application.

Refer to Appendix A for the proposed Foul and Surface Water Drainage Layout and for Watermain Layout drawing.

All surface water drainage shall be constructed in accordance with Greater Dublin Region Code of Practice for Drainage Works

7. SUMMARY

- Separate foul and surface water drainage systems will be constructed to serve the site.
- Separate surface water system to collect and harvest water from the roofs for re-use has been proposed.
- Sustainable Drainage Systems designed for the proposed development include: permeable paving to staff car park, rainwater harvesting system, storage and infiltration (soakaway) system.

APPENDIX A PROPOSED DRAINAGE & WATERMAIN DRAWING

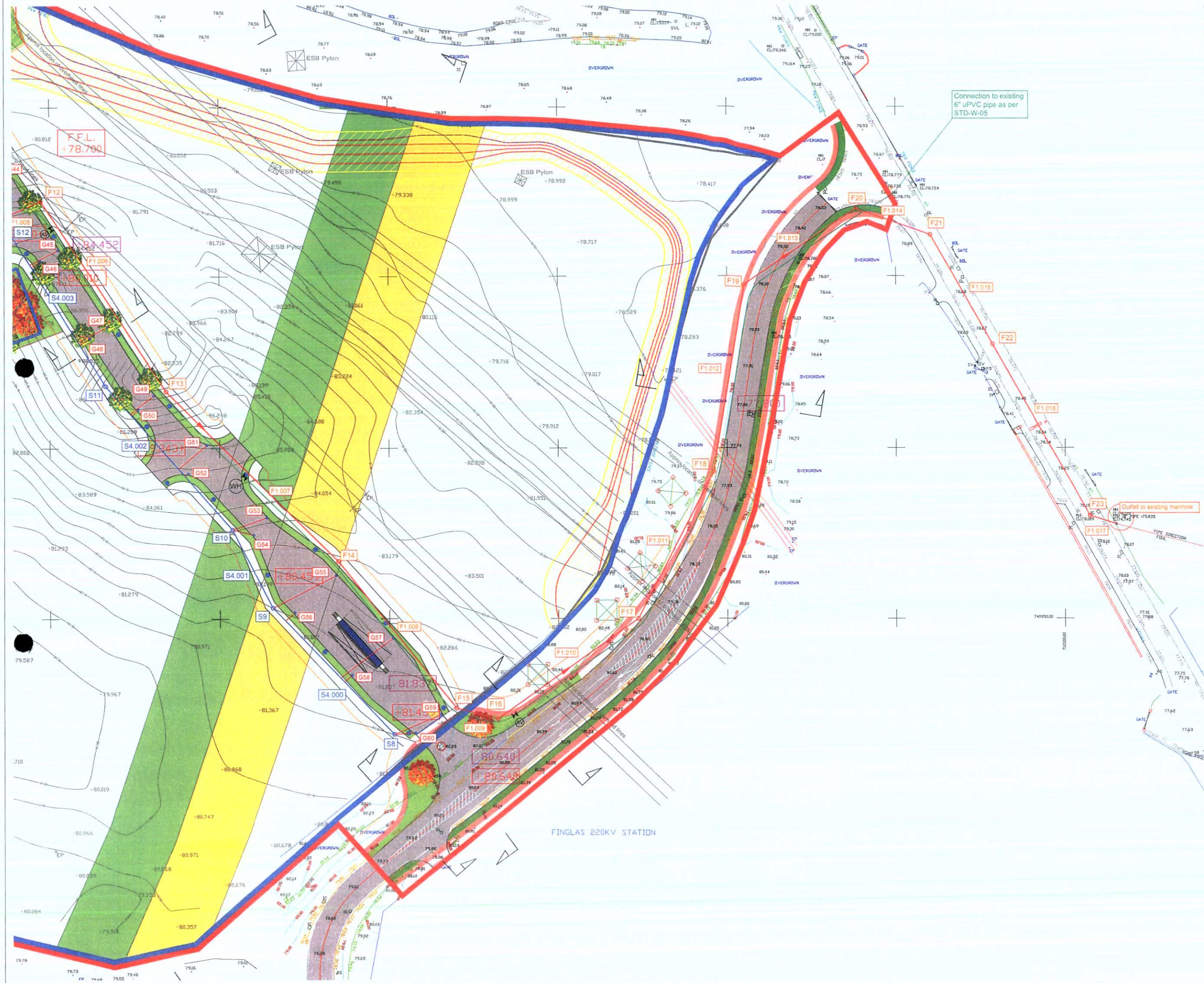
NOTES:-
 This is a planning drawing only and is therefore limited in its capacity to convey the total information, details & specifications necessary to complete the works. Any work carried out that is not covered here will be the responsibility of the persons carrying them out. If any situation arises which would cause a contravention of the building regulations, then the Engineer should be consulted, otherwise the Engineer cannot be held responsible. As these drawings are prepared as planning drawings only, it is strongly recommended that the Engineer be consulted for the preparation of full working drawings. It is solely the client's responsibility to appoint a Qualified Engineer to supervise the project during the construction stage and to prepare structural working drawings for the builder.
 ALL WORK AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS (WHETHER DETAILED ON THIS DRAWING OR NOT).
 All dimensions to be taken on site. Do not scale any dimensions from this drawing. This drawing is to be read in conjunction with all other relevant drawings and specifications etc. that are issued.
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- ⊙ (AV) On-line Air Valve as per STD-W-22
- ⊙ (SV) Sluice Valve as per STD-W-15
- ⊙ (WH) Washout Hydrant as per STD-W-30A with Scour Chamber as per STD-W-30B
- ⊙ (H) Off-line Hydrant as per STD-W-19
- ⊙ (WM) Electromagnetic Meter chamber as per STD-W-26



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Project:			
Huntstown Circular Economy Hub Huntstown/Coldwinters, Fingal, Co Dublin			
Client:			
Rathdrinagh Land ULC T/A Irish Recycling			
Sheet Title: Drainage & Watermain Layout - Sheet 1			
Project No.:	22-039	Date:	07-03-23
Drawing No.:	C-100	Scale:	As shown
Rev:		Checked:	PC



NOTES:-
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Connection to existing 6" uPVC pipe as per STD-W-05

Outfall to existing manhole
 PIPE SECTION FOX

FINGLAS 220KV STATION



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Project: Huntstown Circular Economy Hub Huntstown/Coldwinters, Fingal, Co Dublin			
Client: Rathdrínagh Land ULC T/A Irish Recycling			
Sheet Title: Drainage & Watermain Layout - Sheet 2			
Project No.:	22-039	Date:	07-03-23
Drawing No.:	C-101	Scale:	As shown
Rev.:		Checked:	PC

APPENDIX B DRAINAGE SCEDULE

Project: HCEH
 Zone: -
 Description: Surface Drainage
 Network: As shown
 Area: -

Schedule Rev.: P1
 Drawing Ref.: P0
 (Including rev.) -

	Issued:	Checked:	Approved:
Name	MJ	MJ	PC
Date	01/03/2023	01/03/2023	01/03/2023

Network	Pipe Details								Upstream					Downstream				Notes	
	Pipe Ref.	Length (m)	Gradient (1:xxx)	Full Bore Vel (m/s)	Internal Dia. (mm)	Pipe Capacity (l/s)	Flow (l/s)	Bedding Type	Chamber Ref.	Chamber Type	Cover Type	Pipe Invert Level (mAOD)	Cover Level (mAOD)	Pipe Cover Depth (m)	Chamber Ref.	Pipe Invert Level (mAOD)	Cover Level (mAOD)		Pipe Cover Depth (m)
Surface Drainage	S1.000	83.838	296.5	0.75	225	30.0	20.8	Type S	S1	Type C	C1	77.175	78.600	1.200	S4	76.892	78.600	1.483	
	S2.000	49.128	296.0	0.75	225	30.0	29.2	Type Z	S2	Type C	C1	78.430	78.600	-0.055	S3	78.264	78.600	0.111	Drainage run to be replaced with Aco drain and connected to manhole S3 if required
	S2.001	46.864	400.3	0.78	300	55.1	49.7	Type S	S3	Type C	C1	78.189	78.600	0.111	S4	78.072	78.600	0.228	
	S1.001	21.882	121.6	1.42	300	100.7	69.0	Type C	S4	Type C	C1	76.817	78.600	1.483	S17	76.637	78.600	1.663	
	S3.000	52.048	296.9	0.75	225	30.0	28.5	Type S	S5	Type C	C1	77.175	78.600	1.200	S6	77.000	78.600	1.375	
	S3.001	56.759	392.8	0.79	300	55.6	55.1	Type S	S6	Type C	C1	76.925	78.600	1.375	S7	76.780	78.600	1.520	
	S3.002	45.702	392.8	0.79	300	55.6	55.1	Type S	S7	Type C	C1	76.780	78.600	1.520	S14	76.664	78.600	1.636	
	S4.000	51.500	51.5	1.41	150	24.8	21.0	Type S	S8	Type C	C1	80.110	81.460	1.200	S9	79.110	80.460	1.200	
	S4.001	25.777	56.0	1.75	225	69.6	27.9	Type S	S9	Type C	C1	79.035	80.460	1.200	S10	78.575	80.000	1.200	
	S4.002	56.270	48.9	1.87	225	74.5	39.6	Type S	S10	Type C	C1	78.575	80.000	1.200	S11	77.425	78.850	1.200	
	S4.003	55.686	385.0	0.80	300	56.2	53.4	Type S	S11	Type C	C1	77.350	78.850	1.200	S12	77.205	80.000	2.495	
	S4.004	59.128	500.0	0.80	375	88.7	61.3	Type S	S12	Type C	C1	77.130	80.000	2.495	S13	77.012	79.200	1.813	
	S4.005	55.125	500.0	0.80	375	88.7	69.5	Type S	S13	Type C	C1	77.012	79.200	1.813	S14	76.902	78.600	1.323	
	S3.003	13.317	500.0	0.90	450	143.5	115.6	Type S	S14	Type C	C1	76.514	78.600	1.636	S17	76.487	78.600	1.663	
	S5.000	76.818	295.5	0.76	225	30.0	27.5	Type Z	S15	Type C	C1	78.240	78.600	0.135	S16	77.980	78.600	0.395	Drainage run to be replaced with Aco drain and connected to manhole S16 if required
	S5.001	2.984	14.7	3.43	225	136.4	27.5	Type S	S16	Type C	C1	77.980	78.600	0.395	S17	77.777	78.600	0.598	
	S1.002	10.439	500.0	0.99	525	215.4	195.1	Type S	S17	Type C	C1	76.412	78.600	1.663	S34	76.391	78.600	1.684	
	S6.000	41.830	98.9	1.01	150	17.9	6.1	Type S	Saj18	Access Junction	C1	77.250	78.600	1.200	Saj19	76.827	78.600	1.623	
	S6.001	18.553	174.6	0.76	150	13.4	11.1	Type S	Saj19	Access Junction	C1	76.827	78.600	1.623	Saj20	76.721	78.600	1.729	
	S6.002	30.000	296.1	0.75	225	30.0	26.2	Type S	Saj20	Access Junction	C1	76.646	78.600	1.729	Saj21	76.544	78.600	1.831	
	S6.003	40.000	426.5	0.76	300	53.4	43.8	Type S	Saj21	Access Junction	C1	76.469	78.600	1.831	Saj24	76.376	78.600	1.924	
	S7.000	41.830	175.3	0.76	150	13.4	11.0	Type S	Saj22	Access Junction	C1	77.250	78.600	1.200	Saj23	77.011	78.600	1.439	
	S7.001	40.000	296.5	0.75	225	30.0	20.6	Type S	Saj23	Access Junction	C1	76.936	78.600	1.439	Saj24	76.802	78.600	1.573	
	S6.004	12.654	500.0	0.80	375	88.7	62.3	Type S	Saj24	Access Junction	C1	76.301	78.600	1.924	Saj32	76.275	78.600	1.950	
	S8.000	41.841	175.1	0.76	150	13.4	12.5	Type S	Saj25	Access Junction	C1	77.250	78.600	1.200	Saj26	77.011	78.600	1.439	
	S8.001	45.574	296.1	0.75	225	30.0	23.5	Type S	Saj26	Access Junction	C1	76.936	78.600	1.439	Saj27	76.782	78.600	1.593	
	S8.002	31.174	426.5	0.76	300	53.4	38.8	Type S	Saj27	Access Junction	C1	76.707	78.600	1.593	Saj30	76.634	78.600	1.666	
	S9.000	41.830	168.2	0.77	150	13.6	13.6	Type S	Saj28	Access Junction	C1	77.250	78.600	1.200	Saj29	77.001	78.600	1.449	
	S9.001	51.805	238.5	0.84	225	33.5	26.0	Type S	Saj29	Type C	C1	76.926	78.600	1.449	Saj30	76.709	78.600	1.666	
	S8.004	54.998	219.0	1.22	375	134.8	62.3	Type S	Saj31	Access Junction	C1	76.526	78.600	1.699	Saj32	76.275	78.600	1.950	
	S6.005	21.688	500.0	0.90	450	143.5	116.4	Type S	Saj32	Access Junction	C1	76.200	78.600	1.950	Saj33	76.157	78.600	1.993	
	S6.006	4.714	500.0	0.90	450	143.5	116.4	Type S	Saj33	Access Junction	C1	76.157	78.600	1.993	S34	76.148	78.600	2.002	
	S1.003	5.238	500.0	1.08	600	306.0	303.1	Type S	S34	Type C	C1	75.998	78.600	2.002	S Outfall	75.987	78.600	2.013	Outfall to storage and infiltration
	Foul Drainage	F1.000	41.331	241.7	1.01	300	71.2	2.4	Type S	Faj1	Access Junction	C1	78.132	78.600	0.168	F2	77.961	78.600	0.339
F2.000		1.480	58.5	1.01	100	7.9	0.0	Type S	S3	Type C	C1	78.187	78.600	0.313	F2	78.161	78.600	0.339	
F1.001		30.397	241.7	1.01	300	71.2	2.4	Type S	F2	Type C	C1	77.961	78.600	0.339	F3	77.836	78.600	0.464	
F1.002		21.882	59.0	2.05	300	144.9	4.8	Type S	F3	Type C	C1	77.836	78.600	0.464	F5	77.465	78.600	0.835	
F3.000		1.694	58.5	1.01	100	7.9	0.0	Type S	S16	Type C	C1	77.981	78.600	0.519	F4	77.952	78.600	0.548	
F3.001		16.808	58.5	1.01	100	7.9	0.0	Type S	F4	Type C	C1	77.952	78.600	0.548	F5	77.665	78.600	0.835	
F1.003		45.461	240.8	1.01	300	71.3	4.8	Type S	F5	Type C	C1	77.465	78.600	0.835	F10	77.276	79.100	1.524	
F4.000		41.382	240.6	1.01	300	71.3	2.4	Type S	Faj6	Access Junction	C1	78.141	78.600	0.159	Faj7	77.969	78.600	0.331	
F4.001		30.879	111.9	1.49	300	105.0	2.4	Type S	Faj7	Access Junction	C1	77.969	78.600	0.331	Faj8	77.693	78.600	0.607	
F4.002		33.646	241.1	1.01	300	71.3	2.4	Type S	Faj8	Access Junction	C1	77.693	78.600	0.607	F9	77.553	79.000	1.147	
F4.003		20.941	75.6	1.81	300	127.9	2.4	Type S	F9	Type C	C1	77.553	79.000	1.147	F10	77.276	79.100	1.524	
F1.004		42.899	241.1	1.01	300	71.3	7.2	Type S	F10	Type C	C1	77.276	79.100	1.524	F11	77.098	79.500	2.102	
F1.005		39.504	241.1	1.01	300	71.3	7.2	Type S	F11	Type C	C1	77.098	79.500	2.102	F12	76.934	80.010	2.776	
F1.006		66.505	241.1	1.01	300	71.3	7.2	Type S	F12	Type C	C1	76.934	80.010	2.776	F13	76.659	79.800	2.841	
F1.007		71.290	241.1	1.01	300	71.3	7.2	Type S	F13	Type C	C1	76.659	79.800	2.841	F14	76.363	79.720	3.057	
F1.008		55.075	241.1	1.01	300	71.3	7.2	Type S	F14	Type C	C1	76.363	79.720	3.057	F15	76.134	80.640	4.206	
F1.009	12.865	241.1	1.01	300	71.3	7.2	Type S	F15	Type C	C1	76.134	80.640	4.206	F16	76.081	80.640	4.259		
F1.010	50.956	241.1	1.01	300	71.3	7.2	Type S	F16	Type C	C1	76.081	80.640	4.259	F17	75.870	80.000	3.830		
F1.011	48.647	241.1	1.01	300	71.3	7.2	Type S	F17	Type C	C1	75.870	80.000	3.830	F18	75.668	78.000	2.032		
F1.012	55.188	241.1	1.01	300	71.3	7.2	Type S	F18	Type C	C1	75.668	78.000	2.032	F19	75.439	78.200	2.461		
F1.013	39.881	241.1	1.01	300	71.3	7.2	Type S	F19	Type C	C1	75.439	78.200	2.461	F20	75.274	78.450	2.876		
F1.014	23.246	241.1	1.01	300	71.3	7.2	Type S	F20	Type C	C1	75.274	78.450	2.876	F21	75.177	78.750	3.273		

HCEH

Document Ref: HCEH Drainage schedule (S3 P1) (1)

F1.015	36.852	241.1	1.01	300	71.3	7.2	Type S	F21	Type C	C1	75.177	78.750	3.273	F22	75.024	78.670	3.346	
F1.016	57.820	241.1	1.01	300	71.3	7.2	Type S	F22	Type C	C1	75.024	78.670	3.346	F23	74.785	78.180	3.095	
F1.017	8.342	241.1	1.01	300	71.3	7.2	Type S	F23	Type C	C1	74.785	78.180	3.095	F Outfall	74.750	78.155	3.105	Outfall to existing foul network

Notes

1. All covers to new chambers shall be positioned to be opened and the chamber accessed without obstruction. Chamber covers to be orientated to avoid obstructing access where located in close proximity to a safety barrier, where applicable.
2. All man entry chambers shall have access arranged such that the user faces oncoming traffic when entering and exiting.
3. Pipe Cover Depth is distance between finished ground surface level and pipe soffit level.

APPENDIX C INFILTRATION (SOAKAWAY) STORAGE CALCULATION

INPUT		
Total Area to be Drained	24.100	Sq m
Impermeability Factor	0.9	
Storm Return Period T	100	Yrs
Allowable Discharge per hectare	0.00	l/s
Time of Concentration TC	4.00	min
2 Day M5 (mm) =	53.00	mm
Ratio 60 Minute M5/2 Day M5 r	0.31	
Impermeable Area	21990	Sq m
Allowable Discharge P	0.00	Cu m/min
60 Minute M5	16.50	mm
Storage Event	Maximum Event	

SURFACE WATER ATTENUATION & STORAGE

Version 1.04

$$\text{Storage C} = Q^*TS - P^*(TS + TC) + P^*2^*TC/Q$$

$$W = \text{LN}(1.06 * M5-60/(48^*r))$$

$$Cr = J0 + J1 * (M5-D) + J2 * (M5-D)^2$$

$$X = \text{LN}(721/(1 + 15 * D))$$

$$\text{LN}((MT-D)/M5-D) = Cr * (\text{LN}(T) - 1.5)$$

$$Y = \text{LN}(48 * r/1.06)$$

$$Z = \text{LN}(721/16)$$

$$\text{LN}(M5-D) = \text{LN}(D) + W + (X * Y)/Z$$

Project No.:	HCEH
Project:	HCEH
Date:	16-Feb-2023
Designer:	MJK

Time of Storm	Time of Storm	Time of Concentration	W	X	Y	Z	LN(D)	LN(M5-D)	M5-D	Rainfall Intensity	J0	J1	J2	Cr	M100-D	Rainfall Intensity +20%	Discharge to Storage	Discharge to Storage Q	Storage Required C
TS	D	TC								mm					mm	mm/hr	l/s	Cu.m/min	Cu. m
Minutes	Hours	Minutes								mm					mm	mm/hr	l/s	Cu.m/min	Cu. m
3	0.050	4.0	0.157	6.021	2.646	3.808	-2.996	1.345	3.839	76.787	0.165	0.008	-0.000305	0.192	6.975	167.410	1008.646	60.519	181.56
5	0.083	4.0	0.157	5.770	2.646	3.808	-2.485	1.682	5.374	64.483	0.165	0.008	-0.000305	0.201	10.023	144.335	869.616	52.177	260.88
7	0.117	4.0	0.157	5.569	2.646	3.808	-2.148	1.879	6.544	56.091	0.165	0.008	-0.000305	0.206	12.416	127.712	769.462	46.168	323.17
10	0.167	4.0	0.157	5.328	2.646	3.808	-1.792	2.068	7.906	47.437	0.165	0.008	-0.000305	0.212	15.252	109.817	661.648	39.699	396.99
13	0.217	4.0	0.157	5.134	2.646	3.808	-1.529	2.195	9.981	41.450	0.165	0.008	-0.000305	0.215	17.511	96.983	584.322	35.059	455.77
16	0.267	4.0	0.157	4.971	2.646	3.808	-1.322	2.290	9.873	37.024	0.165	0.008	-0.000305	0.217	19.389	87.250	525.678	31.541	504.65
20	0.333	4.0	0.157	4.789	2.646	3.808	-1.099	2.386	10.873	32.619	0.165	0.008	-0.000305	0.219	21.486	77.349	466.026	27.962	559.23
25	0.417	4.0	0.157	4.600	2.646	3.808	-0.875	2.478	11.916	28.600	0.165	0.008	-0.000305	0.221	23.654	68.123	410.444	24.627	615.67
30	0.500	4.0	0.157	4.441	2.646	3.808	-0.693	2.550	12.803	25.607	0.165	0.008	-0.000305	0.222	25.471	61.129	368.305	22.098	662.95
45	0.750	4.0	0.157	4.075	2.646	3.808	-0.288	2.701	14.898	19.864	0.235	-0.001	-0.000017	0.220	29.462	47.139	284.011	17.041	786.83
60	1.000	4.0	0.157	3.808	2.646	3.808	0.000	2.803	16.500	16.500	0.235	-0.001	-0.000017	0.217	32.417	38.900	234.374	14.062	843.75
75	1.250	4.0	0.157	3.597	2.646	3.808	0.223	2.880	17.818	14.254	0.235	-0.001	-0.000017	0.216	34.811	33.419	201.347	12.061	906.06
90	1.500	4.0	0.157	3.424	2.646	3.808	0.405	2.942	18.948	12.632	0.235	-0.001	-0.000017	0.214	36.638	29.470	177.559	10.654	958.82
105	1.750	4.0	0.157	3.276	2.646	3.808	0.560	2.993	19.945	11.397	0.235	-0.001	-0.000017	0.213	38.603	26.471	159.487	9.569	1004.77
120	2.000	4.0	0.157	3.147	2.646	3.808	0.693	3.037	20.841	10.421	0.235	-0.001	-0.000017	0.211	40.172	24.103	145.223	8.713	1045.61
135	2.250	4.0	0.157	3.032	2.646	3.808	0.811	3.075	21.658	9.626	0.235	-0.001	-0.000017	0.210	41.588	22.180	133.635	8.018	1082.44
150	2.500	4.0	0.157	2.930	2.646	3.808	0.916	3.110	22.411	8.964	0.235	-0.001	-0.000017	0.209	42.879	20.582	124.006	7.440	1116.05
165	2.750	4.0	0.157	2.837	2.646	3.808	1.012	3.140	23.110	8.404	0.235	-0.001	-0.000017	0.208	44.068	19.230	115.858	6.951	1147.00
180	3.000	4.0	0.157	2.752	2.646	3.808	1.099	3.168	23.764	7.921	0.235	-0.001	-0.000017	0.207	45.170	18.068	108.861	6.532	1175.70
240	4.000	4.0	0.157	2.470	2.646	3.808	1.386	3.260	26.043	6.511	0.250	-0.002	0.000012	0.204	48.992	14.698	88.554	5.313	1275.17
300	5.000	4.0	0.157	2.250	2.646	3.808	1.609	3.330	27.942	5.588	0.250	-0.002	0.000012	0.201	52.116	12.508	75.359	4.522	1356.47
360	6.000	4.0	0.157	2.070	2.646	3.808	1.792	3.387	29.586	4.931	0.250	-0.002	0.000012	0.198	54.785	10.957	66.016	3.961	1425.96
420	7.000	4.0	0.157	1.917	2.646	3.808	1.946	3.435	31.045	4.435	0.250	-0.002	0.000012	0.196	57.130	9.794	59.007	3.540	1486.99
480	8.000	4.0	0.157	1.785	2.646	3.808	2.079	3.477	32.362	4.045	0.250	-0.002	0.000012	0.195	59.230	8.884	53.529	3.212	1541.63
540	9.000	4.0	0.157	1.668	2.646	3.808	2.197	3.514	33.568	3.730	0.250	-0.002	0.000012	0.193	61.136	8.151	49.112	2.947	1591.24
600	10.000	4.0	0.157	1.563	2.646	3.808	2.303	3.546	34.683	3.468	0.250	-0.002	0.000012	0.192	62.886	7.546	45.467	2.728	1636.80
660	11.000	4.0	0.157	1.469	2.646	3.808	2.398	3.576	35.721	3.247	0.250	-0.002	0.000012	0.190	64.508	7.037	42.399	2.544	1679.00
720	12.000	4.0	0.157	1.382	2.646	3.808	2.485	3.603	36.695	3.058	0.250	-0.002	0.000012	0.189	66.020	6.602	39.777	2.387	1718.38
780	13.000	4.0	0.157	1.303	2.646	3.808	2.565	3.627	37.613	2.893	0.250	-0.002	0.000012	0.188	67.440	6.225	37.507	2.250	1755.33
840	14.000	4.0	0.157	1.229	2.646	3.808	2.639	3.650	38.483	2.749	0.250	-0.002	0.000012	0.187	68.779	5.895	35.520	2.131	1790.19
900	15.000	4.0	0.157	1.160	2.646	3.808	2.708	3.672	39.311	2.621	0.250	-0.002	0.000012	0.186	70.048	5.604	33.763	2.026	1823.21
960	16.000	4.0	0.157	1.096	2.646	3.808	2.773	3.691	40.100	2.506	0.250	-0.002	0.000012	0.185	71.255	5.344	32.198	1.932	1854.62
1020	17.000	4.0	0.157	1.035	2.646	3.808	2.833	3.710	40.856	2.403	0.250	-0.002	0.000012	0.184	72.406	5.111	30.794	1.848	1884.57
1080	18.000	4.0	0.157	0.979	2.646	3.808	2.890	3.728	41.581	2.310	0.250	-0.002	0.000012	0.183	73.507	4.900	29.525	1.772	1913.24
1140	19.000	4.0	0.157	0.925	2.646	3.808	2.944	3.744	42.279	2.225	0.250	-0.002	0.000012	0.183	74.563	4.709	28.373	1.702	1940.74
1400	23.333	4.0	0.157	0.720	2.646	3.808	3.150	3.807	45.034	1.930	0.250	-0.002	0.000012	0.180	78.713	4.048	24.390	1.463	2048.74
1900	31.667	4.0	0.157	0.415	2.646	3.808	3.455	3.901	49.459	1.562	0.250	-0.002	0.000012	0.176	85.310	3.233	19.478	1.169	2220.45
2200	36.667	4.0	0.157	0.269	2.646	3.808	3.602	3.946	51.732	1.411	0.227	-0.001	0.000003	0.174	88.668	2.902	17.484	1.049	2307.85
2300	38.333	4.0	0.157	0.225	2.646	3.808	3.646	3.960	52.441	1.368	0.227	-0.001	0.000003	0.173	89.711	2.808	16.920	1.015	2335.01

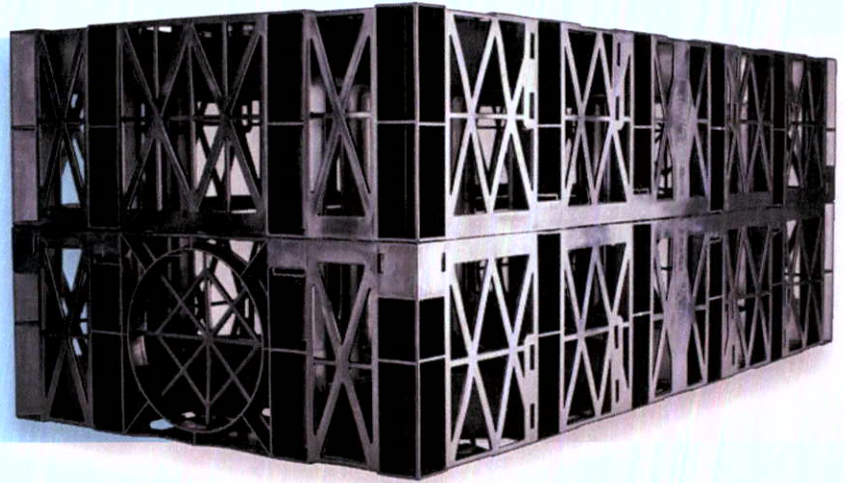
MAXIMUM STORAGE REQUIRED (Cu. M) = 2335.01

APPENDIX D
SOAKAWAY STORAGE SYSTEM SPEC SHEETS

AquaCell Eco

Product description

AquaCell Eco is manufactured from specially reformulated, recycled material and has been specifically designed for shallow, non-trafficked, landscaped applications. AquaCell Eco is NOT suitable for locations subject to high water tables.



Technical specification

Product code / SAP code	6LB025 / 4040289	Void ratio	95%
Colour	Black	Material	Recycled PP
Dimensions	1m x 0.5m x 0.4m	Vertical loading	21.3 tonnes/m ² (213 kN/m ²)
Weight	7kg	Lateral loading	5.2 tonnes/m ² (52 kN/m ²)
Storage volume	190 litres	BBA approval	Certificate 03/4018

Maximum installation depths

Maximum depth of installation – to base of units (m)¹

Typical soil type	Soil weight kN/m ³	Angle of internal friction φ (degrees) ^{2,3}	Landscaped areas
Over consolidated stiff clay	20	24	1.53
Silty sandy clay	19	26	1.68
Loose sand and gravel	18	30	2.08
Medium dense sand and gravel	19	34	2.35
Dense sand and gravel	20	38	2.68

Minimum cover depths

Minimum cover depth (m)	Landscaped areas
	0.30 ³

1. These values relate to installations where the groundwater is a minimum of one metre below the base of the excavation.
2. AquaCell Eco units should not be used where groundwater is present.
3. 0.5m cover is required where a ride-on mower may be used.

Assumptions made:

- Ground surface is horizontal
- Shear planes or other weaknesses are not present within the structure of the soil

Source: BBA

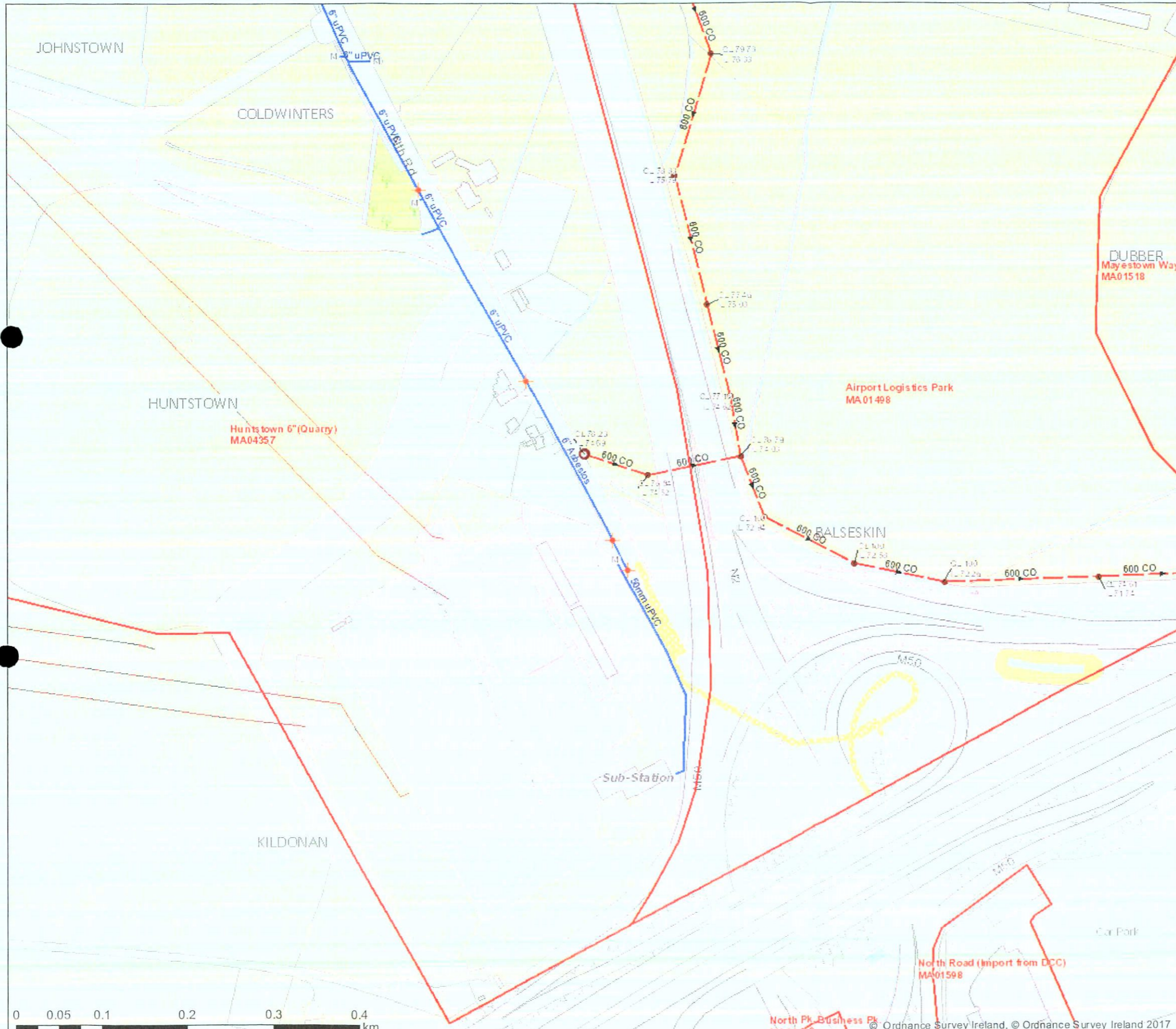
**APPENDIX E
EXISTING WATERMAIN LAYOUT
(IRISH WATER)**

Baleskin, North Road



Print Date: 18/08/2022

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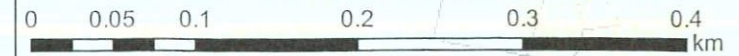
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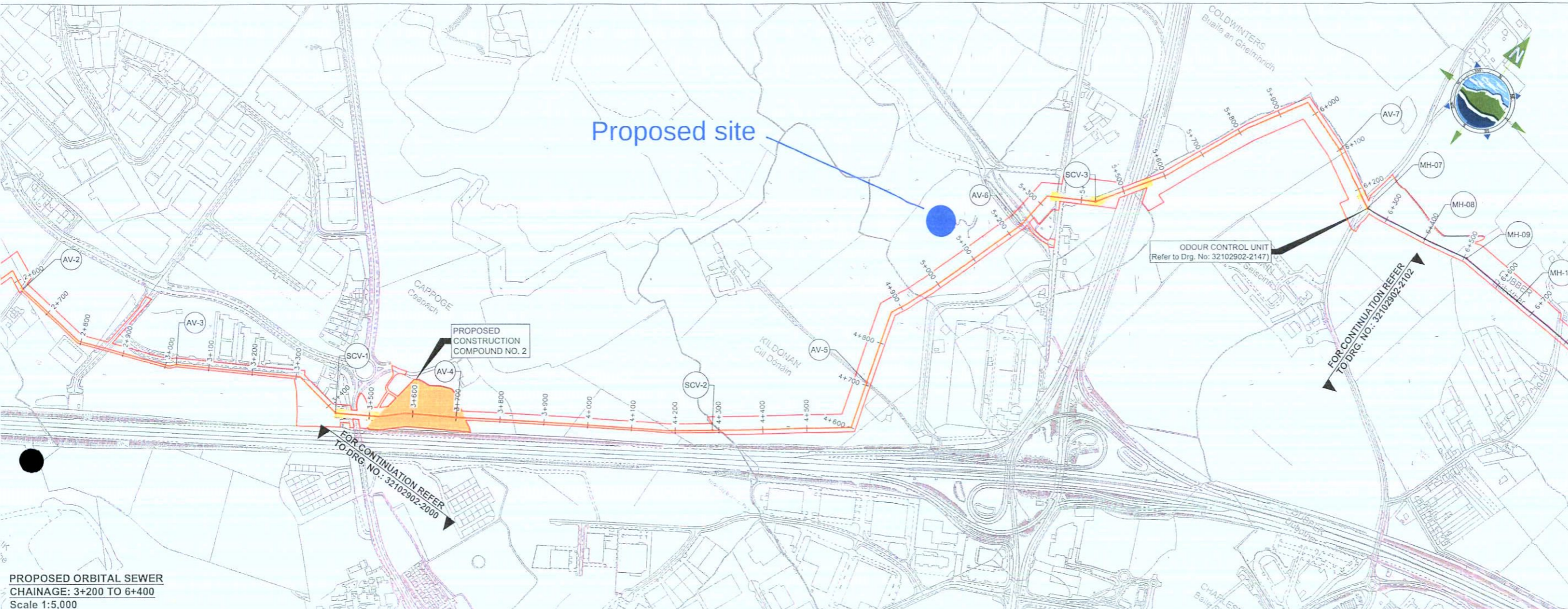
*Gas Networks Ireland (GNI), their affiliates and assigns, accept no responsibility for any information contained in this document concerning location and technical designation of the gas distribution and transmission network ("the Information"). Any representations and warranties express or implied, are excluded to the fullest extent permitted by law. No liability shall be accepted for any loss or damage including, without limitation, direct, indirect, special, incidental, punitive or consequential loss including loss of profits, arising out of or in connection with the use of the information (including maps or mapping data).

NOTE: DIAL BEFORE YOU DIG Phone: 1850 427 747 or e-mail dig@gasnetworks.ie - The actual position of the gas/electricity distribution and transmission network must be verified on site before any mechanical excavation takes place. If any mechanical excavation is proposed, hard copy maps must be requested from GNI re gas. All work in the vicinity of gas distribution and transmission network must be completed in accordance with the current edition of the Health & Safety Authority publication, 'Code of Practice For Avoiding Danger From Underground Services' which is available from the Health and Safety Authority (1890 28 93 89) or can be downloaded free of charge at www.hsa.ie.

Water Distribution Network	Sewer Foul Combined Network	Storm Water Network
Water Treatment Plant	Waste Water Treatment Plant	Surface Water Mains
Water Pump Station	Waste Water Pump station	Surface Gravity Mains
Storage Cell/Tower	Sewer Mains Irish Water	Surface Gravity Mains Private
Dosing Point	Gravity - Combined	Surface Water Pressurised Mains
Meter Station	Gravity - Foul	Surface Water Pressurised Mains Private
Abstraction Point	Gravity - Unknown	Inlet Type
Telemetry Kiosk	Pumping - Combined	Gully
Reservoir	Pumping - Foul	Standard
Potable	Pumping - Unknown	Other, Unknown
Raw Water	Syphon - Combined	Storm Manholes
Water Distribution Mains	Syphon - Foul	Standard
Private	Overflow	Backdrop
Trunk Water Mains	Sewer Mains Private	Cascade
Irish Water	Gravity - Combined	Catchpit
Private	Gravity - Foul	Bifurcation
Water Lateral Lines	Gravity - Unknown	Hatchbox
Irish Water	Pumping - Combined	Lampole
Non IW	Pumping - Foul	Hydrobrake
Water Casings	Pumping - Unknown	Other, Unknown
Water Abandoned Lines	Syphon - Combined	Storm Culverts
Boundary Meter	Syphon - Foul	Storm Clean Outs
Bulk/Check Meter	Overflow	Stormwater Chambers
Group Scheme	Sewer Lateral Lines	Discharge Type
Source Meter	Sewer Casings	Outfall
Waste Meter	Standard	Overflow
Unknown Meter - Other Meter	Backdrop	Soakaway
Non-Return	Cascade	Other, Unknown
PRV	Catchpit	Gas Networks Ireland
PSV	Bifurcation	Transmission High Pressure Gasline
Sluice Line Valve Open/Closed	Lampole	Distribution Medium Pressure Gasline
Butterfly Line Valve Open/Closed	Hydrobrake	Distribution Low Pressure Gasline
Sluice Boundary Valve Open/Closed	Other, Unknown	ESB Networks
Butterfly Boundary Valve Open/Closed	Discharge Type	ESB HV Lines
Scour Valves	Outfall	HV Underground
Single Air Control Valve	Overflow	HV Overhead
Double Air Control Valve	Soakaway	HV Abandoned
Water Stop Valves	Standard Outlet	ESB MVLV Lines
Water Services Connections	Other, Unknown	MV Overhead Three Phase
Water Distribution Chambers	Cleanout Type	MV Overhead Single Phase
Water Network Junctions	Rodding Eye	LV Overhead Three Phase
Pressure Monitoring Point	Flushing Structure	LV Overhead Single Phase
Fire Hydrant/Washout	Other, Unknown	MVLV Underground
Water Fittings	Sewer Inlets	Abandoned
Cap	Catchpit	Non Service Categories
Reducer	Gully	Proposed
Tap	Standard	Under Construction
Other Fittings	Other, Unknown	Out of Service
	Vent/Col	Decommissioned
	Other, Unknown	Water Non Service Assets
		Water Point Feature
		Water Pipe
		Water Structure
		Waste Non Service Assets
		Waste Point Feature
		Sewer
		Waste Structure



APPENDIX F
IRISH WATER GREATER DUBLIN ORBITAL SEWER



- LEGEND:**
- PLANNING BOUNDARY —
 - CONSTRUCTION COMPOUNDS
 - PROPOSED WWTP/PS
 - PROPOSED ORBITAL SEWER ROUTE (GRAVITY) —
 - PROPOSED ORBITAL SEWER ROUTE (RISING MAIN) —
 - PROPOSED OUTFALL PIPELINE ROUTE (LAND BASED SECTION) —
 - PROPOSED OUTFALL PIPELINE ROUTE (MARINE SECTION) —
 - PROPOSED TRENCHLESS SECTION
 - MANHOLE (MH-1)
 - ACCESS CHAMBER (AC-1)
 - AIR VALVE (AV-1)
 - SCOUR VALVE (SCV-1)

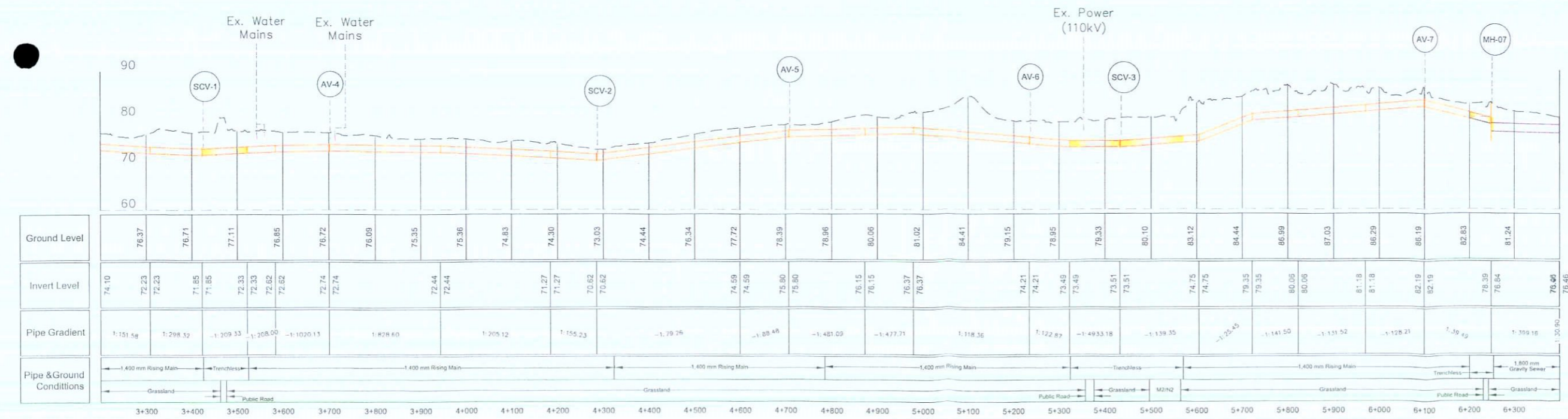
PROPOSED ORBITAL SEWER
CHAINAGE: 3+200 TO 6+400
Scale 1:5,000

OSI 1:2,500 Sheet No's:
3062-D, 3063-C, 3063-D,
3064-C, 3064-D, 3130-A, 3130-B, 3130-C, 3130-D, 3131-A

OSI 1:1,000 Sheet No's:
3063-12, 3063-13, 3063-14, 3063-15, 3064-11, 3064-12,
3129-15, 3129-20, 3129-25, 3130-06, 3130-07, 3130-11,
3130-12, 3130-15, 3130-16, 3130-17, 3130-21, 3130-22,
3131-01, 3131-06, 3131-07.

- NOTES:**
- FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
 - ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
 - ENGINEER/EMPLOYERS REPRESENTATIVE, AS APPROPRIATE, TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
 - THE CONTRACTOR SHALL UNDERTAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES/UTILITIES, ABOVE AND BELOW GROUND, BEFORE ANY WORK COMMENCES.
 - ALL LEVELS SHOWN RELATE TO ORDINANCE SURVEY DATUM AT MALIN HEAD

Rev	Date	Description	By	Chkd
P01	08.06.18	ISSUE FOR PLANNING	AOC	BD



PROPOSED ORBITAL SEWER
CHAINAGE: 3+200 TO 6+400
Scale H:1:5,000 / V:1:500

Client: **UISCE**
Greater Dublin Drainage

Title: **PROPOSED ORBITAL SEWER ROUTE**
- Sheet 2 of 4 -

Scale @ A1: As Shown

Prepared by: A. O'Callaghan
Checked: B. Downes
Date: June 2018

Project Director: C. O'Keefe
Drawing Status: Planning

JACOBS **TOBIN**

Revision: **P01**
Drawing No.: 32102902-2101

APPENDIX G
IRISH WATER CORRESPONDENCE

FW: Greater Dublin Drainage Project IW/10001369/WL/11a Landowner:- Rathdrinagh Land Ltd.

Paul McCarthy <paul.mccarthy@sretaw.ie>

23 March 2023 at 08:13

To: Peter Coyle <peter@coylecs.ie>

Cc: Jim O'Callaghan <jim@ocallaghanmoran.com>, Ronan Woods <ronan@genesisplanning.co.uk>, Andrew Bunbury <andrewbunbury@parkhood.com>, O'Dwyer & Jones - Aviation Planning <admin@aviationplanning.ie>, "jkeenanan@trafficwise.ie" <jkeenanan@trafficwise.ie>

Hi all,

Please see below response from Irish Water.

Kind regards

Paul

From: John Donoghue (Wayleaves) <John.Donoghue@water.ie>

Sent: Wednesday 22 March 2023, 16:25

To: Paul McCarthy <paul.mccarthy@sretaw.ie>

Cc: Monika Prokop <monika.prokop@water.ie>

Subject: RE: Greater Dublin Drainage Project IW/10001369/WL/11a Landowner:- Rathdrinagh Land Ltd.

Paul

Thank you for your email below and for forwarding the Site Plan, Service Drawings including the proposed Drainage & Watermain Layout Drawing,

Our Project Management Team ('PMT') have reviewed the service drawings provided and have the following **observations:**

- Foul sewer manhole 14 is just inside the permeant wayleave, can this be relocated outside the corridor? (Including suitable separation distance for any concrete surround)
- Watermain layout shows a valve and washout hydrant in the temporary working area, can this be relocated outside the corridor? (Including suitable separation distance for any concrete surround/ thrust blocks)
- Can the surface water layout be revisited to minimise impacts on the permanent wayleave/ TWA? - If it is not possible to remove gullies and road crossings from the corridor perhaps they could be relocated and realigned to minimise future impacts on GDD constructability?
- Public lighting, is there scope to move the lamp standards out of the permanent wayleave?

In terms of the other queries (as addressed below) our PMT are satisfied that these are sufficiently covered off now, such that Uisce Éireann can make a favourable observation should a planning application be submitted.

Kind regards

John

John Donoghue
Valuation Lead - Major Projects



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APPENDIX 3.2

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RESOURCE & WASTE MANAGEMENT PLAN

PHASE 1

CIRCULAR ECONOMY HUB

HUNTSTOWN

FINGAL

Prepared For: -

Rathdrinagh Land Unlimited Company

TA

Irish Recycling Ltd

Prepared By: -

O' Callaghan Moran & Associates
Unit 15
Melbourne Business Park
Model Farm Road
Cork
T12 WR89

April 2023

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APPENDIX 1 DRAWINGS

1. INTRODUCTION

Irish Recycling Ltd (IRL) appointed O'Callaghan Moran & Associates to prepare a preliminary Resource and Waste Management Plan (RWMP) for Phase 1 of a proposed Circular Economy Hub in Huntstown, Fingal.

The purpose is to provide information necessary to ensure that the management of construction and demolition (C&D) waste at the site is undertaken in accordance with the current industry standards and waste management regulations.

1.1 Methodology

The approach is based on the Environmental Protection Agency 'Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction and Demolition Projects' (2021).

1.2 Relevant Legislation & Guidance

- Protection of the Environment Act 2003, as amended
- The Waste Management Act 1996, as amended
- The Waste Management (Collection Permit) Regulations 2007, (S.I 821) as amended
- European Communities (Waste Directive) Regulations 2011 (SI 126 of 2011) as amended
- Waste Management (Facility Permit and Registration) Regulations 2007, (S.I No. 821 of 2007) as amended
- Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) as amended
- Waste Management (Packaging) Regulations 2014 (S.I. 282 of 2014), as amended
- European Union (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
- European Union (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended
- Waste Management (Food Waste) Regulations 2009 (S.I. 508 of 2009), as amended
- Waste Management (Hazardous Waste) Regulations, 1998 (S.I. No. 163 of 1998) as amended
- Waste Management (Shipments of Waste) Regulations, 2007 (S.I. No .419 of 2007) as amended

- European Communities (Transfrontier Shipment of Waste) Regulations
- Waste Classification List of Waste & Determining if Waste is Hazardous or Non-hazardous (2015)
- By-Product A Guidance Note A guide to by-products and submitting a by-product notification under Article 27 of the European Communities (Waste Directive) Regulation 2011 (S.I. No 126 of 2011) (Draft)
- By-Product Notification Form Guidance Version 1 (EPA 2022)
- Guidance on Soil and Stone By-products in the context of article 27 of the European Communities (Waste Directive) Regulations 2011 (EPA 2019)

The RWMP also had regard to the Preliminary Construction Environmental Management Plan (CEMP) prepared for the development.

1.3 Circular Economy

In 2020, the government published its 'Waste Action Plan for a Circular Economy' to inform and direct national and regional waste planning in Ireland over the coming years. It is action focused to embrace the opportunities in becoming a circular economy. While the thrust of the Plan is to prevent waste arising through reuse, its objectives include ensuring that measures support sustainable economic models (for example by supporting the use of recycled over virgin materials).

In advance of the adoption of a National Waste Management Plan the Regional Waste Management Plans remain in place. It is an objective of this RWMP to meet the requirements of the Eastern and Midland Region Waste Management Plan 2015 – 2021, which in line with the European Union Waste Framework Directive, specifies a mandatory target of 70% of C&D wastes to be prepared for reuse, recycling and material recovery (excluding soil and stones) by 2020.

1.4 Detailed RWMP

This preliminary RWMP will be revised prior to the start of construction to:

- Take consideration of the conditions of the planning permission.
- Identify the members of the Design Team and specify their roles and responsibilities.
- Make provision for the waste prevention and resource recovery measures identified in the detailed design stage.
- Include a post design resource and waste inventory of all residual resources, and
- Identify the roles and responsibilities of the Construction Management Team, including materials procurement.

2. DEVELOPMENT DESCRIPTION

The proposed development is shown Drawing No P001 in the Appendix. The proposed development is Phase 1 of the proposed 9.655 ha Huntstown Circular Economy Hub (Hub). It comprises a Materials Recovery Facility (MRF) (5032m²), a Food Container Cleaning Plant (5032m²), two Storage Buildings, paved open yards, weighbridge, car and bicycling parking areas, surface and foul water drainage systems and landscaping.

2.1 Site Layout

The design of the site layout took into consideration the need to:

- Avoid excessive temporary works, e.g. site roads, site offices/foundations, and
- Protect the local natural environment and biodiversity from any adverse impacts associated with the sorting, segregation, storage and transport of construction stage waste.

2.2 Building Design & Layout

2.2.1 Materials Recovery Facility

The building will be a steel portal frame structure with external preformed and profile sheeting on the walls and low pitch roof cladding. It will be 13.5 metres to the eaves, with an upper ridge level of approximately 15 metres above ground level. Solar panels will be mounted on the roof and the edge of the roof will be surrounded by an anti-glint and glare parapet. Floor Plans and Elevations are in Appendix 1.

2.2.2 Food Container Cleaning Plant

The building will be a steel portal frame structure with external preformed and profile sheeting on the walls and low pitch roof cladding. It will be 12 metres to the eaves, with an upper ridge level of 14 metres above ground level. There will be roof mounted solar panels surrounded by an anti-glint and glare parapet. Floor Plans and Elevations are in Appendix 1

2.3 Services

2.3.1 Water Supply

Water for use in staff welfare facilities and the food container washing plant will be obtained from mains supply. Rainwater from the roofs of the MRF and the Food Container Cleaning Plant will be harvested for use as grey water in the staff toilets.

2.3.2 Wastewater

Sanitary wastewater from the staff toilets and treated wastewater from the washing plant will

discharge to the Uisce Eireann foul sewer that runs along North Road.

2.3.3 Surface Water Drainage

Rainwater run-off from the building roofs will be harvested for on-site use. The car parking areas will have permeable paving. Run-off from the yards will be collected, passed through Class 1 Hydrocarbon Interceptor and discharged to ground via a soakaway.

2.3.4 Electricity Supply

There will be a connection to the national grid and an electrical substation will be provided in the north east corner of the site. The electricity from the roof mounted solar panels will be used directly on site.

2.4 Development Phases

All of the key elements will be constructed in one phase.

3. DETAILED DESIGN STAGE

3.1 Design Team

The Design Team will include, but not be limited, to:

- IRL representative
- Architect
- Civil Engineer
- Quantity Surveyor
- Resource Manager

The roles and responsibilities each team member will be documented.

3.2 Reuse and Recycling Initiatives

3.2.1 Reuse of Existing Site Assets

The site is greenfield with no on-site buildings or infrastructure. Therefore there are no opportunities for the reuse any site assets and no potential for the refurbishment and refit of existing structures to avoid new build.

3.2.2 Article 27 By-Products

The existing topography was taken into consideration at the planning stage to minimise excavations and avoid the need for the import of materials for use as fill and in landscaping. A 'cut and fill' exercise for Phase 1 established that 11,067m³ of topsoils will be stripped. The proposed landscaping measures site require approximately 9,161m³ of top soil. This amount will be retained on-site in temporary stockpiles, with the remaining top soil (1,906m³) sent off-site.

The development will require the excavation of approximately 34,155m³ of subsoils. Of this, 4,925m³ will be retained on site in temporary stockpiles for use in the development, with the remainder sent off site. So the total volume of soils to be removed from the site in the construction stage will be 31,136 m³.

The site is undeveloped and the intrusive geotechnical investigations and a geophysical survey did not identify any evidence of soil contamination. Representative soil samples were collected and sent for laboratory analysis and this confirmed that the soils are clean and meet the criteria for Notification to Environmental Protection Agency (EPA) as Article 27 By-Products for reuse at other developments.

The Resource Manager will be responsible for identifying development sites that have regulatory approval for the acceptance of Article 27 By-Product Soil and Stone and for preparing Article 27 Notifications to the EPA.

3.2.3 Recycled Aggregates

The EPA is currently in the process of introducing a National End of Waste Protocol for End of Waste Recycled Aggregates which is expected to be adopted before the detailed design of Phase 1 begins. It will be a detailed design objective to select recycled aggregates that meet the required geotechnical requirements rather than source over natural aggregates.

The likely construction and demolition waste arising at the proposed development will be assessed at the detailed design stage for their potential to be recycled into aggregates that meet End of Waste Status. Where there is such potential appropriate handling and storage measures will be put in place to minimise the risk of cross contamination with non-recyclable materials.

3.3 Green Procurement Initiatives

The Design Team will endeavour to develop material specifications flexible enough to allow for the variations in reclaimed materials. The Resource Manager will have expert knowledge in waste prevention and will seek to identify development specific methods of waste prevention and minimisation, including reducing the amounts of packaging materials delivered to the site during the works.

3.4 Off Site Construction Initiatives

The Design Team will evaluate the benefits of off-site manufacturing to reduce wastes arising at the development site. Given the nature of the development modular buildings are not an option, but the use of pre-cast structural concrete panels would reduce the residual volumes of concrete blocks, mortars, plaster board arising.

3.5 Materials Optimisation Initiatives

The Design Team will endeavour to simplify the design, layout, building form, structural system, building services and construction sequencing where practical and will investigate the use of standardised sizes for certain materials to help reduce the amount of offcuts produced on site.

3.6 Flexibility and Deconstruction Initiatives

The objective is to ensure that all structures contain materials that can be recycled and, where practicable, easily disassembled during maintenance and refurbishment.

4. KEY MATERIALS AND QUANTITIES

Preliminary estimates of the main construction materials that will be used are given in Table 4.1.

Table 4-1 Construction Materials

Construction Material	Quantity	Unit
Concrete	5,280	m ³
Stone	12,600	m ³
Steel	165	tonne
Drainage Pipes	2,178	m
Cladding & Roofing	19,700	m ²

A preliminary 'cut and fill' exercise has established that the development of Phase 1 requires the excavation and removal off-site of 31,136 m³ of soils.

5. PRELIMINARY CONSTRUCTION PROGRAMME

5.1 Construction Programme

The works will comprise the following;

- Set up site office and contractors compound;
- Securing the site and erecting signage;
- Setting out;
- Stripping and stockpiling of topsoils;
- Provision of hardstand for delivery vehicles for unloading and turning;
- Provision of water, wastewater and stormwater services;
- Building and tank construction and paving, and
- Landscaping

5.2 Construction Schedule

The construction programme will be completed in three stages.

Stage 1 – Site Set Up

This will involve the provision of a temporary entrance off the Substation access road; site clearance, set up of site offices and contractors compound, provision of hardstand for vehicles, securing the site and erection of signage and will take one week.

Stage 2 – Site Clearance and Setting Out

This stage will involve the stripping and stockpiling of topsoils and grading to formation level and will take four weeks.

Stage 3 –Construction of new junction on the Substation access road, provision of internal roads and yards and the construction and fit out of the buildings along with the ancillary services and landscaping. This will be completed in approximately 65 weeks.

6. SITE MANAGEMENT

6.1 Waste Types

Wastes generated will include broken concrete blocks/tiles/ceramics; timber and hard plastic off-cuts; metal (aluminium and steel); plasterboard, electrical wire, batteries and damaged equipment; packaging (cardboard, plastic, timber); empty paint tins and adhesive containers; insulation materials; canteen waste from the welfare facilities; waste oil and filters from mobile plant.

At the time the construction works begin if there are no developments authorised to accept Article 27 Notified Soils and Stone within economic transport distances of the Huntstown site then the soil and stone will be classified as a waste and sent to authorised soil recovery facilities

The waste types are listed in Table 6.1 which also includes the List of Waste (LoW) code. This is not an exhaustive list and will be revised at the detailed design stage.

Table 7.1

Waste Type	LoW Code
Concrete, bricks, tiles, ceramics	17 01 01-17 01 03 03 & 17 01 07
Wood, glass and plastic	17 02 01-03
Soil and Stone	17 05 03
Bituminous mixtures	17 03 02
Metals (including their alloys)	17 04 01-07
Gypsum-based construction material	17 08 02
Paper and cardboard	20 01 01
Mixed C&D waste	17 09 04
Electrical and electronic components	20 01 35 20 01 36
Batteries and accumulators	20 01 33 20 01 34
Oil	13 01 10, 13 03 05
Chemicals (e.g. solvents, paints, adhesives)	20 01 13 , 20 01 19, 20 01 27
Insulation materials	17 06 04

All surplus clean soil and stone excavated to achieve formation levels and for foundations and services will be sent off-site for either reuse or recovery. Soil and stone impacted by accidental spills of polluting substances e.g. oils will be sent off-site to authorised waste management facilities.

Pending the completion of the detailed design of the development, which will include the selection of materials to 'design out' waste and reuse and recycling initiatives and the confirmation of the construction methodologies, it is not possible to estimate with any level of accuracy the quantities of C&D waste that will be generated.

6.2 Resource & Waste Manager

Given the scale of the development the Main Contractor will nominate an experienced Construction Stage Resource & Waste Manager who will be responsible for the appropriate segregation and storage of all waste arising in the construction stage, including wastes from the staff welfare facilities.

6.2.1 Regulatory Compliance

The Resource & Waste Manager shall ensure that all wastes arising in the construction stage are sent to waste facilities that are authorised under the Waste Management Act 1996, as amended and/or the Environmental Protection Act 1992, as amended and hold up to date authorisations that approve the acceptance of the specific waste types. These authorisations include:

- Industrial Emissions Licences Waste Licences issued by the EPA, and
- Waste Facility Permits and Certificates of Registration issued by a local authority.

The Resource & Waste Manager shall ensure that all soil and stone meeting the Article 27 By-Product Criteria are only sent to development sites that have planning permission to accept the materials.

6.2.2 Training

The Resource & Waste Manager shall be responsible for instructing construction staff on the appropriate segregation and storage practices for the different waste types. This may be provided as part of general site training needs such as site induction, health and safety awareness and 'tool box talks'.

6.2.3 Records

The Resource & Waste Manager shall be responsible for maintaining the following records of all wastes sent of site

- Details of the waste collector, including the waste collection company name, vehicle registration number and date the wastes were collected,
- Details of the waste management facility to which the materials were sent, including weighbridge records that detail the waste collection company and vehicle registration and quantity of waste accepted.

The Resource & Waste Manager shall be responsible for maintaining the following records of all Article 27 Notified Soil and Stones sent off-site site

- Details of the haulier, vehicle registration number the date the soils were collected and estimates of the quantities,
- Details of the development site to which the materials were sent, including weighbridge records that detail the waste collection company and vehicle registration and quantity of waste accepted.

6.3 On-Site Materials Management

Appropriately sized skips will be provided by a waste collector who holds an up to date Waste Collection Permit from the National Waste Collection Permit Office (NWCPO), which authorises the collection of the waste types that will arise during the construction stage. Dedicated skips will be provided for:

- Concrete rubble, bricks and tiles
- Plasterboard
- Hard plastic off-cuts
- Timber off-cuts
- Metal off-cuts and rebar
- Glass
- Cardboard and plastic packaging
- Non-recyclable packaging (e.g. polystyrene)
- Waste Electrical and Electronic Equipment (wiring, batteries)
- Empty paint tins, adhesive containers and oil cans

Separate wheelie bins will be provided for food waste, mixed dry recyclables and residual waste for wastes arising at staff welfare facilities.

The skips will be located at strategic locations around the site, as decided by the Resource Manager, in areas that are remote from water course. The wheelie bins shall be stored adjacent to the construction workers welfare facilities.

Signage will be provided that informs the site staff of the waste types that can be placed in each skip.

6.3.1 Article 27 Soil & Stone By-Products

Soil and stone meeting the Article 27 Notification Criteria will be stored in designated stockpile area pending consignment to development sites for reuse.

6.3.2 Hazardous Waste Management

The paint tins, adhesive containers and oil cans will be classified as hazardous waste and shall only be placed in a water tight dedicated skip.

Waste oils arising from routine plant maintenance shall be stored in drums or in an enclosed storage unit in the Contactor's Compound.

6.3.3 *Inspections/Audits*

The Resource & Waste Manager will be responsible for regularly inspecting the skips and bins to

- Ensure they are being used appropriately
- Remove non-conforming wastes, and
- That they are removed from the site as required to prevent spillage.

APPENDIX

DRAWINGS

APPENDIX 3.3

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CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

PHASE 1 CIRCULAR ECONOMY HUB

HUNTSTOWN

FINGAL

Prepared For: -

Rathdrinagh Land Unlimited Company

TA

Irish Recycling Ltd

Prepared By: -

O'Callaghan Moran & Associates
Unit 15
Melbourne Business Park
Model Farm Road
Cork
T12 WR89

April 2023

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1. INTRODUCTION

Irish Recycling Ltd (IRL) appointed O'Callaghan Moran & Associates to prepare a preliminary Construction Environmental Management Plan (CEMP) for Phase 1 of a proposed Circular Economy Hub at Huntstown, Fingal. The preliminary CEMP defines the measures that will be implemented in the Construction Stage to effectively mitigate adverse environmental effects

1.1 Methodology

The preliminary CEMP had regard to the following:

- Construction Industry Research and Information Association (CIRIA) guidance which include 133 Waste Minimisation in Construction (CIRIA 133), and the Control of Water Pollution from Construction Sites, Good Practice Guidelines (CIRIA C532).
- BS 5228 (2009+A1:2014) Code of practice for noise and vibration control on construction and open sites - Noise and Vibration.
- European Communities (Birds and Natural Habitats) Regulations (S.I. No. 477/2011)
- The Construction Stage Prevention & Mitigation Measures in the Environmental Impact Assessment Report.
- Preliminary Resource & Waste Management Plan.
- Provision of adequate environmental training and awareness for all construction staff.

1.2 Revision

This preliminary CEMP will be revised following receipt of planning permission and prior to the start of construction works to incorporate any additional mitigation measures that may be imposed by the conditions of the planning permission.

2. PROJECT DESCRIPTION

2.1 Site Location

The site location is shown on Figure 2.1. It is 2.4 km south of Dublin Airport and is close to the M50 to the south and the N2 to the east. It is in an area zoned for heavy industry and is accessed by the North Road.

2.2 Site Layout Surrounding Land Use

The site layout is shown on Drawing No. 220620. It encompasses approximately 9.6 hectares and comprises two fields and a section of an existing roadway that allows access to the site. A hedgerow running north south divides the fields. The western field had been used for animal grazing, but is no longer used for this purpose. The eastern field had been used for tillage but is currently uncultivated. The ground levels rises from the site boundaries (ca 78m OD) to a small hillock in the centre of the site (88mOD).

Uisce Eireann permanent and temporary wayleaves run from north to south through the site for the Greater Dublin Orbital Sewer route. There are two 38 kv and one 110 kv overhead powerlines running from south-east to north-west across the north-eastern part of the site, and a 10kv line running from south-west to north-east through the centre of the site, off of which is a south-east to north-west spur. Currently works are on-going to remove the overhead lines and lay them underground inside the eastern and northern development boundaries.

2.3 Surrounding Land Use

The site and surrounding area are shown on Figure 2.2. The land use in the vicinity of the site is a mix of quarrying, utilities and agricultural. Huntstown Quarry is 200m to the west; Huntstown Bioenergy anaerobic digestion plant is 150m to the west; Huntstown Power Station is 280m to the north-west; an Eirgrid 220 kv Substation is to the south-east. The southern runway of Dublin Airport is approximately 2.3km from the north-eastern boundary.

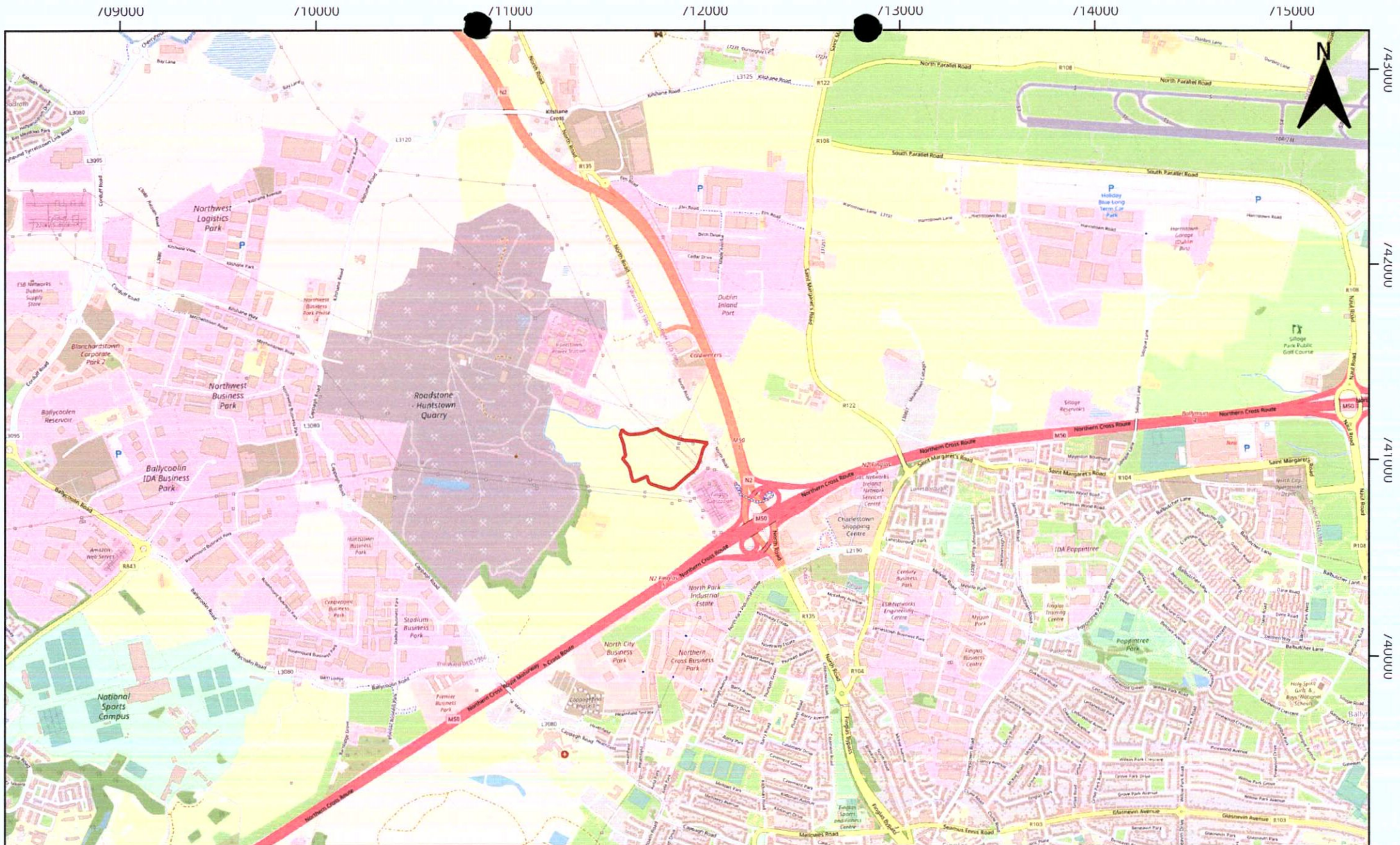
The adjoining lands to the east, south and west are currently used for agriculture. The nearest private residences are on the North Road, approximately 50m from the eastern development site boundary. There is a farmhouse approximately 270m south of the southern boundary.

2.4 Services

There are no existing connections to the Uisce Eireann mains supply, storm sewers and foul water network within the site boundary. There is an Uisce Eireann 150mm water main on North Road and the nearest connection point to the municipal foul sewer is also on North Road.

2.5 Access

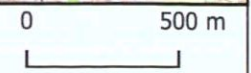
The site is accessed via the N2, North Road and the access road to the 220kv Substation.



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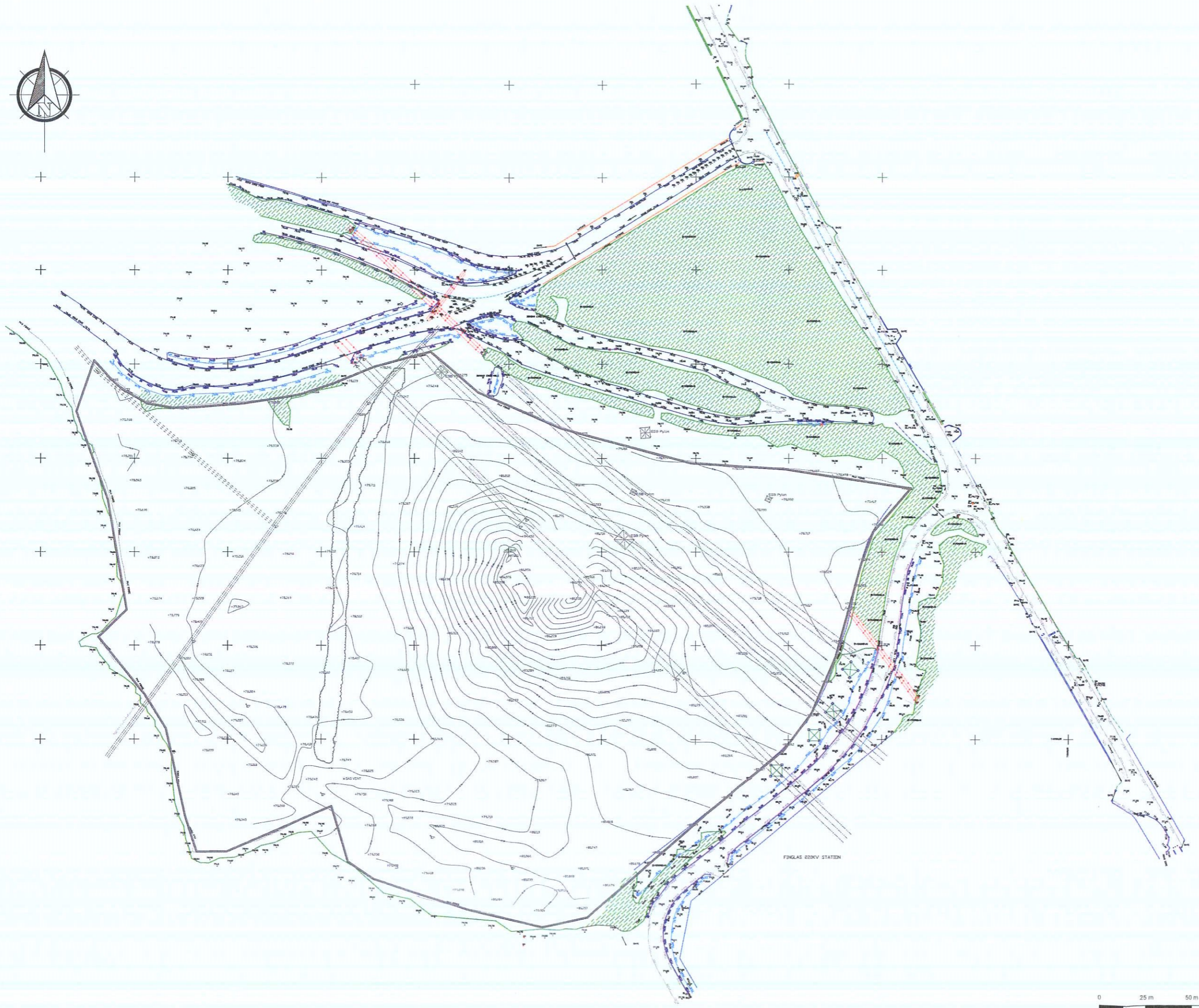
CLIENT Irish Recycling Ltd
 TITLE Site Location

DETAILS
 — Site Boundary



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FIGURE 2.1



FINGLAS 220KV STATION

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LEGEND TOPOGRAPHICAL	
SYMBOLS (CONVENTION)	LINES (CONVENTION)
<ul style="list-style-type: none"> • BENCH MARK • LEVEL POINT • SURVEY POINT • CONTROL POINT • TEMPORARY POINT • POINT OF INTEREST • POINT OF CONCERN • POINT OF WARNING • POINT OF DANGER • POINT OF OBSTRUCTION • POINT OF RESTRICTION • POINT OF PROHIBITION • POINT OF VIOLATION • POINT OF VIOLATION 	<ul style="list-style-type: none"> — BOUNDARY LINE — PROPERTY LINE — EASEMENT LINE — RIGHT OF WAY LINE — ROAD LINE — FENCE LINE — GATE LINE — WALKWAY LINE — CYCLEWAY LINE — FOOTWAY LINE — DRIVEWAY LINE — SIDEWALK LINE — DRIVEWAY LINE — DRIVEWAY LINE

Rev	Date	By	Description
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TITLE TOPOGRAPHICAL SURVEY			
PROJECT Huntstown Coalfields Co. Dublin		GRID ITM DATUM MALIN HEAD	
CLIENT Rathdringh Land Unlimited		SCALE 1:1000	
DRAWN A.D./M.S.	DATE 30.08.2022	SHEET A1	DRAWING 220620
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Huntstown
Powerstation

Energia
Bioenergy

Eirgrid Electricity
Transmission Station

Huntstown
Quarry

Kilometre

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



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CLIENT

Irish Recycling Ltd

Details:

— Site Boundary

TITLE

Surrounding Landuse

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Figure 2.2

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