PUNCH
consulting engineers

Residential Development at Lehaunstown Land, Cherrywood

Engineering Planning Report
232250-PUNCH-XX-XX-RP-C-0003

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Document Control

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1 Introduction

This report was prepared to accompany a Section 179A planning application for the proposed development on the site located at Lehaunstown Land, Cherrywood, Co. Dublin. This report has been prepared in compliance with the "*Greater Dublin Regional Code of Practice for Drainage Works*", "*Greater Dublin Strategic Drainage Study*", the "*Irish Water Code of Practice for Wastewater Infrastructure" and the "Cherrywood SDZ Planning Scheme*".

The proposed development is located within the Cherrywood Planning Scheme (CPS). The subject site is currently a greenfield site, with low intensity agricultural use. The Cabinteely River runs north to south along the eastern boundary of the site. The site is currently bound by greenfield sites to the south, west and northeast. The north-western corner of the site shares a boundary with a private residence. There is also an ESB overhead line crossing the north-western corner of the site.

The site within the Client's ownership has an area of approximately 3.58 hectares in total. The proposed development covers an area of 2.16 hectares in the western portion of this site. The remaining eastern portion of the site is allocated to landscape infrastructure and Regional Attenuation Pond 2A. The proposed works are outlined in a series of architectural drawings prepared by ABK Architects and engineering drawings prepared by PUNCH Consulting Engineers - supplied as part of the planning documentation.

The proposed works are outlined in a series of architectural drawings prepared and ABK Architects and engineering drawings prepared by PUNCH, supplied as part of this planning submission.

Figure 1-1 and Figure 1-2 below indicates the location of the proposed development at Lehaunstown Land.

1.1 Proposed Development

The proposed development is a residential development of terraced houses, duplex apartments, and multi storey apartments. On grade and basement parking, communal space and public open space is also included. Buildings range in height from 2 to 4 storeys. Vehicular and pedestrian access will be provided from the proposed Lehaunstown Neighbourhood Road to the west of the site, as designed by Systra as part of a separate DLRCC development.

The proposed works are outlined in a series of architectural drawings prepared by ABK Architects, landscape architecture drawings provided by Murphy Sheanon, and engineering drawings prepared by PUNCH Consulting Engineers and supplied as part of the planning documentation.

Please refer to Architectural Documents for proposed site layout.

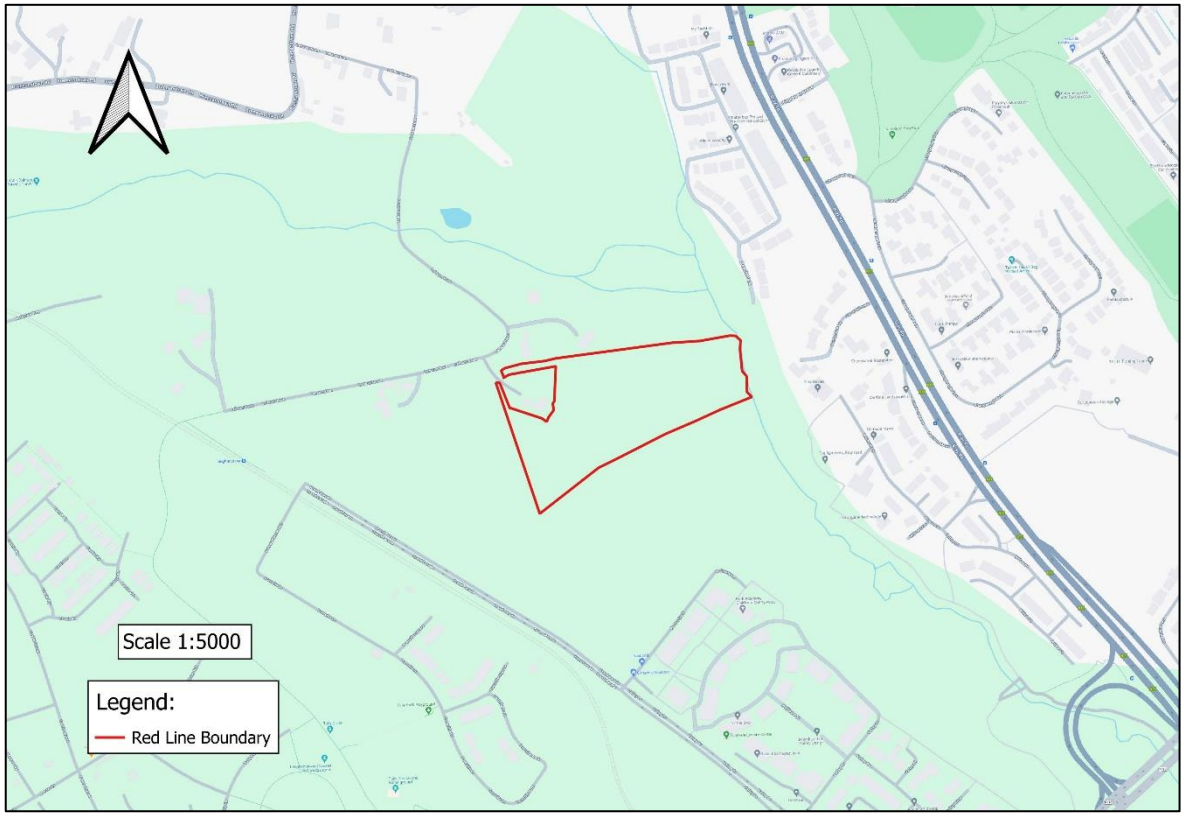


Figure 1-1: Site Location

Figure 1-2: Satellite Imagery of Site (© 2024 Google)

2 Surface Water Drainage Design

2.1 Existing Surface Water Drainage

As the site is a greenfield site, there is no existing surface water drainage system within the site boundary. Record drawings provided by Dún Laoghaire-Rathdown County Council indicate that there is no existing surface water drainage in the vicinity of the site. Please refer to Appendix A for County Council and Uisce Éireann Record Drawings, as supplied by Dún Laoghaire-Rathdown County Council.

A new regional pond is proposed adjacent to the site, with associated surface water drainage. The attenuation pond will form part of the Cherrywood Strategic Development (SDZ) Storm Water Infrastructure, as identified in Chapter 4 of the Cherrywood Planning Scheme (CPS). Please refer to Appendix B for drawings as produced by Roughan & O'Donovan. Pond 2A works are expected to commence in advance of the development construction.

2.2 Proposed Surface Water Drainage

The proposed surface water drainage system has been designed using Causeway Flow Software, with reference to the following documents:

a) DLRCC Cherrywood Planning Scheme Chapter 4: Physical Infrastructure
b) DLRCC Cherrywood Planning Scheme Chapter 6: Development Areas
c) CIRIA SuDS Manual 2015 C753 – The SuDS Manual
d) CIRIA Publications C644 – Building Greener
e) Greater Dublin Strategic Drainage Study (GDSDS)
f) Greater Dublin Regional Code of Practice for Drainage Works
g) Recommendations for Site Development Works for Housing Areas - Department of the Environment and Local Government
h) Dún Laoghaire-Rathdown County Council Development Plan 2022-2028

A new surface water sewer network shall be provided for the proposed development which will be entirely separated from the foul water sewer network. All surface water run-off from roof areas and hardstanding areas are designed to be collected by a gravity pipe network.

All proposed finished floor levels are 500mm above drainage water levels for a 100-year return period plus 20% climate change, plus 10% urban creep.

2.2.1 Stormwater Drainage Modelling

The surface water drainage network has been designed using Causeway Flow software. A return period of 100 years (1% AEP) was used throughout for pipeline design, with a 20% allowance for climate change, and 10% allowance for urban creep as per section 7.1 within Appendix 7 of the Dún Laoghaire-Rathdown County Council Development Plan 2022-2028.

The proposed development has been modelled with the FSR method, using Causeway Flow software. This software does not enable different runoff roughness values to be attributed to different areas. This software assumes all areas are impervious and have the same runoff characteristics.

Depths of water in the network model (including pipework, manholes, the infiltration tanks) have been assessed for surcharging and flood risk. The model is established such that a flood risk is identified in the model results if the water rises to within 500mm of the cover level. If the water level rises to a level below this, it is identified as a surcharge within the model results. It is important to note that this warning is given related to proposed ground level at the node (not adjacent floor level).

Causeway Flow includes a design setting called “additional storage”. This is included in the software to account for storage volume in the network provided by secondary drainage including access junctions, inspection chambers, service connections etc. This provides additional storage in the network above the storage provided within the infiltration tank and primary drainage network. 20 m^3/ha is the standard allowance provided for in Causeway Flow and was utilised for this design.

With reference to the drainage modelling calculation report, the following should be noted:

- The design is initially based on a 5 year storm. This is identified as Design Settings
- The drainage model is modelled for the 100 year storm (1% AEP) with 20% climate change, 10% Urban Creep, relevant M5-60, Ratio ‘R’ values, winter Cv and Summer Cv. This is identified as simulation settings.

Please refer to Appendix D for surface water design calculation report.

2.2.2 Causeway Flow - Area Contribution

Causeway flow does not allow for different surfaces to contribute to the drainage network at different runoff rates. Allowance has been made in the design for contribution to drainage from impervious areas only.

For the drainage storms modelled: 1% AEP (plus 20% climate change, plus 10% Urban Creep) the design assumes on a conservative basis that all SuDS measures are flooded and provide limited water storage volumes.

Based on this and taking a conservative approach to drainage modelling the model allows for all pervious pavement, green roofs and impervious pavement to be impervious. Landscape areas to the read of the residential units/ apartment blocks are taken to not contribute to drainage infiltration requirements.

2.2.3 Causeway Flow – Rainfall

Rainfall data for inclusion in the drainage model has been obtained from MET Eireann.

The M5-60 value is 15.70, and the ratio R value is 0.278. Please refer to rainfall runoff table included in Appendix C.

A value for the SAAR for the site has been obtained from the Met Eireann Website. This value is 839mm.

2.2.4 Discharge Rate Calculation and Location

The Cherrywood SDZ specific objective "PI 8" nominates that discharge from developments is to be limited to a discharge rate of 1l/s/Ha. On the basis of this, the following values have been used to calculate discharge rate for the proposed development site:

Total Impervious area = 1.134 Ha

Discharge Rate = 1 litre per second per hectare runoff rates

In line with the specific objective "PI 8" within the Cherrywood SDZ Planning Scheme requirement of a discharge rate of 1 l/s/ha, the discharge from the proposed development has been limited to 1.1 l/s due to the contributing area of 1.134 ha. Outflow from the development site will be restricted to 1.1 l/s. Table 2-1 describes the stormwater drainage design parameters used and detailed calculations are enclosed in Appendix D.

2.2.5 Proposed Discharge Location

For the proposed development site 1 No. outfall is proposed. A hydrobrake is proposed downstream of the attenuation tank and limit the flow to the calculated discharge rate (1.1 l/s) prior to discharge to the manhole to be constructed along the 525mm diameter storm water sewer as part of Regional Attenuation Pond 2A works. This is located at the development's eastern boundary. Please refer Section 2.1 and Appendix B for further information regarding Pond 2A works.

The development is expected to be constructed in conjunction with the Pond 2A works, and will require the Pond 2A works to be implemented before the development becomes operational. The Pond 2A works have planning permission. A temporary surface water discharge may be required to the Cabinteely River, and all required permissions are to be obtained from local government to implement.

2.2.6 Attenuation Storage

The proposed attenuation tank, in conjunction with the proposed hydrobrake flow restriction device is sized to reduce the runoff from the site to 1.1 l/s for the 1% AEP (1:100-year storm return period) storm, with 20% additional rainfall to allow for climate change, and 10% additional area to allow for urban creep.

The result of this analysis requires an attenuation tank of 1,257 m^3 total volume. The attenuation tank is to be located in the ground, and the outlet is to be controlled by a hydrobrake with the flow set to discharge at a rate of 1.1 l/s.

The attenuation tank is proposed to be a geocellular style system. All surface water from the surface water network will enter and exit the geocellular tank system via a perforated distribution pipe through the system. This arrangement ensures that all debris and silt will not enter the geocellular system and will be restricted to the distribution pipe. If maintenance is ever required to remove silt or debris, a pressure jetting system will be able to clean any debris from this distribution pipe.

Please refer to PUNCH drawing 232250-PUNCH-XX-XX-DR-C-0502 for details of the proposed attenuation tank.

2.2.7 Exceedance flows

The attenuation system is designed to allow for the 1 in 100 (1% AEP flow). In the event of blockage, the proposed overland flow path routes are as per the below sketch.

Figure 2-1 Exceedance Overland Flow Paths

2.2.8 Storm Water Drainage Summary

The proposed stormwater sewers have been designed using Causeway Flow software. Table 2-1 describes the stormwater drainage design parameters used and detailed calculations are enclosed in Appendix D.

Table 2-1: Stormwater Drainage Design Parameters.

Description	Value
Total Site area (Development Area)	3.58 ha
Total Drained Impervious Site Area	1.134 ha
Return period target	Pipe Design 1 in 5 year (20% AEP) Network Design 1 in 30 year (3.3% AEP). Check there is no flooding at 1 in 100 year storm (1% AEP)
Climate Change	20%
Urban Creep	10%
M5-60	15.70
Ratio R	0.278
SAAR	839mm
Flow reduction parameter	1 l/s/Ha (Specific Objective "PI 8" within Cherrywood SDZ Planning Scheme)
Controlled Outflow	1.1 l/s
Flow restriction method	Hydrobrake
Attenuation Storage Volume	1257 m^3
Tank Porosity	0.95 (Geocelluar Tank)

2.2.9 Response to Stage 1 Stormwater Audit Commentary

A Stage 1 (Pre-Planning) Stormwater Audit of the development was carried by Downes Associates. The Stage 1 audit was carried out in accordance with DLRCC's Stormwater Audit Procedure as set out in Section 7.1.5 of Appendix 7 of the County Development Plan 2022-2028. The audit comprised an examination of the reports, drawings and calculations relating to the stormwater drainage scheme prepared by Punch Consulting Engineers.

The below table outlines PUNCH's response to comments made by the auditor in their report.

Table 2-2: Response to comments by Stormwater Auditor

Item No.	Auditor Comment	PUNCH Response (Accepted by auditor)
5.1	Infiltration-type SuDS measures are not included in the proposals. There is no reference in the report to the nature of the subsoils on site and their potential suitability for infiltration-type SuDS measures. There is no reference to any site-specific geotechnical site investigation having been carried out as part of the site appraisal.	A Site investigation has been completed including soakaway testing and confirmation of soil types. Soakaway testing indicated a lack of infiltration capacity in the ground. Design is provided without infiltration on this basis Refer below document by Ground Investigation Ireland included as part of the planning application: GII-FM-26 Lehaunstown Cabinteely_Housing_Site_Factual_Report17.11.23_Rev A
5.2	Bioretention in the form of rain gardens is proposed to the front and rear of the individual buildings and adjacent to parking bays. Typical section details have been provided for the proposed rain gardens, including rainwater downpipe and dropped kerbs. The rain garden includes a "geotextile membrane" liner, which suggests that infiltration will not be permitted. The rain garden detail includes a low-level collector pipe, but no details are provided as to how these individual collector pipes are connected to the main surface water conveyance system and detention system.	Please refer below PUNCH drawing for indication of the different membrane types and the proposed gully overflow detail: 232250-PUNCH-XX-XX-DR-C-0501

Item No.	Auditor Comment	PUNCH Response (Accepted by auditor)
5.3	The adoption of permeable paving for parking bays is described in Section 2.3.3 of the report. However, no details have been provided on the drawings for permeable paving as having been adopted, and, if so, whether these pavements are designed for infiltration or exfiltration.	Permeable paving not proposed. Engineering Planning Report amended to reflect.
5.4	The adoption of a rainwater harvesting system is mentioned in Section 2.3.1 of the report. However, no details/specification are provided on the drawings as to whether a rainwater harvesting system (for the apartment blocks) and/or water butts (for the terraced house units) have been considered/adopted.	Rainwater harvesting not proposed. Engineering Planning Report amended to reflect.
5.5	An underground detention system is proposed for the development to cater for excess runoff. Alternative above-ground detention systems may be feasible which would promote greater amenity and biodiversity within the development and encourage infiltration of detained water to the subsoils (if feasible).	SUDS treatment is provided for the entire site by a combination of green roofs and bioretention areas. Underground attenuation is required to align with the proposed development including the landscape scheme and the topography of the site.
5.6	The calculations for the underground storage system do not appear to include time of emptying.	Drainage modelling amended to include for time of emptying. Please refer Appendix D of this report.
5.7	The report does not include any analysis of the effectiveness of the chosen SuDS components to achieve water quality criteria.	An assessment of the treatment capability of the SUDS measures in relation to the first 15mm of runoff has been provided in compliance with the DLRCC Development Plan 2022-2028 assessment requirements, and formulae provided in the UK SUDS Manual. This assessment is summarised in section 2.3.8 of this report (Interception / treatment calculation).

Item No.	Auditor Comment	PUNCH Response (Accepted by auditor)
5.8	There is no commentary in the report as to whether a utility clash check has been undertaken.	Considering the planning application type, this assessment is proposed at detailed design stage. In principle, all drainage is proposed inroads, and all watermains and M+E services are proposed in footpaths. Adjustments to planning design are not expected.
5.9	It is noted that the extent of green roof proposed does not comply with DLRCC's Green Roof Policy, i.e. the percentage of extensive green roof proposed (for non-exempt buildings) is less than the minimum 70% coverage required. The Applicant is seeking an exemption on the basis that alternative nature-based SuDS are proposed in lieu of green roofs.	The proposal has been doscused in principle with DLRCC. Please refer Appendix F. Final approval to be provided as part of the planning application.
5.10	There is an opportunity to incorporate other SuDS features within the development, particularly with regard to enhanced water features (rills, open conveyance channels, etc.) for the conveyance of water from the building RWPs' to the bioretention areas that would improve the amenity aspects of the drainage system.	The entire site is treated by SUDS measures – bioretention and green roofs. There is no apparent benefit to using different types of treatments.

2.2.10 Document Reference

Please refer to below PUNCH surface water design drawings drawing:

- 232250-PUNCH-XX-XX-DR-C-0201
- 232250-PUNCH-XX-XX-DR-C-0151
- 232250-PUNCH-XX-XX-DR-C-0501
- 232250-PUNCH-XX-XX-DR-C-0502

Please refer correspondence with DLRCC included at Appendix F.

2.3 Sustainable Urban Drainage Systems Proposals

2.3.1 Overview

The proposed development has been assessed in relation to Sustainable Urban Drainage Systems (SuDS). A variety of SuDS measures may be adopted to comply with Council recommendations. All SuDS measures are to be implemented with reference to the UK Suds Manual and Dún Laoghaire-Rathdown County Council drainage requirements.

Relatively small volumes of rainwater collected on the respective SuDS devices will enter the public sewer network during typical low intensity storms. This is because the proposed SuDS measures will retain rainwater until it is either used via evapotranspiration in the green areas or reused within the development via the rainwater harvesting system.

The SuDS processes decrease the impact of the development on the receiving environment by providing amenity and biodiversity in many cases. Regular maintenance of the SuDS proposals is required to ensure they are operating to their optimal level throughout their design life.

Sustainable urban drainage systems (SUDS) are proposed throughout the site. Interception storage is to be provided within SUDS measures for areas for the first 5mm of runoff. Interception storage is calculated as the storage volume within the SUDS measure.

Bioretention areas are proposed to treat ground and impervious roof areas.

Extensive green roofs are proposed for flat roofs. The interception storage is provided via the voids within the planting medium.

2.3.2 Green Roofs

2.3.2.1 General

Green roofs have been designed taking guidance from CIRIA Publications C644 – "*Building Greener*" and C697 – "*The SUDS Manual*". Research in the UK (Kellagher and Lauchlan, 2005, CIRIA, 2007) indicates that green roofs are effective in providing both attenuation and volume reduction in runoff for small rainfall events but suggests that these advantages are reduced (but not completely lost) for larger rainfall events.

Green roofs are areas of living vegetation, installed on the top of buildings, for a range of reasons including visual benefit, ecological value, enhanced building performance and the reduction of surface water runoff.

Green Roofs shall be provided at roof level in the form of sedum green roofs. Green roofs are widely recognised as an effective SuDS solution and an important tool in mitigating the adverse effects of development on rainfall run-off and for managing urban flood risk.

2.3.2.2 Green Roof Proposals

The build-up for all proposed green roofs shall primarily comprise the following (in accordance with architectural design detail):

- Grass/mulch with planting
- A topsoil substrate (depth dependent on the green roof type) on
- 100mm depth drainage mat.

It is proposed to use Extensive green roofs which are defined as follows:

- Extensive Green Roof: These are typically areas containing vegetation such as sedums and small grasses, which require less maintenance than other green roof types, and no permanent irrigation system.
- Topsoil Substrate Depth: 100mm

2.3.3 Bio Retention Areas/Modified Planters

The bio-retention areas/modified planters will incorporate drainage stone/subsoil and will provide a level of additional attenuation within the bio-retention areas/modified planters. Bioretention systems allow the stormwater to filter downwards through a filter medium removing finer contaminants along the way. Depending on the particle size of the filter media different qualities can be achieved from the bioretention system. The base and sides of the system will be lined and a high level overflow to the drainage network within the build-up will accommodate removal of water.

2.3.4 Attenuation Tank

The proposed attenuation tank, in conjunction with the proposed hydrobrake flow restriction device is sized to reduce the runoff from the site to 1.1 l/s for the 1% AEP (1:100-year storm return period) storm, with 20% additional rainfall to allow for climate change, and 10% additional area to allow for urban creep. Please refer to Section 2.2.6 of this report for further information on attenuation tank storage/ design.

2.3.5 Petrol Interceptor

It is proposed that all surface water run-off from car park areas will outfall via a Bypass Separator in accordance with EN858-1 located upstream of the proposed attenuation tank. This device will remove hydrocarbons and fine sediment particles from the site runoff and lower the risk of downstream contamination following an oil spillage on site.

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.

Bypass separators are designed to achieve a concentration of less than 5mg/l of oil under standard test conditions.

2.3.6 Compliance with DLRCC County Development Plan 2022-2028 SUDS Policies

2.3.6.1 Interception and Treatment

SUDS Interception / treatment is to be provided for the entire site. Please refer 2.3.7 for interception storage calculation. It is proposed to provide a significant extent of green roofs within the development, as per the DLRCC County Development Plan, Appendix 7, Section 3.0 'Sustainable Drainage Systems Measures.'

2.3.6.2 Attenuation

Attenuation is provided via a below ground geocellular attenuation tank in the proposed open space, for the 1% AEP storm with allowance for 20% climate change and 10 % urban creep. Please refer sections 2.2 above.

2.3.6.3 Stormwater Audit

A stage 1 stormwater audit will be undertaken for the development and comments incorporated as part of the design.

2.3.6.4 Green roofs - Overview

There are a number of elements to consider in relation to compliance with this policy, including:

- Applicable Development Types
- Percent Green Roof to be provided
- Exemptions and Amplifications

2.3.6.5 Green Roof - Applicable Development Types

It is noted that the DLRCC County Development Plan 2022-2028, Appendix 7, Section 3.0 'Green and Blue Roof Policy Standards' identifies that green and blue roof policy apply to the below developments:

- Apartment Developments
- Employment Developments
- Retail and Ancillary Shopping
- Leisure Developments
- Education Facilities

On this basis, the green roofs are only applicable to the apartment development portion of the development and not on the terraced housing.

2.3.6.6 Green roof – Types

Green roofs may be provided as intensive or extensive.

The applicable percentage green roof noted in the green Roof Policy is is noted as either 70% extensive or 50% intensive.

2.3.6.7 Green Roofs – Exemptions and Amplifications

An exemption is permitted to the green roof policy percentage if it can be demonstrated that an alternative suitable nature-based SUDS treatment measure can be provided to treat the areas, i.e. not solely by pervious pavements.

Refer below specific exemption text as extracted from Standard GR2 of Appendix 7.2 of DLRCC County Development Plan 2022-2028

> " Unless exempted or partially exempted by DLRCC's Municipal Services Section following consideration of the suite of complementary or alternative nature-based SuDS features including ponds, bio retention areas, basins, wetlands, swales, rain garden. A proposal that relies solely on attenuation storage systems and/or permeable paving as an alternative to the provision of a green roof will not be acceptable"

Based on the above, it is proposed that some roofs are to be treated by bioretention areas. Please refer to section 2.3.7 for interception storage calculation.

2.3.6.8 Green Roofs – Proposed Percentages

The calculation of green roof percentage is taken on the basis of the apartment buildings only, excluding terraced houses.

Refer Figure 2-2below for an indicative site isometric.

Please refer Table 2-3 below for proposed roof types and associated green roof areas.

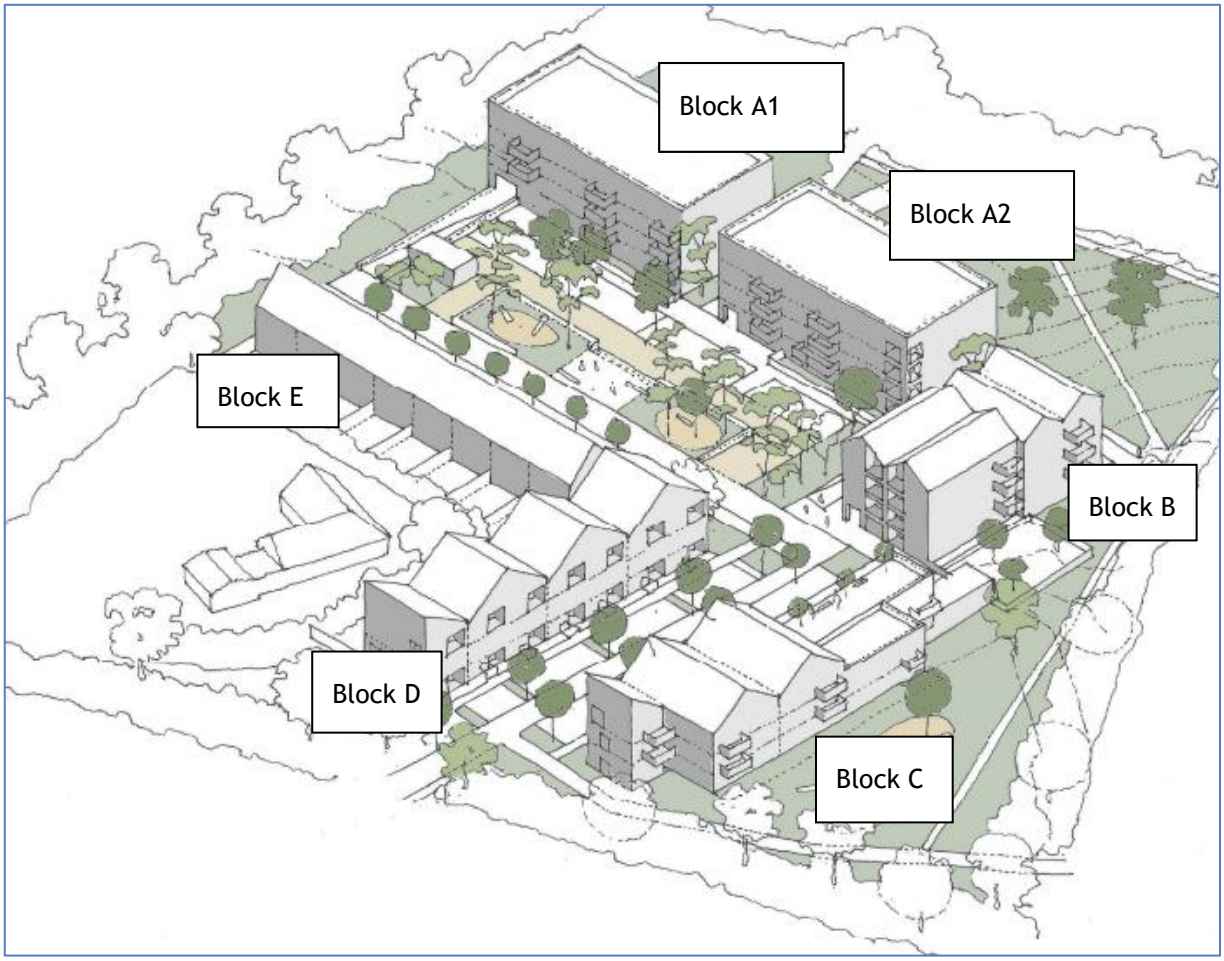


Figure 2-2 - Site Reference Diagram

Table 2-3 - Green Roof Areas

Building	Building Use	Roof type	Impermeable Roof Area	Green Roof Area	Total Roof Area
Block A1	Apartments	Flat	0	614	614
Block A2	Apartments	Flat	0	628	628
Block B	Apartments	Pitched	524	0	524
Block C	Apartments	Part flat and Part Pitched	506	325	831
Block D	Duplexes	Pitched	627	0	627
Block E	Terraced Houses	Pitched	580	0	580
Total			2,237	1,567	3,804

Table 2-4 Green Roof Percentages

Building Use	Impermeable Roof Area	Extensive Green Roof Area	Total Roof Area	Percent Green Roof
Terraced Houses	580	0	580	N/A
Apartments / Duplexes	1657	1567	3224	49%

Refer section 2.3.6.7 above for discussion regarding proposed green roof percentages.

2.3.7 Interception / Treatment Calculation

2.3.7.1 Overview and Calculation Basis

Reference is made to the UK SUDS Manual, Ciria 753 for interception storage assessment. It is proposed to provide interception / treatment as below:

1. Interception is proposed for all green roofs based on Table 14.6 of UK SUDS Manual, Ciria 753.
2. Treatment is proposed for the first 15mm of rain fall for other areas based on the bioretention equation 18.1 as extracted from the UK SUDS Manual, Ciria 753:

$$A_f = \frac{V_t L}{k(h+L)t}$$

$A_f = Filter\ Area\ (m^2)$

$V_t = Volume\ requiring\ treatment\ (m^3)$

$L = Depth\ of\ bioretention\ (m)$

$k = coefficient\ of\ permeability\ of\ filter\ media\ \ (m/s)$

$h = depth\ of\ water\ above\ filter\ media\ (m)$

$t = time\ for\ treatment\ (48\ hours)(s)$

The site has been broken up into Zones, and each zone is assessed separately. Please refer to the below tables and figures:

Figure 2-3 or the proposed zone being assessed within the development site. Table 2-5 provides a summary explanation of how each zone has been provided with interception storage treatment.

Interception storage is to be provided within the green roof and bioretention zones at ground level. Table 2-6, Table 2-7, and Table 2-8 demonstrate the level of interception storage provided.

Table 2-6 provides a calculation for the required 15mm runoff treatment volume for each area assessed.

Table 2-7 provides a calculation of the filter area required in bioretention trenches for each area assessed.

Table 2-8 provides a calculation to demonstrate that the required bioretention filter area is provided for each area assessed.

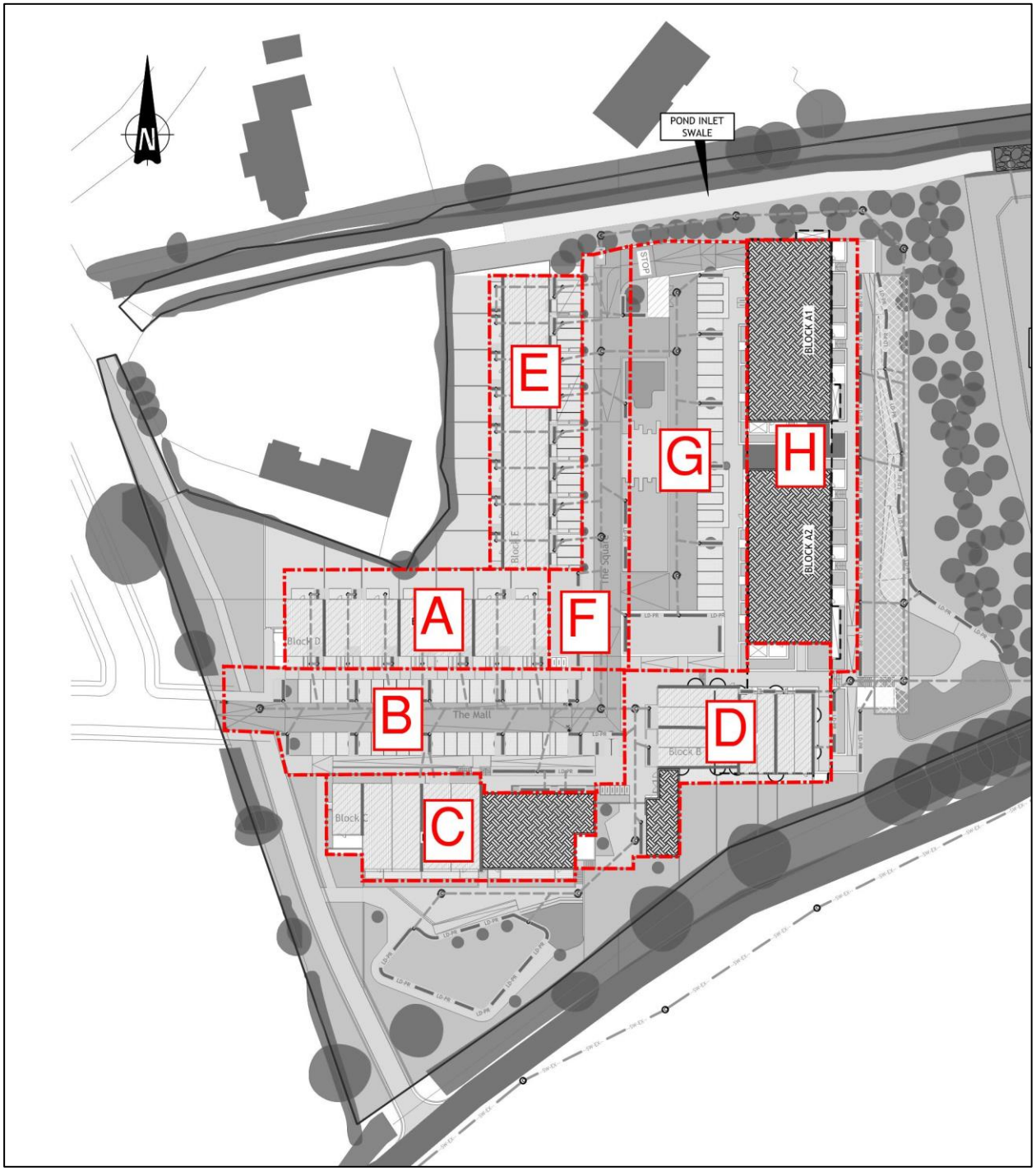


Figure 2-3: Proposed zones for SuDS Interception Storage Calculation.

Table 2-5: Explanation of Treatment Provision.

Zone	Description and Location	Explanation of Interception Storage Treatment Provision
A	Housing units along entrance road (Opposite Block C)	Roofs treated by bioretention. Car parks treated by bioretention.
B	"The Mall" Roadway	Roads treated by bioretention.
C	Block C	Roofs treated by bioretention and green roofs.
D	Block B	Roofs treated by bioretention and green roofs.
E	Housing units opposite Block A1/A2	Roofs treated by bioretention. Car parks and roads treated by bioretention.
F	"The Square" Roadway	Roads treated by bioretention.
G	Roadway/ pavement area adjacent to Block A1/A2	Roofs treated by bioretention. Car parks treated by bioretention.
H	Block A1/A2	Roofs treated by bioretention. Car parks treated by bioretention.

2.3.7.2 Treatment Volume Calculation Tables

Please refer below tables for treatment volume assessment for all areas not treated by green roofs.

Table 2-6: Catchment non - Green Roof Impervious Areas and 15mm Runoff Volume.

Catchment	Impermeable Roof Area (m^2)	Pavement Area (m^2)	Total Non-Green Roof Area (m^2)	Volume from 15mm of rainfall (m^3)
A	627	386	1069	14.43
B	0	1639	1823	24.61
C	506	126	652	8.80
D	524	701	1282	17.31
E	580	451	1124	15.17
F	0	872	1024	13.82
G	0	1860	2073	27.99
H	0	630	725	9.79

Table 2-7: Bioretention Calculation

Catch-ment	Total Non-Green Roof Area (m^2)	Volume from 15mm of rainfall (m^3)	Percent Runoff	Coefficient of Permeability of filter Bed (m/s)	Height of Water above Filter Bed (m)	Depth of filter bed (m)	Time required to Filter (s)	Filter Area Required (m^2)
A	1069	14.43	0.9	2.78×10^{-5}	0.05	0.8	172,800	2.83
B	1823	24.61	0.9	2.78×10^{-5}	0.05	0.8	172,800	4.83
C	652	8.80	0.9	2.78×10^{-5}	0.05	0.8	172,800	1.73
D	1282	17.31	0.9	2.78×10^{-5}	0.05	0.8	172,800	3.39
E	1124	15.17	0.9	2.78×10^{-5}	0.05	0.8	172,800	2.98
F	1024	13.82	0.9	2.78×10^{-5}	0.05	0.8	172,800	2.71
G	2073	27.99	0.9	2.78×10^{-5}	0.05	0.8	172,800	5.49
H	725	9.79	0.9	2.78×10^{-5}	0.05	0.8	172,800	1.92

Table 2-8: Catchment Bioretention Comparison

Catchment	*Bioretention area Provided* (m^2)	*Bioretention Filter Area Required* (m^2)
A	56	2.83
B	184	4.83
C	20	1.73
D	57	3.39
E	93	2.98
F	152	2.71
G	213	5.49
H	95	1.92

In addition to the required bioretention area to treat impervious areas, additional large areas of bioretention are provided at ground level to improve the amenity and biodiversity provision for the site.

Please refer drawing 232250-PUNCH-XX-XX-DR-C-0151 for SUDS areas including extent of bioretention and green roofs.

2.3.8 Summary and overview of SUDS effectiveness

The combination of the above noted elements shall allow the proposed development to adhere to the principles of sustainable drainage practices while enhancing overall storm water quality.

There are several benefits from the promotion of these SuDS elements within the development, below is a list of such benefits:

- **Biodiversity and Ecology**: Habitats are maintained, created & linked to support existing & new wildlife. This increases biodiversity & improves the quality of ecosystems in urban environments.

- **Amenity and Economy**: Access to open, green spaces allows for activities such as walking, cycling & organised sports. This improves the physical & mental health & wellbeing of communities.

- **Water Quality**: SuDS filter sediment & contaminants from runoff which improves quality. They intercept rainfall & reduce the volume entering sewers & drains, reducing combined sewer overflow and the amount that needs treating.

- **Flood Risk Management**: SuDS mimic natural drainage patterns & reduce the volume of runoff reaching drains & watercourses. They provide areas to store water & slow the flow of water to reduce flood risk in urban areas. SUDS proposed as part of this development provide limited flood mitigation. The primary surface water volume control is the proposed below ground surface water attenuation tank.

- **Climate Resilience**: Vegetation and plants used, e.g. landscaped open spaces, can capture & store carbon and greenhouse gases to improve air quality. They can also regulate building temperatures and reduce air & water pollution.

2.3.9 Amenity & Biodiversity

The proposed SuDS will provide improvement for amenity and biodiversity. The sedum in the extensive roofs/ swales provide opportunity for biodiversity. The provision of soft landscaping associated with the landscape design provides amenity for the residents also.

Please refer to the Landscape drawings and reports for further details in relation to amenity and biodiversity provision through proposed landscaping throughout the development.

2.3.10 Operation and Maintenance

Typical key SuDS components outlined in Section 2.3 will be operated and maintained in accordance with Chapter 32 of the CIRIA C753 (The SuDS Manual). A detailed operation and maintenance plan will be prepared for the Client at detailed design stage.

Regular maintenance is to be carried out typically every 1 to 3 months. Occasional maintenance is to be carried out every 6months to 1 year. Remedial maintenance is to be carried out as required.

Please refer to Table 2-9 for typical key SuDS components operation and maintenance activities.

Table 2-9: Typical key SuDS components operation and maintenance activities.

Operation and maintenance activity	SuDS component					
	Green roofs	Permeable Paving	Bioretention Areas	Swales	Attenuation Tanks	Bypass Separator
Regular maintenance						
Inspection	✓	✓	✓	✓	✓	✓
Litter and debris removal		✓	✓	✓	✓	✓
Grass cutting			✓	✓		
Weed and invasive plant control	✓	✓	✓	✓		
Shrub management (including pruning)			✓	✓		
Occasional maintenance						
Sediment management		✓	✓	✓	✓	✓
Vegetation replacement	✓		✓	✓		
Vacuum sweeping and brushing		✓				
Remedial maintenance						
Structure rehabilitation /repair	✓	✓	✓	✓	✓	✓

2.3.11 Document Reference

Please refer below drawings for SuDS layouts and details.

- 232250-PUNCH-XX-XX-DR-C-0151
- 232250-PUNCH-XX-XX-DR-C-0501
- 232250-PUNCH-XX-XX-DR-C-0502

Please refer correspondence with DLRCC included at Appendix F.

3 Foul Water Drainage Design

3.1 Existing Foul Water Drainage

Based on available records, the following public surface water drainage exists adjacent to the development site:

1. 750/ 600mm diameter concrete public combined sewer flowing west-east along the northern boundary of the site.
2. The aforementioned combined sewer in point no. 1 above upsizes to a 900mm diameter concrete public combined sewer which then flowing north-south parallel to Cabinteely River.

Please refer to Appendix A for Uisce Eireann Record Drawings illustrating the existing foul water drainage arrangement. An extract is shown in Figure 3-1 below.

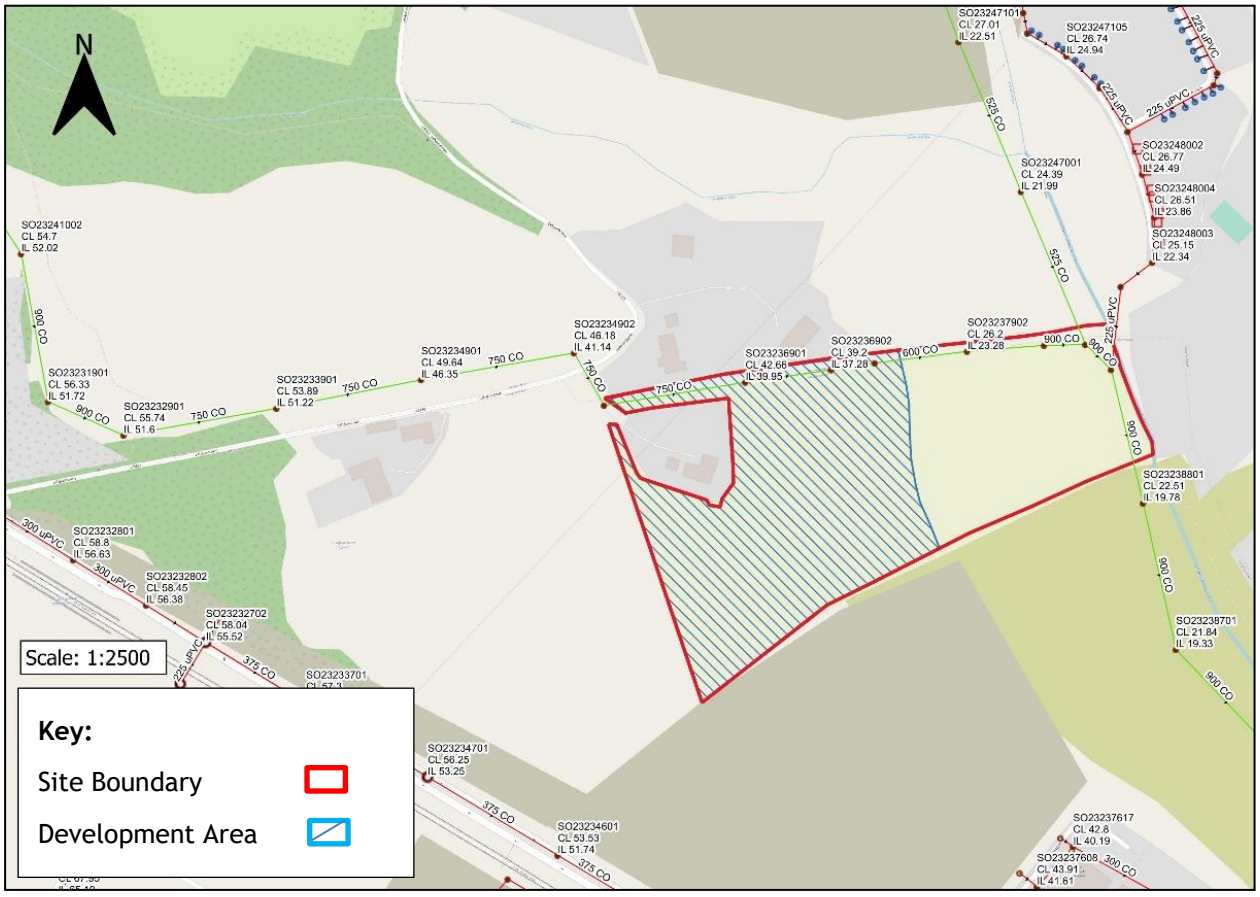


Figure 3-1: Existing foul drainage surrounding the site (Extract from Irish Water records)

3.2 Proposed Foul Water Drainage

3.2.1 General

The proposed foul water sewers have been designed using Causeway Flow software in accordance with the DOE's "*Recommendations for Site Development Works for Housing Areas*". The foul loading has been calculated in accordance with "Code of Practice for Wastewater Infrastructure" (particularly clause 36, Appendix C and Appendix D) published by Uisce Éireann.

Drainage within the basement is in accordance with "Design Recommendations for Multi-storey and Underground Car Parks" published by the Institution of Structural Engineers and is to discharge to wastewater.

3.2.2 Wastewater Design Calculations

It is proposed that the foul sewer will discharge by gravity to the existing 600mm combined sewer to the north of the site, as shown in 232250-PUNCH-XX-XX-DR-C-0201. Drainage capacity for proposed sewerage is to be provided in accordance with section 3.6 of Code of Practice for Wastewater Infrastructure. The pipes are designed to carry a wastewater volume of between 4.5 and 6 times the dry weather flow subject to the number of dwellings serviced. The proportional velocity is designed to provide the minimum self-cleansing velocity.

Table 3-1 describes the foul water drainage design parameters used and detailed calculations are enclosed in Appendix E.

Table 3-1: Foul Water Drainage Design Parameters.

Description	Value
Residential Flow Rate	150 l/person/day
Persons per Dwelling	2.7
Infiltration	10%
Peaking Factor	6 DWF (Residential)
Minimum Self Cleansing Velocity	0.75m/s
Minimum Pipe Diameter	150mm

Table 3-2 below summarises the wastewater flows for the development.

Table 3-2: Foul Water Drainage Design Calculations.

Category	Quantity	Flow Rate	Daily Flow (l/day)	Daily Flow + 10% Infiltration (l/day)	DWF (l/s)	Design Flow (l/s)
Residential	109 units =>295 persons	150 l/per/day	44,145	48,560	0.562	3.372 (6 DWF)
		Total	**44,145**	**48,560**	**0.562**	**3.372**

3.2.3 Foul Sewer Layout Design

The proposed building foul water drainage system will have the following components:

1. Foul water from the residential/ apartment units will discharge at ground level via gravity to the development's dedicated gravity foul network. The foul sewers associated with the residential/ apartment units will discharge via gravity along the development roadways and a subsequent foul sewer connection extension to the the existing 600mm combined sewer to the north of the site (at the existing manhole CL 36.17, IL 32.93), as discussed in Section 3.1 of this report and shown in .

2. Contaminated surface water run-off from basement level will be collected via a gravity network. This will be treated by a full bypass petrol interceptor before being collected at the respective pumping station. From the pumping station below the basement level the wastewater will discharge by rising main to a rising main discharge manhole externally before discharge by gravity to the development wastewater network.

3.2.4 Uisce Éireann Servicing - Wastewater

A Pre-Connection Enquiry Form has been issued to Uisce Éireann (Irish Water) in relation to the proposed development and a Confirmation of Feasibility Letter has been received. The relevant CDS number is CDS23009206. Uisce Éireann have confirmed that the development wastewater connection is feasible without infrastructure upgrades by Uisce Éireann.

Please refer to Appendix F for Uisce Éireann correspondence.

3.2.5 Provision for Additional Future Wastewater Connection

The drainage design has allowed for a future wastewater connection to serve developments to the south and west of site. The SDZ zoning of neighbouring sites is as outlined in Figure 3-2 below.

- The area to be served by the connection is assumed based on the current wastewater infrastructure and the topography of the surrounding area.
- Res 2 and Res 3 zoning denote residential development of 45-70 units/ha and 65-100 units/ha respectively.

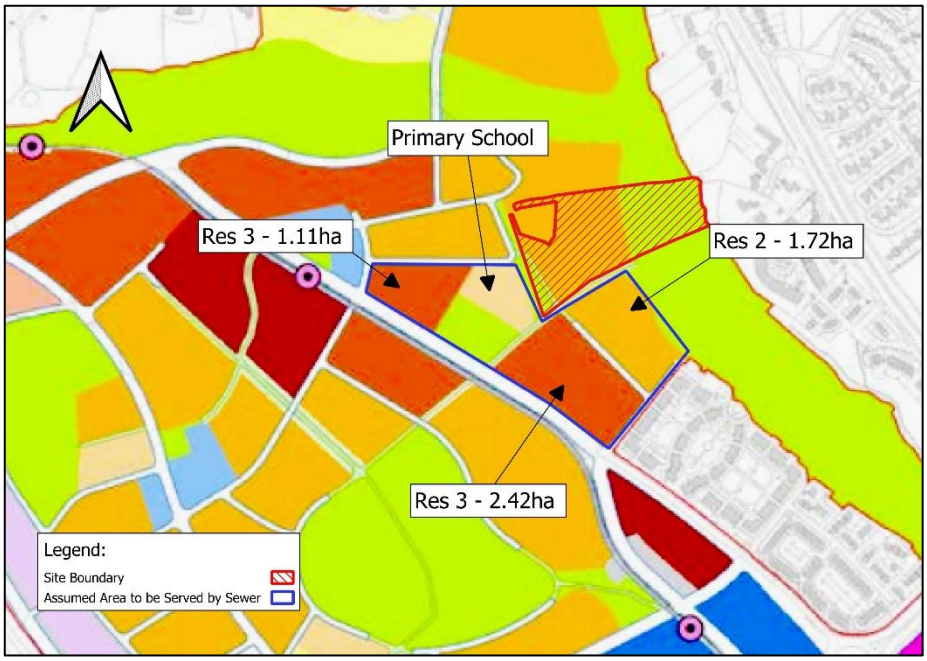


Figure 3-2: SDZ Zoning of Area to be served by Proposed Wastewater Sewer

Based on the above zoning and the land areas associated with the different sites the proposed sewer would serve a maximum of 474 no. residential units in addition to a primary school. Based on Uisce Éireann Code of Practice for Wastewater Infrastructure a sewer diameter of 300mm would be required to serve these developments.

3.2.6 Documents Reference

Please refer below drainage layout.

- 232250-PUNCH-XX-XX-DR-C-201

Please refer to Irish Water Documentation, included in Appendix F.

- Uisce Éireann (Irish Water) Confirmation of Feasibility Letter: CDS23009206.

4 Watermain Design

4.1 Existing Watermain

On the basis of available records, the following public watermain infrastructure exists adjacent to the development site:

1. 315mm HDPE watermain running parallel to Grand Parade to the southeast of site.

Please refer to Appendix A for Uisce Éireann Record Drawings illustrating the existing watermain arrangement in the area. An extract is shown in Figure 4-1 below.

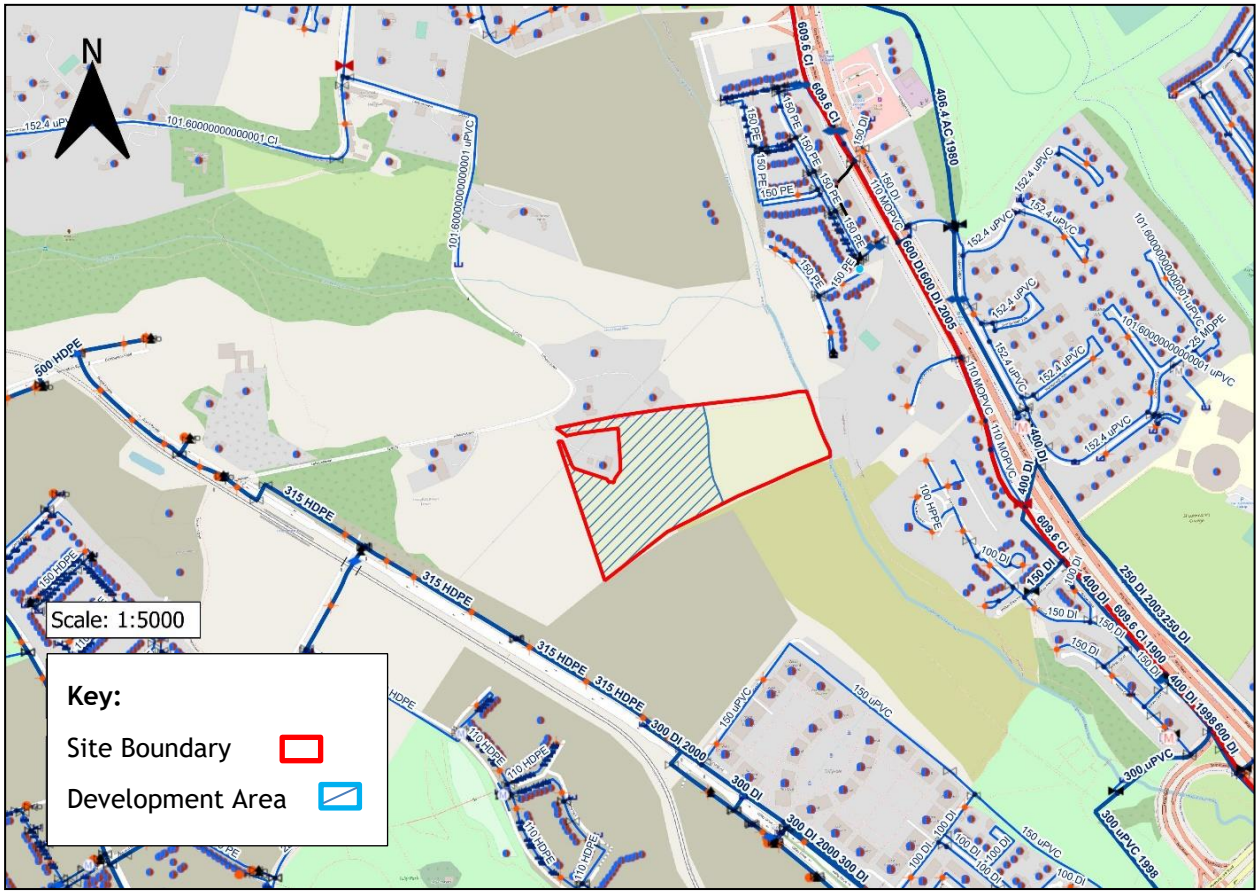


Figure 4-1: Existing watermain surrounding the site (Extract from Irish Water records)

4.2 Proposed Watermain

4.2.1 Watermain Demands

It is generally accepted that the design loading for foul drainage can be used to evaluate an approximation of the water demand on the site. With reference to Irish Water's Code of Practice for Water Infrastructure, the average daily flow is calculated as the number of persons multiplied by the flow rate per person. The average day peak week flow is taken to be 1.25 x the average flow, and the peak demand is taken to be the average day peak week flow multiplied by a peaking factor of 5.

Table 4-1 describes the watermain design parameters used.

Table 4-1: Watermain Design Parameters.

Description	Value
Residential Flow Rate	150 l/per/day
Persons per Dwelling	2.7
Average Demand	1.25 DWF
Peak Demand	5 DWF

Table 4-2 below summarises the water supply flows for the development.

Table 4-2: Watermain Design Calculation.

Category	Quantity	Flow Rate	Daily Flow (l/day)	DWF (l/s)	Average Demand (1.25DWF) (l/s)	Peak Demand (5DWF) (l/s)
Residential	109 units =>295 persons	150 l/per/day	44,145	0.511	0.639	3.193
		Total	**44,145**	**0.511**	**0.639**	**3.193**

4.2.2 Proposed Watermain Layout

Based on the above calculated demand, it is proposed to construct a new 110mm internal diameter watermain to serve the proposed development, as per drawing 232250-PUNCH-XX-XX-DR-C-0301.

The proposed development watermain will connect to a new 200mm internal diameter watermain being constructed as part of a Lehaunstown neighbourhood road as designed by Systra, as part of a separate DLRCC development. This separately designed watermain is proposed to connect to an existing 315mm diameter HDPE watermain located on Grand Parade as shown in .

This feed will provide potable and firefighting water to the proposed development. A bulk water meter shall be provided at the site boundary at the location of the proposed connection to the existing watermain. The watermain layout has been designed in accordance with "Irish Water Code of Practice for Water Infrastructure". All watermains are to be constructed in accordance with Irish Water Code of Practice and the Local Authority's requirements. Fire coverage is to be reviewed and certified by the fire consultant.

To reduce the water demand on Local Authority water supplies and to reduce the foul discharge from the development, water conservation measures will be incorporated in the sanitary facilities throughout the development, e.g. dual flush toilets, monobloc low volume push taps and waterless urinals.

4.2.3 Uisce Éireann Servicing - Watermain

A Pre-Connection Enquiry Form has been issued to Uisce Éireann (Irish Water) in relation to the proposed development and a Confirmation of Feasibility Letter has been received. The relevant CDS number is CDS23009206. Uisce Éireann have confirmed that the development water connection is feasible subject to upgrades.

Please refer to Appendix F for Uisce Éireann correspondence.

4.2.4 Documents Reference

Please refer to PUNCH drawings for the proposed watermain layout.

- 232250-PUNCH-XX-XX-DR-C-0301

Please refer to Irish Water Documentation, included in Appendix F.

- Uisce Éireann (Irish Water) Confirmation of Feasibility Letter: CDS23009206.

5 Cherrywood CPSS SDZ Consistency

indicates the Specific Objectives as outline in Section 4.1 – Environmental Infrastructure – water and drainage. A response to how the proposed development site at Lehaunstown Land, Cherrywood, Co. Dublin addresses each of these specific objectives has also been given, as appropriate.

Table 5-1: Specific Objectives set out in Chapter 4 Section 4.1 of the CPS

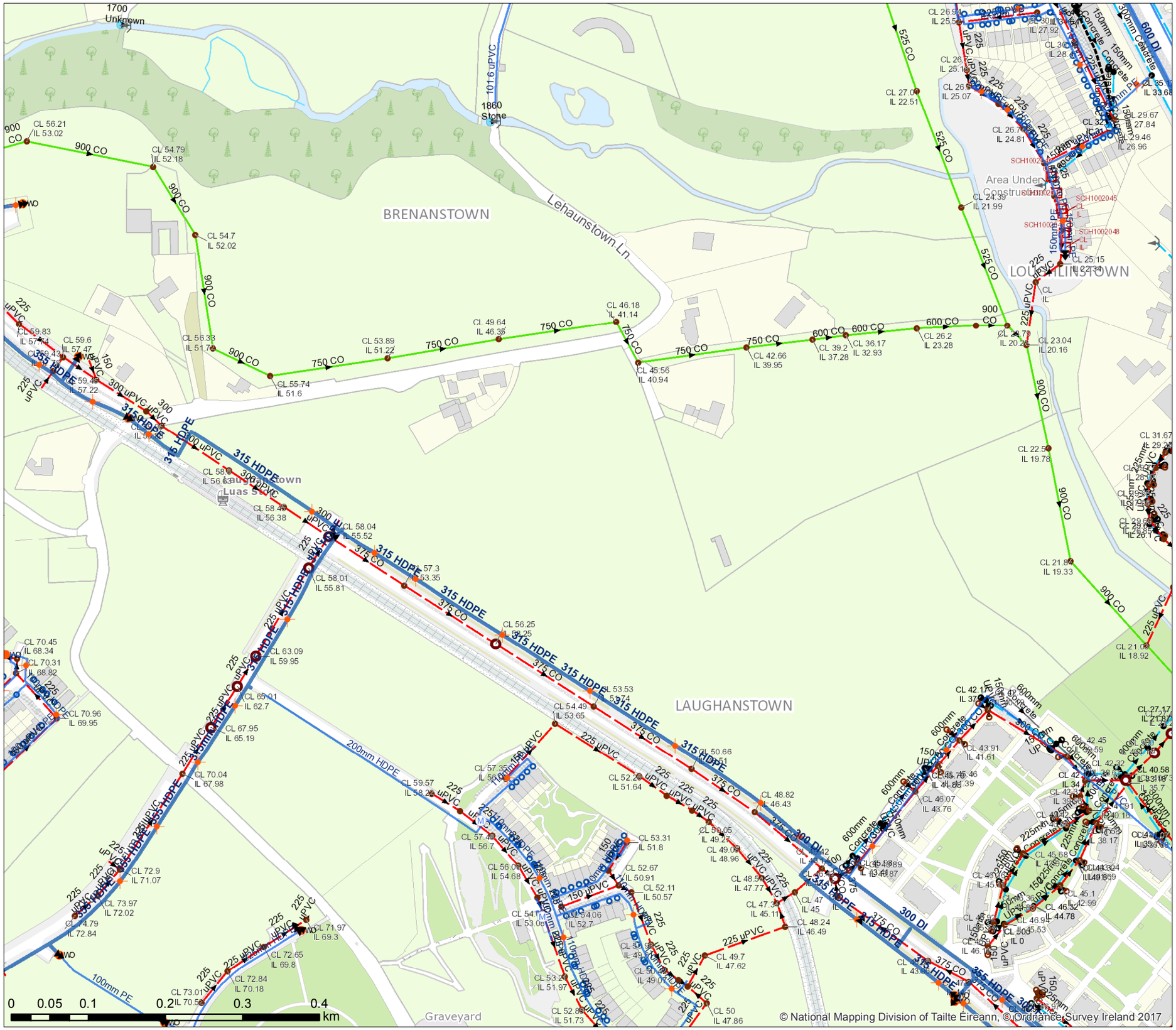
Specific Objective	Response
PI 1 *In common with all development in the Dublin region, development in the county is dependent on an adequate supply of water for the Dublin region. It is an objective to liaise with the Department of Environment Community and Local Government (DECLG) and Dublin City Council on regional water supply availability.*	An Uisce Eireann Confirmation of feasibility has been obtained with regard to water supply for the development
PI 2 *It is an objective to reach agreement with Dublin City Council on measures to reprioritise water allocation to Rathmichael reservoir. This may also involve installation of a new strategic watermain to Shankill to reduce over-reliance on Roundwood Water Treatment Works.*	An Uisce Eireann Confirmation of feasibility has been obtained with regard to water supply for the development
PI 3 *Development beyond 4ml/day capacity in the Planning Scheme and other new developments in the supply area (including Shankill, Shanganagh and Woodbrook) will require construction of the Old Connaught Woodbrook Water Supply Scheme. It is an objective to progress this scheme which is currently awaiting approval of the DECLG.*	An Uisce Eireann Confirmation of feasibility has been obtained with regard to water supply for the development
PI 4 *It is an objective to ensure a planned approach is taken to the local distribution network within the zone to facilitate co-ordinated development. To support the use of water saving systems and landscaping. Where national standards are adopted, under the Water Services Act 2007 or otherwise, for rainwater harvesting and/or greywater recycling for use within buildings, these will be incorporated to the maximum practicable extent.*	An Uisce Eireann Confirmation of feasibility has been obtained with regard to water supply for the development. Rainwater harvesting is not proposed for the development. Alternative SUDS measures are proposed.

Specific Objective	Response
PI 5 *It is an objective to replace a short portion of critical trunk main from Bride's Glen Road at an early stage to secure supply.*	Not applicable to the proposed development. An Uisce Eireann Confirmation of feasibility has been obtained with regard to water supply for the development
PI 6 *It is an objective to promote Sustainable Urban Drainage Systems (SuDS) to manage surface and groundwater regimes sustainably.*	The following SuDS measures are proposed within Private Development Site Boundaries: 1. Green Roofs 2. Bioretention areas The runoff from the development will be restricted to 1l/s/ha and the final outfall pipe from the site will be 225mm in diameter. Drainage pipework is modelled to accommodate this runoff and discharge control upstream of an attenuation tank at 1 in 100 year storm (1% AEP).
PI 7 *It is an objective to ensure that stormwater management, flood attenuation and Sustainable (Urban) Drainage Measures (SuDS), including a requirement to undertake Stormwater Audits, shall form part of the pre-planning, planning and post construction stages of any application.*	A stormwater management strategy has been developed for the site, which includes a SuDS management train. A Stormwater Audit for this development is provided and addressed. The runoff from the development will be restricted to 1l/s/ha and the final outfall pipe from the site will be 225mm in diameter. Drainage pipework is modelled to accommodate this runoff and discharge control upstream of an attenuation tank at 1 in 100 year storm (1% AEP).
PI 8 *It is an objective to ensure that SuDS measures shall be fully implemented on all sites to 1 litre per second per hectare runoff rates, unless otherwise agreed with Dún Laoghaire Rathdown County Council. In this regard solutions other than tanking systems shall be required for all developments. For larger applications Green Roofs shall be used in accordance with Dún Laoghaire- Rathdown County Council's Green Roofs Guidance Document.*	The runoff from the development will be restricted to 1l/s/ha and the final outfall pipe from the site will be 225mm in diameter. Drainage pipework is modelled to accommodate this runoff and discharge control upstream of an attenuation tank at 1 in 100 year storm (1% AEP). Green roofs have been included in the development and justification is provided with regard to compliance with DLRCC Green Roof Policy.

Specific Objective	Response
PI 9 *It is an objective to ensure urban areas are designed to accommodate surface water flood flow at times of extreme events through the dual use of roads and pathways as flood conveyance channels and low value areas (parkland, car parks, large paved areas etc) used as temporary flood ponding areas.*	Entrances to all buildings are above the adjacent road levels. The site generally slopes from west to east towards a low point where the proposed attenuation tank is located. Therefore, surface water flood flow at times of extreme events will be running water and will not have the depth to enter buildings. Overland flow paths are considered and indicated for the development for scenarios where drainage is above design capacity or if blockage occurs. The runoff from the development will be restricted to 1l/s/ha and the final outfall pipe from the site will be 225mm in diameter. Drainage pipework is modelled to accommodate this runoff and discharge control upstream of an attenuation tank at 1 in 100 year storm (1% AEP).
PI 10 *It is an objective to ensure that all trees planted in/adjacent to hard paved areas (footpaths, parking areas etc) incorporate tree root structural cell systems.*	Tree root structural cell systems planted in or adjacent to hard paved areas incorporate tree root structural cell systems in accordance with landscape architect design.
PI 11 *It is an objective to ensure that predicted flooding in the Priorsland area does not pose an unacceptable risk to persons or property. In this regard a flood containment zone shall be constructed in the Priorsland area by raising adjacent ground levels approx 500mm and by incorporating a large diameter (1650mm) bypass culvert.*	Culvert works are not applicable to the development. Development drainage is designed to provide water levels at 500mm level below floor levels at 1% AEP storm with allowance for 20% climate change.
PI 12 *It is an objective that significant foul trunk sewer infrastructure is provided within the Planning Scheme area.*	The development facilitates space for future wastewater sewerage to service adjacent lands and connect to the existing 600mm diameter combined sewer that is located to the north of the development.

Appendix A Existing Record Drawing

Lehaunstown



UISCE ÉIREANN : IRISH WATER

Print Date: 16/11/2023

Printed by:Irish Water

Water Distribution Network
- Water Treatment Plant
- Water Pump Station
- Storage Cell/Tower
- Dosing Point
- Meter Station
- Abstraction Point
- Telemetry Kiosk

Reservoir
- Potable
- Raw Water

Water Distribution Mains
- Irish Water
- Private

Trunk Water Mains
- Irish Water
- Private

Water Lateral Lines
- Irish Water
- Non IW
- Water Casings
- Water Abandoned Lines
- Boundary Meter
- Bulk/Check Meter
- Group Scheme
- Source Meter
- Waste Meter
- Unknown Meter ; Other Meter
- Non-Return
- PRV
- PSV
- Sluice Line Valve Open/Closed
- Butterfly Line Valve Open/Closed
- Sluice Boundary Valve Open/Closed
- Butterfly Boundary Valve Open/Closed
- Scour Valves
- Single Air Control Valve
- Double Air Control Valve
- Water Stop Valves
- Water Service Connections
- Water Distribution Chambers
- Water Network Junctions
- Pressure Monitoring Point
- Fire Hydrant
- Fire Hydrant/Washout

Water Fittings
- Cap
- Reducer
- Tap
- Other Fittings

Sewer Foul Combined Network
- Waste Water Treatment Plant
- Waste Water Pump station

Sewer Mains Irish Water
- Gravity - Combined
- Gravity - Foul
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Overflow

Sewer Mains Private
- Gravity - Combined
- Gravity - Foul
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Overflow
- Sewer Lateral Lines
- Sewer Casings

Sewer Manholes
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown

Discharge Type
- Outfall
- Overflow
- Soakaway
- Standard Outlet
- Other; Unknown

Cleanout Type
- Rodding Eye
- Flushing Structure
- Other; Unknown

Sewer Inlets
- Catchpit
- Gully
- Standard
- Other; Unknown

Sewer Fittings
- Vent/Col
- Other; Unknown

Storm Water Network

Surface Water Mains
- Surface Gravity Mains
- Surface Gravity Mains Private
- Surface Water Pressurised Mains
- Surface Water Pressurised Mains Private

Inlet Type
- Gully
- Standard
- Other; Unknown

Storm Manholes
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown
- Storm Culverts
- Storm Clean Outs
- Stormwater Chambers

Discharge Type
- Outfall
- Overflow
- Soakaway
- Other; Unknown

Gas Networks Ireland
- Transmission High Pressure Gasline
- Distribution Medium Pressure Gasline
- Distribution Low Pressure Gasline

ESB Networks

ESB HV Lines
- HV Underground
- HV Overhead
- HV Abandoned

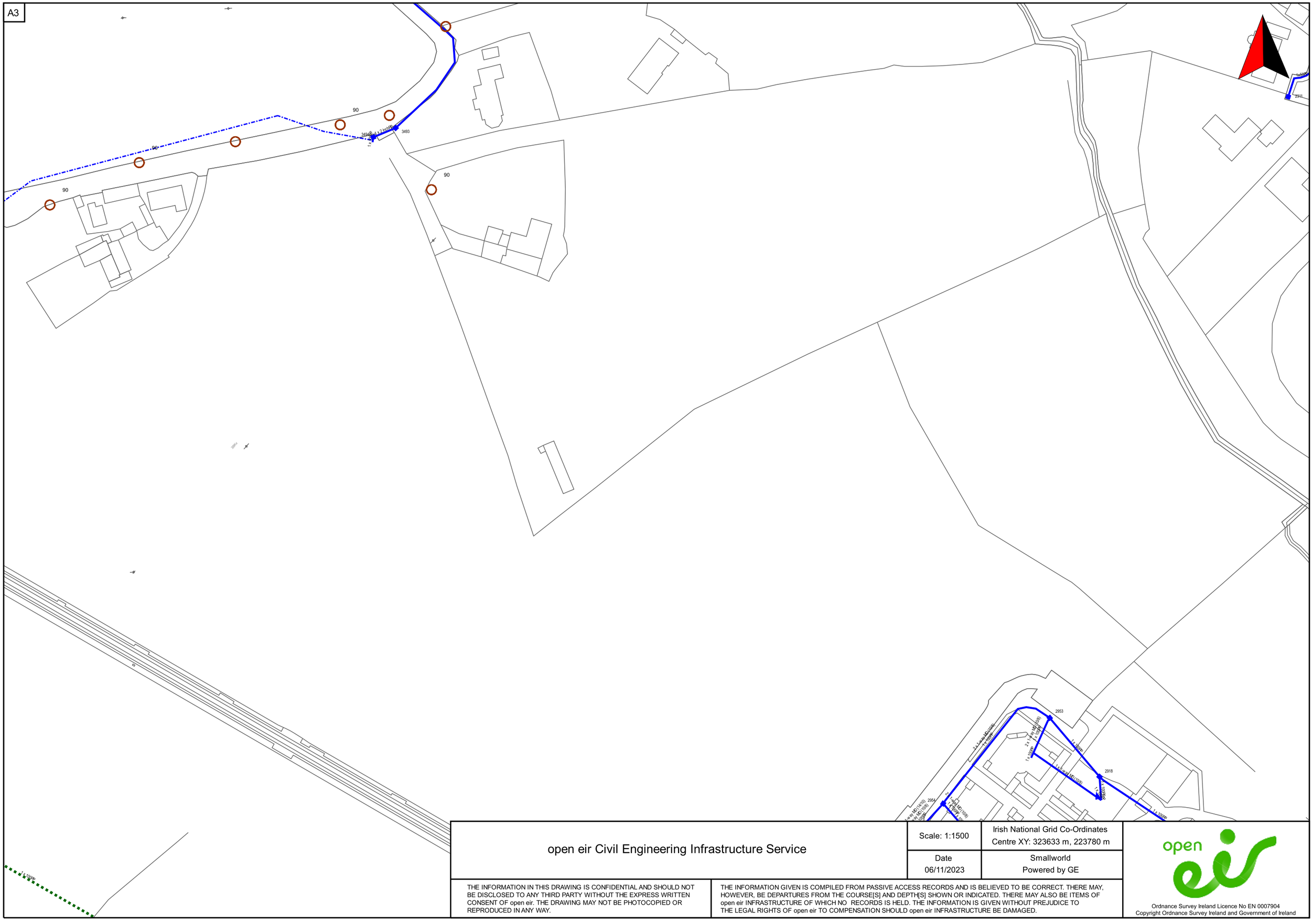
ESB MVLV Lines
- MV Overhead Three Phase
- MV Overhead Single Phase
- LV Overhead Three Phase
- LV Overhead Single Phase
- MVLV Underground
- Abandoned

Non Service Categories
- Proposed
- Under Construction
- Out of Service
- Decommissioned

Water Non Service Assets
- Water Point Feature
- Water Pipe
- Water Structure

Waste Non Service Assets
- Waste Point Feature
- Sewer
- Waste Structure

A3



open eir Civil Engineering Infrastructure Service

Scale: 1:1500	Irish National Grid Co-Ordinates Centre XY: 323633 m, 223780 m
Date 06/11/2023	Smallworld Powered by GE

ESB Networks

TITLE:

20231110-025_A0

COLOUR CODE:

- BLACK - 38KV & HIGHER VOLTAGE OVERHEAD LINES
- GREEN - MV(10KV/20KV) OVERHEAD LINES
- BLUE - LV (400V/230V) OVERHEAD LINES
- CYAN - 38KV & HIGHER VOLTAGE UNDERGROUND CABLE ROUTES
- RED - MV/LV (10KV/20KV/400V/230V) UNDERGROUND CABLE ROUTES

DATE: 10-Nov-2023

** SCALE: 1:2500

** SCALE WHEN PRINTED ON AN A0 PAGE
XY COORDINATES DISPLAYED IN IRISH GRID COORDINATE SYSTEM

WARNING

THIS MAP INDICATES THE APPROXIMATE LOCATION OF ESB TRANSMISSION (400KV, 220KV, 110KV, 38KV) AND DISTRIBUTION (20KV, 10KV, 230V/400V) UNDERGROUND CABLES AND OVERHEAD LINES IN THE GENERAL AREA OF THE PROPOSED WORKS. ESB NETWORKS TAKES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE MAP. IT IS THE USER'S RESPONSIBILITY TO INDEPENDENTLY VERIFY THE INFORMATION AND THE LOCATION OF UNDERGROUND CABLES AND OVERHEAD LINES. LOW VOLTAGE (230V/400V) SERVICE CABLES (E.G. HOUSE SERVICES, FACTORY/SHOP SERVICES, PUBLIC LIGHTING LAMP SERVICES, ETC) ARE NOT INCLUDED BUT THEIR PRESENCE SHOULD BE ANTICIPATED. THE DEPTHS OF UNDERGROUND CABLES MUST NEVER BE ASSUMED. ADDITIONAL MORE DETAILED INFORMATION IS AVAILABLE FOR HIGH VOLTAGE TRANSMISSION UNDERGROUND CABLES (38KV, 110KV, 220KV, 400KV) FROM THE LOCAL ESB NETWORKS TRANSMISSION REPRESENTATIVE - SEE ATTACHED LIST FOR CONTACT DETAILS OR CALL 1800 372 757. NO WORK SHOULD BE CARRIED OUT IN THE VICINITY OF 38KV OR HIGHER VOLTAGE UNDERGROUND CABLES WITHOUT PRIOR CONSULTATION WITH ESB NETWORKS. BEFORE ANY MECHANICAL EXCAVATION IS UNDERTAKEN, THE ACTUAL LOCATION OF ALL UNDERGROUND ELECTRICITY CABLES MUST BE ESTABLISHED AND VERIFIED ON THE SITE USING:
(A) UP-TO-DATE MAP RECORDS; (B) CABLE LOCATER EQUIPMENT OPERATED IN BOTH POWER AND RADIO MODES;
(C) CAREFUL HAND DIGGING OF TRIAL HOLES USING 'SAFE DIGGING PRACTICE'. REFER ALSO TO 'HSA CODE OF PRACTICE FOR AVOIDING DANGER FROM UNDERGROUND SERVICES'. ESB TAKES NO RESPONSIBILITY FOR AND SHALL BEAR NO LIABILITY, HOWSOEVER ARISING, IN RELATION TO ANY DAMAGE, INJURY/DEATH OR LOSS OF SUPPLY AS A RESULT OF DAMAGE OR INTERFERENCE WITH ITS NETWORKS.

X,Y: 321999 , 224939

X,Y: 324899 , 224939

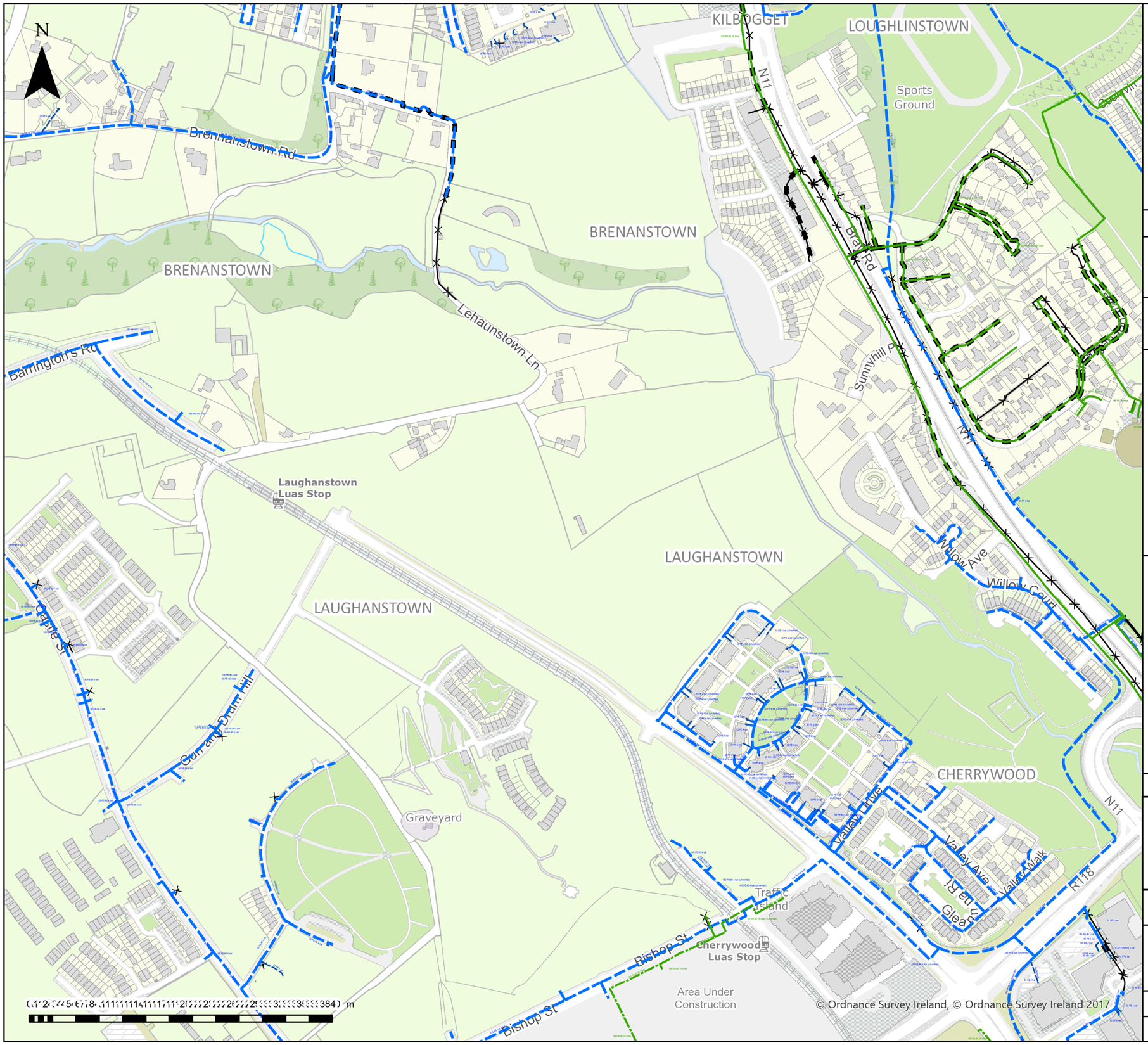
X,Y: 324899 , 223016

ESB NETWORKS HAS ISSUED THIS MAP AS A PDF DOCUMENT. IF VIEWING A PAPER VERSION OF THIS MAP, THE VIEWER MUST ENSURE THAT IT HAS BEEN PRINTED IN COLOUR TO FIT TO AN A0 (OR LARGER) PAGESIZE AND THAT EACH OF THE COLOURS INDICATED ON THE COLOUR CODE LEGEND ABOVE ARE CLEAR AND DISTINCT FROM EACH OTHER TO MAINTAIN A CORRECT REPRESENTATION OF THE ELECTRICAL NETWORK INFORMATION.

PLEASE NOTE THAT THERE ARE: HIGH VOLTAGE (38KV AND HIGHER VOLTAGES) OVERHEAD LINES AND UNDERGROUND CABLES ON THIS MAP. IF YOU INTEND WORKING, OR UNDERTAKING DEVELOPMENT WITHIN A CORRIDOR EXTENDING 40 METRES ON EITHER SIDE OF ANY HIGH VOLTAGE OVERHEAD LINES OR WITHIN A CORRIDOR EXTENDING 5 METRES ON EITHER SIDE OF ANY HIGH VOLTAGE UNDERGROUND CABLES YOU MUST CONTACT THE DESIGNATED PARTIES IN ADVANCE OF THE WORKS:

FOR HIGH VOLTAGE OVERHEAD LINES: (38KV AND HIGHER VOLTAGES)
CONTACT: DIARMAID KING, ESB TRANSMISSION, KYLEMORE WAY,
DUBLIN 8, D08-E398. PHONE: 087 6545701 EMAIL: DIARMAID.KING@ESB.IE

FOR HIGH VOLTAGE UNDERGROUND CABLES: (38KV AND HIGHER VOLTAGES)
CONTACT: GARETH PAISLEY, ESB TRANSMISSION, KYLEMORE WAY,
DUBLIN 8, D08-E398. PHONE: 087 9374867 EMAIL: GARETH.PAISLEY@ESB.IE



Important Safety Notice: Damage to gas pipelines can result in serious injury or death. Gas network information is provided as a general guide. The exact location and depth of medium or low pressure distribution gas pipes must be verified on site by carrying out necessary investigations, including, for example, hand digging trial holes along the route of the pipe. Service pipes are not generally shown but their presence should always be anticipated.

High pressure transmission pipelines are shown in red. If a transmission pipeline is identified within 10m of any intended excavations then work must not proceed before GNI has been consulted. The true location and depth of a transmission pipeline must be verified on site by a representative of GNI. Contact can be made through 1800 427 747.

All work in the vicinity of the gas network must be completed in accordance with the current edition of the Health and Safety Authority publication, 'Code of Practice For Avoiding Danger From Underground Services' which is available from the Health and Safety Authority (0818 289 389) or can be downloaded at www.hsa.ie.

- Aurora Telecom Duct
- Aurora Telecom Sub Duct
- Aurora Telecom Inserted Gas Pipe

Aurora TELECOM

Aurora Telecom Queries - 01-8926166 (Office Hours)
Aurora_Network_Queries@gasnetworks.ie
Aurora Telecom Emergency Only 1800 427399 / 01 2030120

- Transmission Pipe (High Pressure)
- Transmission Pipe (Construction Issue)
- Distribution Pipe (Medium Pressure)
- Distribution Pipe (Low Pressure)
- Service Pipe (Medium Pressure)
- Service Pipe (Low Pressure)
- Strategic Pipe (Medium Pressure)
- Strategic Pipe (Low Pressure)
- Inserted
- Abandoned Pipe

C=?	Cover (depth in metres)		Pressure Monitor
CP	CP Test Point		Protection (Slabbing)
	End Cap		Protection (Sleeve)
	Hot Tap		Reducer
	Installation		Service Terminator
	Valve		Tee
	Mains Verification**		Transition

** Please contact GNI on 1800-427747 for specific information

DIAL BEFORE YOU DIG 1800 42 77 47
In Emergency call 1800 20 50 50 Gas Networks Ireland

Gas Networks Ireland

GAS NETWORK INFORMATION

Description: test

Location: 723501,723809

Plot Date: 06/11/2023 12:43	Scale: 5000 @ A3
Plotted By: 6818	Ref ID: *6818_06112023124357*

Appendix B Relevant Third Party Designs:

Lehaunstown Neighbourhood Road - SYSTRA

Regional Attenuation Pond 2A Drawings –Roughan & O'Donavan

N

Open Well

Pond

ROAD

LEHAUNSTOWN LANE

ES

Platform

Platform

Legend

Proposed Scheme Extents

Rev	Date	Revision details	Drawn	Checked	Approved
B	25/06/24	For Planning	PK	AM	AM
A	05/01/24	For Planning	PK	AM	AM

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D02 FP21
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Client
DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL

Project
LEHAUNSTOWN NEIGHBOURHOOD ROAD

Title
SITE LOCATION PLAN

Drawn	Checked	Approved
PK	AM	AM
Original drg. size: A1	Date: June 2024	Scale: 1:1000
Drawing Status: For Planning	Drawing Number: IE01T23A67-PD-001	Rev: B

PROPOSED PRIORITY JUNCTION
LEHAUNSTOWN LANE

LEHAUNSTOWN LANE

STOP

RUS 066
Pedestrians Crossing

30
km/h

TIE INTO EXISTING GRAND PARADE
SIGNAL CONTROLLED JUNCTION

TIE INTO PROPOSED HOUSING
DEVELOPMENT ACCESS ROAD.
ACCESS ROAD TO BE DESIGNED
BY OTHERS

Gun and Drum Hill

GRAND PARADE

1m
2m
6m

NOTES:

1. STREET TREES TO BE PROVIDED IN ACCORDANCE WITH THE CHERRYWOOD PLANNING SCHEME.

Legend

- Proposed Scheme Extents
- Proposed Carriageway
- Proposed Footpath
- Proposed Swale
- Proposed Lighting Column
- Proposed Gully
- Proposed Signage
- Proposed Tactile Paving
- Proposed Tree in Tree Pit

Rev.	Date	Revision details	Drawn	Checked	Approved
C	20/06/24	Revised following Client comments	PK	AM	AM
B	28/02/24	Raised Crossings added	PK	AM	AM
A	05/01/24	For Planning	PK	AM	AM

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DÚN LAOGHAIRE-RATHDOWN
COUNTY COUNCIL

Project
LEHAUNSTOWN NEIGHBOURHOOD ROAD

Title
PROPOSED GENERAL
ARRANGEMENT

Drawn	Checked	Approved
PK	AM	AM
Original drg. size: A1	Date: June 2024	Scale: 1:500
Drawing Status: For Planning	Drawing Number: IE01T23A67-PD-002	Rev. C

N

LEHAUNSTOWN LANE

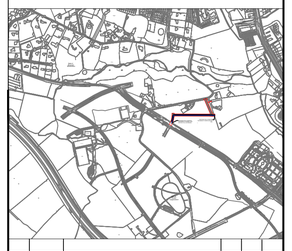
Gun and Drum Hill

PROPOSED 200mm DIAMETER WATERMAIN TO CONNECT INTO EXISTING 315mm WATERMAIN

PROPOSED 200mm DIAMETER WATERMAIN TO SERVE HOUSING SITE

Legend

- Proposed Scheme Extents
- Proposed Watermain
- Proposed 5m Wide Utility Corridor to accommodate ESB, Telecoms, Gas, Foul Sewer, etc



Rev.	Date	Revision details	Drawn	Checked	Approved
C	25/06/24	For Planning	PK	AM	AM
B	28/02/24	Raised Crossings Added	PK	AM	AM
A	05/01/24	For Planning	PK	AM	AM

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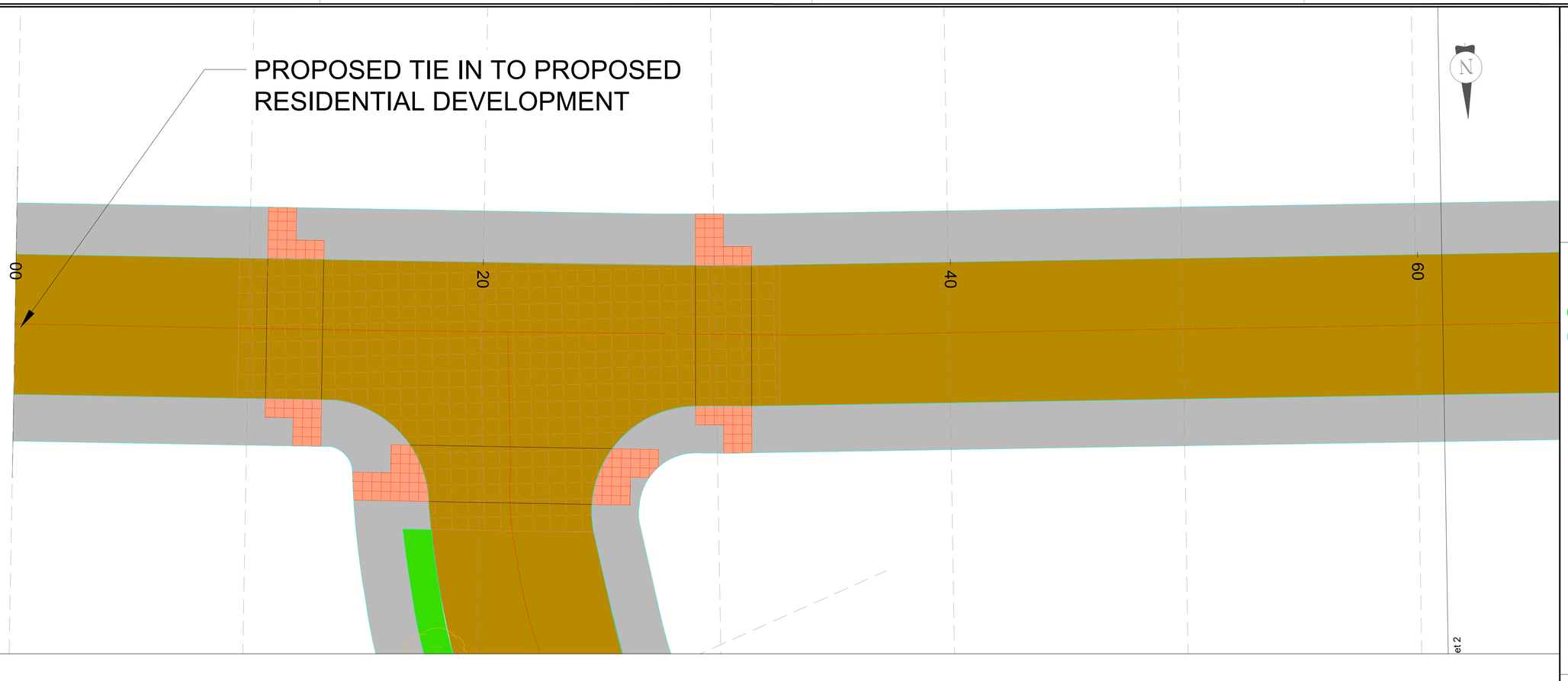
Client: DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL

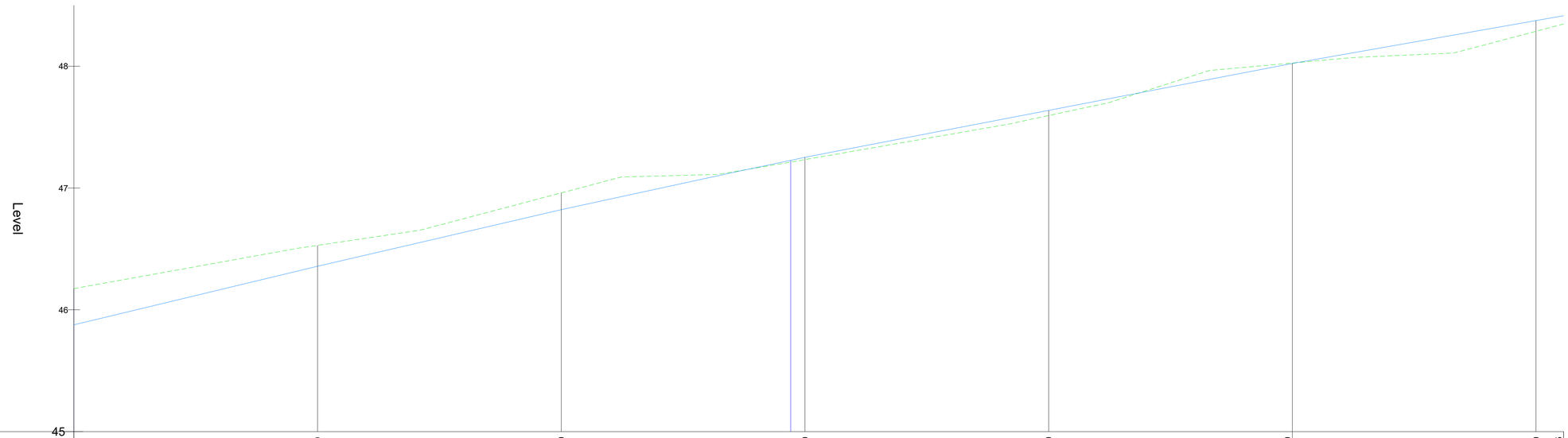
Project: LEHAUNSTOWN NEIGHBOURHOOD ROAD

Title: PROPOSED UTILITIES

Drawn	Checked	Approved
PK	AM	AM
Original drg. size: A1	Date: June 2024	Scale: 1:500
Drawing Status: For Planning	Drawing Number: IE01T23A67-PD-003	Rev.: C



EAST-WEST LONGSECTION 1
SCALE: H1:100, V 1:20.



Chainage	0.000	10.000	20.000	30.000	40.000	50.000	60.000	61.135
Existing Levels	46.174	46.529	46.960	47.233	47.595	48.027	48.287	48.347
Proposed Levels	45.877	46.357	46.822	47.253	47.638	48.023	48.375	48.415

Legend

- Proposed Scheme Extents
- Existing Levels
- Proposed Levels

Rev.	Date	Revision details	Drawn	Checked	Approved
B	25/06/24	For Planning	CS	PK	AM
A	19/04/24	For Information	CS	PK	AM

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Client
DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL

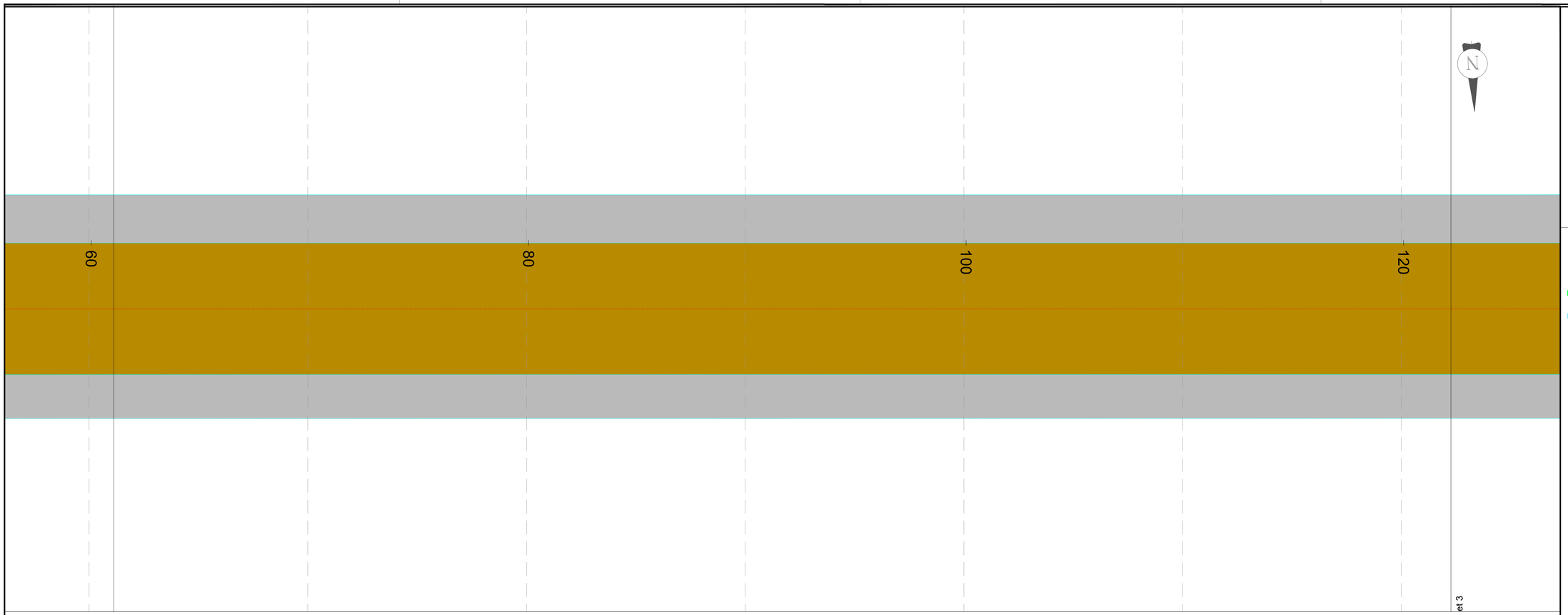
Project
LEHAUNSTOWN NEIGHBOURHOOD ROAD

Title
PROPOSED LONGSECTIONS
SHEET 1 OF 7

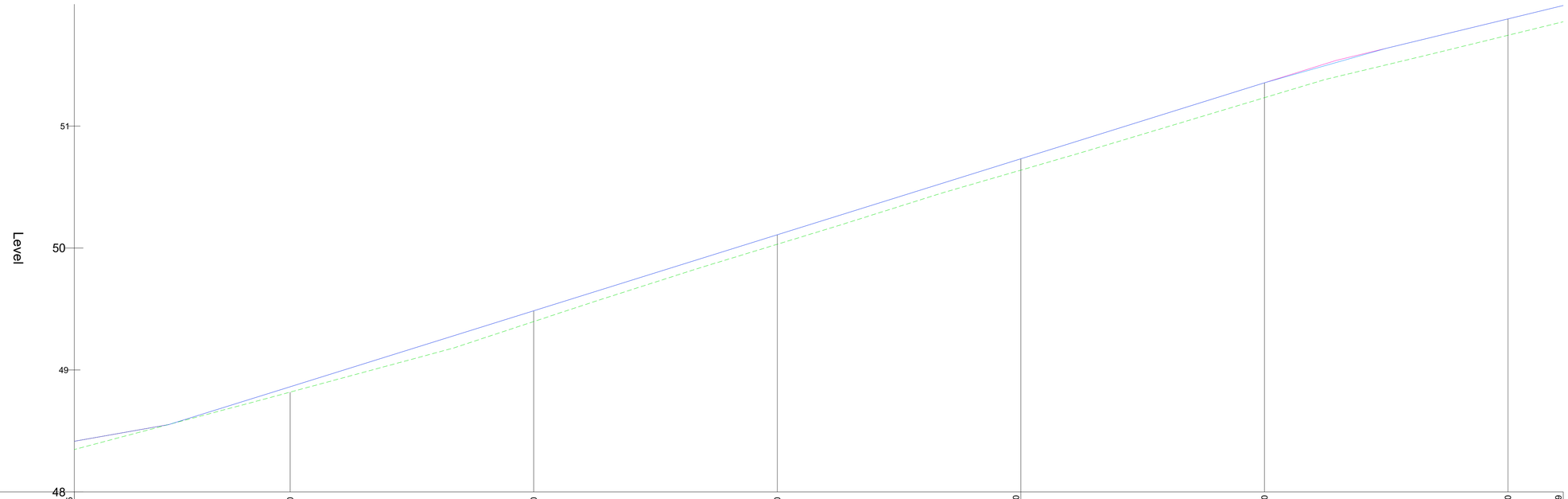
Drawn	Checked	Approved
CS	PK	AM

Original drg. size	Date	Scale
A1	June 2024	1:100

Drawing Status	Drawing Number	Rev.
For Planning	IE01T23A67-PD-005	B



EAST-WEST LONGSECTION 2
SCALE: H1:100, V 1:20.



Chainage	61.135	70.000	80.000	90.000	100.000	110.000	120.000	122.269
Existing Levels	48.347	48.818	49.397	50.031	50.639	51.233	51.745	51.856
Proposed Levels	48.415	48.862	49.485	50.109	50.732	51.355	51.879	51.989

Legend

- Proposed Scheme Extents
- Existing Levels
- Proposed Levels

Rev.	Date	Revision details	Drawn	Checked	Approved
B	25/06/24	For Planning	CS	PK	AM
A	19/04/24	For Information	CS	PK	AM

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Client: DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL

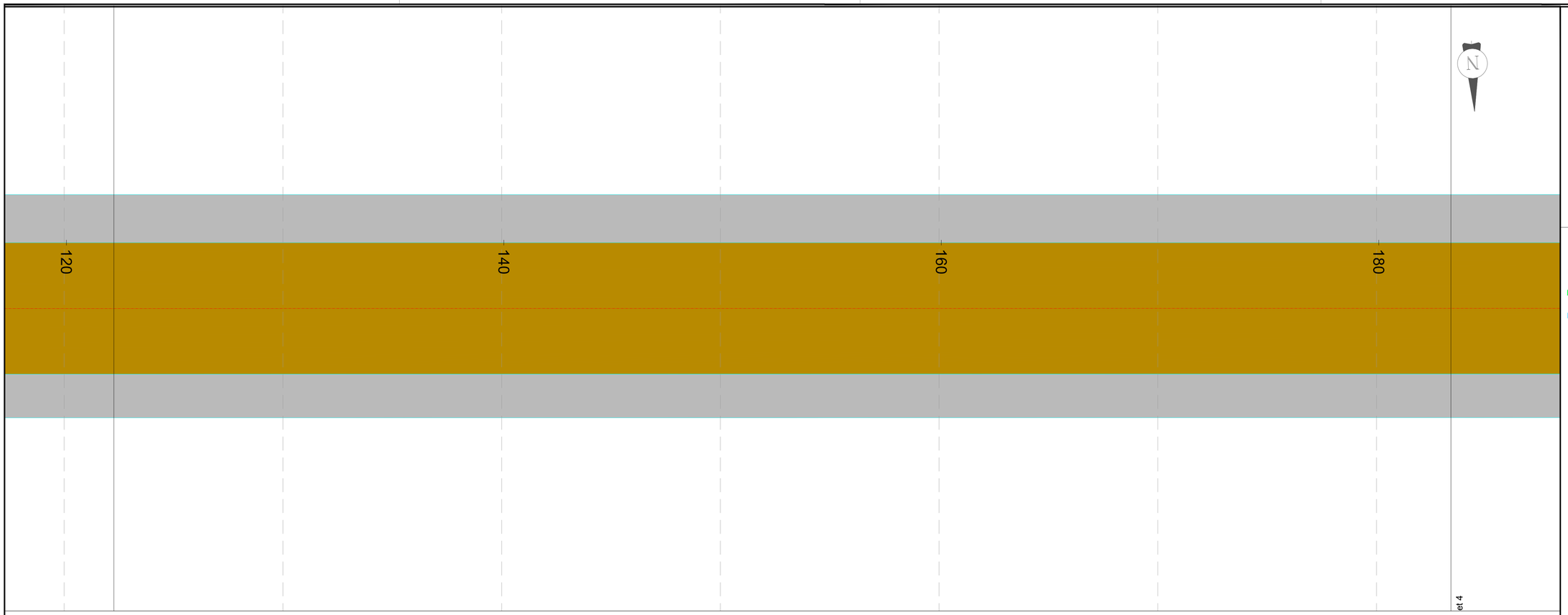
Project: LEHAUNSTOWN NEIGHBOURHOOD ROAD

Title: PROPOSED LONGSECTIONS SHEET 2 OF 7

Drawn	Checked	Approved
CS	PK	AM

Original drg. size	Date	Scale
A1	June 2024	1:100

Drawing Status	Drawing Number	Rev.
For Planning	IE01T23A67-PD-005	B



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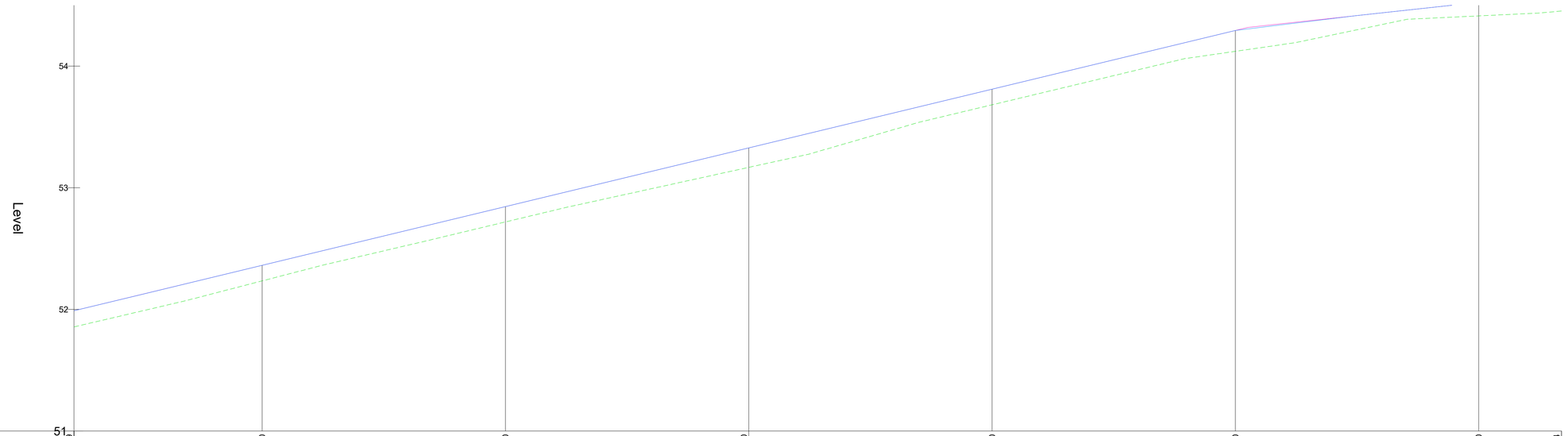
SCALE: H1:100, V 1:20.



Chainage	122.269	130.000	140.000	150.000	160.000	170.000	180.000	183.404
Existing Levels	51.856	52.234	52.719	53.168	53.682	54.121	54.412	54.453
Proposed Levels	51.989	52.362	52.845	53.327	53.810	54.293	54.524	54.598

Legend

- Proposed Scheme Extents
- Existing Levels
- Proposed Levels

Rev.	Date	Revision details	Drawn	Checked	Approved
B	25/06/24	For Planning	CS	PK	AM
A	19/04/24	For Information	CS	PK	AM

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Client
DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL

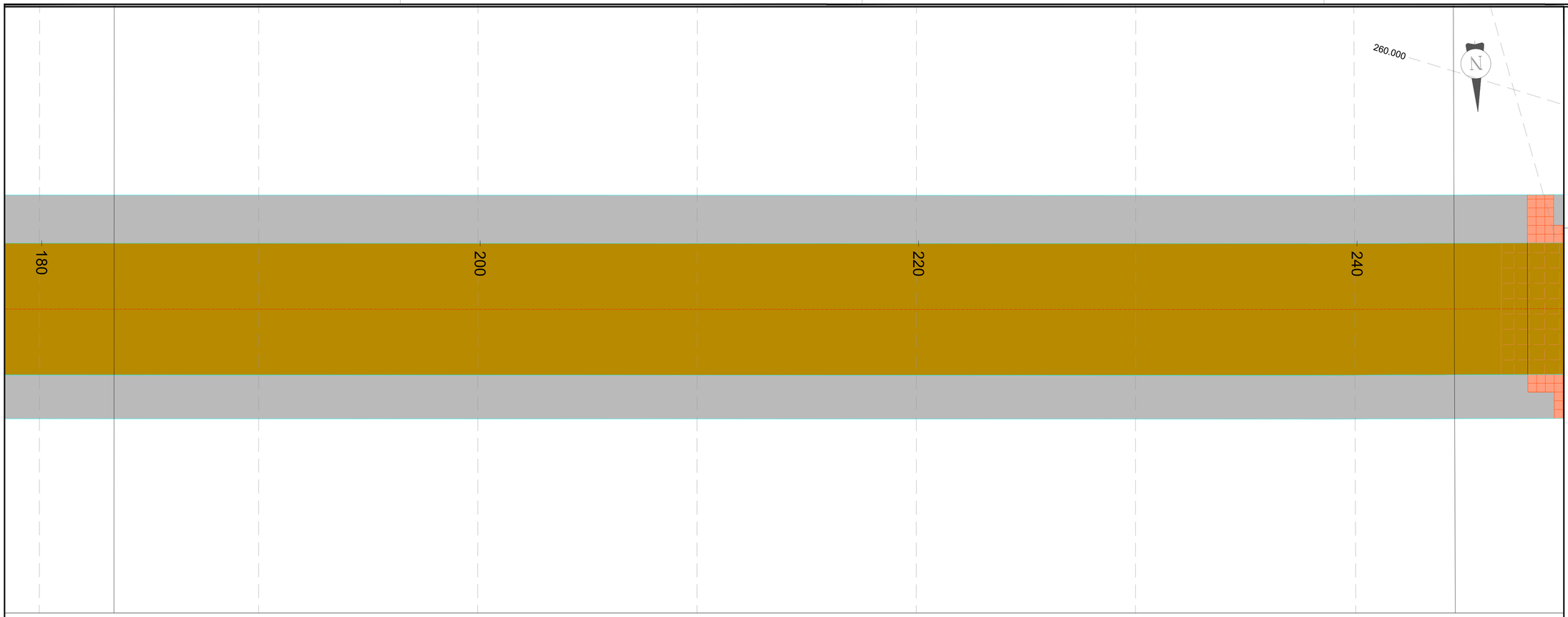
Project
LEHAUNSTOWN NEIGHBOURHOOD ROAD

Title
PROPOSED LONGSECTIONS
SHEET 3 OF 7

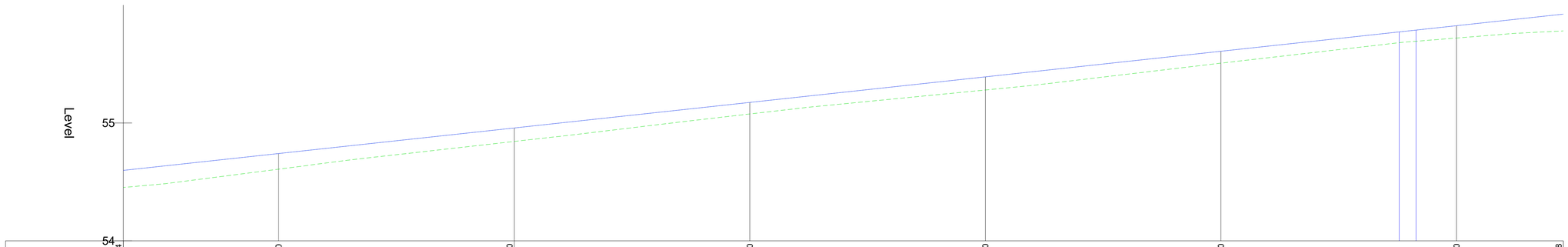
Drawn	Checked	Approved
CS	PK	AM

Original drg. size	Date	Scale
A1	June 2024	1:100

Drawing Status	Drawing Number	Rev.
For Planning	IE01T23A67-PD-005	B



EAST-WEST LONGSECTION 4
SCALE: H1:100, V 1:20.



Chainage	183.404	190.000	200.000	210.000	220.000	230.000	240.000	244.538
Existing Levels	54.453	54.608	54.843	55.076	55.279	55.507	55.720	55.781
Proposed Levels	54.598	54.741	54.957	55.174	55.391	55.608	55.825	55.923

Legend

- Proposed Scheme Extents
- Existing Levels
- Proposed Levels

Rev.	Date	Revision details	Drawn	Checked	Approved
B	25/06/24	For Planning	CS	PK	AM
A	19/04/24	For Information	CS	PK	AM

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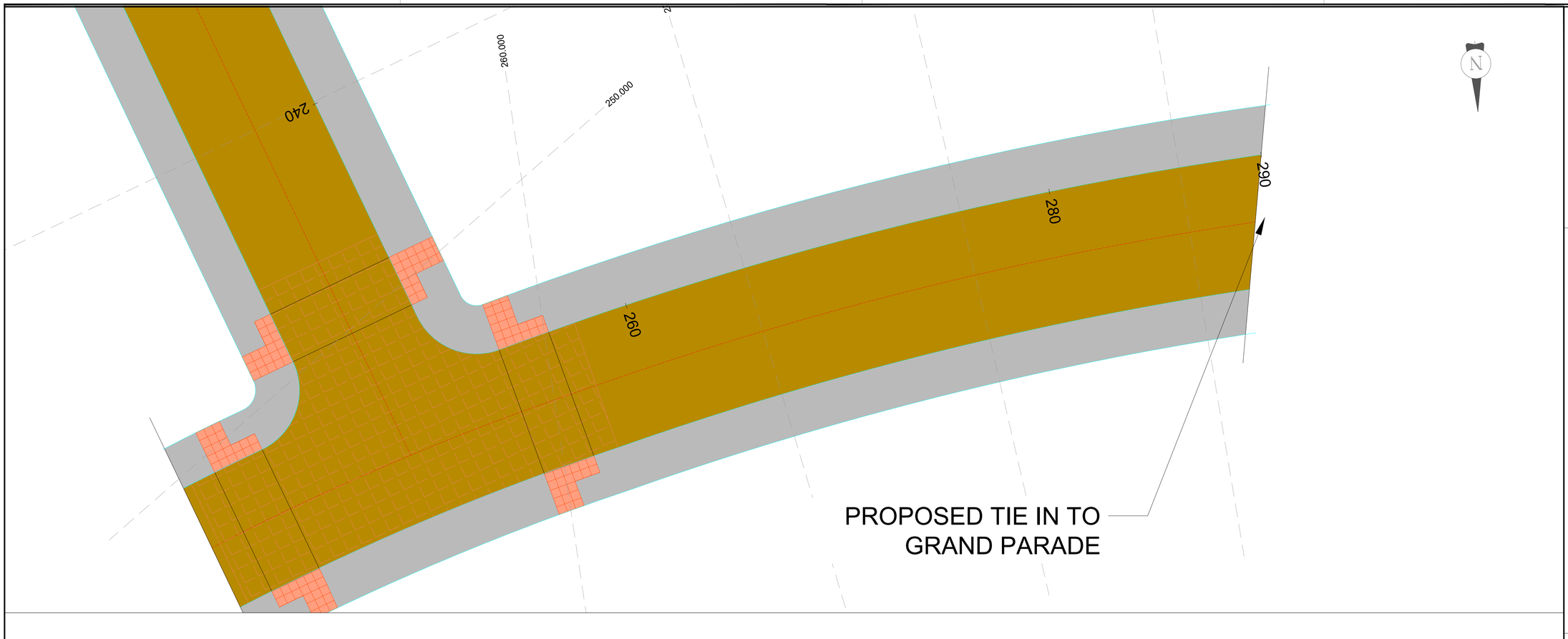
Project
LEHAUNSTOWN NEIGHBOURHOOD ROAD

Title
PROPOSED LONGSECTIONS
SHEET 4 OF 7

Drawn	Checked	Approved
CS	PK	AM

Original drg. size	Date	Scale
A1	June 2024	1:100

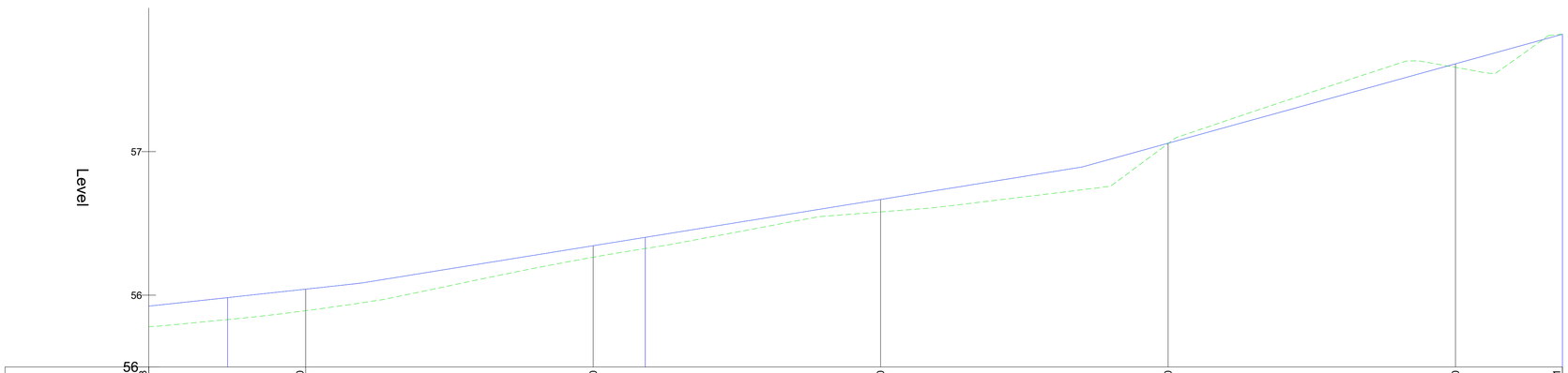
Drawing Status	Drawing Number	Rev.
For Planning	IE01T23A67-PD-005	B



Legend

- Proposed Scheme Extents
- Existing Levels
- Proposed Levels

EAST-WEST LONGSECTION 5
SCALE: H1:100, V 1:20.



Chainage	244.538	250.000	260.000	270.000	280.000	290.000	293.721
Existing Levels	55.781	55.892	56.264	56.580	57.055	57.587	57.817
Proposed Levels	55.923	56.042	56.344	56.666	57.058	57.611	57.817

Rev.	Date	Revision details	Drawn	Checked	Approved
B	25/06/24	For Planning	CS	PK	AM
A	19/04/24	For Information	CS	PK	AM

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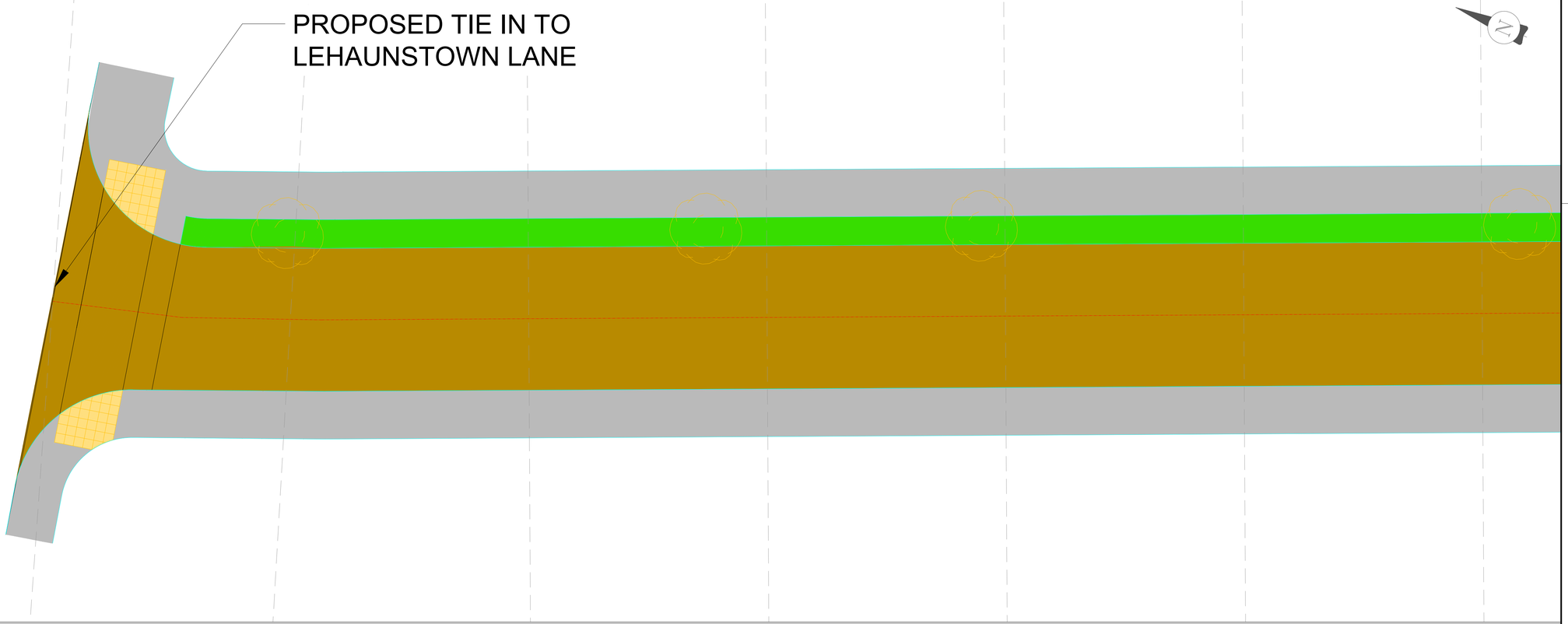
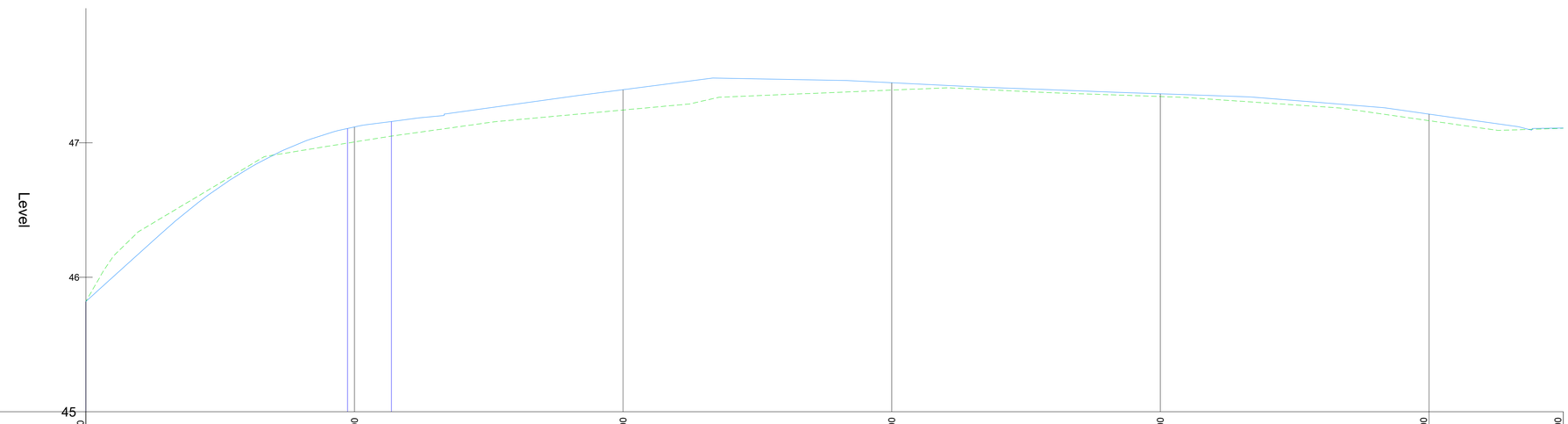
Project: LEHAUNSTOWN NEIGHBOURHOOD ROAD

Title: PROPOSED LONGSECTIONS
SHEET 5 OF 7

Drawn	Checked	Approved
CS	PK	AM
Original drg. size: A1	Date: June 2024	Scale: 1:100
Drawing Status: For Planning	Drawing Number: IE01T23A67-PD-005	Rev.: B



NORTH-SOUTH LONGSECTION 1
SCALE: H1:100, V 1:20.



Chainage	0.000	10.000	20.000	30.000	40.000	50.000	55.000
Existing Levels	45.820	47.006	47.244	47.392	47.344	47.165	47.108
Proposed Levels	45.820	47.117	47.395	47.446	47.364	47.213	47.110

Legend

- Proposed Scheme Extents
- Existing Levels
- Proposed Levels

Rev.	Date	Revision details	Drawn	Checked	Approved
B	25/06/24	For Planning	CS	PK	AM
A	19/04/24	For Information	CS	PK	AM

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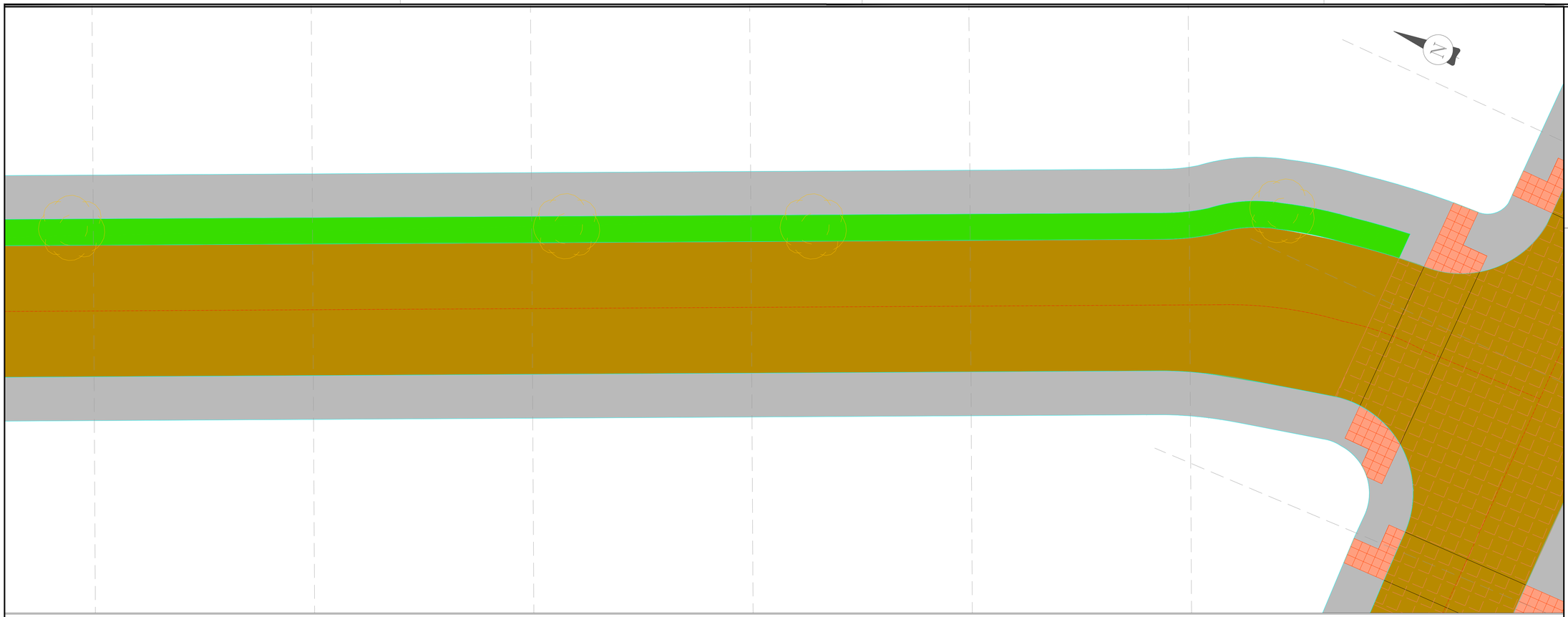
Project: LEHAUNSTOWN NEIGHBOURHOOD ROAD

Title: PROPOSED LONGSECTIONS
SHEET 6 OF 7

Drawn	Checked	Approved
CS	PK	AM

Original drg. size	Date	Scale
A1	June 2024	1:100

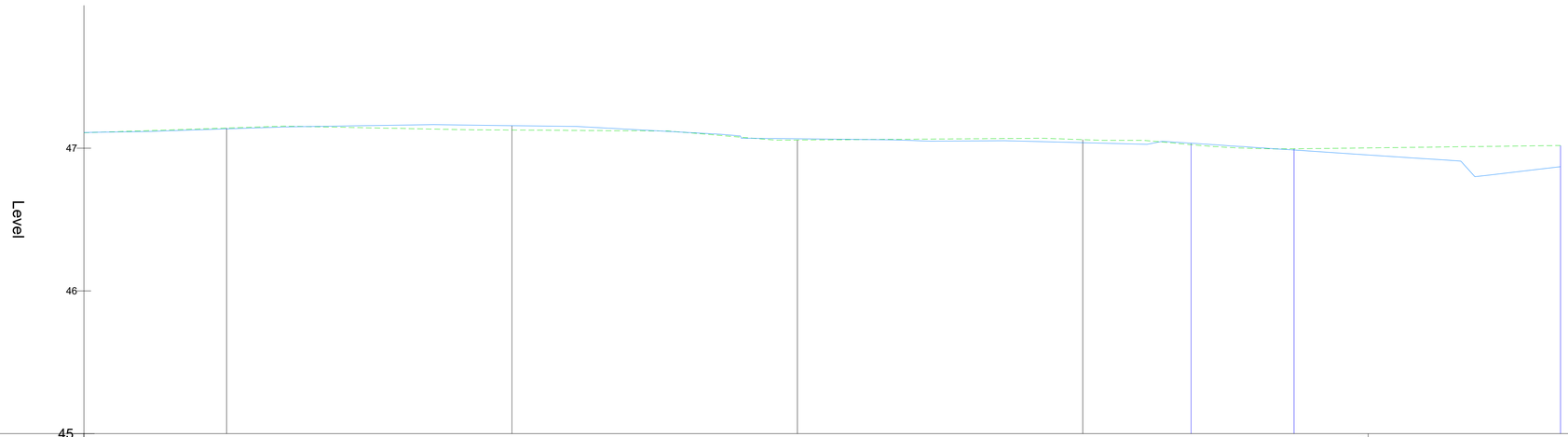
Drawing Status	Drawing Number	Rev.
For Planning	IE01T23A67-PD-005	B



Legend

- Proposed Scheme Extents
- Existing Levels
- Proposed Levels

NORTH-SOUTH LONGSECTION 2
SCALE: H1:100, V 1:20.



Chainage	55.000	60.000	70.000	80.000	90.000	100.000	110.000
Existing Levels	47.108	47.141	47.127	47.057	47.059	47.002	
Proposed Levels	47.110	47.135	47.158	47.066	47.039	46.952	

Rev.	Date	Revision details	Drawn	Checked	Approved
B	25/06/24	For Planning	CS	PK	AM
A	19/04/24	For Information	CS	PK	AM

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Client
DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL

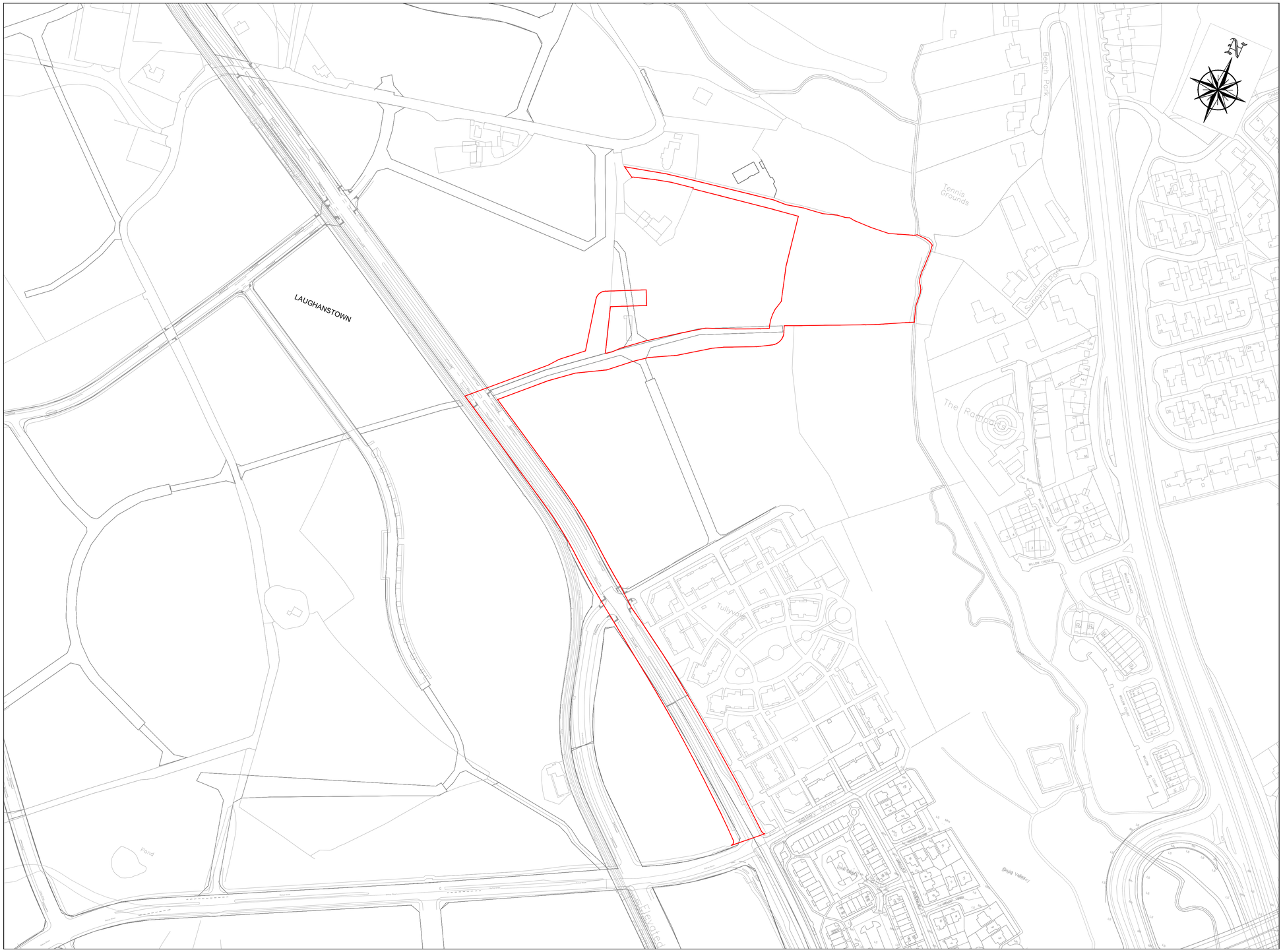
Project
LEHAUNSTOWN NEIGHBOURHOOD ROAD

Title
PROPOSED LONGSECTIONS
SHEET 7 OF 7

Drawn	Checked	Approved
CS	PK	AM

Original drg. size	Date	Scale
A1	June 2024	1:100

Drawing Status	Drawing Number	Rev.
For Planning	IE01T23A67-PD-005	B

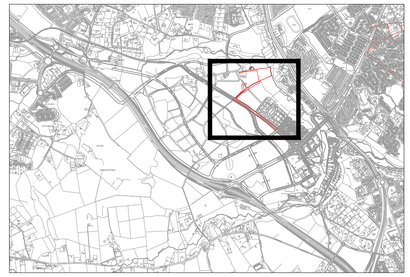


LOCATION MAP
SCALE 1:2000@A1

LEGEND:

PROPOSED WORKS BOUNDARY

KEYPLAN:



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No.	Revision	Date	By	Chk'd	App'd
P01	ISSUED FOR PLANNING	09.03.21	CMG	JPR	JPR

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Civil - Structural - Transportation - Environmental

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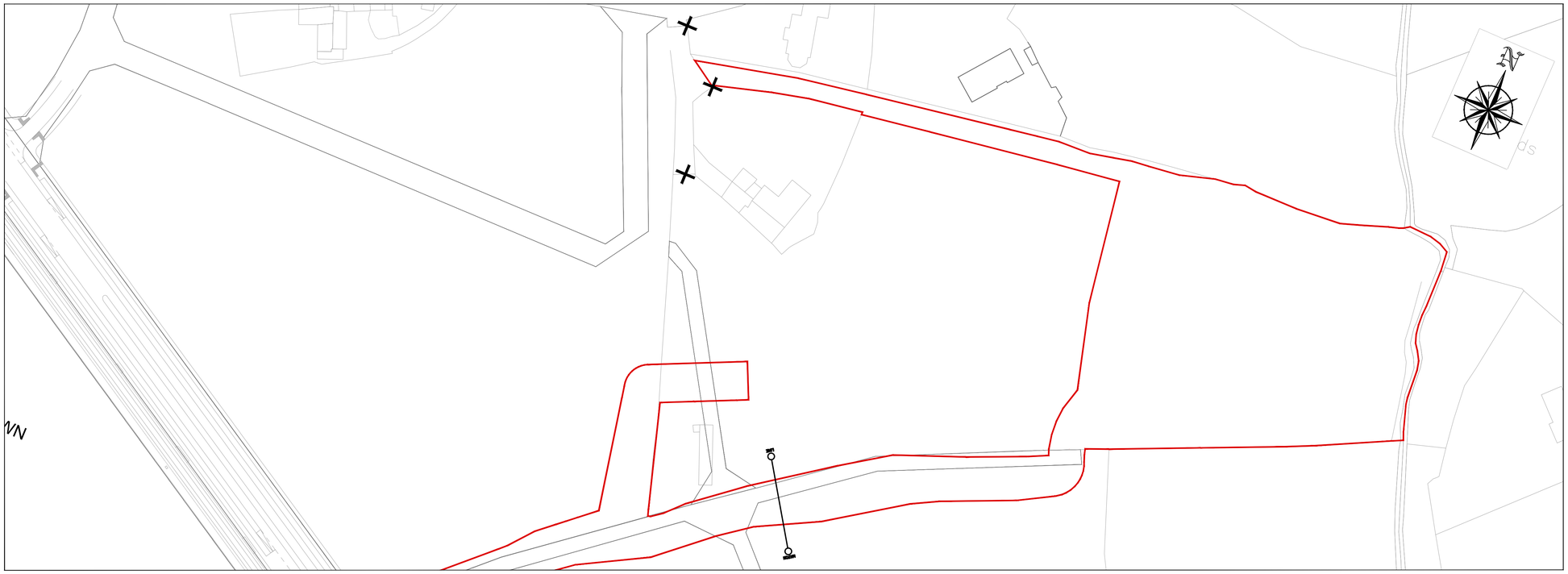
www.rod.ie

Drawn	Designed	Checked	Approved	Suitability Code - Description
MA	CMG	JPR	JPR	S4 - Stage Approval

Project Stage	PLANNING
Project Title	Regional Attenuation Pond 2A, Cherrywood
Drawing Title	Site Location Extents
Drawing Number	Project | Originator | Volume | Location | Type | Role | Number P2ACH - ROD - GEN - SW_AE - DR - CD - 30000
Scale (A1)	AS SHOWN
Date:	MARCH 2021
Job No:	20.106
Rev:	P01

27 April 2021 09:43:32 J:\2020\20106\20106-02_WIP\08 MODELS\01 CAD\01 DWG\01 PRELIM DESIGN\P2ACH-ROD-GEN-SW_AE-DR-CD-30000 (S4_P01).DWG

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



LOCATION MAP
SCALE 1:1000@A1

LEGEND:

PROPOSED WORKS BOUNDARY
SITE NOTICE LOCATION

KEYPLAN:

Drawing Notes

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No.	Revision	Date	By	Chk'd	App'd
P01	ISSUED FOR REVIEW AND COMMENTS	05.06.20	LS	CMG	JPR
P02	ISSUED FOR PLANNING	08.12.20	MA	CMG	JPR
P03	ISSUED FOR PLANNING	08.03.20	MA	CMG	JPR

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Drawn	Designed	Checked	Approved	Suitability Code - Description
MA	CMG	CMG	JPR	S4 - Stage Approval

Project Stage: PLANNING

Project Title: Regional Attenuation Pond 2A, Cherrywood

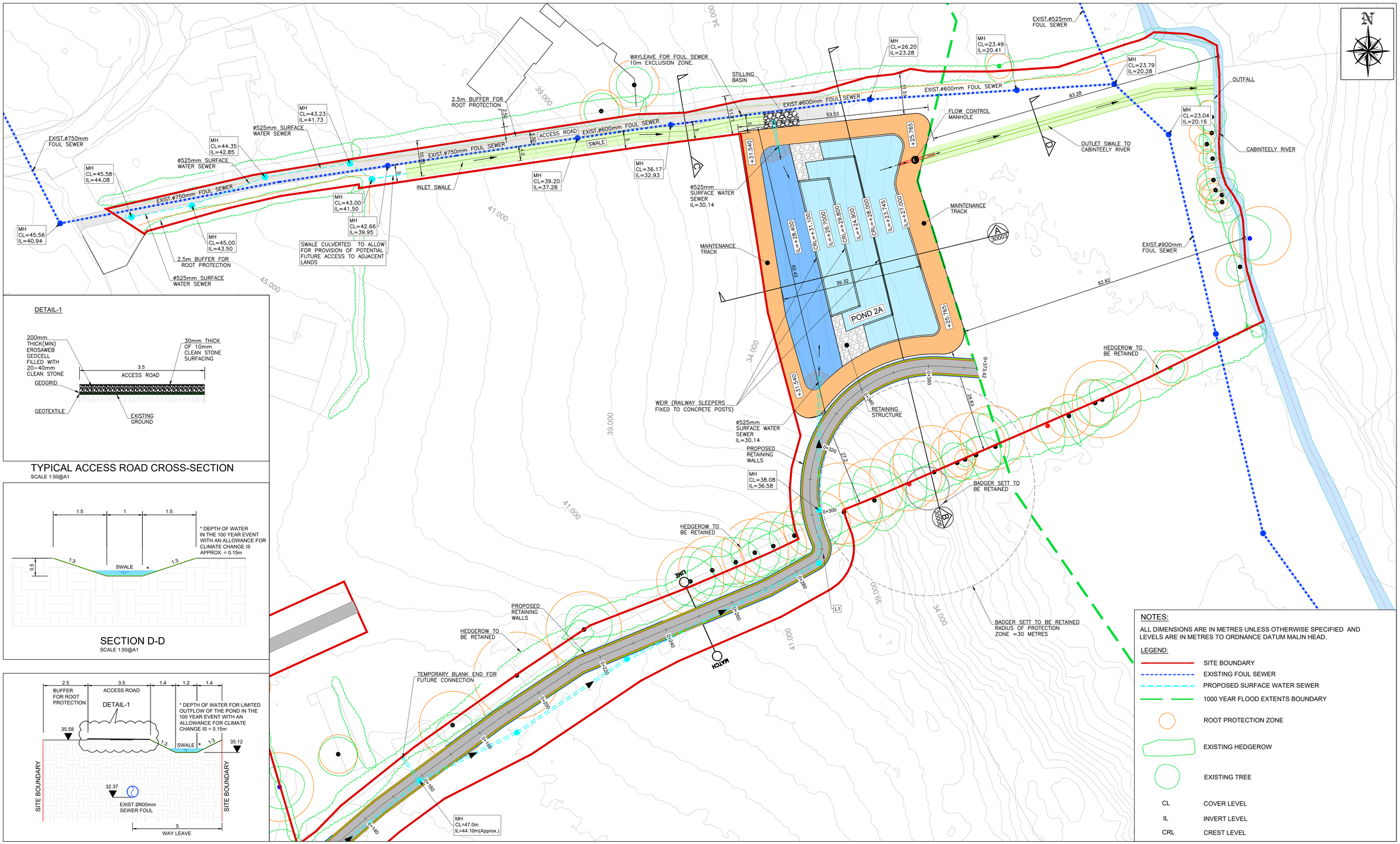
Drawing Title: SITE LOCATION MAP

Drawing Number: Project | Originator | Volume | Location | Type | Role | Number
P2ACH - ROD - GEN - SW_AE - DR - CD - 30001

Scale (A1): AS SHOWN | Date: JUNE 2020 | Job No: 20.106 | Rev: P03

27 April 2021 09:44:35 J:\2020\20106\20106-02_WIP\08 MODELS\01 CAD\01 DWG\01 PRELIM DESIGN\P2ACH-ROD-GEN-SW_AE-DR-CD-30001 (S4_P03).DWG

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



DETAIL-1

TYPICAL ACCESS ROAD CROSS-SECTION

SCALE 1:50@A1

SECTION D-D

SCALE 1:50@A1

SECTION C-C

SCALE 1:100@A1

PLAN LAYOUT

SCALE 1:500@A1

NOTES:

ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED AND LEVELS ARE IN METRES TO ORDNANCE DATUM MALIN HEAD.

LEGEND:

- SITE BOUNDARY
- EXISTING FOUL SEWER
- PROPOSED SURFACE WATER SEWER
- 1000 YEAR FLOOD EXTENTS BOUNDARY
- ROOT PROTECTION ZONE
- EXISTING HEDGEROW
- EXISTING TREE
- CL — COVER LEVEL
- IL — INVERT LEVEL
- CRL — CREST LEVEL

Comhairle Contae County Council

No.	Revision	Date	By	Chk'd	App'd
P01	ISSUED FOR REVIEW AND COMMENT	02.06.20	LS	ES	JPR
P02	ISSUED FOR REVIEW AND COMMENT	08.06.20	LS	ES	JPR
P03	ISSUED FOR REVIEW AND COMMENT	12.06.20	LS	ES	JPR
P04	ISSUED FOR REVIEW AND COMMENT	15.06.20	LS	ES	JPR
P05	WORK IN PROGRESS	04.09.20	MA	ES	JPR
P06	ISSUED FOR PLANNING	08.12.20	MA	CMG	JPR
P07	ISSUED FOR PLANNING	03.03.21	MA	CMG	JPR
P08	ISSUED FOR PLANNING(INVERT & CREST LEVELS AMENDED)	13.04.21	MA	CMG	JPR

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Drawn	Designed	Checked	Approved	Suitability Code - Description
MA	ES	CMG	JPR	S4 - Stage Approval

Project Stage	PLANNING
Project Title	Regional Attenuation Pond 2A, Cherrywood
Drawing Title	PROPOSED POND PLAN LAYOUT AND SECTIONS C-C & D-D
Drawing Number	Project | Originator | Volume | Location | Type | Role | Number: P2ACH - ROD - GEN - SW_AE - DR - CD - 30002
Scale (A1)	AS SHOWN
Date:	JUNE 2020
Job No:	20.106
Rev:	P08

27 April 2021 09:46:00 J:\2020\20106\20106-02_WIP\08 MODELS\01 CAD\01 DWG\01 PRELIM DESIGN\P2ACH-ROD-GEN-SW_AE-DR-CD-30002 TO 30009 (S4_P07).DWG

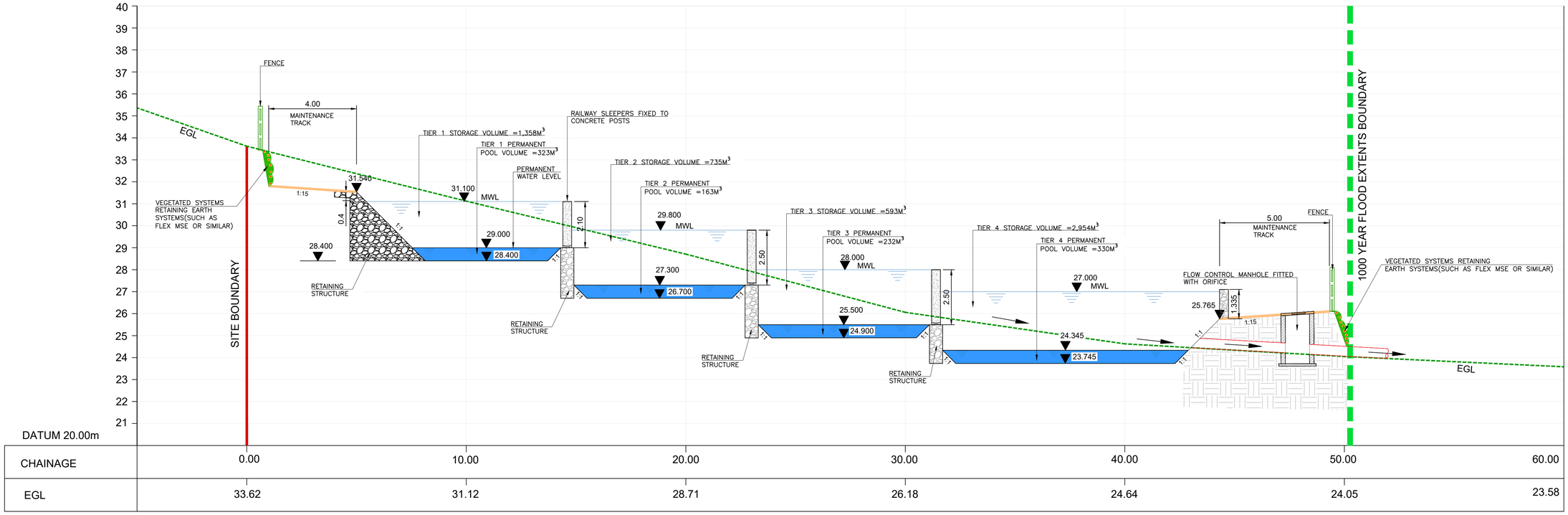
DO NOT SCALE USE FIGURED DIMENSIONS ONLY

NOTES:

ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED AND LEVELS ARE IN METRES TO ORDNANCE DATUM MALIN HEAD.

LEGEND:

	1000 YEAR FLOOD EXTENTS BOUNDARY
EGL	EXISTING GROUND LEVEL
MWL	MAXIMUM WATER LEVEL



SECTION A-A

A1 @ HORIZONTAL SCALE 1:100
A1 @ VERTICAL SCALE 1:100

Comhairle Contae County Council

No.	Revision	Date	By	Chk'd	App'd
P01	ISSUED FOR REVIEW AND COMMENT	02.06.20	LS	ES	JPR
P02	ISSUED FOR REVIEW AND COMMENT	05.06.20	LS	ES	JPR
P03	ISSUED FOR REVIEW AND COMMENT	15.06.20	LS	ES	JPR
P04	ISSUED FOR PLANNING	08.12.20	MA	CMG	JPR
P05	ISSUED FOR PLANNING	03.03.21	MA	CMG	JPR
P06	ISSUED FOR PLANNING(INVERT & CREST LEVELS AMENDED)	13.04.21	MA	CMG	JPR
P07	ISSUED FOR PLANNING(MINOR AMENDMENTS)	26.04.21	MA	CMG	JPR

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Drawn	Designed	Checked	Approved	Suitability Code - Description
MA	LS	CMG	JPR	S4 - Stage Approval

Project Stage	PLANNING
Project Title	Regional Attenuation Pond 2A, Cherrywood
Drawing Title	PROPOSED POND SECTION A-A
Drawing Number	Project | Originator | Volume | Location | Type | Role | Number: P2ACH - ROD - GEN - SW_AE - DR - CD - 30003
Scale (A1)	AS SHOWN
Date:	JUNE 2020
Job No:	20.106
Rev:	P07

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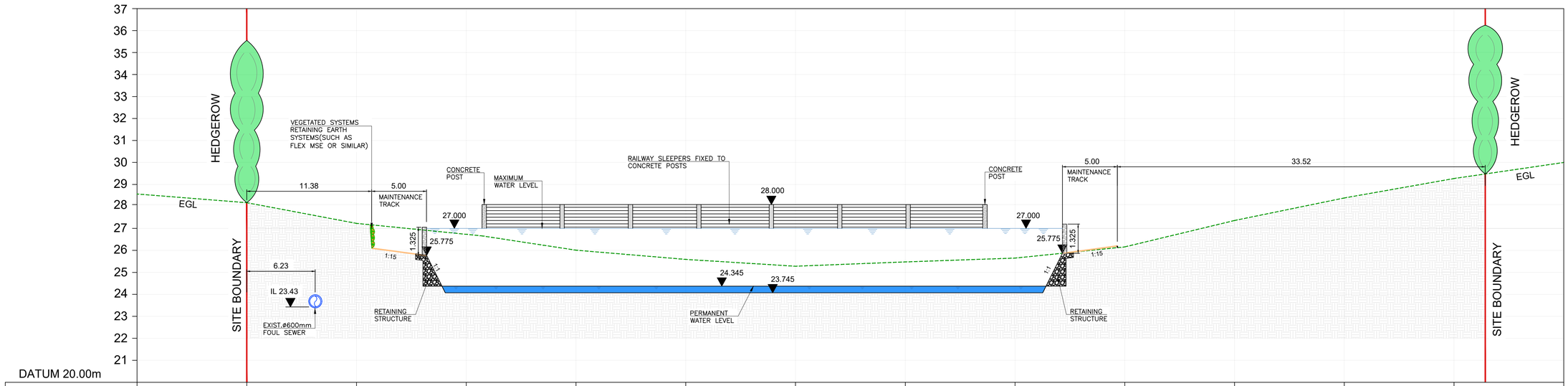
NOTES:

ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED AND LEVELS ARE IN METRES TO ORDNANCE DATUM MALIN HEAD.

LEGEND:

	1000 YEAR FLOOD EXTENTS BOUNDARY
EGL	EXISTING GROUND LEVEL
MWL	MAXIMUM WATER LEVEL



CHAINAGE	-10.00	0.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00	110.00	120.00
EGL	28.480	28.085	27.230	26.660	26.010	25.590	25.280	25.476	25.650	26.160	27.360	28.300	29.270	30.000

SECTION B-B

A1 @ HORIZONTAL SCALE 1:200
A1 @ VERTICAL SCALE 1:100

Comhairle Contae County Council

No.	Revision	Date	By	Chk'd	App'd
P01	ISSUED FOR REVIEW AND COMMENT	05.06.20	LS	ES	JPR
P02	ISSUED FOR REVIEW AND COMMENT	15.06.20	LS	ES	JPR
P03	ISSUED FOR PLANNING	08.12.20	MA	CMG	JPR
P04	ISSUED FOR PLANNING	03.03.21	MA	CMG	JPR
P05	ISSUED FOR PLANNING(INVERT & CREST LEVELS AMENDED)	13.04.21	MA	CMG	JPR

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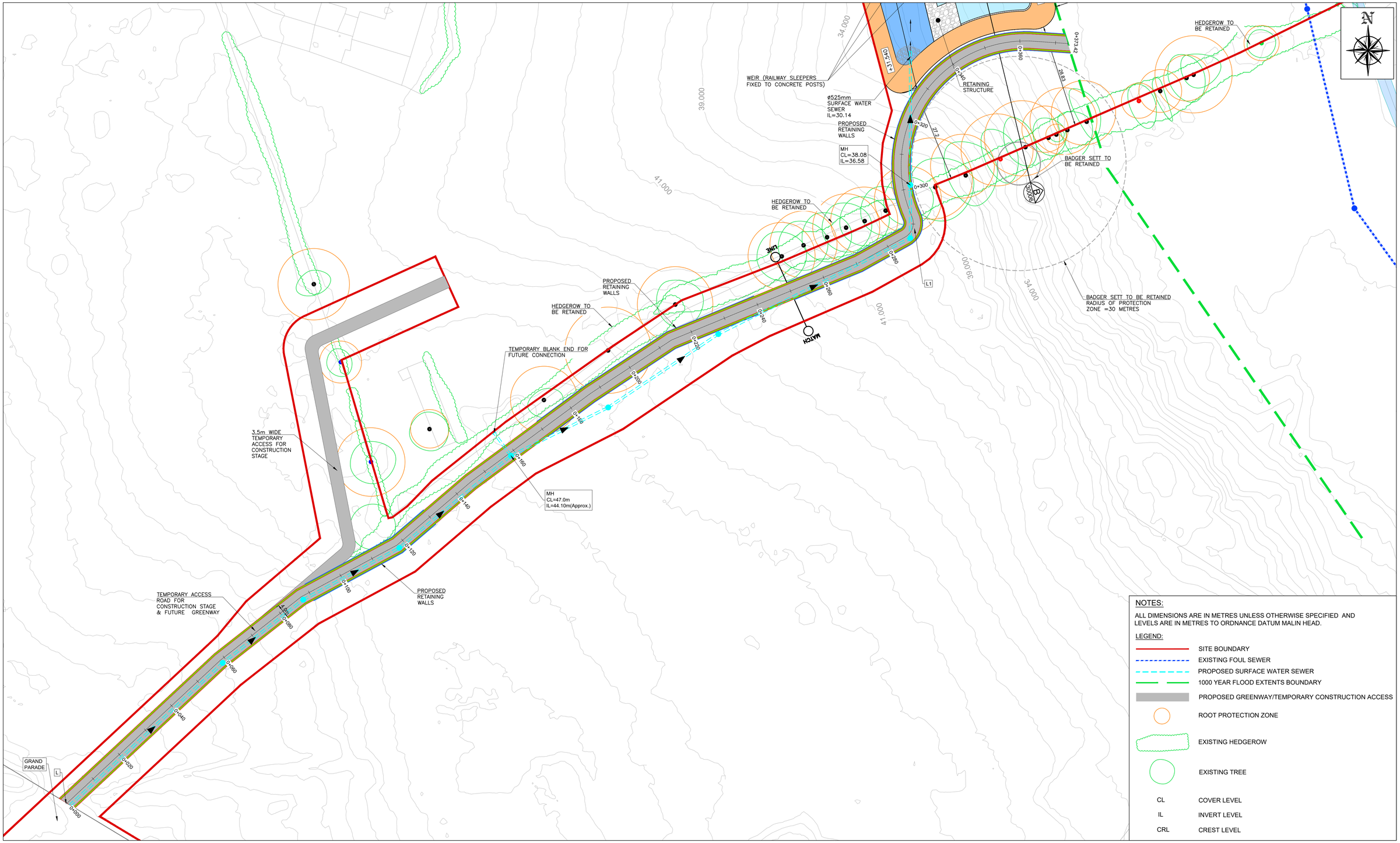
Drawn	Designed	Checked	Approved	Suitability Code - Description
MA	LS	CMG	JPR	S4 - Stage Approval

Project Stage	PLANNING
Project Title	Regional Attenuation Pond 2A, Cherrywood
Drawing Title	PROPOSED POND SECTION B-B
Drawing Number	Project | Originator | Volume | Location | Type | Role | Number: P2ACH - ROD - GEN - SW_AE - DR - CD - 30006
Scale (A1)	AS SHOWN
Date:	JUNE 2020
Job No:	20.106
Rev:	P05



N

NOTES:

ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED AND LEVELS ARE IN METRES TO ORDNANCE DATUM MALIN HEAD.

LEGEND:

- SITE BOUNDARY
- EXISTING FOUL SEWER
- PROPOSED SURFACE WATER SEWER
- 1000 YEAR FLOOD EXTENTS BOUNDARY
- PROPOSED GREENWAY/TEMPORARY CONSTRUCTION ACCESS
- ROOT PROTECTION ZONE
- EXISTING HEDGEROW
- EXISTING TREE
- CL — COVER LEVEL
- IL — INVERT LEVEL
- CRL — CREST LEVEL

PLAN LAYOUT

SCALE 1:500@A1

dlr Comhairle Contae County Council

No.	Revision	Date	By	Chk'd	App'd
P01	WORK IN PROGRESS	10.09.20	ES	ES	JPR
P02	ISSUED FOR INFORMATION	29.10.20	ES	CMG	JPR
P03	ISSUED FOR PLANNING	08.12.20	MA	CMG	JPR
P04	ISSUED FOR PLANNING	03.03.21	MA	CMG	JPR

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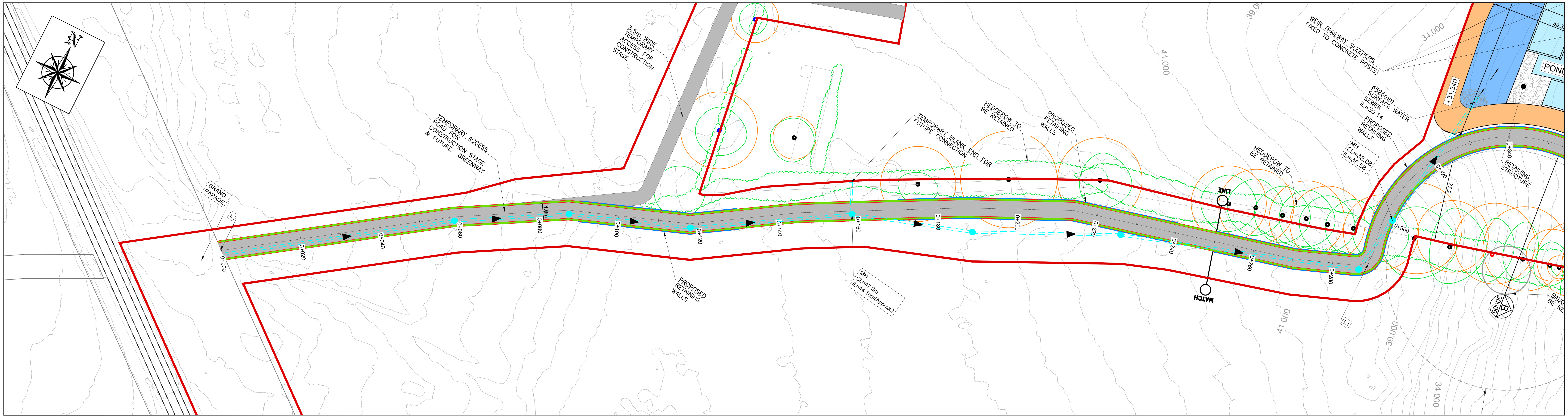
Drawn	Designed	Checked	Approved	Suitability Code - Description
MA	ES	CMG	JPR	S4 - Stage Approval

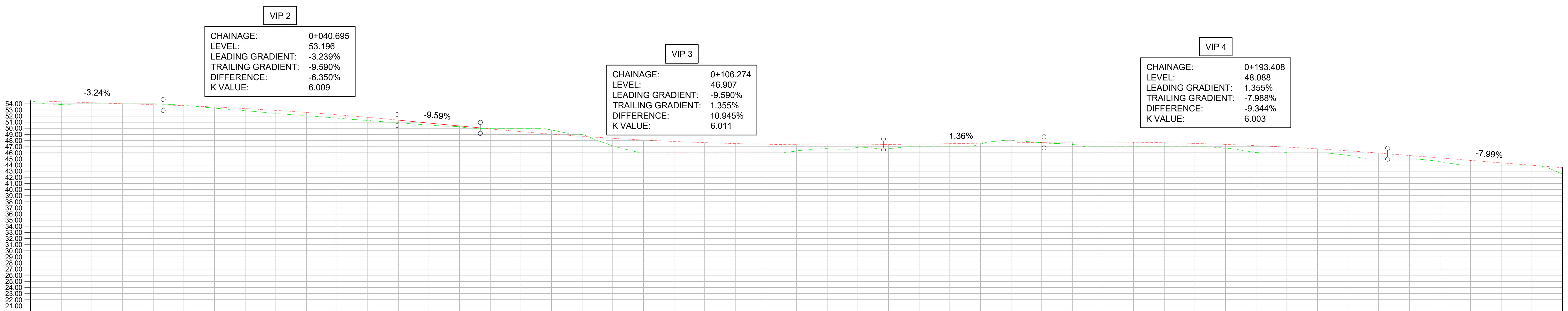
Project Stage	PLANNING
Project Title	Regional Attenuation Pond 2A, Cherrywood
Drawing Title	PROPOSED GREENWAY/ TEMPORARY CONSTRUCTION ACCESS ROUTE
Drawing Number	Project | Originator | Volume | Location | Type | Role | Number: P2ACH - ROD - GEN - SW_AE - DR - CD - 30007
Scale (A1)	AS SHOWN
Date:	SEPTEMBER 2020
Job No:	20.106
Rev:	P04

27 April 2021 09:47:59 J:\2020\20106\20106-02_WIP\08 MODELS\01 CAD\01 DWG\01 PRELIM DESIGN\P2ACH-ROD-GEN-SW_AE-DR-CD-30002 TO 30009 (S4_P07).DWG

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



PROPOSED GREENWAY/TEMPORARY CONSTRUCTION ACCESS ROAD - LONGITUDINAL SECTION (CH. 0+000 - 0+250.000)
A1 SCALE 1:500
A3 SCALE 1:1000



DATUM 20.00

CHAINAGE	0+000	0+005	0+010	0+015	0+020	0+025	0+030	0+035	0+040	0+045	0+050	0+055	0+060
EXISTING LEVEL	54.514	53.907	54.007	54.006	54.000	53.758	53.310	52.883	52.437	52.042	51.671	51.286	50.920
PROPOSED LEVEL	54.514	54.352	54.190	54.028	53.866	53.695	53.484	53.231	52.937	52.601	52.224	51.805	51.345

CHAINAGE	0+065	0+070	0+075	0+080	0+085	0+090	0+095	0+100	0+105	0+110	0+115	0+120	0+125
EXISTING LEVEL	50.542	50.250	50.000	50.001	49.740	49.000	47.147	46.000	45.999	45.999	46.000	46.000	46.291
PROPOSED LEVEL	50.865	50.386	49.908	49.463	49.059	48.697	48.377	48.098	47.861	47.665	47.511	47.399	47.328

CHAINAGE	0+130	0+135	0+140	0+145	0+150	0+155	0+160	0+165	0+170	0+175	0+180	0+185	0+190
EXISTING LEVEL	46.670	46.901	46.677	47.000	47.000	47.419	48.091	47.646	47.362	47.004	47.007	47.005	47.002
PROPOSED LEVEL	47.299	47.311	47.364	47.432	47.500	47.567	47.635	47.703	47.753	47.761	47.728	47.653	47.536

CHAINAGE	0+195	0+200	0+205	0+210	0+215	0+220	0+225	0+230	0+235	0+240	0+245	0+250
EXISTING LEVEL	46.748	46.052	46.018	45.996	45.573	44.998	44.999	44.546	44.013	44.005	44.000	42.562
PROPOSED LEVEL	47.378	47.178	46.936	46.653	46.328	45.962	45.564	45.165	44.765	44.366	43.967	43.567

HORIZONTAL GEOMETRY: L=58.687m | L=28.809m | L=30.402m | L=27.388m | L=41.515m | L=27.163m | L=56.440m

VERTICAL GEOMETRY: G=-3.24% L=21.614 | K=6.009 L=38.162 | G=-9.59% L=13.603 | K=6.011 L=65.791 | 0.35G=1.36% L=26.194 | K=6.003 L=56.088 | G=-7.99% L=33.708

NOTES:

ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED AND LEVELS ARE IN METRES TO ORDNANCE DATUM MALIN HEAD.

LEGEND:

- EXISTING GROUND LEVEL
- PROPOSED GROUND LEVEL
- PROPOSED RETAINING WALL
- SITE BOUNDARY
- EXISTING FOUL SEWER
- PROPOSED SURFACE WATER SEWER
- 1000 YEAR FLOOD EXTENTS BOUNDARY
- PROPOSED GREENWAY/TEMPORARY CONSTRUCTION ACCESS
- ROOT PROTECTION ZONE
- EXISTING HEDGEROW
- EXISTING TREE
- CL COVER LEVEL
- IL INVERT LEVEL
- CRL CREST LEVEL

PROPOSED GREENWAY/TEMPORARY CONSTRUCTION ACCESS ROAD - LONGITUDINAL SECTION (CH. 0+000 - 0+250.000)
A1 @ HORIZONTAL SCALE 1:500
A1 @ VERTICAL SCALE 1:500
A3 @ HORIZONTAL SCALE 1:1000
A3 @ VERTICAL SCALE 1:1000

Comhairle Contae County Council

No.	Revision	Date	By	Chk'd	App'd
P01	ISSUED AS DRAFT	30.10.20	ES	CMG	JPR
P02	ISSUED FOR PLANNING	08.12.20	MA	CMG	JPR
P03	ISSUED FOR PLANNING	03.03.21	MA	CMG	JPR

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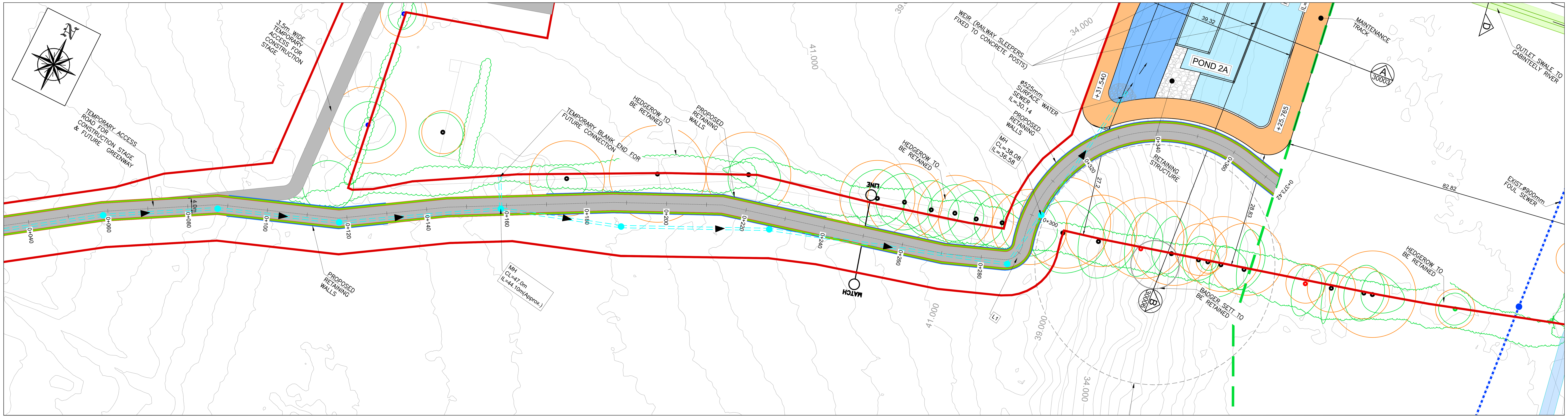
Drawn	Designed	Checked	Approved	Suitability Code - Description
MA	CMG	CMG	JPR	S4 - Stage Approval

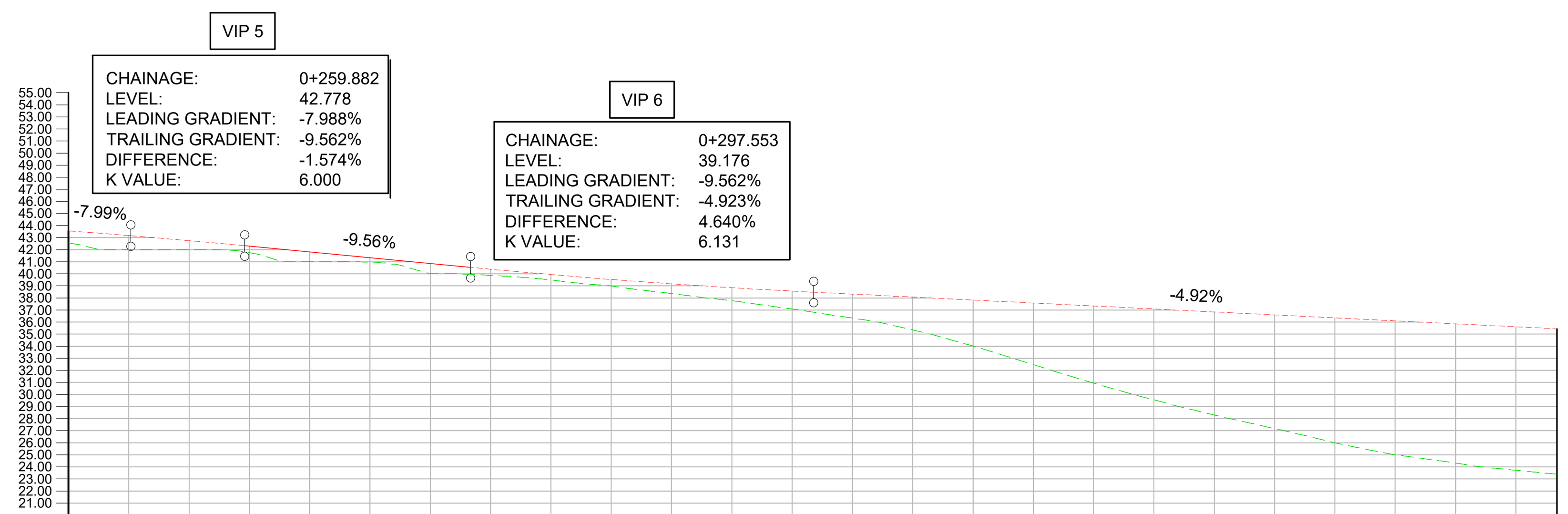
Project Stage	PLANNING
Project Title	Regional Attenuation Pond 2A, Cherrywood
Drawing Title	TEMPORARY ACCESS ROAD LONGITUDINAL PROFILE SHEET 1 OF 2
Drawing Number	Project P2ACH - Originator ROD - Volume GEN - Location SW_AE - Type DR - Role CD - Number 30008
Scale (A1)	AS SHOWN
Date:	OCT 2020
Job No:	20.106
Rev:	P03

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



PROPOSED GREENWAY/TEMPORARY CONSTRUCTION ACCESS ROAD LAYOUT (CH. 0+250.000 - 0+373.420)

A1 SCALE 1:500
A3 SCALE 1:1000



DATUM 20.00

CHAINAGE	EXISTING LEVEL	PROPOSED LEVEL
0+250	42.562	43.567
0+255	42.000	43.168
0+260	42.000	42.749
0+265	41.755	42.288
0+270	40.999	41.810
0+275	40.985	41.332
0+280	40.000	40.854
0+285	39.871	40.378
0+290	39.481	39.934
0+295	38.994	39.531
0+300	38.361	39.168
0+305	37.770	38.846
0+310	37.079	38.565
0+315	36.332	38.317
0+320	35.349	38.071
0+325	34.016	37.824
0+330	32.475	37.578
0+335	30.940	37.332
0+340	29.550	37.086
0+345	28.302	36.840
0+350	27.174	36.594
0+355	25.984	36.348
0+360	24.998	36.101
0+365	24.316	35.855
0+370	23.725	35.609
0+373.42	23.388	35.441

HORIZONTAL GEOMETRY: L=56.440m | L=15.075m | R=4.500 L=6.679 | R=34.935 L=70.524 | L=10.739m

VERTICAL GEOMETRY: G=-7.99% L=33.708 | K=6.000 L=9.445 | G=-9.56% L=18.725 | K=6.131 L=28.447 | G=-4.92% L=61.642

PROPOSED GREENWAY/TEMPORARY CONSTRUCTION ACCESS ROAD - LONGITUDINAL SECTION (CH. 0+250.000 - 0+373.420)

A1 @ HORIZONTAL SCALE 1:500
A1 @ VERTICAL SCALE 1:500
A3 @ HORIZONTAL SCALE 1:1000
A3 @ VERTICAL SCALE 1:1000

NOTES:

ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED AND LEVELS ARE IN METRES TO ORDNANCE DATUM MALIN HEAD.

LEGEND:

- EXISTING GROUND LEVEL
- PROPOSED GROUND LEVEL
- PROPOSED RETAINING WALL
- SITE BOUNDARY
- EXISTING FOUL SEWER
- PROPOSED SURFACE WATER SEWER
- 1000 YEAR FLOOD EXTENTS BOUNDARY
- PROPOSED GREENWAY/TEMPORARY CONSTRUCTION ACCESS
- ROOT PROTECTION ZONE
- EXISTING HEDGEROW
- EXISTING TREE
- CL COVER LEVEL
- IL INVERT LEVEL
- CRL CREST LEVEL

dlr Comhairle Contae County Council

No.	Revision	Date	By	Chk'd	App'd
P01	ISSUED AS DRAFT	30.10.20	ES	CMG	JPR
P02	ISSUED FOR PLANNING	08.12.20	MA	CMG	JPR
P03	ISSUED FOR PLANNING	03.03.21	MA	CMG	JPR

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Drawn	Designed	Checked	Approved	Suitability Code - Description
MA	CMG	CMG	JPR	S4 - Stage Approval

Project Stage: PLANNING

Project Title: Regional Attenuation Pond 2A, Cherrywood

Drawing Title: TEMPORARY ACCESS ROAD LONGITUDINAL PROFILE SHEET 2 OF 2

Drawing Number	Project	Originator	Volume	Location	Type	Role	Number
	P2ACH	ROD	GEN	SW_AE	DR	CD	30009

Scale (A1): AS SHOWN | Date: OCT 2020 | Job No: 20.106 | Rev: P03

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

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Appendix C Rainfall Supporting Data

Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 323667, Northing: 223898,

	Interval		Years									
DURATION	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	120,
5 mins	2.4,	3.4,	4.0,	4.8,	5.4,	5.9,	7.4,	9.1,	10.2,	11.9,	13.3,	14.5,	15.2,
10 mins	3.3,	4.7,	5.5,	6.7,	7.5,	8.2,	10.2,	12.7,	14.3,	16.5,	18.6,	20.2,	21.2,
15 mins	3.9,	5.6,	6.5,	7.9,	8.8,	9.6,	12.1,	14.9,	16.8,	19.5,	21.9,	23.7,	25.0,
30 mins	5.1,	7.3,	8.4,	10.2,	11.3,	12.3,	15.3,	18.7,	21.0,	24.2,	27.1,	29.3,	30.8,
1 hours	6.8,	9.5,	10.9,	13.1,	14.5,	15.7,	19.4,	23.6,	26.3,	30.2,	33.6,	36.3,	38.1,
2 hours	8.9,	12.3,	14.1,	16.8,	18.6,	20.0,	24.6,	29.6,	32.9,	37.6,	41.7,	44.8,	47.0,
3 hours	10.5,	14.4,	16.5,	19.5,	21.6,	23.1,	28.2,	33.9,	37.6,	42.7,	47.3,	50.8,	53.1,
4 hours	11.8,	16.1,	18.3,	21.7,	23.9,	25.6,	31.1,	37.3,	41.3,	46.8,	51.7,	55.4,	57.9,
6 hours	13.9,	18.8,	21.4,	25.1,	27.6,	29.6,	35.8,	42.6,	47.1,	53.2,	58.6,	62.8,	65.5,
9 hours	16.4,	21.9,	24.9,	29.1,	32.0,	34.1,	41.1,	48.7,	53.7,	60.5,	66.5,	71.1,	74.1,
12 hours	18.4,	24.5,	27.7,	32.3,	35.4,	37.8,	45.3,	53.6,	58.9,	66.3,	72.7,	77.6,	80.9,
18 hours	21.6,	28.6,	32.2,	37.5,	41.0,	43.6,	52.1,	61.3,	67.2,	75.4,	82.4,	87.8,	91.4,
24 hours	24.3,	32.0,	35.9,	41.6,	45.4,	48.3,	57.4,	67.4,	73.8,	82.5,	90.1,	95.9,	99.8,
2 days	30.1,	38.8,	43.1,	49.4,	53.4,	56.5,	66.2,	76.7,	83.3,	92.2,	100.0,	105.8,	109.7,
3 days	35.1,	44.5,	49.3,	56.0,	60.3,	63.6,	73.9,	84.8,	91.7,	101.0,	109.0,	115.1,	119.0,
4 days	39.6,	49.7,	54.8,	61.9,	66.5,	70.0,	80.8,	92.2,	99.4,	109.1,	117.3,	123.5,	127.6,
6 days	47.7,	59.0,	64.6,	72.5,	77.6,	81.4,	93.1,	105.5,	113.1,	123.5,	132.2,	138.8,	143.1,
8 days	55.0,	67.5,	73.6,	82.1,	87.6,	91.7,	104.2,	117.4,	125.5,	136.4,	145.6,	152.5,	157.0,
10 days	61.9,	75.3,	81.9,	91.0,	96.8,	101.2,	114.5,	128.3,	136.9,	148.3,	158.0,	165.1,	169.8,
12 days	68.4,	82.8,	89.7,	99.4,	105.6,	110.2,	124.2,	138.7,	147.6,	159.5,	169.6,	177.0,	181.9,
16 days	80.9,	96.9,	104.5,	115.2,	122.0,	127.0,	142.3,	158.0,	167.6,	180.4,	191.1,	199.1,	204.3,
20 days	92.6,	110.1,	118.5,	130.0,	137.3,	142.7,	159.1,	175.9,	186.2,	199.8,	211.1,	219.5,	225.0,
25 days	106.7,	125.9,	135.0,	147.6,	155.5,	161.3,	179.0,	197.0,	208.0,	222.5,	234.6,	243.5,	249.3,

NOTES:
These values are derived from a Depth Duration Frequency (DDF) Model update 2023
For details refer to:
'Mateus C., and Coonan, B. 2023. Estimation of point rainfall frequencies in Ireland. Technical Note No. 68. Met Eireann',
Available for download at:
http://hdl.handle.net/2262/102417

M5 60 = 15.7

r = M5 60/M5
2 days

r = 15.7/56.5
= 0.278

Appendix D Causeway Flow Surface Water Drainage Calculations

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	5	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	Scotland and Ireland	Connection Type	Level Soffits
M5-60 (mm)	15.700	Minimum Backdrop Height (m)	0.200
Ratio-R	0.278	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S2-0	0.023	4.00	46.400	1200	723515.194	723826.511	3.444
S2-1	0.024	4.00	46.400	1200	723543.194	723826.511	4.911
S2-2	0.023	4.00	42.900	1200	723554.923	723837.393	1.811
S2-3			42.900	1200	723554.923	723864.393	2.486
S1-0	0.198	4.00	45.683	1200	723477.923	723864.393	3.186
S1-1	0.208	4.00	42.985	1350	723547.923	723864.393	2.971
S1-2	0.113	4.00	42.692	1350	723547.923	723899.593	3.030
S3-0	0.231	4.00	42.105	1200	723563.423	723891.688	2.200
S4-0		4.00	42.098	1200	723563.423	723949.688	1.425
S3-1	0.115	4.00	42.043	1200	723563.423	723937.688	2.598
S1-3			42.137	1350	723547.923	723937.688	3.359
S1-4 (PI)			41.600	1350	723547.923	723957.092	3.226
S1-5	0.106	4.00	41.600	1350	723547.923	723961.426	3.316
S1-6	0.095	4.00	41.000	1350	723575.616	723965.423	5.500
S1-7			37.000	1350	723601.593	723966.511	2.042
S1-8			37.000	1350	723610.027	723958.692	2.282
S1-9			39.000	1350	723610.027	723886.034	5.796
S5-0		4.00	41.650	1200	723599.027	723870.101	4.425
S1-10			39.000	1350	723610.027	723870.101	6.700
S1-11			39.000	1200	723637.493	723870.101	6.862
S1-12			38.000	1200	723637.493	723887.351	5.964
S1-13			37.718	1200	723644.493	723887.351	6.000

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
S2.000	S2-0	S2-1	28.000	0.600	42.956	42.489	0.467	60.0	225	4.28	50.0
S2.001	S2-1	S2-2	16.000	0.600	41.489	41.089	0.400	40.0	225	4.40	50.0
S2.002	S2-2	S2-3	27.000	0.600	41.089	40.414	0.675	40.0	225	4.62	50.0
S2.003	S2-3	S1-1	7.000	0.600	40.414	40.239	0.175	40.0	225	4.68	50.0
S1.000	S1-0	S1-1	70.000	0.600	42.497	40.747	1.750	40.0	300	4.47	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
S2.000	1.691	67.2	3.1	3.219	3.686	0.023	0.0	33	0.871
S2.001	2.074	82.5	6.3	4.686	1.586	0.046	0.0	42	1.235
S2.002	2.074	82.5	9.3	1.586	2.261	0.069	0.0	51	1.381
S2.003	2.074	82.5	9.3	2.261	2.521	0.069	0.0	51	1.381
S1.000	2.493	176.2	26.8	2.886	1.938	0.198	0.0	79	1.819

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
S1.001	S1-1	S1-2	35.200	0.600	40.014	39.662	0.352	100.0	450	4.97	50.0
S1.002	S1-2	S1-3	38.095	0.600	39.662	39.568	0.094	405.3	450	5.60	50.0
S3.000	S3-0	S3-1	46.000	0.600	39.905	39.445	0.460	100.0	300	4.49	50.0
S4.000	S4-0	S3-1	12.000	0.600	40.673	40.553	0.120	100.0	225	4.15	50.0
S3.001	S3-1	S1-3	15.500	0.600	39.445	38.928	0.517	30.0	300	4.58	50.0
S1.003	S1-3	S1-4 (PI)	19.404	0.600	38.778	38.374	0.404	48.0	450	5.71	50.0
S1.004	S1-4 (PI)	S1-5	4.334	0.600	38.374	38.284	0.090	48.0	450	5.73	50.0
S1.005	S1-5	S1-6	27.980	0.600	38.284	37.701	0.583	48.0	450	5.89	50.0
S1.006	S1-6	S1-7	26.000	0.600	35.500	34.958	0.542	48.0	450	6.04	50.0
S1.007	S1-7	S1-8	11.501	0.600	34.958	34.718	0.240	48.0	450	6.10	50.0
S1.008	S1-8	S1-9	72.658	0.600	34.718	33.204	1.514	48.0	450	6.52	50.0
S1.009	S1-9	S1-10	15.933	0.600	33.204	33.045	0.159	100.0	450	6.65	50.0
S5.000	S5-0	S1-10	11.000	0.600	37.225	36.858	0.367	30.0	225	4.08	50.0
S1.010	S1-10	S1-11	27.466	0.600	32.300	32.138	0.162	169.5	225	7.10	50.0
S1.011	S1-11	S1-12	17.250	0.600	32.138	32.036	0.102	169.1	225	7.39	50.0
S1.012	S1-12	S1-13	7.000	0.600	32.036	31.718	0.318	22.0	225	7.43	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
S1.001	2.033	323.3	64.4	2.521	2.580	0.475	0.0	135	1.597
S1.002	1.003	159.6	79.7	2.580	2.119	0.588	0.0	225	1.003
S3.000	1.572	111.1	31.3	1.900	2.298	0.231	0.0	109	1.357
S4.000	1.307	52.0	0.0	1.200	1.265	0.000	0.0	0	0.000
S3.001	2.881	203.6	46.8	2.298	2.909	0.346	0.0	98	2.356
S1.003	2.940	467.5	126.5	2.909	2.776	0.933	0.0	160	2.517
S1.004	2.940	467.5	126.5	2.776	2.866	0.933	0.0	160	2.517
S1.005	2.940	467.5	140.8	2.866	2.849	1.039	0.0	168	2.583
S1.006	2.940	467.5	153.7	5.050	1.592	1.134	0.0	177	2.647
S1.007	2.940	467.5	153.7	1.592	1.832	1.134	0.0	177	2.647
S1.008	2.940	467.5	153.7	1.832	5.346	1.134	0.0	177	2.647
S1.009	2.033	323.3	153.7	5.346	5.505	1.134	0.0	218	2.008
S5.000	2.397	95.3	0.0	4.200	1.917	0.000	0.0	0	0.000
S1.010	1.001	39.8	153.7	6.475	6.637	1.134	0.0	225	1.020
S1.011	1.002	39.9	153.7	6.637	5.739	1.134	0.0	225	1.021
S1.012	2.801	111.4	153.7	5.739	5.775	1.134	0.0	225	2.852

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
S2.000	28.000	60.0	225	Circular	46.400	42.956	3.219	46.400	42.489	3.686
S2.001	16.000	40.0	225	Circular	46.400	41.489	4.686	42.900	41.089	1.586
S2.002	27.000	40.0	225	Circular	42.900	41.089	1.586	42.900	40.414	2.261
S2.003	7.000	40.0	225	Circular	42.900	40.414	2.261	42.985	40.239	2.521

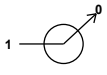
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
S2.000	S2-0	1200	Manhole	Adoptable	S2-1	1200	Manhole	Adoptable
S2.001	S2-1	1200	Manhole	Adoptable	S2-2	1200	Manhole	Adoptable
S2.002	S2-2	1200	Manhole	Adoptable	S2-3	1200	Manhole	Adoptable
S2.003	S2-3	1200	Manhole	Adoptable	S1-1	1350	Manhole	Adoptable

Pipeline Schedule

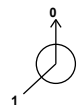
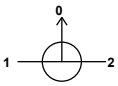
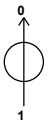
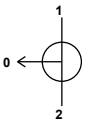
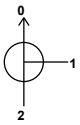
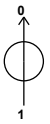
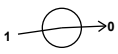
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
S1.000	70.000	40.0	300	Circular	45.683	42.497	2.886	42.985	40.747	1.938
S1.001	35.200	100.0	450	Circular	42.985	40.014	2.521	42.692	39.662	2.580
S1.002	38.095	405.3	450	Circular	42.692	39.662	2.580	42.137	39.568	2.119
S3.000	46.000	100.0	300	Circular	42.105	39.905	1.900	42.043	39.445	2.298
S4.000	12.000	100.0	225	Circular	42.098	40.673	1.200	42.043	40.553	1.265
S3.001	15.500	30.0	300	Circular	42.043	39.445	2.298	42.137	38.928	2.909
S1.003	19.404	48.0	450	Circular	42.137	38.778	2.909	41.600	38.374	2.776
S1.004	4.334	48.0	450	Circular	41.600	38.374	2.776	41.600	38.284	2.866
S1.005	27.980	48.0	450	Circular	41.600	38.284	2.866	41.000	37.701	2.849
S1.006	26.000	48.0	450	Circular	41.000	35.500	5.050	37.000	34.958	1.592
S1.007	11.501	48.0	450	Circular	37.000	34.958	1.592	37.000	34.718	1.832
S1.008	72.658	48.0	450	Circular	37.000	34.718	1.832	39.000	33.204	5.346
S1.009	15.933	100.0	450	Circular	39.000	33.204	5.346	39.000	33.045	5.505
S5.000	11.000	30.0	225	Circular	41.650	37.225	4.200	39.000	36.858	1.917
S1.010	27.466	169.5	225	Circular	39.000	32.300	6.475	39.000	32.138	6.637
S1.011	17.250	169.1	225	Circular	39.000	32.138	6.637	38.000	32.036	5.739
S1.012	7.000	22.0	225	Circular	38.000	32.036	5.739	37.718	31.718	5.775

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
S1.000	S1-0	1200	Manhole	Adoptable	S1-1	1350	Manhole	Adoptable
S1.001	S1-1	1350	Manhole	Adoptable	S1-2	1350	Manhole	Adoptable
S1.002	S1-2	1350	Manhole	Adoptable	S1-3	1350	Manhole	Adoptable
S3.000	S3-0	1200	Manhole	Adoptable	S3-1	1200	Manhole	Adoptable
S4.000	S4-0	1200	Manhole	Adoptable	S3-1	1200	Manhole	Adoptable
S3.001	S3-1	1200	Manhole	Adoptable	S1-3	1350	Manhole	Adoptable
S1.003	S1-3	1350	Manhole	Adoptable	S1-4 (PI)	1350	Manhole	Adoptable
S1.004	S1-4 (PI)	1350	Manhole	Adoptable	S1-5	1350	Manhole	Adoptable
S1.005	S1-5	1350	Manhole	Adoptable	S1-6	1350	Manhole	Adoptable
S1.006	S1-6	1350	Manhole	Adoptable	S1-7	1350	Manhole	Adoptable
S1.007	S1-7	1350	Manhole	Adoptable	S1-8	1350	Manhole	Adoptable
S1.008	S1-8	1350	Manhole	Adoptable	S1-9	1350	Manhole	Adoptable
S1.009	S1-9	1350	Manhole	Adoptable	S1-10	1350	Manhole	Adoptable
S5.000	S5-0	1200	Manhole	Adoptable	S1-10	1350	Manhole	Adoptable
S1.010	S1-10	1350	Manhole	Adoptable	S1-11	1200	Manhole	Adoptable
S1.011	S1-11	1200	Manhole	Adoptable	S1-12	1200	Manhole	Adoptable
S1.012	S1-12	1200	Manhole	Adoptable	S1-13	1200	Manhole	Adoptable

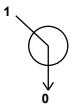
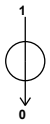
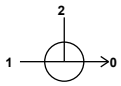
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S2-0	723515.194	723826.511	46.400	3.444	1200				
						0	S2.000	42.956	225
S2-1	723543.194	723826.511	46.400	4.911	1200		1	S2.000	42.489	225
						0	S2.001	41.489	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S2-2	723554.923	723837.393	42.900	1.811	1200	 1	S2.001	41.089	225
						0	S2.002	41.089	225
S2-3	723554.923	723864.393	42.900	2.486	1200	1	S2.002	40.414	225
						 0	S2.003	40.414	225
S1-0	723477.923	723864.393	45.683	3.186	1200				
						0	S1.000	42.497	300
S1-1	723547.923	723864.393	42.985	2.971	1350	 1	S1.000	40.747	300
						2	S2.003	40.239	225
						0	S1.001	40.014	450
S1-2	723547.923	723899.593	42.692	3.030	1350	 1	S1.001	39.662	450
						0	S1.002	39.662	450
S3-0	723563.423	723891.688	42.105	2.200	1200				
						0	S3.000	39.905	300
S4-0	723563.423	723949.688	42.098	1.425	1200				
						0	S4.000	40.673	225
S3-1	723563.423	723937.688	42.043	2.598	1200	 1	S4.000	40.553	225
						2	S3.000	39.445	300
						0	S3.001	39.445	300
S1-3	723547.923	723937.688	42.137	3.359	1350	 1	S3.001	38.928	300
						2	S1.002	39.568	450
						0	S1.003	38.778	450
S1-4 (PI)	723547.923	723957.092	41.600	3.226	1350	 1	S1.003	38.374	450
						0	S1.004	38.374	450
S1-5	723547.923	723961.426	41.600	3.316	1350	1	S1.004	38.284	450
						 0	S1.005	38.284	450
S1-6	723575.616	723965.423	41.000	5.500	1350	1	S1.005	37.701	450
						 0	S1.006	35.500	450
S1-7	723601.593	723966.511	37.000	2.042	1350	1	S1.006	34.958	450
						 0	S1.007	34.958	450

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1-8	723610.027	723958.692	37.000	2.282	1350	 1	S1.007	34.718	450
						0	S1.008	34.718	450
S1-9	723610.027	723886.034	39.000	5.796	1350	 1	S1.008	33.204	450
						0	S1.009	33.204	450
S5-0	723599.027	723870.101	41.650	4.425	1200				
						0	S5.000	37.225	225
S1-10	723610.027	723870.101	39.000	6.700	1350	 1	S5.000	36.858	225
						2	S1.009	33.045	450
						0	S1.010	32.300	225
S1-11	723637.493	723870.101	39.000	6.862	1200	 1	S1.010	32.138	225
						0	S1.011	32.138	225
S1-12	723637.493	723887.351	38.000	5.964	1200	 1	S1.011	32.036	225
						0	S1.012	32.036	225
S1-13	723644.493	723887.351	37.718	6.000	1200	 1	S1.012	31.718	225

Simulation Settings

Rainfall Methodology	FSR	Skip Steady State	x
FSR Region	Scotland and Ireland	Drain Down Time (mins)	10080
M5-60 (mm)	15.700	Additional Storage (m³/ha)	20.0
Ratio-R	0.278	Check Discharge Rate(s)	✓
Summer CV	0.750	Check Discharge Volume	✓
Winter CV	0.840	100 year 360 minute (m³)	
Analysis Speed	Normal		

Storm Durations

15	60	180	360	600	960	2160	4320
30	120	240	480	720	1440	2880	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	20	10	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	IH124	Growth Factor 100 year	2.48
Positively Drained Area (ha)		Betterment (%)	0
SAAR (mm)		QBar	
Soil Index	1	Q 1 year (l/s)	
SPR	0.10	Q 30 year (l/s)	
Region	1	Q 100 year (l/s)	
Growth Factor 1 year	0.85		

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	FSR/FEH	Climate Change (%)	0
Positively Drained Area (ha)		Storm Duration (mins)	360
Soil Index	1	Betterment (%)	0
SPR	0.10	PR	
CWI		Runoff Volume (m^3)	

Node S1-10 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	32.300	Product Number	CTL-SHE-0042-1100-2000-1100
Design Depth (m)	2.000	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.1	Min Node Diameter (mm)	1200

Node S1-10 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	32.300
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	10140

Depth (m)	Area (m^2)	Inf Area (m^2)	Depth (m)	Area (m^2)	Inf Area (m^2)	Depth (m)	Area (m^2)	Inf Area (m^2)
0.000	630.0	800.0	2.100	630.0	800.0	2.101	0.0	800.0

Approval Settings

Node Size	x	Coordinates	x	Full Bore Velocity	x	Time to Half Empty	✓
Node Losses	x	Crossings	x	Proportional Velocity	x	Return Period (years)	100
Link Size	x	Cover Depth	x	Surcharged Depth	x	Discharge Rates	x
Link Length	x	Backdrops	x	Flooding	x	Discharge Volume	x

Results for 100 year +20% CC +10% A Critical Storm Duration. Lowest mass balance: 99.94%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S2-0	10	43.015	0.059	9.9	0.0758	0.0000	OK
15 minute winter	S2-1	10	41.566	0.077	20.2	0.0952	0.0000	OK
15 minute winter	S2-2	10	41.184	0.095	30.1	0.1341	0.0000	OK
15 minute summer	S2-3	10	40.521	0.107	30.1	0.1214	0.0000	OK
15 minute winter	S1-0	10	42.648	0.151	86.0	0.3770	0.0000	OK
15 minute winter	S1-1	10	40.339	0.325	206.6	0.9651	0.0000	OK
15 minute winter	S1-2	10	40.214	0.552	250.4	1.2424	0.0000	SURCHARGED
15 minute winter	S3-0	10	40.142	0.237	100.5	0.8160	0.0000	OK
15 minute summer	S4-0	1	40.673	0.000	0.0	0.0000	0.0000	OK
15 minute winter	S3-1	10	39.698	0.253	150.5	0.5333	0.0000	OK
15 minute winter	S1-3	10	39.378	0.600	390.6	0.8587	0.0000	SURCHARGED
15 minute winter	S1-4 (PI)	11	38.939	0.565	390.7	0.8079	0.0000	SURCHARGED
15 minute winter	S1-5	11	38.703	0.419	433.5	0.8936	0.0000	OK
15 minute winter	S1-6	11	36.874	1.374	470.1	2.4885	0.0000	SURCHARGED
15 minute winter	S1-7	11	36.114	1.156	462.6	1.6546	0.0000	SURCHARGED
15 minute winter	S1-8	11	35.667	0.949	456.8	1.3576	0.0000	SURCHARGED
4320 minute winter	S1-9	4260	34.293	1.089	13.9	1.5586	0.0000	SURCHARGED
15 minute summer	S5-0	1	37.225	0.000	0.0	0.0000	0.0000	OK
4320 minute winter	S1-10	4260	34.293	1.993	35.4	1195.7500	0.0000	SURCHARGED
4320 minute winter	S1-11	4260	32.165	0.027	1.1	0.0310	0.0000	OK
4320 minute winter	S1-12	4260	32.052	0.016	1.1	0.0183	0.0000	OK
4320 minute winter	S1-13	4260	31.734	0.016	1.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S2-0	S2.000	S2-1	9.9	1.202	0.147	0.2303	
15 minute winter	S2-1	S2.001	S2-2	20.2	1.445	0.245	0.2238	
15 minute winter	S2-2	S2.002	S2-3	30.1	1.736	0.365	0.4680	
15 minute summer	S2-3	S2.003	S1-1	30.1	1.731	0.364	0.1222	
15 minute winter	S1-0	S1.000	S1-1	85.8	2.466	0.487	2.4366	
15 minute winter	S1-1	S1.001	S1-2	201.2	1.367	0.622	4.9428	
15 minute winter	S1-2	S1.002	S1-3	245.9	1.593	1.541	5.5310	
15 minute winter	S3-0	S3.000	S3-1	100.5	1.713	0.905	2.8356	
15 minute summer	S4-0	S4.000	S3-1	0.0	0.000	0.000	0.0000	
15 minute winter	S3-1	S3.001	S1-3	144.7	2.722	0.711	1.0378	
15 minute winter	S1-3	S1.003	S1-4 (PI)	390.7	2.466	0.836	3.0744	
15 minute winter	S1-4 (PI)	S1.004	S1-5	391.3	2.470	0.837	0.6766	
15 minute winter	S1-5	S1.005	S1-6	434.8	3.095	0.930	3.9163	
15 minute winter	S1-6	S1.006	S1-7	462.6	2.920	0.989	4.1195	
15 minute winter	S1-7	S1.007	S1-8	456.8	2.883	0.977	1.8223	
15 minute winter	S1-8	S1.008	S1-9	452.7	2.857	0.968	11.5122	
4320 minute winter	S1-9	S1.009	S1-10	35.4	0.973	0.110	2.5245	
15 minute summer	S5-0	S5.000	S1-10	0.0	0.000	0.000	0.0000	
4320 minute winter	S1-10	S1.010	S1-11	1.1	0.419	0.027	0.0717	
4320 minute winter	S1-11	S1.011	S1-12	1.1	0.560	0.027	0.0344	
4320 minute winter	S1-12	S1.012	S1-13	1.1	0.885	0.010	0.0087	776.5

Appendix E Causeway Flow Foul Water Drainage Calculations

Design Settings

Frequency of use (kDU)	1.00	Minimum Velocity (m/s)	1.00
Flow per dwelling per day (l/day)	4000	Connection Type	Level Soffits
Domestic Flow (l/s/ha)	1.0	Minimum Backdrop Height (m)	0.200
Industrial Flow (l/s/ha)	1.0	Preferred Cover Depth (m)	1.200
Additional Flow (%)	0	Include Intermediate Ground	✓

Nodes

Name	Dwellings	Cover Level (m)	Manhole Type	Easting (m)	Northing (m)	Depth (m)
F1-0	18	45.261	Adoptable	723488.423	723861.893	2.261
F1-1	18	42.894	Adoptable	723550.423	723861.893	1.917
F1-2	19	42.692	Adoptable	723550.423	723887.693	2.145
F2-0	24	42.131	Adoptable	723565.923	723887.693	1.425
F2-1	23	42.053	Adoptable	723565.923	723939.593	2.213
F1-3	6	42.116	Adoptable	723550.423	723939.593	2.431
F1-4	2	41.600	Adoptable	723550.423	723963.302	5.600
F1-5		41.600	Adoptable	723576.440	723967.057	6.038
F1-6 OUT		36.090	Adoptable	723576.440	723971.591	0.604

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
F1.000	F1-0	F1-1	62.000	1.500	43.000	41.052	1.948	31.8	150
F1.001	F1-1	F1-2	25.800	1.500	40.977	40.547	0.430	60.0	225
F1.002	F1-2	F1-3	51.900	1.500	40.547	39.685	0.862	60.2	225
F2.000	F2-0	F2-1	51.900	1.500	40.706	39.840	0.866	59.9	225
F2.001	F2-1	F1-3	15.500	1.500	39.840	39.685	0.155	100.0	225
F1.003	F1-3	F1-4	23.709	1.500	39.685	39.448	0.237	100.0	225
F1.004	F1-4	F1-5	26.287	1.500	36.000	35.562	0.438	60.0	225
F1.005	F1-5	F1-6 OUT	4.534	1.500	35.562	35.486	0.076	60.0	225

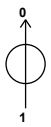
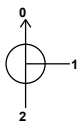
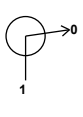
Name	Pro Vel @ 1/3 Q (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Dwellings (ha)	Σ Units (ha)	Σ Add Inflow (ha)	Pro Depth (mm)	Pro Velocity (m/s)
F1.000	0.477	1.556	27.5	0.8	2.111	1.692	0.000	18	0.0	0.0	18	0.690
F1.001	0.448	1.483	59.0	1.7	1.692	1.920	0.000	36	0.0	0.0	26	0.640
F1.002	0.516	1.481	58.9	2.5	1.920	2.206	0.000	55	0.0	0.0	32	0.734
F2.000	0.393	1.484	59.0	1.1	1.200	1.988	0.000	24	0.0	0.0	22	0.566
F2.001	0.412	1.148	45.6	2.2	1.988	2.206	0.000	47	0.0	0.0	34	0.588
F1.003	0.538	1.148	45.6	5.0	2.206	1.927	0.000	108	0.0	0.0	51	0.754
F1.004	0.654	1.483	59.0	5.1	5.375	5.813	0.000	110	0.0	0.0	44	0.902
F1.005	0.654	1.483	59.0	5.1	5.813	0.379	0.000	110	0.0	0.0	44	0.902

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
F1.000	62.000	31.8	150	Circular	45.261	43.000	2.111	42.894	41.052	1.692
F1.001	25.800	60.0	225	Circular	42.894	40.977	1.692	42.692	40.547	1.920
F1.002	51.900	60.2	225	Circular	42.692	40.547	1.920	42.116	39.685	2.206
F2.000	51.900	59.9	225	Circular	42.131	40.706	1.200	42.053	39.840	1.988
F2.001	15.500	100.0	225	Circular	42.053	39.840	1.988	42.116	39.685	2.206
F1.003	23.709	100.0	225	Circular	42.116	39.685	2.206	41.600	39.448	1.927
F1.004	26.287	60.0	225	Circular	41.600	36.000	5.375	41.600	35.562	5.813
F1.005	4.534	60.0	225	Circular	41.600	35.562	5.813	36.090	35.486	0.379

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
F1.000	F1-0	1200	Manhole	Adoptable	F1-1	1200	Manhole	Adoptable
F1.001	F1-1	1200	Manhole	Adoptable	F1-2	1200	Manhole	Adoptable
F1.002	F1-2	1200	Manhole	Adoptable	F1-3	1200	Manhole	Adoptable
F2.000	F2-0	1200	Manhole	Adoptable	F2-1	1200	Manhole	Adoptable
F2.001	F2-1	1200	Manhole	Adoptable	F1-3	1200	Manhole	Adoptable
F1.003	F1-3	1200	Manhole	Adoptable	F1-4	1200	Manhole	Adoptable
F1.004	F1-4	1200	Manhole	Adoptable	F1-5	1200	Manhole	Adoptable
F1.005	F1-5	1200	Manhole	Adoptable	F1-6 OUT	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
F1-0	723488.423	723861.893	45.261	2.261	1200	 0	F1.000	43.000	150
F1-1	723550.423	723861.893	42.894	1.917	1200	 1	F1.000	41.052	150
						0	F1.001	40.977	225
F1-2	723550.423	723887.693	42.692	2.145	1200	 1	F1.001	40.547	225
						0	F1.002	40.547	225
F2-0	723565.923	723887.693	42.131	1.425	1200	 0	F2.000	40.706	225
F2-1	723565.923	723939.593	42.053	2.213	1200	 1	F2.000	39.840	225
						0	F2.001	39.840	225
F1-3	723550.423	723939.593	42.116	2.431	1200	 1	F2.001	39.685	225
						2	F1.002	39.685	225
						0	F1.003	39.685	225
F1-4	723550.423	723963.302	41.600	5.600	1200	 1	F1.003	39.448	225
						0	F1.004	36.000	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
F1-5	723576.440	723967.057	41.600	6.038	1200		1	F1.004	35.562	225
							0	F1.005	35.562	225
F1-6 OUT	723576.440	723971.591	36.090	0.604	1200		1	F1.005	35.486	225

Appendix F Uisce Éireann and DLRCC Correspondence

Philip McDowell | PUNCH

From: Philip McDowell | PUNCH
Sent: Friday 8 December 2023 17:11
To: newconnections@water.ie
Cc: Leonard Brennan | PUNCH; Mark Richardson | PUNCH
Subject: 232250 - Lehaunstown Land, Cherrywood - Pre-Connection Enquiry
Attachments: 23250-PUNCH-XX-XX-SK-C-0301-S3-P01_Proposed Mains Connection.pdf; 232250 - Pre-Connection - Enquiry Form.pdf; 232250 - Site Map - 1-5000.pdf; 232250-CDS23003291 CDS.pdf; 232250-PUNCH-XX-XX-CA-C-0001_Wastewater and Water Demand Calculations_Connection Application.pdf; 232250-PUNCH-XX-XX-SK-C-0101_Proposed Foul Connection.pdf

Dear Sir/Madam,

Please find attached a pre-connection enquiry form for a proposed development at Lehaunstown Land, Cherrywood, Dublin 18.

Note there was a previous pre-connection enquiry for the site, reference number: CDS23003291.

Our feasibility queries are set out on the attached sketches for Foul and Water.

Water
The CoF attached indicated a future UE network including a 200mm diam watermain along a future road (Lehaunstown Neighbourhood Road) taken from the ex 315mm watermain on Grand Parade

This 200mm water main will be constructed in a future LNR construction contract by others

Our development will be fed off this proposed 200mm main as per the sketch

Can you confirm this is an acceptable route subject to a future Connection Application and agreement?

Wastewater
The CoF attached indicated there is existing UE assets traversing the site and advise re required Build Over applications and clearances etc

It is proposed to discharge into the 600mm combined foul sewer as indicated in the attached sketch

Can you confirm this is an acceptable route subject to a future Connection Application and agreement?

The following are attached:

1. The Pre-Connection Enquiry Form for this proposed development
2. Calculations in support of this Connection Application
3. A site location map for this development
4. A Site layout drawing indicating the proposed water mains connection.
5. A Site layout drawing indicating the proposed wastewater network connection.
6. A CoF indicating the future UE network.

If you could please confirm receipt and supply a CDS reference number at your earliest convenience.

Kind regards,

Philip McDowell

Philip McDowell
BAI MAI
Graduate Engineer

Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t +353 1 271 2200 | m +353 85 777 1883 | e pmcdowell@punchconsulting.com
Dublin | Limerick | Cork | Galway | Glasgow

Philip McDowell | PUNCH

From: Philip McDowell | PUNCH
Sent: Wednesday 13 December 2023 14:15
To: newconnections
Cc: Mark Richardson | PUNCH; Leonard Brennan | PUNCH
Subject: RE: CDS23009206 - Site at, Lehuanstown Land, Cherrywood SDZ, Dublin EMAIL:0656154
Attachments: 232250 - Revised Pre-Connection Enquiry 13.12.23.pdf; 232250-PUNCH-XX-XX-CA-C-0001-S3-P01.02_Wastewater and Water Demand Calculations.pdf

Hi Michael,

We now have the following schedule of apartments and houses:

101 Apartments
15 houses

116 units total.

Please find an updated application form and calculations sheet attached.

Kind regards,

Philip

Philip McDowell
BAI MAI
Graduate Engineer

Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t +353 1 271 2200 | m +353 85 777 1883 | e pmcdowell@punchconsulting.com
Dublin | Limerick | Cork | Galway | Glasgow

From: newconnections <newconnections@water.ie>
Sent: Wednesday, December 13, 2023 11:35 AM
To: Philip McDowell | PUNCH <pmcdowell@punchconsulting.com>
Cc: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>
Subject: RE: CDS23009206 - Site at, Lehuanstown Land, Cherrywood SDZ, Dublin EMAIL:0656154

Hi Philip,

Can you please let me know as soon as you have confirmation of the exact number of houses vs apartments, as I won't be able to process your application until I receive this information. Your application will be kept on hold in the meantime.

Kind regards,

Michael Donnelly
Connection and Developer Services

Uisce Éireann
Bosca OP 860, Oifig Sheachadta na Cathrach Theas, Cathair Chorcaí, Éire
Uisce Éireann
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Is don duine amháin nó don eintiteas amháin ainmnithe ar an seoladh an fhaisnéis agus d'fhéadfadh ábhar faoi rún, faoi phribhléid nó ábhar atá íogair ó thaobh na tráchtála de a bheith mar chuid den fhaisnéis. Tá toirmeasc ar aon daoine nó aon eititis; nach dóibh siúd an fhaisnéis- aon athbhreithniú a dhéanamh, aon atarchur a dhéanamh nó aon athdháileadh a dhéanamh, nó aon úsáid eile a bhaint as an bhfaisnéis, nó aon ghníomh a bhraithfeadh ar an bhfaisnéis seo a dhéanamh agus d'fhéadfaí an dlí a shárú dá ndéanfaí sin. Séanann Uisce Éireann dliteanas as aon ghníomh agus as aon iarmhairt bunaithe ar úsáid neamhúdaraithe na faisnéise seo. Séanann Uisce Éireann dliteanas maidir le seachadadh iomlán agus ceart na faisnéise sa chumarsáid seo agus séanann Uisce Éireann dliteanas maidir le haon mhoill a bhaineann leis an bhfaisnéis a fháil. Má tá an ríomh-phost seo faighte agat trí dhearmad, déan teagmháil leis an seoltóir más é do thoil é agus scrios an t-ábhar ó gach aon ríomhaire. D'fhéadfadh ríomhphost a bheith so-ghabhálach i leith truaillithe, idircheaptha agus i leith leasuithe neamhúdaraithe. Séanann Uisce Éireann aon fhreagracht as athruithe nó as idircheapadh a rinneadh ar an ríomhphost seo nó as aon dochar do chórais na bhfaighteoirí déanta ag an teachtaireacht seo nó ag a ceangaltáin tar éis a sheolta. Tabhair faoi deara go bhféadfadh monatóireacht a bheith á dhéanamh ar theachtaireachtaí chuig Uisce Éireann agus ó Uisce Éireann d'fhonn ár ngnó a chosaint agus chun a chinntiú go bhfuiltear ag teacht le beartais agus le caighdeáin Uisce Éireann. Is cuideachta gníomhaíochta ainmnithe é Uisce Éireann atá faoi theorainn scaireanna, a bunaíodh de bhun fhorálacha na n-Achtanna um Sheirbhísí Uisce 2007-2022, a bhfuil a bpríomh-ionad gnó ag Teach Colvill, 24-26 Sráid na Talbóide, BÁC 1.
Go raibh maith agat as d'aird a thabhairt.
The information transmitted is intended only for the person or entity to which it is addressed and may contain confidential, commercially sensitive and/or privileged material. Any review, retransmission, dissemination or other use of, or taking of any action in reliance upon, this information by persons or entities other than the intended recipient is prohibited and may be unlawful. Uisce Éireann accepts no liability for actions or effects based on the prohibited usage of this information. Uisce Éireann is neither liable for the proper and complete transmission of the information contained in this communication nor for any delay in its receipt. If you received this in error, please contact the sender and delete the material from any computer. E-Mail may be susceptible to data corruption, interception and unauthorised amendment. Uisce Éireann accepts no responsibility for changes to or interception of this e-mail after it was sent or for any damage to the recipients systems or data caused by this message or its attachments. Please also note that messages to or from Uisce Éireann may be monitored to ensure compliance with Uisce Eireann's policies and standards and to protect our business. Uisce Éireann is a designated activity company limited by shares, established pursuant to the Water Services Acts 2007-2022, having its principal place of business at Colvill House, 24-26 Talbot Street, Dublin 1.
Thank you for your attention.

---------- Original Message ----------
From: Philip McDowell <pmcdowell@punchconsulting.com>;
Received: Tue Dec 12 2023 16:34:44 GMT+0000 (Greenwich Mean Time)
To: newconnections <newconnections@water.ie>; New Connections Queue newconnections@water.ie <newconnections@water.ie>;

Cc: Mark Richardson <mrichardson@punchconsulting.com>; Leonard Brennan <lbrennan@punchconsulting.com>; Mark Richardson <mrichardson@punchconsulting.com>; Leonard Brennan <lbrennan@punchconsulting.com>;
Subject: RE: CDS23009206 - Site at, Lehuanstown Land, Cherrywood SDZ, Dublin EMAIL:0656154

Hi Michael,

Thanks for your quick responses, the exact number of houses vs. apartments in the development is still to be confirmed.

Kind regards,

Phillip

Philip McDowell
BAI MAI
Graduate Engineer

Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t +353 1 271 2200 | m +353 85 777 1883 | e pmcdowell@punchconsulting.com
Dublin | Limerick | Cork | Galway | Glasgow

From: newconnections <newconnections@water.ie>
Sent: Tuesday, December 12, 2023 1:39 PM
To: Philip McDowell | PUNCH <pmcdowell@punchconsulting.com>
Cc: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>
Subject: RE: CDS23009206 - Site at, Lehuanstown Land, Cherrywood SDZ, Dublin EMAIL:0656154

Hi Philip,

Thanks for your email, can you please clarify how the 130 dwellings are split?

So the exact number of houses and the number of apartments which would total 130 combined.

Kind regards,

Michael Donnelly
Connection and Developer Services

Uisce Éireann
Bosca OP 860, Oifig Sheachadta na Cathrach Theas, Cathair Chorcaí, Éire
Uisce Éireann
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---------- Original Message ----------
From: Philip McDowell <pmcdowell@punchconsulting.com>;
Received: Tue Dec 12 2023 12:49:56 GMT+0000 (Greenwich Mean Time)
To: newconnections <newconnections@water.ie>; New Connections Queue newconnections@water.ie <newconnections@water.ie>;
Cc: Mark Richardson <mrichardson@punchconsulting.com>; Leonard Brennan <lbrennan@punchconsulting.com>; Mark Richardson <mrichardson@punchconsulting.com>; Leonard Brennan <lbrennan@punchconsulting.com>;
Subject: RE: CDS23009206 - Site at, Lehuanstown Land, Cherrywood SDZ, Dublin EMAIL:0656154

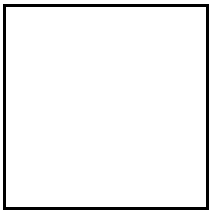
Dear Michael,

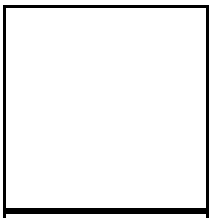
To clarify, the development consists of 130 dwellings split between houses and apartments.

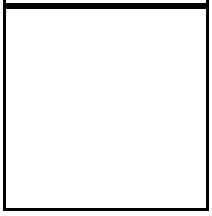
Please find an updated application form attached.

Kind regards,

Philip

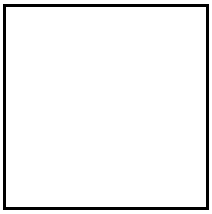






Philip McDowell
BAI MAI
Graduate Engineer

Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t +353 1 271 2200 | m +353 85 777 1883 | e pmcdowell@punchconsulting.com
Dublin | Limerick | Cork | Galway | Glasgow



From: newconnections <newconnections@water.ie>
Sent: Tuesday, December 12, 2023 11:46 AM
To: Philip McDowell | PUNCH <pmcdowell@punchconsulting.com>
Subject: CDS23009206 - Site at, Lehuanstown Land, Cherrywood SDZ, Dublin EMAIL:0656154

Dear Philip,

In relation to your application, reference **CDS23009206**, your application cannot be processed at the moment as the application form provided is missing development details.

Can you please provide an updated application form with the development details added, once we receive this we can progress your application to the next stage.

Kind regards,

Michael Donnelly
Connection and Developer Services

Uisce Éireann
Bosca OP 860, Oifig Sheachadta na Cathrach Theas, Cathair Chorcaí, Éire
Uisce Éireann
PO Box 860, South City Delivery Office, Cork City, Ireland

T: 1800 278 278
www.water.ie
Facebook | Twitter | LinkedIn

Thank you for your attention.

This e-mail and any files transmitted are intended solely for the use of the individual or entity to whom they are addressed and should not be released to a third party without the consent of PUNCH Consulting Engineers. Any views expressed in this message are those of the individual sender unless stated otherwise. Although we take great care to protect our computer network against viruses, we accept no responsibility for mail-borne viruses and recommend that you scan the email and attachments. Reg: Michael Punch and Partners Ltd Reg Office: 97 Henry Street Limerick, Ireland Reg no: 111183

CONFIRMATION OF FEASIBILITY

Philip McDowell

Carnegie House
Library Road
Dun Laoghaire
Dublin
A96C7W7

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

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

17 January 2024

Our Ref: CDS23009206 Pre-Connection Enquiry
Site at, Lehaunstown Land, Cherrywood SDZ, Dublin

Dear Applicant/Agent,

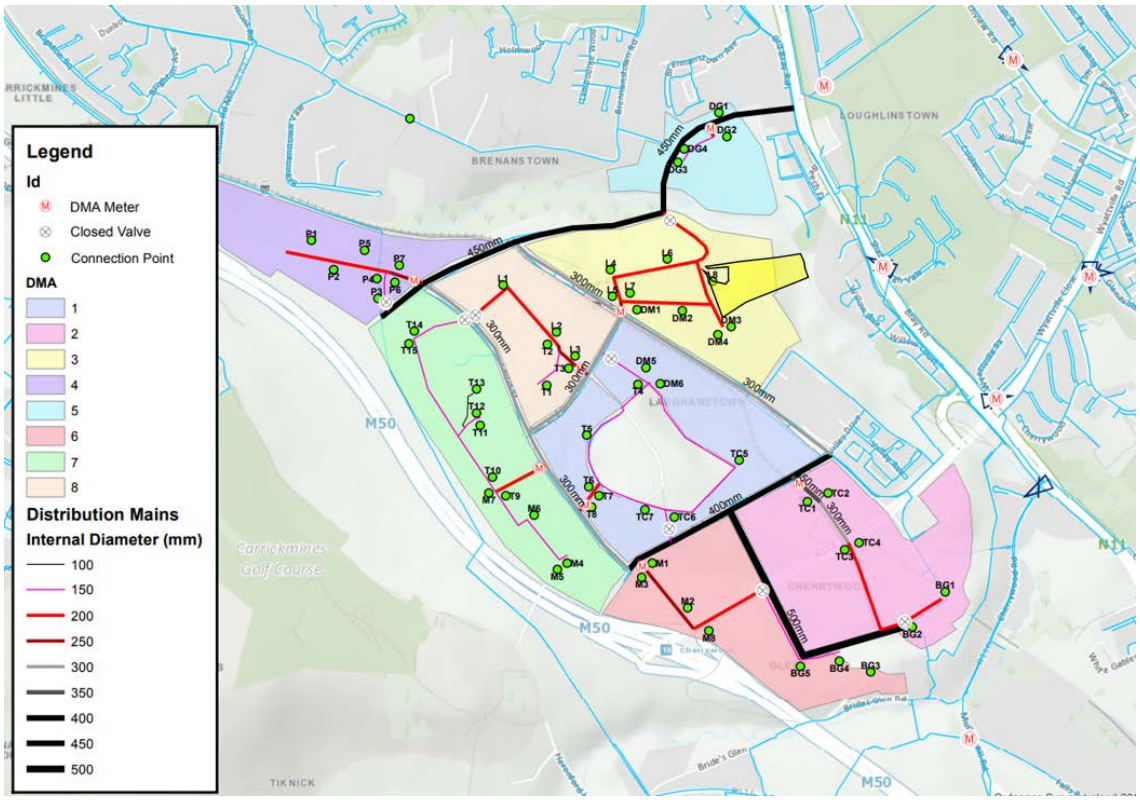
We have completed the review of the Pre-Connection Enquiry.

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 116 unit(s) at Site at, Lehuanstown Land, Cherrywood SDZ, Dublin, (the **Development)**.

Based upon the details provided we can advise the following regarding connecting to the networks;

Water Connection

- Feasible subject to upgrades
- The Development is a part of Cherrywood Strategic Development Zone and prior to agreeing to the proposed connection, all relevant core water mains within the Zone have to be completed, of adequate capacity and integrity, connected to the Uisce Éireann networks and in operation.



Wastewater Connection

- Feasible without infrastructure upgrade by Uisce Éireann

- The proposed Development indicates that Uisce Éireann assets are present on the site. The Developer has to demonstrate that proposed structures and works will not inhibit access for maintenance or endanger structural or functional integrity of the assets during and after the works. Drawings (showing clearance distances, changing to ground levels) and Method Statements should be included in the Detailed Design of the Development. A wayleave in favour of Uisce Éireann will be required over the assets that are not located within the Public Space. For design submissions and queries related to diversion/build near or over, please contact UÉ Diversion Team via email address diversions@water.ie.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before the Development can be connected to our network(s) you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at www.water.ie/connections/get-connected/

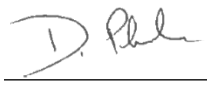
Where can you find more information?

- **Section A -** What is important to know?
- **Section B -** Details of Uisce Éireann's Network(s)

This letter is issued to provide information about the current feasibility of the proposed connection(s) to Uisce Éireann's network(s). This is not a connection offer and capacity in Uisce Éireann's network(s) may only be secured by entering into a connection agreement with Uisce Éireann.

For any further information, visit **www.water.ie/connections, email newconnections@water.ie** or contact 1800 278 278**.**

Yours sincerely,



Dermot Phelan
Connections Delivery Manager

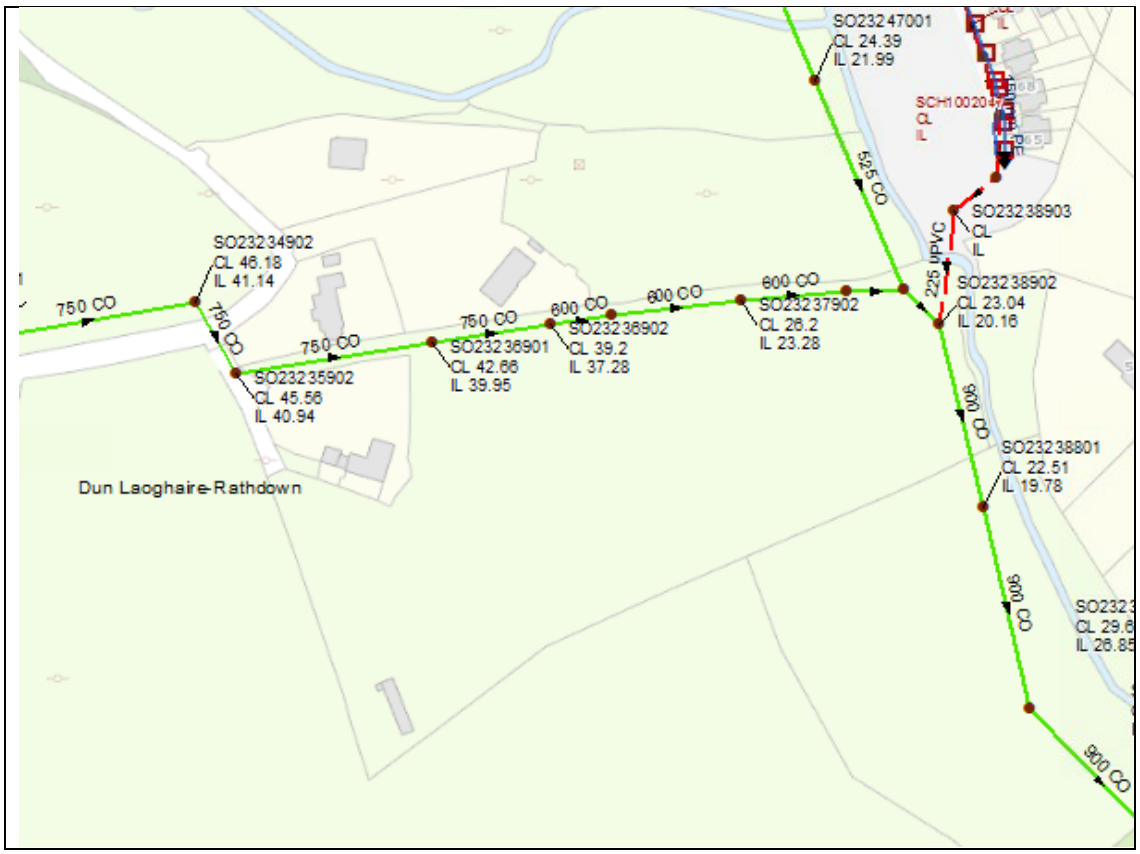
Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s). • Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.
When should I submit a Connection Application?	• A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	• Uisce Éireann connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Uisce Éireann's network(s), including works in the public space, must be carried out by Uisce Éireann*. *Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works
Fire flow Requirements	• The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine. • **What to do?** - Contact the relevant Local Fire Authority
Plan for disposal of storm water	• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. • **What to do?** - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Uisce Éireann's network(s)?	• Requests for maps showing Uisce Éireann's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	• The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with ***the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice,*** available at www.water.ie/connections
Trade Effluent Licensing	• Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended). • More information and an application form for a Trade Effluent License can be found at the following link: https://www.water.ie/business/trade-effluent/about/ **trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)

Section B – Details of Uisce Éireann's Network(s)

The map included below outlines the current Uisce Éireann infrastructure adjacent the Development: To access Uisce Éireann Maps email datarequests@water.ie



Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34

Note: The information provided on the included maps as to the position of Uisce Éireann's underground network(s) is provided as a general guide only. The information is based on the best available information provided by each Local Authority in Ireland to Uisce Éireann.

Whilst every care has been taken in respect of the information on Uisce Éireann's network(s), Uisce Éireann assumes no responsibility for and gives no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided, nor does it accept any liability whatsoever arising from or out of any errors or omissions. This information should not be solely relied upon in the event of excavations or any other works being carried out in the vicinity of Uisce Éireann's underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Uisce Éireann's underground network(s) is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

Mark Richardson | PUNCH

From: Stephen O'Beirne(C) <sobeirne@water.ie>
Sent: Thursday 14 March 2024 10:59
To: Philip McDowell | PUNCH
Cc: Leonard Brennan | PUNCH; Mark Richardson | PUNCH; PJ Mulcahy | PUNCH; Diversions
Subject: RE: 232250 - Lehaunstown Land, Cherrywood - Diversion Application DIV23320

Hi Philip,

Apologies for the delay in updating you on the status of this case. Uisce Éireann has reviewed the submission and has the following comments to make. On drawing 232250-PUNCH-XX-XX-DR-C-0201 the wayleave required on the to be 5 metres either side of the outside of the pipe in this instance a wayleave of 10.75m (for the 750mm pipe) and 10.6m (for the 600mm pipe.

In addition, we would request that the pond inlet swale be position at least 1 linear metre away from the edge of the combined sewer.

Feel free to contact me to discuss if required.

Regards,

Stephen O'Beirne
Diversions, Connections and Developer Services

Uisce Éireann
Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86, Éire
Irish Water
Colvill House, 24-26 Talbot Street, Dublin 1, D01 NP86, Ireland

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www.water.ie
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From: Philip McDowell | PUNCH <pmcdowell@punchconsulting.com>
Sent: Wednesday, March 6, 2024 11:34 AM
To: Stephen O'Beirne(C) <sobeirne@water.ie>
Cc: Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; PJ Mulcahy | PUNCH <pjmulcahy@punchconsulting.com>; Diversions <Diversions@water.ie>
Subject: R: 232250 - Lehaunstown Land, Cherrywood - Diversion Application DIV23320

Hi Stephen,

Thanks for taking my call.

We look forward to receiving your feedback Friday afternoon, following your meeting with the wayleaves department at 12:00pm.

Kind regards,
Philip McDowell
BAI MAI
Graduate Engineer

PUNCH
consulting engineers
Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t: +353 1 271 2200 **w:** www.punchconsulting.com
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From: Philip McDowell | PUNCH
Sent: Monday, March 4, 2024 3:08 PM
To: Stephen Obeirne (C) <sobeirne@water.ie>
Cc: Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; PJ Mulcahy | PUNCH <pjmulcahy@punchconsulting.com>; Diversions <Diversions@water.ie>
Subject: R: 232250 - Lehaunstown Land, Cherrywood - Diversion Application DIV23320 [Filed 04 Mar 2024 15:08]

Hi Stephen,

Have you received a response from your wayleaves department?

We would appreciate it if you could follow up with them again if not.

Kind regards,
Philip McDowell
BAI MAI
Graduate Engineer

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consulting engineers
Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t: +353 1 271 2200 **w:** www.punchconsulting.com
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From: Philip McDowell | PUNCH <pmcdowell@punchconsulting.com>
Sent: Thursday, February 15, 2024 3:47 PM
To: Stephen Obeirne (C) <sobeirne@water.ie>
Cc: Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; PJ Mulcahy | PUNCH <pjmulcahy@punchconsulting.com>; Diversions <Diversions@water.ie>
Subject: R: 232250 DIV23320 R: 232250 - Lehaunstown Land, Cherrywood - Diversion Application DIV23320

Hi Stephen,

Thanks again for taking my call earlier.

Thanks also for following up again with your wayleaves department, we look forward to receiving their feedback shortly.

Kind regards,

Philip McDowell
BAI MAI
Graduate Engineer

PUNCH consulting engineers
Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t: +353 1 271 2200 **w:** www.punchconsulting.com
Dublin | Limerick | Cork | Galway | Glasgow

From: Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>
Sent: Tuesday, February 6, 2024 9:45 AM
To: Stephen Obeirne (C) <sobeirne@water.ie>
Cc: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; Diversions <Diversions@water.ie>; Philip McDowell | PUNCH <pmcdowell@punchconsulting.com>; PJ Mulcahy | PUNCH <pjmulcahy@punchconsulting.com>
Subject: 232250 DIV23320 R: 232250 - Lehaunstown Land, Cherrywood - Diversion Application DIV23320

Hi Stephen

My colleague Philip is on leave this week

Please find attached drawing indicating the proposed development – 110 units of apartments/houses

The application is for a build over/near – we have indicated a 10m wayleave for

Note the POND 2A works including the swale adjacent to the 600mm sewer is part of a separate DLRCC Pond 2A contract led by Roughan O' Donovan

Regards

Leonard

Leonard Brennan
BE Dip Hy&Geo Eng PGDipHSC CEng MIEI MIOSH
Technical Director

PUNCH consulting engineers
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t: +353 1 271 2200 **m:** +353 87 274 6144 **w:** www.punchconsulting.com
Dublin | Limerick | Cork | Galway | Glasgow

From: Stephen Obeirne (C) <sobeirne@water.ie>
Sent: Friday, February 2, 2024 5:00 PM
To: Philip McDowell | PUNCH <pmcdowell@punchconsulting.com>
Cc: Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; Diversions <Diversions@water.ie>
Subject: DIV23320 R: 232250 - Lehaunstown Land, Cherrywood - Diversion Application DIV23320

Hi Philip,

I am still waiting on feedback from our wayleave section, I will follow up with them. In the interim do you have a layout of what development is proposed for this area? Are you looking to divert the sewer or apply for a build over/near? In either case we would need a layout of what is proposed at the site.

Happy to discuss if you require clarification.

Stephen O'Beirne
Diversions, Connections and Developer Services

Uisce Éireann
Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86, Éire
Irish Water
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M +353 83 087 8337
sobeirne@water.ie
www.water.ie
Facebook | Twitter | LinkedIn

From: Philip McDowell | PUNCH <pmcdowell@punchconsulting.com>
Sent: Friday, February 2, 2024 3:08 PM
To: Stephen Obeirne (C) <sobeirne@water.ie>
Cc: Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; Diversions <Diversions@water.ie>
Subject: R: 232250 - Lehaunstown Land, Cherrywood - Diversion Application DIV23320

Hi Stephen,

Would you be able to provide an update with regard to our diversion application: DIV23320?

Kind regards,

Philip McDowell
BAI MAI
Graduate Engineer

PUNCH
consulting engineers
Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t: +353 1 271 2200 **w:** www.punchconsulting.com
Dublin | Limerick | Cork | Galway | Glasgow

From: Stephen Obeirne (C) <sobeirne@water.ie>
Sent: Monday, January 8, 2024 11:54 AM
To: Philip McDowell | PUNCH <pmcdowell@punchconsulting.com>; Diversions <Diversions@water.ie>
Cc: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Diversions <Diversions@water.ie>
Subject: R: 232250 - Lehaunstown Land, Cherrywood - Diversion Application DIV23320

Hi Philip,

I have been assigned to this case, I will get feedback to you before the end of this week.

Regards,

Stephen O'Beirne
Diversions, Connections and Developer Services

Uisce Éireann
Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86, Éire
Irish Water
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M +353 83 087 8337
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www.water.ie
Facebook | Twitter | LinkedIn

From: Philip McDowell | PUNCH <pmcdowell@punchconsulting.com>
Sent: Monday 8 January 2024 11:51
To: Diversions <Diversions@water.ie>
Cc: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>
Subject: R: 232250 - Lehaunstown Land, Cherrywood - Diversion Application DIV23320

Dear Sir/Madam,

Happy New Year to you!

I am emailing to ask whether there has been a design engineer assigned to the query (DIV23320).

Given that the query is only a question on required clearance to an existing line, we hope that it should be a straightforward query to provide feedback on.

Your help in this matter is much appreciated, if you have any capacity to provide feedback on the query this week it would be a great help to us.

Kind regards,

Philip

Philip McDowell
BAI MAI
Graduate Engineer

Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t +353 1 271 2200 | m +353 85 777 1883 | e pmcdowell@punchconsulting.com
Dublin | Limerick | Cork | Galway | Glasgow

From: Diversions <Diversions@water.ie>
Sent: Monday, December 18, 2023 1:03 PM
To: Philip McDowell | PUNCH <pmcdowell@punchconsulting.com>
Subject: R: 232250 - Lehaunstown Land, Cherrywood - Diversion Application

Hi Philip,

Thank you for contacting Irish Water.

Your query has been registered with the diversions team within the Connections and Developer Services department and assigned reference DIV23320. Please quote this in all future correspondence.

A design engineer will be in contact with you in order to progress query.

Kind regards,

Connections & Developer Services

Uisce Éireann
Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, Éire
Irish Water
Colvill House, 24-26 Talbot Street, Dublin 1, Ireland

From: Philip McDowell | PUNCH <pmcdowell@punchconsulting.com>
Sent: Friday 8 December 2023 17:04
To: Diversions <Diversions@water.ie>
Cc: Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Subject: 232250 - Lehaunstown Land, Cherrywood - Diversion Application

Dear Sir/Madam,

Please find attached a diversion application form with a query on the clearance required for a combined sewer at Lehaunstown Land, Cherrywood, Dublin 18.

The following are attached:

1. The Diversion Application Form.
2. A site location map for this proposed development.
3. Site layout drawings indicating the existing combined sewer in question.

If you require any further information, please don't hesitate to contact me.

Kind regards,

Philip McDowell

Philip McDowell
BAI MAI
Graduate Engineer

Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t +353 1 271 2200 | m +353 85 777 1883 | e pmcdowell@punchconsulting.com
Dublin | Limerick | Cork | Galway | Glasgow

Is don duine amháin nó don eintiteas amháin ainmnithe ar an seoladh an fhaisnéis agus d'fhéadfadh ábhar faoi rún, faoi phribhléid nó ábhar atá íogair ó thaobh na tráchtála de a bheith mar chuid den fhaisnéis. Tá toirmeasc ar aon daoine nó aon eititis; nach dóibh siúd an fhaisnéis- aon athbhreithniú a dhéanamh, aon atarchur a dhéanamh nó aon athdháileadh a dhéanamh, nó aon úsáid eile a bhaint as an bhfaisnéis, nó aon ghníomh a bhraithfeadh ar an bhfaisnéis seo a dhéanamh agus d'fhéadfaí an dlí a shárú dá ndéanfaí sin. Séanann Uisce Éireann dliteanas as aon ghníomh agus as aon iarmhairt bunaithe ar úsáid neamhúdaraithe na faisnéise seo. Séanann Uisce Éireann dliteanas maidir le seachadadh iomlán agus ceart na faisnéise sa chumarsáid seo agus séanann Uisce Éireann dliteanas maidir le haon mhoill a bhaineann leis an bhfaisnéis a fháil. Má tá an ríomh-phost seo faighte agat trí dhearmad, déan teagmháil leis an seoltóir más é do thoil é agus scrios an t-ábhar ó gach aon ríomhaire. D'fhéadfadh ríomhphost a bheith so-ghabhálach i leith truaillithe, idircheaptha agus i leith leasuithe neamhúdaraithe. Séanann Uisce Éireann aon fhreagracht as athruithe nó as idircheapadh a rinneadh ar an ríomhphost seo nó as aon dochar do chórais na bhfaighteoirí déanta ag an teachtaireacht seo nó ag a ceangaltáin tar éis a sheolta. Tabhair faoi deara go bhféadfadh monatóireacht a bheith á dhéanamh ar theachtaireachtaí chuig Uisce Éireann agus ó Uisce Éireann d'fhonn ár ngnó a chosaint agus chun a chinntiú go bhfuiltear ag teacht le beartais agus le caighdeáin Uisce Éireann. Is cuideachta gníomhaíochta ainmnithe é Uisce Éireann atá faoi theorainn scaireanna, a bunaíodh de bhun fhorálacha na n-Achtanna um Sheirbhísí Uisce 2007-2022, a bhfuil a bpríomh-ionad gnó ag Teach Colvill, 24-26 Sráid na Talbóide, BÁC 1.

Go raibh maith agat as d'aird a thabhairt.

Thank you for your attention.

Is don duine amháin nó don eintiteas amháin ainmnithe ar an seoladh an fhaisnéis agus d'fhéadfadh ábhar faoi rún, faoi phribhléid nó ábhar atá íogair ó thaobh na tráchtála de a bheith mar chuid den fhaisnéis. Tá toirmeasc ar aon daoine nó aon eititis; nach dóibh siúd an fhaisnéis- aon athbhreithniú a dhéanamh, aon atarchur a dhéanamh nó aon athdháileadh a dhéanamh, nó aon úsáid eile a bhaint as an bhfaisnéis, nó aon ghníomh a bhraithfeadh ar an bhfaisnéis seo a dhéanamh agus d'fhéadfaí an

dlí a shárú dá ndéanfaí sin. Séanann Uisce Éireann dliteanas as aon ghníomh agus as aon iarmhairt bunaithe ar úsáid neamhúdaraithe na faisnéise seo. Séanann Uisce Éireann dliteanas maidir le seachadadh iomlán agus ceart na faisnéise sa chumarsáid seo agus séanann Uisce Éireann dliteanas maidir le haon mhoill a bhaineann leis an bhfaisnéis a fháil. Má tá an ríomh-phost seo faighte agat trí dhearmad, déan teagmháil leis an seoltóir más é do thoil é agus scrios an t-ábhar ó gach aon ríomhaire. D'fhéadfadh ríomhphost a bheith so-ghabhálach i leith truaillithe, idircheaptha agus i leith leasuithe neamhúdaraithe. Séanann Uisce Éireann aon fhreagracht as athruithe nó as idircheapadh a rinneadh ar an ríomhphost seo nó as aon dochar do chórais na bhfaighteoirí déanta ag an teachtaireacht seo nó ag a ceangaltáin tar éis a sheolta. Tabhair faoi deara go bhféadfadh monatóireacht a bheith á dhéanamh ar theachtaireachtaí chuig Uisce Éireann agus ó Uisce Éireann d'fhonn ár ngnó a chosaint agus chun a chinntiú go bhfuiltear ag teacht le beartais agus le caighdeáin Uisce Éireann. Is cuideachta gníomhaíochta ainmnithe é Uisce Éireann atá faoi theorainn scaireanna, a bunaíodh de bhun fhorálacha na n-Achtanna um Sheirbhísí Uisce 2007-2022, a bhfuil a bpríomh-ionad gnó ag Teach Colvill, 24-26 Sráid na Talbóide, BÁC 1.

Go raibh maith agat as d'aird a thabhairt.

The information transmitted is intended only for the person or entity to which it is addressed and may contain confidential, commercially sensitive and/or privileged material. Any review, retransmission, dissemination or other use of, or taking of any action in reliance upon, this information by persons or entities other than the intended recipient is prohibited and may be unlawful. Uisce Éireann accepts no liability for actions or effects based on the prohibited usage of this information. Uisce Éireann is neither liable for the proper and complete transmission of the information contained in this communication nor for any delay in its receipt. If you received this in error, please contact the sender and delete the material from any computer. E-Mail may be susceptible to data corruption, interception and unauthorised amendment. Uisce Éireann accepts no responsibility for changes to or interception of this e-mail after it was sent or for any damage to the recipients systems or data caused by this message or its attachments. Please also note that messages to or from Uisce Éireann may be monitored to ensure compliance with Uisce Eireann's policies and standards and to protect our business. Uisce Éireann is a designated activity company limited by shares, established pursuant to the Water Services Acts 2007-2022, having its principal place of business at Colvill House, 24-26 Talbot Street, Dublin 1.

Thank you for your attention.

Mark Richardson | PUNCH

From: Codd Johanne <jcodd@DLRCOCO.IE>
Sent: Friday 21 June 2024 10:04
To: Mark Richardson | PUNCH
Cc: John Parker; Patrick White (p.white@abkdublin.com); Leonard Brennan | PUNCH; Danciu Marin; Fahy Robert; O'Sullivan Gerard; Thomas McPhillips
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback

Mark,

Thank you for the comments. Drainage Planning has no further comment.

Regards,

Johanne Codd BA BAI CEng MIEI
A/Senior Executive Engineer
Drainage Planning, Municipal Services ,
Dún Laoghaire-Rathdown County Council, County Hall, Marine Road, Dún Laoghaire.

S/Innealtóir Sinsearach Feidhmiúcháin
Pleanáil Draenála, An Roinn Gnóthai Bardasacha
Comhairle Contae Dhún Laoghaire-Ráth an Dúin, Halla an Chontae, Bóthar na Mara, Dún Laoghaire.

From: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Sent: Thursday, June 20, 2024 5:12 PM
To: Codd Johanne <jcodd@DLRCOCO.IE>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Danciu Marin <mdanciu@DLRCOCO.IE>; Fahy Robert <rfahy@DLRCOCO.IE>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>; Thomas McPhillips <t.mcphillips@abkdublin.com>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback

Hi Johanne

Thank you for your feedback.

Please see below comments in green.

- Can you confirm if you are going for Part 8 or Section 179(a)? (Mail below suggest Part 8, Marin mentioned Section 179(a), I need it for my records)

We are proceeding with a Section 179(a) planning application.

- Does the bioretention area need to be lined?

In general, the bioretention areas are proposed adjacent to houses and roads above soils with limited permeability. Given that infiltration would be limited in any event, lining is proposed to limit swell and possible undermining,.

- The application shows a discharge to a regional pond which is not in place and may be some time off being provided. The applicant should consider the location of discharge should the pond be unavailable until after the construction of the housing development.

A comment can be included in the application to ensure that the development works are aligned to the pond 2A works completion and/or an alternate discharge is provided to the river if pond 2a is not completed.

Thanks

Mark Richardson
BA BAI CEng
Associate

PUNCH
consulting engineers
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From: Codd Johanne <jcodd@DLRCOCO.IE>
Sent: Wednesday, June 12, 2024 4:23 PM
To: Danciu Marin <mdanciu@DLRCOCO.IE>; Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>; Thomas McPhillips <t.mcphillips@abkdublin.com>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback

HI Mark,

Drainage Planning has no objection in principle to the proposed development but requests that they be consulted throughout the detailed design process and prior to the commencement of construction.

Drainage Planning have the following further comments:

- Can you confirm if you are going for Part 8 or Section 179(a)? (Mail below suggest Part 8, Marin mentioned Section 179(a), I need it for my records)
- Does the bioretention area need to be lined?
- The application shows a discharge to a regional pond which is not in place and may be some time off being provided. The applicant should consider the location of discharge should the pond be unavailable until after the construction of the housing development.

Regards,

Johanne Codd BA BAI CEng MIEI
A/Senior Executive Engineer
Drainage Planning, Municipal Services ,
Dún Laoghaire-Rathdown County Council, County Hall, Marine Road, Dún Laoghaire.

S/Innealtóir Sinsearach Feidhmiúcháin
Pleanáil Draenála, An Roinn Gnóthai Bardasacha
Comhairle Contae Dhún Laoghaire-Ráth an Dúin, Halla an Chontae, Bóthar na Mara, Dún Laoghaire.

From: Danciu Marin <mdanciu@DLRCOCO.IE>
Sent: Wednesday, June 12, 2024 12:37 PM
To: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; Codd Johanne <jcodd@DLRCOCO.IE>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>; Thomas McPhillips <t.mcphillips@abkdublin.com>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback

Hi all
I have just spoken to Johanne.
She will respond later today.
Regards
Marin

From: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Sent: Wednesday, June 12, 2024 12:24 PM
To: Codd Johanne <jcodd@DLRCOCO.IE>
Cc: Danciu Marin <mdanciu@DLRCOCO.IE>; John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>; Thomas McPhillips <t.mcphillips@abkdublin.com>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback

Hi Johanne

Please could you provide feedback.

Thanks

Mark Richardson
BA BAI CEng
Associate

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From: Mark Richardson | PUNCH
Sent: Tuesday, June 4, 2024 1:07 PM
To: Codd Johanne <jcodd@DLRCOCO.IE>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback [Filed 04 Jun 2024 13:06]

Hi Johanne

I thank you for your feedback provided to date.

To submit the final part 8 planning application for DLRCC by the end of June, we have been asked to obtain support from DLRCC Drainage department.

Would it be possible for you to review and provide support. I would be happy to discuss with you if you would like.

I would like to share current draft planning documentation with you. Since many of the documents are quite large, they are added to the below link. Please note that this folder has already been shared with DAPT.

https://www.dropbox.com/scl/fo/ldmuf9n8g3dcaxo0l2mpe/AOzzPntd2rs2TWx7KUPMYng?rlkey=1ryrl8tvy7a7s53n363hmmhcy&dl=0

Thanks,

Mark Richardson
BA BAI CEng
Associate

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w: www.punchconsulting.com
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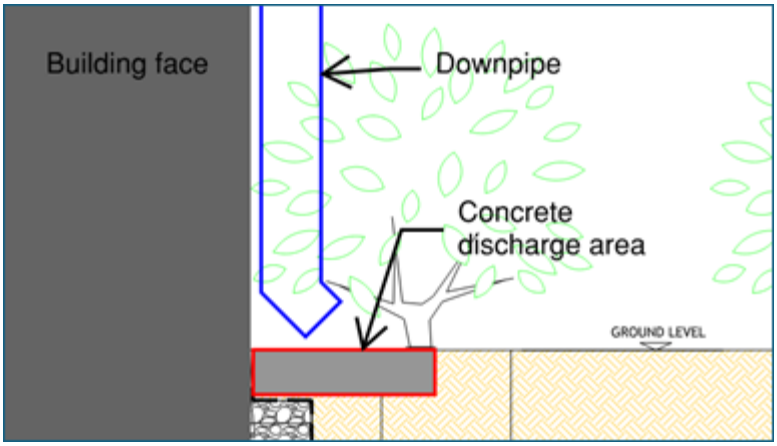
From: Mark Richardson | PUNCH
Sent: Tuesday, April 2, 2024 12:59 PM
To: Codd Johanne <jcodd@DLRCOCO.IE>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Fahy Robert <rfahy@DLRCOCO.IE>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>; Danciu Marin <mdanciu@DLRCOCO.IE>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback [Filed 02 Apr 2024 12:59]

Hi Johanne,

Thank you for the email.

For areas where roofs discharge directly to bioretention, there will be a downpipe direct connection detail similar to the below.



To confirm - all non-green roof areas are to discharge to bioretention areas as per the drawing and report explanation.

Please can you confirm the responses below address your queries.

Thanks,

Mark Richardson
BA BAI CEng
Associate

PUNCH
consulting engineers

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From: Codd Johanne <jcodd@DLRCOCO.IE>
Sent: Thursday, March 28, 2024 10:18 AM
To: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Fahy Robert <rfahy@DLRCOCO.IE>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>; Danciu Marin <mdanciu@DLRCOCO.IE>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback

Hi Mark,

Thanks for sending that detail through. It appears to only show the road detail though.
Can you confirm that all of the non - green roof areas are directed to these bioretention area?
If you can provide that detail, that would be great.

Regards,

Johanne Codd BA BAI CEng MIEI
A/Senior Executive Engineer
Drainage Planning, Municipal Services ,
Dún Laoghaire-Rathdown County Council, County Hall, Marine Road, Dún Laoghaire.

S/Innealtóir Sinsearach Feidhmiúcháin
Pleanáil Draenála, An Roinn Gnóthai Bardasacha
Comhairle Contae Dhún Laoghaire-Ráth an Dúin, Halla an Chontae, Bóthar na Mara, Dún Laoghaire.

From: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Sent: Friday, March 22, 2024 2:32 PM
To: Codd Johanne <jcodd@DLRCOCO.IE>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Fahy Robert <rfahy@DLRCOCO.IE>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>; Danciu Marin <mdanciu@DLRCOCO.IE>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback

Hi Johanne,

Please could you provide feedback.

We are under pressure to submit for planning for this DLRCC scheme by 5 April.

Is it possible to gain final DLRCC Drainage comments by Wednesday 27 March?

I would be happy to discuss with you if it helps?

Thanks,

Mark Richardson
BA BAI CEng
Associate

PUNCH consulting engineers
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From: Mark Richardson | PUNCH
Sent: Friday, March 15, 2024 10:25 AM
To: Codd Johanne <jcodd@DLRCOCO.IE>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Fahy Robert <rfahy@DLRCOCO.IE>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback [Filed 15 Mar 2024 10:25]

Hi Joanne

Please see below comments in green against your comments in blue.

DLRCC Comment: Can I get some more details on the bioretention areas? Plans and cross sections?

PUNCH Comment: Please see attached sketch C-0003.

DLRCC Comment: It appears many of the areas are narrow (less than 1m wide) strips between parking spaces, or locations where tree pits are located.

PUNCH Comment: This is correct. The trees will be provided within the bioretention areas. We will advise the landscape architect to ensure that suitable planting is provided.

DLRCC Comment: While the use of these strips is welcomed in schemes, and do offer storage and infiltration benefits, the biodiversity benefits large areas of green roof provide are not replicated in these strips. Would there be any way larger blocks of green space could be given to bioretention areas? Such as the green to the west of Block A2, the play area outside Block A, or the area to the rear of Block C?

PUNCH Comment:
Can you please clarify the request.
Are you asking for a bioretention area at ground level to be provided of the same area as the green roof below 70%, and that this is to be provided in addition to the 15mm bioretention treatment volume provided for the roofs provided at ground level?

DLRCC Comment: Also if you can confirm if the duplex units are to centrally managed with a continuous roof? If so, these areas should be included in the green roof requirements.

PUNCH Comment: The duplexes are apartments so can be considered a shared roof.

Thanks

Mark Richardson
BA BAI CEng
Associate

PUNCH consulting engineers
Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
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From: Codd Johanne <jcodd@DLRCOCO.IE>
Sent: Thursday, March 14, 2024 12:34 PM
To: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Fahy Robert <rfahy@DLRCOCO.IE>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback

Hi Mark,

Can I get some more details on the bioretention areas? Plans and cross sections?
It appears many of the areas are narrow (less than 1m wide) strips between parking spaces, or locations where tree pits are located.

While the use of these strips is welcomed in schemes, and do offer storage and infiltration benefits, the biodiversity benefits large areas of green roof provide are not replicated in these strips. Would there be any way larger blocks of green space could be given to bioretention areas? Such as the green to the west of Block A2, the play area outside Block A, or the area to the rear of Block C?

Also if you can confirm if the duplex units are to centrally managed with a continuous roof? If so, these areas should be included in the green roof requirements.

Regards,

Johanne Codd BA BAI CEng MIEI
A/Senior Executive Engineer
Drainage Planning, Municipal Services ,
Dún Laoghaire-Rathdown County Council, County Hall, Marine Road, Dún Laoghaire.

S/Innealtóir Sinsearach Feidhmiúcháin
Pleanáil Draenála, An Roinn Gnóthai Bardasacha
Comhairle Contae Dhún Laoghaire-Ráth an Dúin, Halla an Chontae, Bóthar na Mara, Dún Laoghaire.

From: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Sent: Wednesday, March 13, 2024 5:15 PM
To: Codd Johanne <jcodd@DLRCOCO.IE>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; Fahy Robert <rfahy@DLRCOCO.IE>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback

Hi Joanne

Please see below response.

1. We understand that the current development plan permits DLRCC to consider the exemption of green roof if alternative treatment is provided by bioretention or other similar SUDS measures.

2. For the proposed development, all non-green roofs and paved areas are proposed to be treated by bioretention areas for the first 15mm of runoff, in accordance with the development plan Appendix 7.1, section 7.1.2. On this basis it is proposed that there is no shortfall in SUDS treatment / interception provision. Calculations are provided in the report to explain and demonstrate. An explanation of this is provided in the report and is illustrated on the drawings. Please see below extract summary from section 2.3.8.

2.3.8 Interception / Treatment Calculation

2.3.8.1 Overview and Calculation Basis

Reference is made to the UK SUDS Manual, Ciria 753 for interception storage assessment. It is proposed to provide interception / treatment as below:

1. Interception is proposed for all green roofs on the basis of Table 14.6 of UK SUDS Manual, Ciria 753.
2. Treatment is proposed for the first 15mm of rain fall for other areas based on the bioretention equation 18.1 as extracted from the UK SUDS Manual, Ciria 753:

$$A_f = \frac{V_t L}{k(h+L)t}$$

$A_f = Filter\ Area\ (m^2)$

$V_t = Volume\ requiring\ treatment\ (m^3)$

$L = Depth\ of\ bioretention\ (m)$

$k = coefficient\ of\ permeability\ of\ filter\ media\ \ (m/s)$

$h = depth\ of\ water\ above\ filter\ media\ (m)$

$t = time\ for\ treatment\ (48\ hours)(s)$

3. Roof area percentage is also calculated based on the apartment roofs and excludes house roofs. If the duplexes are taken to be not applicable green roof development, then the percent green roof is closer to 60%.

4. Please refer relevant extracts from Development Plan 2022-2028 Appendix 7 below:

Section 7.1.2 SUDS interception and treatment extract:

Interception and Treatment

The applicant must demonstrate that required interception and/or treatment of surface water run-off is achieved in accordance with GDSDS policy. To be in compliance with GDSDS Volume 2 Section 6.3.3 Table Criterion 1, interception of the first 5-10mm is required. If interception of first 5-10mm can't be achieved treatment of first 15mm is required. The SuDS Manual (C753) Chapter 24, and specifically Table 24.6, give guidance regarding suitable interception mechanisms.
The applicant should note that interception/treatment must be provided for the entire site area as accor to HR Wallingford (UKSuDS website):
"A high level of Interception provided for some parts of the site is not to be considered as adequate compensation for a low degree of interception provision for other locations. Compliance is required for th whole site, or at least paved areas, for it to be considered effective."

Appendix 7.2 section 3.0, standard GR1 extract

Standard GR1 – Applicable development types

Planning applications which include roof areas of greater than 300 square metres for the following development types must make provision for a green and / or blue roof (which includes a green component) as part of development proposals.

- Apartment Developments
- Employment Developments
- Retail and Ancillary Shopping
- Leisure Developments
- Education Facilities

Appendix 7.2 section 3.0, standard GR2 extract

> *" ...Unless exempted or partially exempted by DLRCC's Municipal Services Section following consideration of the suite of complementary or alternative nature based SuDS features including ponds, bio retention areas, basins, wetlands, swales, rain garden. A proposal that relies solely on attenuation storage systems and/or permeable paving as an alternative to the provision of a green roof will not be acceptable. "*

Thanks

Mark Richardson
BA BAI CEng
Associate

PUNCH
consulting engineers

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From: Codd Johanne <jcodd@DLRCOCO.IE>
Sent: Wednesday, March 13, 2024 2:26 PM
To: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; Fahy Robert <rfahy@DLRCOCO.IE>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback (email 1 of 4)

Hi Mark,

It appears from the report that rather than the 8% shortfall Rob mentioned below, there is actually a 20% shortfall on the green roof provision.
With limited bioretention areas proposed, this would not be an acceptable shortfall.

Please confirm if I have the percentages correct, or if Robs 62% is correct.
(He has referenced the Architects note, while I didn't get that information)

Regards,

Johanne Codd BA BAI CEng MIEI
A/Senior Executive Engineer
Drainage Planning, Municipal Services ,
Dún Laoghaire-Rathdown County Council, County Hall, Marine Road, Dún Laoghaire.

S/Innealtóir Sinsearach Feidhmiúcháin
Pleanáil Draenála, An Roinn Gnóthai Bardasacha

From: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Sent: Friday, March 8, 2024 4:57 PM
To: Codd Johanne <jcodd@DLRCOCO.IE>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>
Subject: RE: 232250 DLR Cherrywood housing site - DLRCC Drainage Planning Feedback (email 1 of 4)

Hi Joanne

I refer to commentary from Robert Fahy below.

Please see attached drainage drawing and engineering planning report for your review and feedback.

To keep email size to 10MB I have split this into 4 emails.

Thanks

Mark Richardson
BA BAI CEng
Associate

PUNCH consulting engineers
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From: Danciu Marin <mdanciu@DLRCOCO.IE>
Sent: Tuesday, March 5, 2024 11:32 AM
To: Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Mark Richardson | PUNCH <mrichardson@punchconsulting.com>; Codd Johanne <jcodd@DLRCOCO.IE>
Subject: Re: 232250 DLR Cherrywood housing site - Placeholder

Hi Leonard
Yes, currently the Drainage Planning of DLR is lead by Johanne Codd. I put her in the Cc.
Regards
Marin

Sent from Outlook for Android

From: Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>
Sent: Tuesday, March 5, 2024 11:23:03 AM
To: O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>; Danciu Marin <mdanciu@DLRCOCO.IE>
Cc: John Parker <j.parker@abkdublin.com>; Patrick White (p.white@abkdublin.com) <p.white@abkdublin.com>; Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Subject: 232250 DLR Cherrywood housing site - Placeholder

Hi Ger/Marin

We are in receipt of Roby Fahy commentary re the Cherrywood scheme. Rob has raised some items to seek confirmation from DLRCC Water Services on

Who is the relevant DLRCC Drainage Planning contact we should issue our draft proposals to

Is it Johanne Codd? Do you have the email details

SW design

- Connections from bio retention areas/ Green roofs to the proposed SW network should be detailed on Proposed Drainage Layout 0201.
- Noted Architects statement S3.13 identifies 62% extensive green roof coverage. Evidence that DLR Water Services have agreed to this 8% shortfall is required.
- S1.7 MH – hydrobrake proposed to limit flow to 1.1 l/s – confirm this equates to PS max discharge of 1 l/s/ha or less.
- Is a petrol interceptor proposed in the design? Would be preferrable given proximity to Pond 2A.
- Make up of proposed attenuation tank should be detailed. Modular tank? Note PS requirement to avoid use of concrete attenuation tanks.
- Calculations for SW network and attenuation volume to be provided in application to confirm proposed pipe sizing and tank design capacity of 1,200m^3 is sufficient.
- From the Punch memo it doesn't appear that a factor of 10% for Urban Creep has been included in calculations as per requirements of the CDP.
- TWL of surface water structures (MHs, tanks etc) should be detailed along with FFLs of adjacent buildings on a drawing to confirm 500mm freeboard as required under GDSDS.
- An independent Stage 1 SW Audit should form part of the application.
- Proposals that demonstrate how exceedance flows will be managed within the development site boundary in the event of blockage or exceedance, as per the requirements of GDSDS Table 6.3, Criterion 3, sub-criterion 3.4, should form part of the application.

Leonard Brennan
BE Dip Hy&Geo Eng PGDipHSC CEng MIEI MIOSH
Technical Director

PUNCH consulting engineers
Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
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Dublin | Limerick | Cork | Galway | Glasgow

From: John Parker <j.parker@abkdublin.com>
Sent: Thursday, February 29, 2024 4:30 PM

To: Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>
Cc: p.white@abkdublin.com; Smith, Mark <Mark.Smith2@aecom.com>; Hallinan, Mark <Mark.Hallinan@aecom.com>; Brian Homan <brian.homan@homanobrien.ie>; Marcella Moura <marcella.moura@homanobrien.ie>; Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Subject: FW: 232250 DLR Cherrywood housing site - Placeholder

Leonard,

Please see below feedback from DLR DAPT team in respect of Civils matters. Can you review and address

Units numbers are still settling down and we will be in a position to confirm these by COB tomorrow Friday which in turn will settle car parking numbers

You might give me a call to update me on progress when you have a moment

Kind regards,

John Parker
Director

on behalf of

ABK ARCHITECTS

34 Lower Leeson Street, Dublin 2, D02 KW42
T: +353 1 678 9822
M: +353 87 245 4577
E: abk@abkdublin.com
W: www.abkdublin.com

From: O'Sullivan Gerard [mailto:gerardosullivan@DLRCOCO.IE]
Sent: Thursday 29 February 2024 15:18
To: John Parker (j.parker@abkdublin.com) <j.parker@abkdublin.com>; Patrick White <p.white@abkdublin.com>
Subject: FW: 232250 DLR Cherrywood housing site - Placeholder

FYI

From: Fahy Robert <rfahy@DLRCOCO.IE>
Sent: Thursday, February 29, 2024 3:17 PM
To: O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>
Cc: Byrne Vivienne <vbyrne@DLRCOCO.IE>; Flanagan Tracey <tflanagan@DLRCOCO.IE>; Collins Fionnuala <fcollins@DLRCOCO.IE>; FPIadmin <FPIadmin@DLRCOCO.IE>
Subject: RE: 232250 DLR Cherrywood housing site - Placeholder

Apologies Ger, I forgot one thing from my notes on SW design re: exceedance flows. Updated below.

Regards,

Rob

Robert Fahy

Senior Executive Engineer | Development Agency Project Team
Forward Planning Infrastructure Department

Innealtóir Sinsearach Feidhmiúcháin | An Roinn um Phleanáil Chun Cinn agus Bonneagar

DLR County Council, County Hall, Dún Laoghaire, Co. Dublin

Telephone: 01-2054700 | Ext: 4488 | Mobile: 0868589414 | Email: rfahy@dlrcoco.ie

Comhairle Contae County Council

From: Fahy Robert
Sent: Thursday, February 29, 2024 3:01 PM
To: O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>
Cc: Byrne Vivienne <vbyrne@DLRCOCO.IE>; Flanagan Tracey <tflanagan@DLRCOCO.IE>; Collins Fionnuala <fcollins@DLRCOCO.IE>; FPIadmin <FPIadmin@DLRCOCO.IE>
Subject: RE: 232250 DLR Cherrywood housing site - Placeholder

Hi Ger.

I have reviewed the draft documents submitted, please find my comments below.

SW design

- Connections from bio retention areas/ Green roofs to the proposed SW network should be detailed on Proposed Drainage Layout 0201.
- Noted Architects statement S3.13 identifies 62% extensive green roof coverage. Evidence that DLR Water Services have agreed to this 8% shortfall is required.
- S1.7 MH – hydrobrake proposed to limit flow to 1.1 l/s – confirm this equates to PS max discharge of 1 l/s/ha or less.
- Is a petrol interceptor proposed in the design? Would be preferrable given proximity to Pond 2A.
- Make up of proposed attenuation tank should be detailed. Modular tank? Note PS requirement to avoid use of concrete attenuation tanks.
- Calculations for SW network and attenuation volume to be provided in application to confirm proposed pipe sizing and tank design capacity of 1,200m^3 is sufficient.
- From the Punch memo it doesn't appear that a factor of 10% for Urban Creep has been included in calculations as per requirements of the CDP.
- TWL of surface water structures (MHs, tanks etc) should be detailed along with FFLs of adjacent buildings on a drawing to confirm 500mm freeboard as required under GDSDS.
- An independent Stage 1 SW Audit should form part of the application.
- Proposals that demonstrate how exceedance flows will be managed within the development site boundary in the event of blockage or exceedance, as per the requirements of GDSDS Table 6.3, Criterion 3, sub-criterion 3.4, should form part of the application.

Water Supply and Wastewater

- COF from Uisce Eireann should be appended to application.
- Has it been confirmed with Uisce Eireann that the Proposed foul sewer (450mm – 1100mm) identified as running through the subject site, as identified on Planning Scheme Map 4.4, is not required? This confirmation should form part of the application.

Transportation

Ped & Cycle movement

- It is recommended that a raised pedestrian crossing is provided on the access road at the entrance to the development to prioritise pedestrian movement at this location and to account for the pedestrian/cycle desire line from the Greenway. Removal/Relocation of car parking spaces at this location may be necessary in this regard.
- How is it proposed for cyclists to safely access the cycle stores in blocks A1 and A2 without dismounting, especially if all the car parking to the front of these blocks is occupied?
- With reference to dwg. ref 790_PA044, where are residents of Block C to park their bikes with no long-term cycle store proposed for this block?
- An independent Stage 1 Quality Audit (which shall include a Road Safety Audit, Access Audit, Cycle Audit and Walking Audit) should form part of the application.

Car Parking

- Perpendicular Car parking appears overly dominant on the access road to the development ("The Mall"). Note DMURS guidance in this regard, redesign may be required. Undercroft /basement car parking should be considered for Block C.
- Regarding Car Parking Table 1 in Punch memo, total car parking provision is not detailed and there are discrepancies with the quantum of units outlined in the table, see below. Consistency across all documents is required.

Punch	ABK Architects
1 bed – 29 units	1 bed – 30 units
2 bed – 59 units	2 bed – 58 units
3 bed – 12 units	3 bed – 14 units
3+ bed house – 8 units	3+ bed house – 8 units

- Car parking provision as calculated by ABK Architects of 132 no. spaces + 1 no. car sharing space is considered to accord with the current Planning Scheme Car parking Standards.
- 4 no. accessible spaces proposed for the development. 4% of 132 no. spaces equates to 5 no. accessible spaces. This should be addressed.

Cycle Parking

- Regarding Cycle Parking Table 2 in Punch memo, total cycle parking provision is not detailed and there are the same discrepancies with the quantum of units outlined in the table as there are in Table 1.
- Proposed provision of 22 no. short term spaces and 110 long term spaces as calculated by ABK meets the minimum requirements. However, these minimum requirements should be exceeded to cater for future demand as per DLR Cycle Standards requirements.
- Noted Sheffield stands are proposed for the front of housing units as per Punch memo. Recommend alternative solution, wall mounted anchors, storage units etc.

Utilities

- No utilities/ducting drawing provided to date. Should form part of the application proposals.

Regards,

Rob

Robert Fahy

Senior Executive Engineer | Development Agency Project Team
Forward Planning Infrastructure Department

Innealtóir Sinsearach Feidhmiúcháin | An Roinn um Phleanáil Chun Cinn agus Bonneagar

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Comhairle Contae County Council

From: O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>
Sent: Friday, February 16, 2024 12:59 PM
To: Fahy Robert <rfahy@DLRCOCO.IE>
Subject: FW: 232250 DLR Cherrywood housing site - Placeholder

Hi Rob,
Please see attached.
I was in meetings all morning.
Regards,
Ger

From: Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>
Sent: Thursday, February 15, 2024 7:31 PM
To: John Parker <j.parker@abkdublin.com>
Cc: Patrick White <p.white@abkdublin.com>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>
Subject: 232250 DLR Cherrywood housing site - Placeholder

All

Yes I can attend the 12PM meeting tomorrow – please issue teams invite

Engineering draft drawings and memo attached

See link below for additional information including Architect drawings, Uisce Eireann Certificate of Feasibility, DLRCC Flood Risk Assessment

https://we.tl/t-0LiN3rsB2N

Regards

Leonard

Leonard Brennan
BE Dip Hy&Geo Eng PGDipHSC CEng MIEI MIOSH
Technical Director

PUNCH consulting engineers
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Dublin | Limerick | Cork | Galway | Glasgow

From: John Parker <j.parker@abkdublin.com>
Sent: Tuesday, February 13, 2024 5:57 PM
To: Leonard Brennan | PUNCH <lbrennan@punchconsulting.com>

Cc: Patrick White <p.white@abkdublin.com>; O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>
Subject: RE: DLR Cherrywood housing site - Placeholder

Hi Leonard
Can you attend this meeting to address any questions that Robert Fahy may have? Friday16th 12pm

Kind regards,

John Parker
Director

on behalf of

ABK ARCHITECTS

34 Lower Leeson Street, Dublin 2, D02 KW42
T: +353 1 678 9822
M: +353 87 245 4577
E: abk@abkdublin.com
W: www.abkdublin.com

From: O'Sullivan Gerard [mailto:gerardosullivan@DLRCOCO.IE]
Sent: Tuesday 13 February 2024 17:37
To: John Parker <j.parker@abkdublin.com>; Patrick White <p.white@abkdublin.com>
Subject: RE: DLR Cherrywood housing site - Placeholder

Hi Patrick,
They can attend if it would help with Rob Fahy info.
The more they send in advance, the better feedback they will get even if it is draft.
Regards,
Gerard

From: John Parker <j.parker@abkdublin.com>
Sent: Tuesday, February 13, 2024 5:20 PM
To: O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>; Patrick White <p.white@abkdublin.com>
Subject: RE: DLR Cherrywood housing site - Placeholder

Hi Gerard
Do you require PCE to be in attendance at this meeting?

Kind regards,

John Parker
Director

on behalf of

34 Lower Leeson Street, Dublin 2, D02 KW42
T: +353 1 678 9822
M: +353 87 245 4577
E: abk@abkdublin.com
W: www.abkdublin.com

From: O'Sullivan Gerard [mailto:gerardosullivan@DLRCOCO.IE]
Sent: Tuesday 13 February 2024 16:52
To: John Parker (j.parker@abkdublin.com) <j.parker@abkdublin.com>; Patrick White <p.white@abkdublin.com>
Subject: FW: DLR Cherrywood housing site - Placeholder

Hi John,
Can you send any draft Engineering proposals to Rob in advance of Friday.
Thanks,
Gerard

From: Fahy Robert <rfahy@DLRCOCO.IE>
Sent: Tuesday, February 13, 2024 3:55 PM
To: O'Sullivan Gerard <gerardosullivan@DLRCOCO.IE>
Cc: FPIadmin <FPIadmin@DLRCOCO.IE>; Byrne Vivienne <vbyrne@DLRCOCO.IE>; Flanagan Tracey <tflanagan@DLRCOCO.IE>; Collins Fionnuala <fcollins@DLRCOCO.IE>
Subject: RE: DLR Cherrywood housing site - Placeholder

Hi Gerard,

In advance of this meeting do you have any draft Engineering proposals (Punch Consulting) that you can share so that I familiarise myself with them ?

Thanks,

Rob

Robert Fahy

Senior Executive Engineer | Development Agency Project Team
Forward Planning Infrastructure Department

Innealtóir Sinsearach Feidhmiúcháin | An Roinn um Phleanáil Chun Cinn agus Bonneagar

DLR County Council, County Hall, Dún Laoghaire, Co. Dublin

Telephone: 01-2054700 | Ext: 4488 | Mobile: 0868589414 | Email: rfahy@dlrcoco.ie

-----Original Appointment-----
From: FPIadmin <FPIadmin@DLRCOCO.IE>
Sent: Thursday, February 1, 2024 3:36 PM
To: FPIadmin; Byrne Vivienne; Flanagan Tracey; Fahy Robert; Collins Fionnuala; O'Sullivan Gerard
Cc: j.parker@abkdublin.com; p.white@abkdublin.com
Subject: DLR Cherrywood housing site - Placeholder
When: Friday 16 February 2024 12:00-13:00 (UTC+00:00) Dublin, Edinburgh, Lisbon, London.
Where: Microsoft Teams Meeting

Hello all

At the request of Housing, this is move back to 12pm due to their availability. It appears to still suit the DAPT calendards.

Kind regards
Mary

Microsoft Teams meeting

Join on your computer, mobile app or room device
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Passcode: YqtHAq
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