Habitats Directive Appropriate Assessment
Screening Determination

Proposed Housing Development at Dean McNamara Place, Newtownshandrum.

Cork County Council
Comhairle Contae Chorcaí

Completed by: Mairéad Maguire
Approved by: Sharon Casey
Cork County Council.

Date: 27th November 2023

This document contains the Habitats Directive Screening Determination of Cork County Council in respect of a housing scheme for 2 no. units located on an infill site between Ashwood Grove (Respond) and Dean McNamara Place in Newtownshandrum Co. Cork. The assessment is based on project drawings and details prepared by the Architects Dept.

In accordance with Regulation 250 of the Planning and Development Regulations, Local Authorities are required to carry out screening for appropriate assessment of proposed development to assess, in view of best scientific knowledge, if the proposed development, individually or in combination with another plan or project is likely to have a significant effect on one or more European[1] sites. The Local Authority is required to determine that appropriate assessment of the proposed development is required if it cannot be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on one or more European sites.

These requirements derive from Article 6(3) of the Habitats Directive which states that

> *Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.*

EU and National Guidance sets out two main stages to the assessment process which are as follows:

Stage One: Screening

> The process which identifies what might be likely impacts arising from a plan or project on a European site, either alone or in combination with other projects or plans and considers whether these impacts are likely to be significant. No further assessment is required where the risk of significant impacts on European sites can be objective ruled out during the screening stage.

Stage Two: Appropriate Assessment

Where the possibility of significant impacts has not been discounted by the screening process, a more detailed assessment is required. This is called an Appropriate Assessment and requires the compilation of a **Natura Impact Statement** by the project proponent, which is a report of scientific evidence and data relating to European sites for which significant negative impacts have not been previously screened out. This is used to identify and classify any implications of the plan or project for these sites in view of their Conservation Objectives. The Appropriate Assessment must include a determination as to whether or not the project would adversely affect the integrity of any European site or sites. The plan or project may only be consented if adverse effects on the integrity of European sites can be objectively ruled out during the Appropriate Assessment process. The plan or project may not be consented on foot of an Appropriate Assessment, if it is found that it will give rise to adverse impacts on one or more European sites, or if uncertainty remains in relation to potential impacts on one or more European sites.

[1]"European Site" means— (*a) a candidate site of Community importance; (b) a site of Community importance; (c) a candidate special area of conservation; (d) a special area of conservation; (e) a candidate special protection area, or (f) a special protection area*.

Name of the project

Proposed Housing Development Dean McNamara Place, Newtownshandrum.

Description of the project

The proposed project is for a housing development of 2 no. two bedroom dwelling units located on an infill site between Ashwood Grove (Respond) and Dean McNamara Place in Newtownshandrum Co. Cork.

Drinking water will be supplied from the public system.

The foul wastewater from the scheme is proposed to connect to the public foul system and conveyed to the Newtownshandrum WWTP.

The proposal will discharge the runoff from the roof from the downpipes directly into the existing storm water network via a new line connecting into existing manhole. The runoff from the proposed parking spaces will be discharged into new road gullies along the existing road.

Site Context

The proposed project is located on a greenfield site within the development boundary of Newtownshandrum to the north of the settlement. Newtownshandrum is located to the north of the county, close to the border with County Limerick. The subject site measures approximately 0.06 ha which comprises of amenity grassland. The proposed site is an infill between Ashwood Grove and Dean McNamara Place fronting onto L-5474.

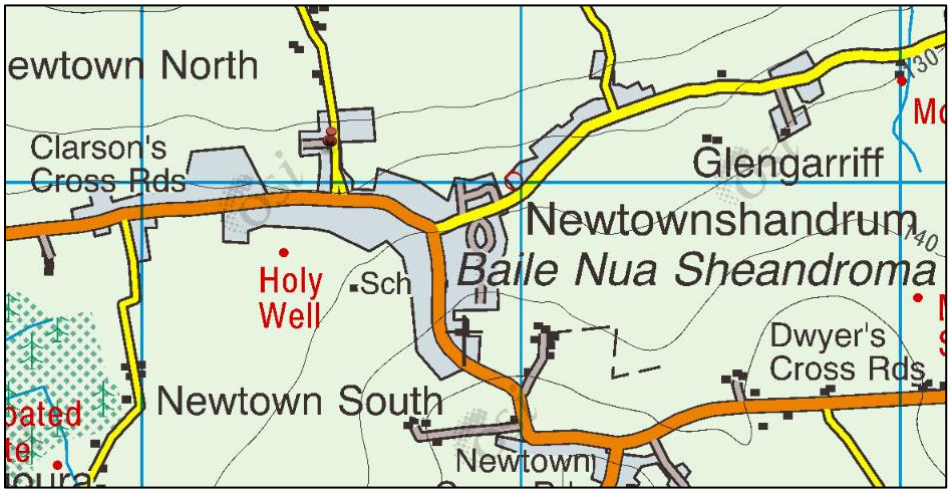
The site is located within the Shannon Estuary South WFD catchment. There are no watercourses on site and the nearest watercourse is the River Maigue, a tributary of the River Shannon, located approximately 800m north of the site. While the River Deel is also located approximately 850m south west of the site. Both rivers flow north to enter the Shannon Estuary.

The treatment plant serving the village provides secondary treatment and discharges to an unnamed tributary of the River Maigue. Uisce Eireann's Wastewater Treatment Capacity Register indicates that Newtownshandrum has spare capacity available.

It is not identified to be located within an area susceptible to flooding according to the Cork County Development Plan 2022 or the draft PFRA Flood Maps available for the site. The site is located in Flood Zone C.

Figure 1: Site Context

(Red pin drop indicates site location within the settlement.)



Name and location of EU sites subject to screening

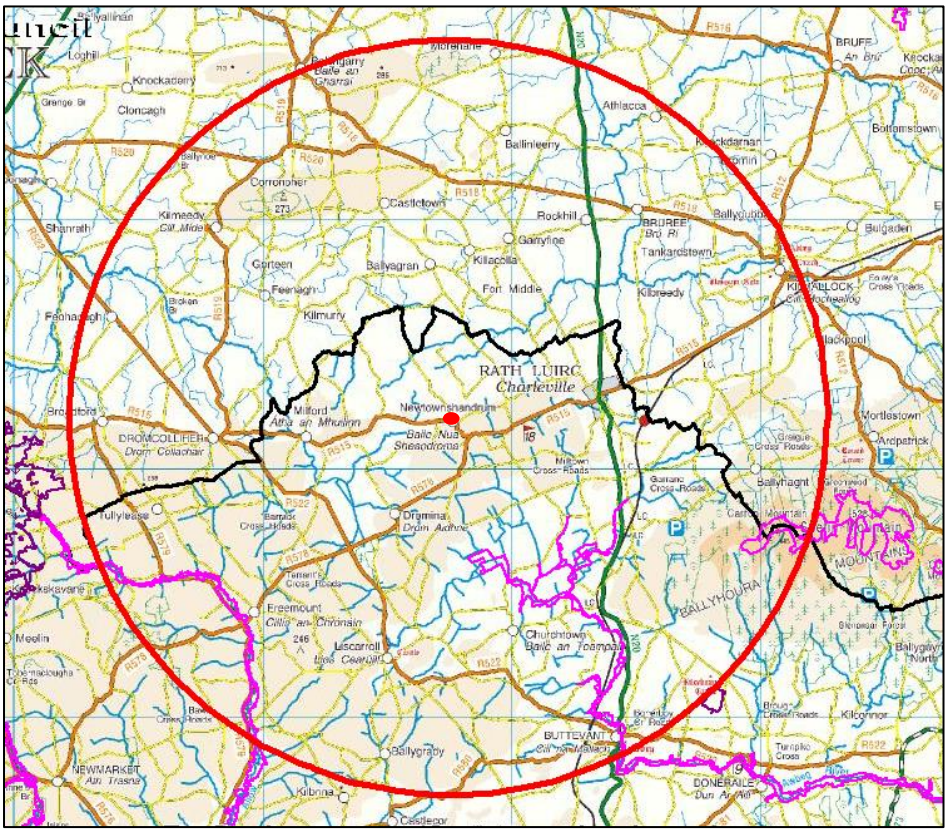


Figure 2: Red buffer indicates all European sites within 15kms of the proposed development location.

There are three Natura 2000 (European) sites located within a 15km radius of the site, these include:

- Blackwater River (Cork/Waterford) Special Area of Conservation (Site Code: 2170) – approximately 5.7kms to the south of the site.
- Ballyhoura Mountains SAC (Site Code: 2036) – approximately 12.9kms to the south east of the site.
- Kilcolman Bog SPA (4095) – approximately 15kms to the south east of the site.

The sites listed above are identified in Figure 2 above relative to the proposed development site. There are no other Natura 2000 sites are within the 15km radius of the proposed project.

The proposed development has an indirect and distant hydrological connection to two Natura 2000 sites associated with the Shannon Estuary. These are:

- Lower River Shannon SAC (Site Code:2165)
- River Shannon and River Fergus Estuaries SPA (Site Code: 4077)

Treated waste-water from the Newtownshandrum Treatment Plant is discharged to a tributary of the Maigue River. The lower reaches of this river (from Adare) form part of the Lower River Shannon Special Area of Conservation and part of the River Shannon and River Fergus Estuaries Special Protection Area. The WWTP discharge point is located over 35km upstream of the portion of the river which is designated.

Is the project directly connected with or necessary to the management of the sites listed above?

No.

Describe how the project (alone or in combination) is likely to affect the Natura 2000 Site

Blackwater River SAC, Ballyhoura Mountains SAC and Kilcolman Bog SPA:
There are no direct hydrological or other ecological connections linking these sites to the proposed development, and they are all located at a significant distance from the proposed development. Accordingly, it is determined that there is no potential pathway for impact on these sites.

Lower River Shannon SAC (Site Code:2165) and River Shannon and River Fergus Estuaries SPA (Site Code: 4077)

Per above, the Newtownshandrum WWTP, to which these houses will be connected, discharges into a tributary of the River Maigue, which connects into these two designated sites at Adare.

The Lower River Shannon SAC is designated for the protection of freshwater and marine habitats and species which rely on the protection of a high standard of water quality to ensure the maintenance of favourable conservation condition. Activities which could pose a threat to water quality including by way of introducing silt and/or potentially toxic contaminants, or by increasing nutrient levels to watercourses within the SAC, could interfere with the achievement of the conservation objectives established for relevant qualifying interests of this site.

Wetland bird species for which the River Shannon and River Fergus Estuaries SPA is designated rely on the protection of wetlands which provide important food resources. Activities which could interfere with nutrient status of these habitats or which could cause their contamination

have the potential to compromise the condition of these habitats and thereby to impact on their dependent species.

The Maigue River is assigned Moderate water quality status and is identified to be at risk of not achieving Good status.

Notwithstanding the hydrological linkage to the SAC and the SPA, it is considered that there is no risk that the development of these houses will impact on water quality within the SAC or the SPA for the following reasons:

- there are no watercourses on site and no risk that activities associated with the construction stage could pose a risk of impact to water quality in the receiving catchment;
- no discharges of surface water to watercourses are proposed;
- the Newtownshandrum WWTP has capacity to take the additional loading which will be generated by this development;
- the scale of the development is limited such that there will be no effect on water quality in the receiving catchment associated with the connection of these units to the public WWTP; and
- the hydrological distance of the discharge point of the WWTP is >35km from the SAC and the SPA.

Therefore, it can be concluded that the project does not pose a risk of significant adverse effects to the integrity of any Natura 2000 site, alone or in combination with other plans or projects.

Are there other projects or plans that together with the project being assessed that could affect these sites (provide details)?

No potential for impacts identified, therefore the proposed project does not pose a threat of contributing to effects which could be significant when considered in combination with other impact sources.

Cork County Council evaluation and overall conclusion that there are no significant effects on European Sites foreseen as a result of the proposal.

In accordance with Section 177S of the Planning and Development Act 2000 (as amended) and on the basis of the objective information provided in this report, it is concluded that the proposed project does not pose a risk of causing significant negative any EU site for the following reasons:

- No interventions are proposed within any European site;
- The site is located sufficiently distant from designated sites to be satisfied that there is no risk of activities associated with the project causing disturbance to qualifying interests of European sites.
- No discharges of surface water to watercourses are proposed;

- Wastewater is to be directed to the Newtownshandrum WWTP which has capacity to take the loading which will be generated from this development. The scale and size of the development and the site distance to the discharge point to the SAC and SPA are such that it can be concluded that the development does not pose any risk of impact to downstream EU sites.

It is therefore determined that a Stage 2 Appropriate Assessment under Section 177V of the Planning and Development Act 2000 is not required.

2 no Housing Units

Dean McNamara Place, Newtownshandrum, Co. Cork

Planning Report

Cork
County Council
Comhairle Contae Chorcaí

Proposed Development

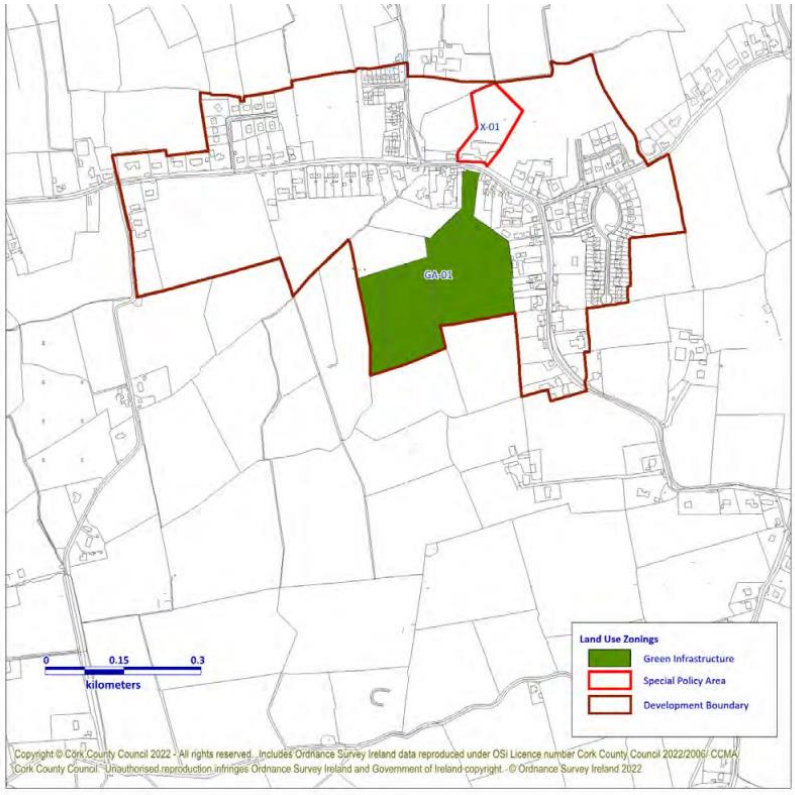
This report relates to a Cork County Council application to seek approval for Part 8 Planning Exemption under 'Planning and Development (Section 179A) Regulations 2023' for the construction of 2 no. housing units at Dean McNamara Place, Newtownshandrum, Co. Cork.

Dean McNamara Places is situated in the village of Newtownshandrum. The existing mix in the estate comprises of 4-bedroom house, two 2-bedroom duplex and ten 3-bedroom houses.

Policy Context

The proposed development is located within the development boundary of Newtownshandrum as defined by the County Development Plan 2022. The Development Boundary Objective for Newtownshandrum states:

County Development Plan Objective Development Boundary Objective for Newtownshandrum	
Objective No.	
DB-01	Within the development boundary of Newtownshandrum it is an objective to encourage the development of up to 30 houses in the plan period.



Public Open Space

It is proposed to develop two dwellings on an open space area within an existing Local Authority/Respond housing development. Post development, the estate will still have 13% public open space, which complies with the 12-18% requirements of Cork County Council's *Interim Policy on Recreation & Amenity*.

Private Open Space

The quantum of private rear gardens is acceptable for dwelling unit size. The First Floor rear windows are a minimum distance of 11 m. from the common rear boundaries, and therefore there are no over-looking concerns.

Services

Submitted documents state that Cork County Council Architect's Dept. has made initial pre-connection enquiries with Irish Water in regard to water and foul drainage infrastructure. Irish Water have confirmed that, based on the information submitted, connection to the existing network is feasible without infrastructural upgrade.

Stormwater run-off from the roof will be stored within water butts with a capacity of at least 150L before being discharged into the existing storm water sewer system. The proposed scheme contains the minimum amount of hard paving required to bring the runoff rate as close to green-field as possible. The existing storm and foul water sewers are separate.

Submitted documents state that there is no additional requirement for public lighting in this development as existing provision is considered sufficient.

AA Screening

A 'Habitats Directive Appropriate Assessment Screening Determination' report has been provided as part of submitted documents. Based on the Appropriate Assessment Screening process, it has been determined that no likely significant effects will arise on any European sites.

EIAR Screening

An EIA assessment has been carried out – see Appendix A – and this concluded that based on a preliminary examination of the nature, size or location of the development, there is no real likelihood of significant effects on the environment and EIA is not required.

Exemption Status

In considering whether or not the proposed development constitutes exempt development under Section 179(A) of the Planning and Development Act 2000 (as amended), the proposed development is considered against the requirements and criteria set out in this section of the Act.

The proposed development is classified as 'Housing Development' on Council owned lands which are within the Development Boundary for Newtownshandrum as per the CDP 2022 wherein is the stated objective to encourage the development of up to 30 houses within the plan period. The lands serviceable. An EIAR is not required. As AA has been screened out by the relevant competent expert within Cork County Council, it is considered that the proposed development meets the provisions of Section 179(A) of the Planning and development Act and would therefore be classed as exempt from the Part 8 process.

Conclusion

The proposed redevelopment of the subject site is considered to be in accordance with the core strategy and objectives of the County Development Plan 2022 having regard to its location within the development boundary and as such represents the proper planning and sustainable development of the area.

Appendix A: EIS Assessment

Establishing if the proposal is a *'sub-threshold development'*:	
Planning Register Reference:	None provided.
Development Summary:	To construct two 2 bedroom dwellings
Was a Screening Determination carried out under Section 176A-C?	No, Proceed to **Part A**
A. Schedule 5 Part 1 - Does the development comprise a project listed in Schedule 5, **Part 1**, of the Planning and Development Regulations 2001 (as amended)? (Tick as appropriate)	
No	Proceed to **Part B**
B. Schedule 5 Part 2 - Does the development comprise a project listed in Schedule 5, **Part 2**, of the Planning and Development Regulations 2001 (as amended) **and** does it meet/exceed the thresholds? (Tick as appropriate)	
Yes, the project is of a type listed **but** is *sub-threshold*: Class 10 'Infrastructure projects'. The threshold is the construction of more than 500 dwelling units. The proposed development is for 2 housing units which is substantially below this threshold. The proposed project is considered to be an urban development within other parts of a built-up area. The proposed development is 0.1 hectares (ha) which is below the 10 hectares threshold in other parts of a built up area, therefore an EIAR is not required to be produced in accordance with Schedule 5 Part 2 (10) (b) (iv).	**Proceed to Part C**
C. **If Yes,** has Schedule 7A information/screening report been submitted?	
No, Schedule 7A information/screening report has not been submitted by the applicant	**Preliminary Examination required**

Preliminary Examination: The planning authority shall carry out a preliminary examination of, at the **least, the nature, size or location of the development.**		
	Comment:	**Yes/No/ Uncertain:**
Nature of the development: *Is the nature of the proposed development exceptional in the context of the existing environment?* *Will the development result in the production of any significant waste, or result in significant emissions or pollutants?*	No, this is predominately a residential area. If constructed, the proposed residential development is considered to be modest in scale and will not generate excessive waste beyond the typical municipal type and quantities expected in a domestic setting.	**No**
Size of the development: Is the size of the proposed development exceptional *in the context of the existing environment?* *Are there cumulative considerations having regard to other existing and/or permitted projects?*	The size of the proposal is modest and there are no existing or permitted projects that could give rise to cumulative impacts.	**No**
Location: *Is the proposed development located on, in, adjoining or does it have the potential to impact on an ecologically sensitive site or location?*[1] *Does the proposed development have the potential to affect other significant environmental sensitivities in the area?*	There are three Natura 2000 (European) sites located within a 15km radius of the site, these include: • Blackwater River (Cork/Waterford) Special Area of Conservation (Site Code: 2170) – approximately 5.7kms to the south of the site. • Ballyhoura Mountains SAC (Site Code: 2036) – approximately 12.9kms to the south east of the site. • Kilcolman Bog SPA (4095) – approximately 15kms to the south east of the site. There are no other Natura 2000 sites are within the 15km radius of the proposed project. The proposed development has an indirect and distant hydrological connection to two Natura 2000 sites associated with the Shannon Estuary. These are: • Lower River Shannon SAC (Site Code:2165) • River Shannon and River Fergus Estuaries SPA (Site Code: 4077) The Habitats Directive Appropriate Assessment Screening Determination	**No**

[1] Sensitive locations or features includes European sites, NHA/pNHA, Designated Nature Reserves, land designated as a refuge for flora and fauna, and any other ecological site which is the objective of a CDP/LAP (including draft plans).

	states that notwithstanding the hydrological linkage to the SAC and the SPA, it is considered that there is no risk that the development of these houses will impact on water quality within the SAC or the SPA. The Habitats Directive Appropriate Assessment Screening Determination states concludes that the project does not pose a risk of significant adverse effects to the integrity of any Natura 2000 site, alone or in combination with other plans or projects.	

Preliminary Examination Conclusion:

Based on a preliminary examination of the **nature, size or location** of the development, there is no real likelihood of significant effects on the environment.

EIA is not required.

CLIENT:

PROJECT: Dwellings at No. 14 & 15, Dean McNamara Place, Newtownshandrum

DOCUMENT TITLE: Drainage Impact Assessment

DJF Engineering Services Ltd.
Tramore House, Reeveswood, Douglas Road, Cork, Ireland
Tel: 021-2392424• Email: info@djfes.com•Web: www.djfes.com

Current Issue	Date	Issue Description	Approvals	
			By	Approved
A	20/11/23	Planning Issue	SH	FM

CONTENTS

1.0 INTRODUCTION

1.1 Background

Cork County Council wish to obtain planning permission for two new houses at Dean McNamara Place, Newtownshandrum, Co. Cork.

Cork County Council have engaged DJF Engineering Services Ltd. to provide Engineering services in relation to the preparation of the planning submission for this development.

1.2 Scope

This Drainage Impact Assessment (DIA) has been prepared to demonstrate how the development successfully uses Sustainable Urban Drainage Systems (SuDS) and nature based solutions to manage Storm Water within and adjacent to the site.

This DIA has been prepared as per the requirements of the Cork County Development Plan 2022 and the guidance given in Cork County Council Advice Note 1 Storm Water Management published in December 2022.

As the proposed development is for less than 10 residential units and/or less than 500 square meters of new or additional non-residential floorspace, the development is considered to be a “Small-Scale Development".

Table 1 *Nature Based Solutions and Small-Scale Development* of Advice Note 1 states that a DIA for development of less than 10 residential units and/or less than 500 square meters of new or additional non-residential floorspace should include, but is not limited to, the following:

- Full drainage details, drawings, and calculations.
- A SuDS statement incorporating Cork County Council SUDS Selection Hierarchy Sheet for Small Scale Development, showing how design of SuDS have been integrated successfully into the Storm Water management plan for the site.
- All new developments must allow for Climate Change as set out in Table 11.4 of Chapter 11. (For additional technical advice refer to the Cork County Council Strategic Flood Risk Assessment (SFRA) and the Greater Dublin Strategic Drainage Strategy Technical Documents, Volume 5, Climate Change).
- Show how the 4 pillars of SuDS (Water Quantity, Water Quality, Amenity and Biodiversity) are achieved.

The DIA also outlines the Engineering approach taken for the proposed development in relation to including Waste Water, Water, and Flooding.

2.0 SITE

2.1 Location

The proposed site is located on Cork County Council lands at Dean McNamara Place, Newtownshandrum, Co. Cork adjacent to an existing residential development. A separate residential development named Ashwood Grove is located to the North.

2.2 Site Topography

The site is approximately 110m above sea level with a slope to the North.

2.3 Adjacent Land Use

The site is surrounded by residential properties.

2.4 Existing Services

Dean McNamara Place and Ashwood Grove are served by existing water supply pipes, wastewater drainage, storm water drainage, electrical services and telecom/data services.

3.0 STORM WATER DRAINAGE

3.1 Storm Water Discharge Philosophy

In order to comply with Objective WM11-10 and paragraph 11.10.4 in the Cork County Development Plan 2022, a softer engineered or 'nature-based approach' shall be used where feasible to manage rainfall runoff on the site i.e., by managing and treating Storm Water above-ground rather than sending rainfall below-ground into drains, pipes, attenuation tanks and other 'hard engineering' solutions.

The approach aims to maximise the retention and/or infiltration of storm water runoff on-site and minimise discharges to the public drainage system, thereby mitigating the drainage impact of the proposed development.

Site investigations carried out at the site indicated little to no soil infiltration in the locations of the proposed rear gardens. Therefore, the site conditions do not permit the use of on site soakaways or other infiltration devices.

However, other SuDS measures are proposed.

The table overleaf sets out the SuDS measured proposed for this development.

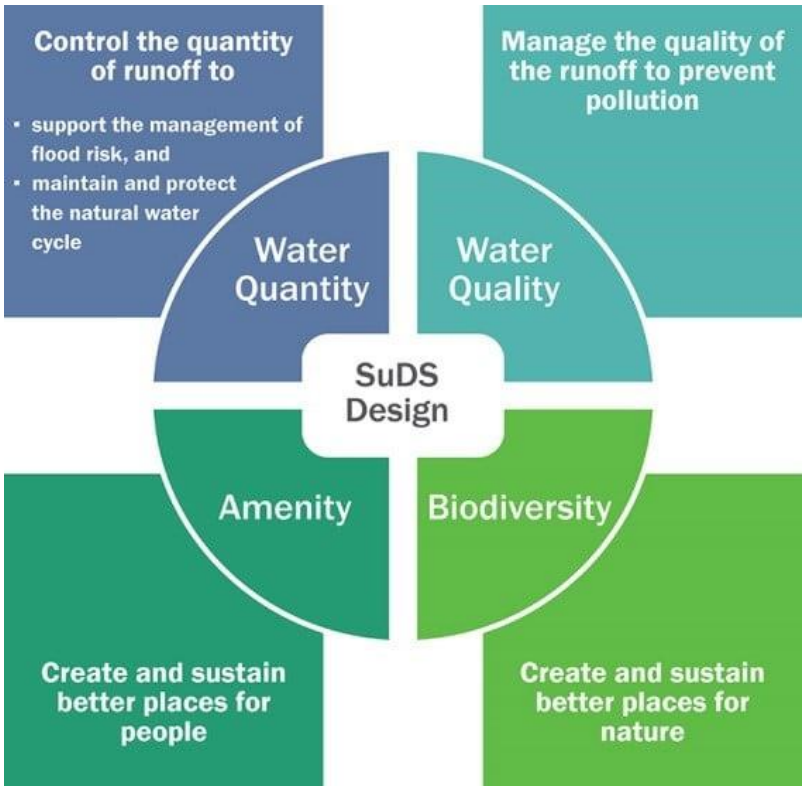
Stormwater from roofs (if not used to fill the water butts) and the rear patio areas are proposed to drain to the existing stormwater pipe along the public road adjacent tot eh site. Due to the small areas and storm water flows involved, attenuation is not feasible as flow control devices would require very small openings to be effective which in turn would be prone to regular blockages.

SuDS Selection Hierarchy for Small-Scale Development

SuDS Measure	**Image**	**Measures to be used on site**	**Rationale for selecting/not selecting measure including discharge rate applied with supporting calculations**
Water butt – 150L capacity or more (based water use demand) with means of overflow		Yes for rainwater pipes	Cost effective measure, which can be securely positioned on the rear elevations
Permeable paving – consider for all hard paved areas without heavy traffic		No	Proposed parking area will be in the public realm and maybe subject to heavy traffic e.g. by refuse lorries when turning
Bio-retention planter – disconnect downpipe connection into drains and allow roof runoff into planter with means of overflow		No	Limited space available Planters will require tenant maintenance
Green / Blue Roof – requires a minimum substrate depth (growth medium) of at least 80 mm excluding the vegetative map		No	No suitable roofs on the development
Rain garden - disconnect downpipe/RWP into the planted flower bed		No	Planted areas will require tenant maintenance
Soakaways discharging Storm Water collected from roofs and impermeable paving into the ground		No	Soil permeability is too low to discharge Storm Water to ground via soakaways

3.2 SuDS Pillars

The four pillars of SuDS are Water Quantity, Water Quality, Amenity and Biodiversity.



Water Quantity

This pillar is achieved by controlling the quantity of runoff from the site of the development through feasible SuDS measures in particular the use of water butts.

Water Quality

This pillar is achieved by having minimal runoff into the public Storm Water system or watercourse from the development where feasible in order to mimic the natural catchment and groundwater recharge and manage the quality of runoff to prevent pollution. However, the soil conditions at the site ado not for soakaways or similar infiltration devices.

Amenity

This pillar is achieved by creating and sustaining better places for people. The proposed development has green spaces where feasible and is close to existing open green spaces in Dean McNamara Place.

Biodiversity

This pillar is achieved by creating and sustaining better places for nature. The proposed development has green spaces where feasible and is close to existing open green spaces in Dean McNamara Place.

4.0 FLOOD RISK ASSESSMENT

The site is in Flood Risk Zone C and is not at risk of coastal or fluvial flooding. Neither is the elevated site at risk of flooding from nearby streams or drainage ditches or from pluvial flooding (once the site levels are raised as proposed).

Therefore, it is considered that flood risk is not an issue for this development.

The proposed design considers the impact of Storm Water flood risks on drainage design. Flood risk from sources other than fluvial and tidal have been reviewed and the proposed floor level has been set to be above adjacent ground levels.

There is no consequential increase in flood risk due to the proposed development.

Given that the site is not at risk of flooding and the proposed development does not increase flood risks, no further flood risk assessment is proposed.

5.0 WASTE WATER

Uisce Eireann have confirmed that a wastewater connection for the proposed development is feasible.

A connection to the existing foul wastewater manhole in Ashwood Grove is proposed.

All proposed works are to be in accordance with Irish Water Code of Practice for Waste Water Infrastructure.

For further details, please refer to the drawings and the Irish Water Confirmation of Feasibility in the appendix.

6.0 WATER

Uisce Eireann have confirmed that a water supply connection for the proposed development is feasible.

All proposed works are to be in accordance with Irish Water Code of Practice for Water Infrastructure.

For further details, please refer to the drawings and the Irish Water Confirmation of Feasibility in the appendix.

As there are existing fire hydrants positioned within 46m of the proposed dwellings, no additional fire hydrants are proposed.

Appendix 1

Irish Water Confirmation of Feasibility

CONFIRMATION OF FEASIBILITY

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

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

www.water.ie

Maurice Manning

Cork County Council
Architects Department
County Hall
Carrigrohane Road
Cork
Co. Cork
T12 R2NC

14 June 2023

Our Ref: CDS23002642 Pre-Connection Enquiry
14-15 Dean Macnamara Place, Newtownshandrum, Co. Cork

Dear Applicant/Agent,

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

Irish Water has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 2 unit(s) at 14-15 Dean Macnamara Place, Newtownshandrum, Co. Cork **(the Development)**.

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

- **Water Connection** - Feasible without infrastructure upgrade by Irish Water:

  It is noted on Irish Waters GIS system that there is an existing watermain located within the Development boundary. The layout of the development must ensure that this pipe is protected and adequate separation distances are provided between Irish Water infrastructure and any structures on site. If the proposed development requires the diversion of existing infrastructure, the customer will be required to enter into a diversion agreement and grant a deed of easement over the infrastructure to Irish Waters diversions department (diversions@water.ie). To facilitate your requirements and avoid delays the customer is advised to engage with Irish Water as early as possible.

- **Wastewater Connection** - Feasible without infrastructure upgrade by Irish Water

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water 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 Irish Water.

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/

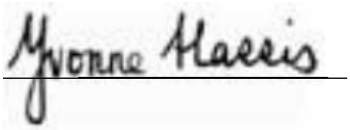
Where can you find more information?

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

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

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

Yours sincerely,



Yvonne Harris
Head of Customer Operations

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 Irish Water's network(s). • Before the Development can connect to Irish Water's network(s), you must submit a connection application and be granted and sign a connection agreement with Irish Water.
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?	• Irish Water connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Irish Water's network(s), including works in the public space, must be carried out by Irish Water*. *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 Irish Water's network(s)?	• Requests for maps showing Irish Water's network(s) can be submitted to: datarequests@water.ie

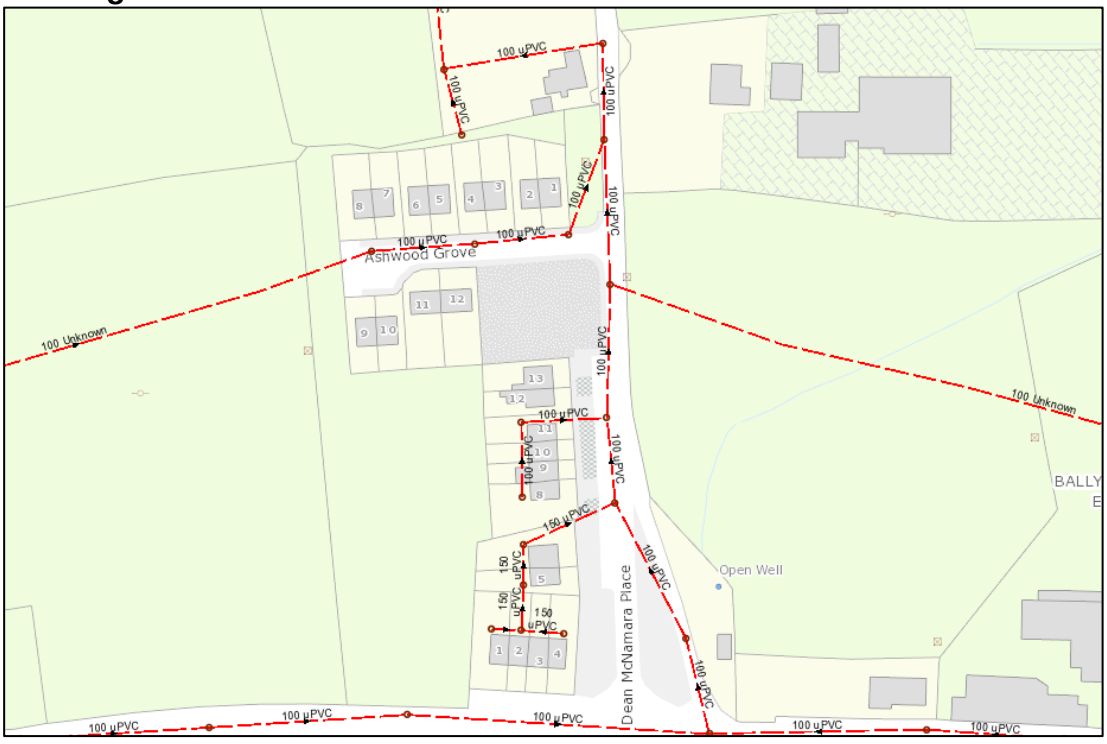
What are the design requirements for the connection(s)?	• The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with ***the Irish Water Connections and Developer Services Standard Details and Codes of Practice,*** available 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 Irish Water's Network(s)

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

Existing Water Infrastructure:

Existing Wastewater Infrastructure:



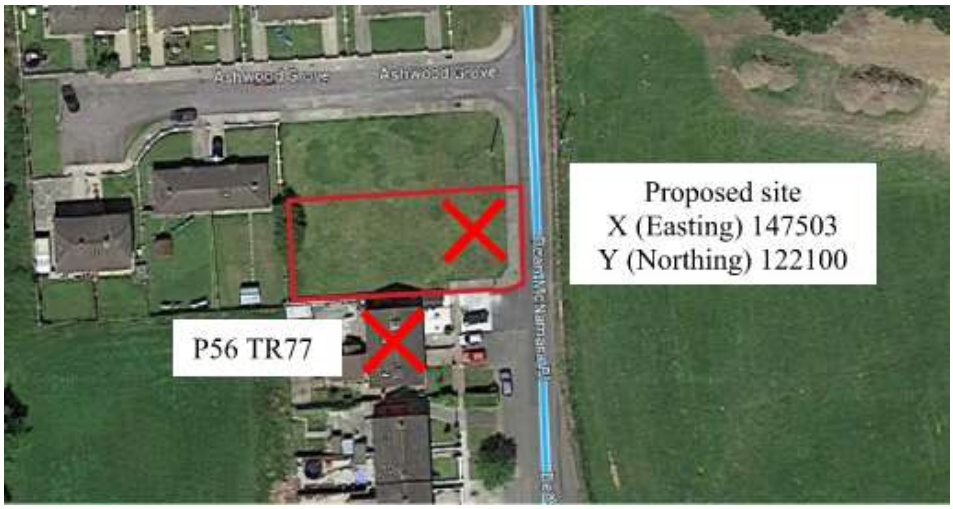
Note: The information provided on the included maps as to the position of Irish Water's underground network(s) is provided as a general guide only. The information is based on the best available information provided by each Local Authority in Ireland to Irish Water.

Whilst every care has been taken in respect of the information on Irish Water's network(s), Irish Water 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 Irish Water's underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Irish Water'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.

CLIENT:

PROJECT: **Social Housing**
Site Assessment

DOCUMENT TITLE: **Dean McNamara Place, Newtownshandrum Utility Services & Ground Conditions Report**



DJF Engineering Services Ltd.
Tramore House, Reeveswood, Douglas, Cork, Ireland
Tel: 021-2392424• Email: info@djfes.com•Web: www.djfes.com

Issue	Date	Issue Description	Approvals	
			By	Approved
A	05/01/2024	Client Issue	SH	FM

Contents

1.0 Introduction

1.1 Cork County Council proposes to develop a number of new infill social housing schemes on a number of council owned sites across Cork County at the following locations:

1. Clontead Beg, Coachford
2. Hegarty Street, Millstreet
3. St. Olan's Place, Aghabullogue
4. Dean McNamara Place, Newtownshandrum
5. Market Place, Kanturk
6. Model Village, Dripsey
7. Church Road, Durrus
8. Cloughduv

To this end the Council appointed DJF Engineering Services Ltd. to undertake an initial assessment of ground conditions, site servicing and initial foundation selection.

This report relates to the site at Dean McNamara Place, Newtownshandrum.

2.0 Ground Conditions

2.1 IGSL Geotechnical carried out a site investigation at the site. Their report is included in the appendices.

2.2 The trial pits revealed MADE GROUND overlying original topsoil to a depth of 1.4m below ground level, overlying firm to stiff mottled grey / brown, sandy, gravelly, CLAY.

2.3 The dynamic probes recorded sustained high resistance from depths of circa 2.0 to 2.2m below ground level in all probes.

2.4 Strip foundations bearing on the firm to stiff sandy, gravelly, CLAY subsoils below the made ground and original topsoil are recommended.

2.5 The infiltration tests exhibited very low infiltration rates. Therefore, total infiltration of stormwater to ground via soakaways or other infiltration devices is not feasible for this site.

3.0 Geophysical, Utilities & GPR Survey

3.1 Murphy Surveys carried out a utility survey at the site. This is included in the appendices.

3.2 The following services were found in the vicinity of the site:

- Foul sewer
- Water supply main
- Storm water sewer
- Eir
- Overhead Electrical lines

4.0 Potential Abnormals

4.1 The following potential abnormal items arose from the above investigations:

- Removing made ground and original topsoil to a depth of at least 1.4m under the footprint of dwellings and hardstanding
- Cutting to lower existing ground levels to suit proposed levels and removing material offsite
- Underpinning adjacent shallow foundations to boundary wall to no. 13 Dean McNamara Place
- Reconstructing footpaths due to proposed services
- Improving roadside drainage (due to lack of existing gullies)

5.0 Foundations

5.1 It is assumed that the imposed bearing pressures from the proposed residential units will not exceed 50kPa, which is a typical value for a conventional 2-storey housing.

5.2 Strip foundations bearing on the firm to stiff sandy, gravelly, CLAY subsoils below the made ground and original topsoil are recommended.

5.3 Initial sketch designs of typical likely foundations are included in the appendices.

5.4 The recommended formation level for both dwellings is 109.550m AOD.

5.5 External walls to have foundations with 900mm x 300mm with A393 mesh bottom.

5.6 Internal walls to have foundations with 700mm x 300mm with A393 mesh bottom.

5.7 Party Walls to have foundations with 900mm x 350mm with A393 mesh bottom.

6.0 Water & Sewerage

6.1 Cork County Council submitted a Pre-Connection Enquiry Form to Irish Water for this site.

6.2 A Confirmation of Feasibility confirming that both Water and Wastewater connections are feasible was received from Irish Water and is included in the appendices.

7.0 Finished Floor Levels

7.1 Using the same level datum as shown on the topographical survey drawing received, we would recommend the finished floor levels for the dwellings at this site be at 110.600m AOD

8.0 Ground Floor Slabs

8.1 Made ground, organic material and topsoil are to be stripped from the footprint of the proposed dwellings and hardstanding areas.

8.2 Ground bearing slabs bearing on suitable imported fill on top of the firm sandy gravelly CLAY deposits are recommended. Initial sketch design details are included in the appendices.

Appendices

Appendix 1	Desk Study
Appendix 2	Architectural Drawing
Appendix 3	Utility Survey Drawing & Report
Appendix 4	Geotechnical Investigation Report
Appendix 5	Irish Water Confirmation of Feasibility
Appendix 6	Foundation Sketches

APPENDIX 1

DESK STUDY

DJF ENGINEERING SERVICES LTD
PROJECT NOTE

Doc Nr:	**5011-M0-004**
Date:	11/07/23

PROJECT	**CorkCoCo - Site Investigations**	**DJF JOB NR**	**5011**

NOTE TYPE:

Notes to File (NF)		**Phone Call (PC)**		**Site Report (SR)**	
Meeting Notes (MN)		**Memo (MO)**	✓	**Design Review (DR)**	

Desktop Study - Newtownshandrum

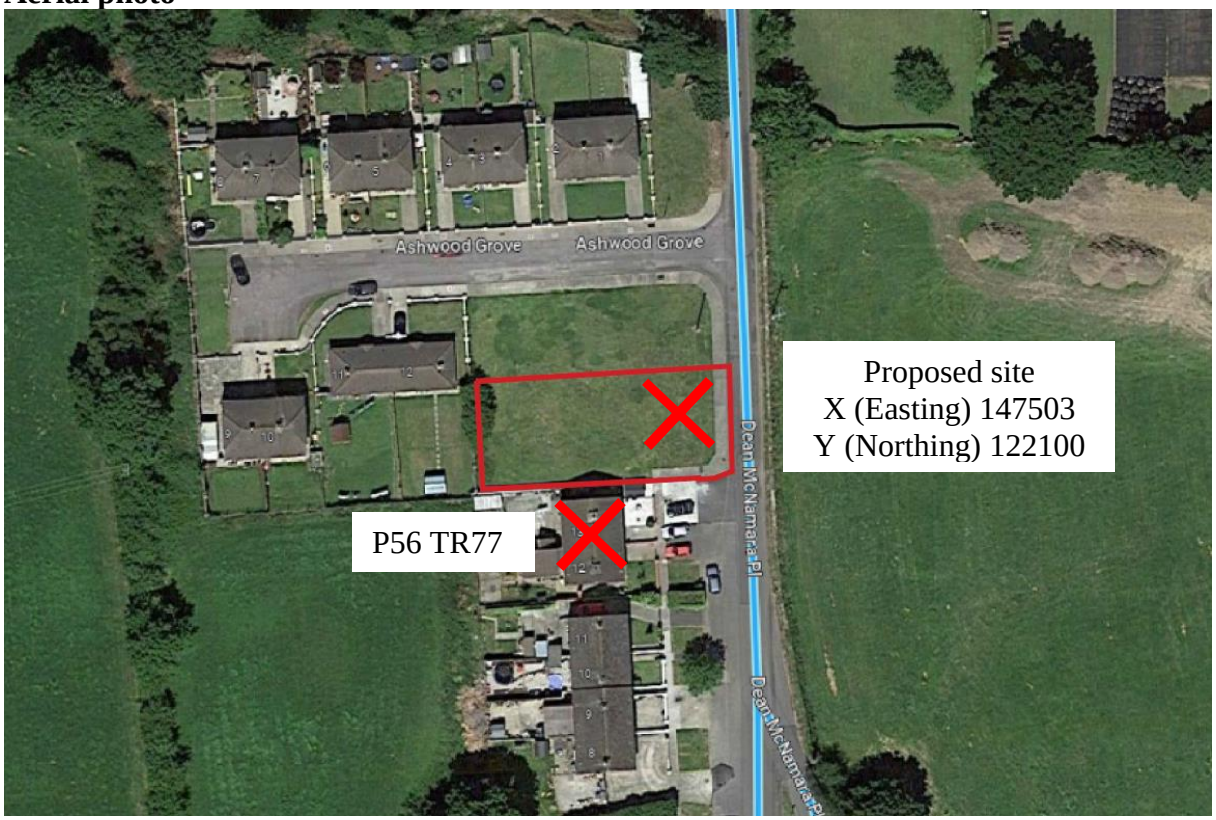
Newtownshandrum

Address & Eircode: Dean McNamara Place, Newtownshandrum, P56 TR77(Nearest)

Co-ordinates: (Lat) 52° 20' 53.8476" N (Long) 8° 46' 16.2516" W,
X (Easting) 147503 : Y (Northing) 122100

Approx. elevation: (111 m)

Aerial photo

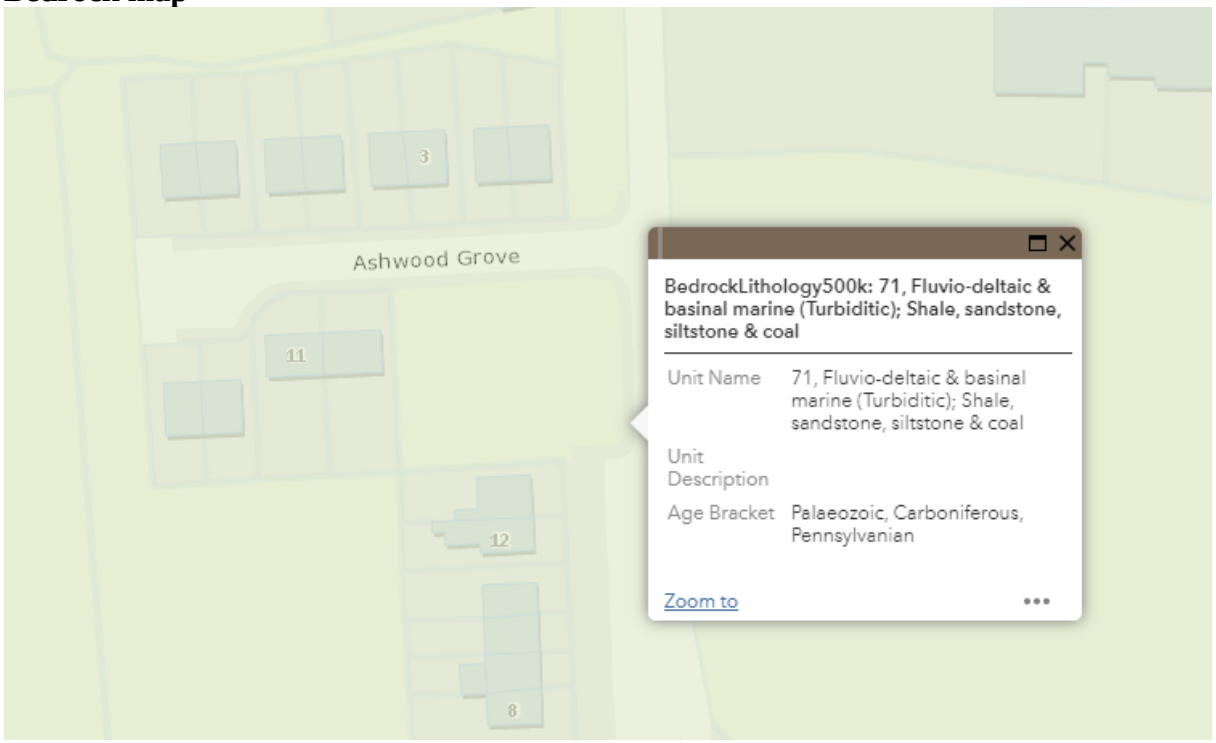


A screenshot of an aerial photo from Google Maps with the proposed site highlighted in red.

Street view

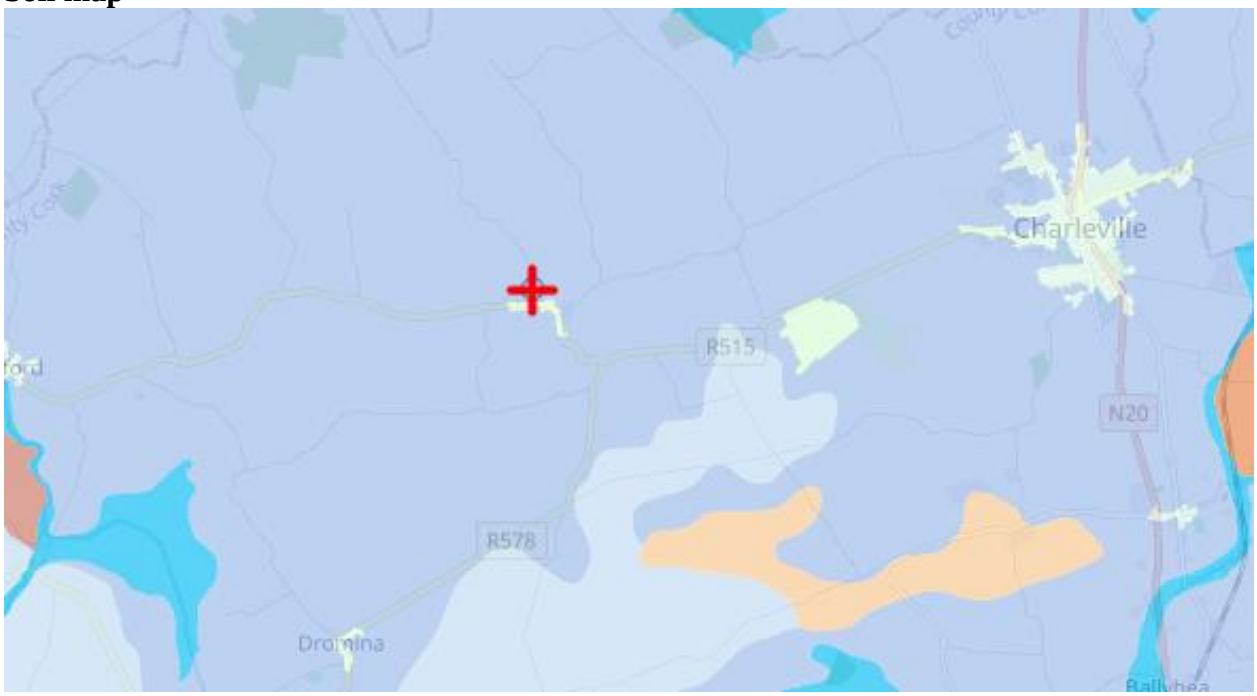
A screenshot of a street view of the road leading to the housing estate from google Maps street view. The entrance of the proposed site is circled in red.

Bedrock map



A screenshot of the bedrock map from GSI.ie. The types of rock on this site include sandstone, conglomerate and siltstone.

Soil map



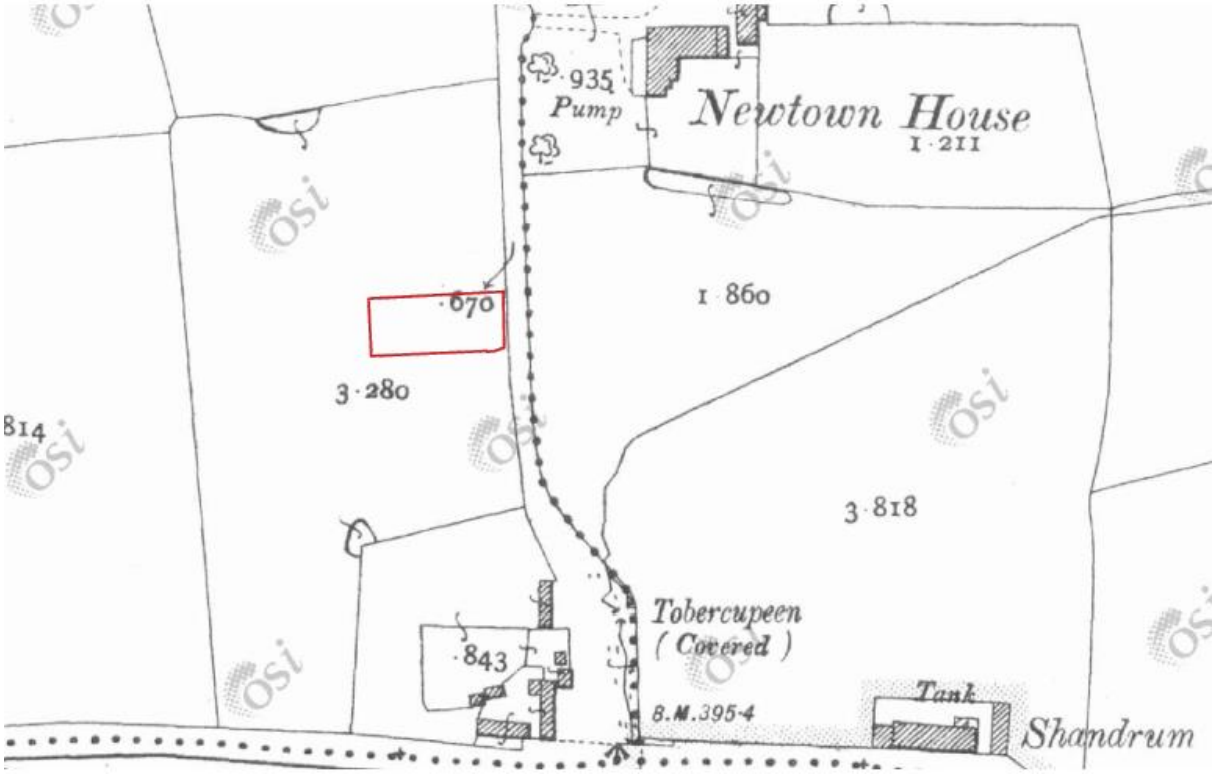
SIS National Soils

Howardstown

Association_Name	Howardstown
Association_Unit	0760c
Association_Symbol	760c
Texture_Substrate_Type	Clayey drift with limestones
Ha	29522.83221763
Drainage	Poor
Texture	Clayey
Depth	40-80
SOC	135.43095239

A screenshot of the soil map from gis.epa.ie. The type of soil on this site is clayey drift with limestones.

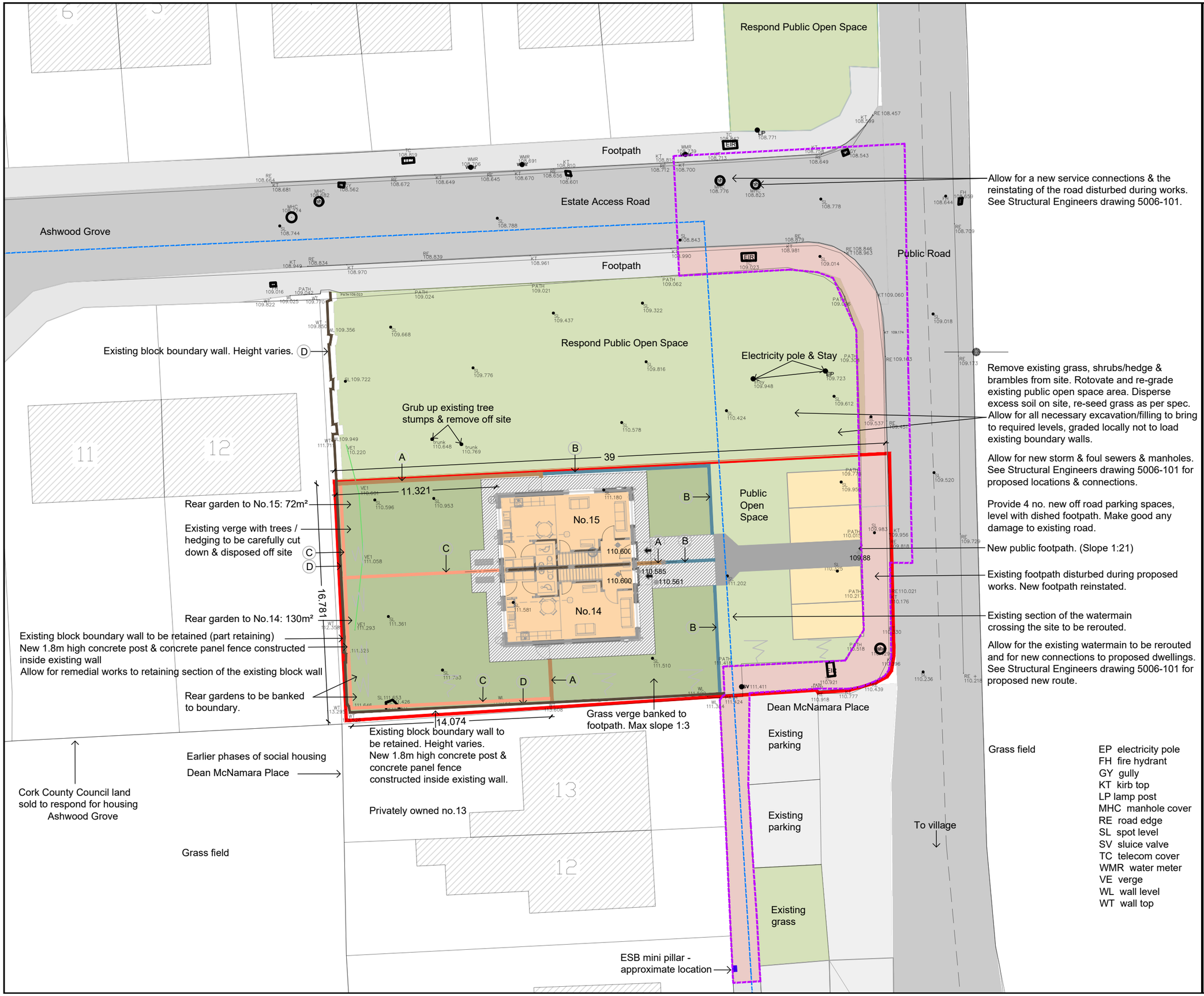
Historical maps



A screenshot of a historical map 25 inch (1888-1913) taken from GeoHive. The proposed site is highlighted in red. The map indicates the site was previously a field.

APPENDIX 2

ARCHITECTURAL DRAWING



Allow for a new service connections & the reinstating of the road disturbed during works. See Structural Engineers drawing 5006-101.

Remove existing grass, shrubs/hedge & brambles from site. Rotovate and re-grade existing public open space area. Disperse excess soil on site, re-seed grass as per spec.

Allow for all necessary excavation/filling to bring to required levels, graded locally not to load existing boundary walls.

Allow for new storm & foul sewers & manholes. See Structural Engineers drawing 5006-101 for proposed locations & connections.

Provide 4 no. new off road parking spaces, level with dished footpath. Make good any damage to existing road.

New public footpath. (Slope 1:21)

Existing footpath disturbed during proposed works. New footpath reinstated.

Existing section of the watermain crossing the site to be rerouted.

Allow for the existing watermain to be rerouted and for new connections to proposed dwellings. See Structural Engineers drawing 5006-101 for proposed new route.

EP electricity pole
FH fire hydrant
GY gully
KT kirb top
LP lamp post
MHC manhole cover
RE road edge
SL spot level
SV sluice valve
TC telecom cover
WMR water meter
VE verge
WL wall level
WT wall top

NOTE:
1. THIS DRAWING IS COPYRIGHT.
2. THIS DRAWING MUST NOT BE SCALED.
3. THE CONTRACTOR IS TO CHECK ALL DIMENSIONS ON SITE.
4. FOR ANY DISCREPANCIES FOUND, CONSULT WITH DESIGN OFFICE.
5. THE DRAWING IS TO BE READ IN CONJUNCTION WITH ALL SPECIFICATION DOCUMENTS.

N

LEGEND

- Site boundary in relation to extent of application: 644m² (0.159a/0.0644h)

OSI sheet no: 5411-D
ITM: 547447 622131

- A Proposed 1.8m high block wall with capping. Rendered both sides.
- B 1m high concrete block wall with capping. Rendered both sides.
- C Proposed 1.8m high concrete post & concrete panel fence
- D Existing block wall, to be retained.
- Existing watermain taken from GIS records
- Proposed rerouted watermain
- Proposed storm sewer
- Proposed foul sewer
- Extent of public footpath/road to be removed/disturbed during works.
- Existing footpath disturbed during rerouting of the watermain & ESB works
- Proposed new private footpath
- Proposed new public footpath
- Existing public footpath
- Existing road
- Existing green area
- Proposed private open space
- Proposed car parking
- RE 109.729 Existing levels taken from survey
- 111.00 Proposed levels
- Outdoor fan unit for heat pump with weather protected, steel mesh guard. To M&E spec.

Rev. No.	Revision Description	Date

Project Stage: Single Stage Submission

Project Title: Proposed Housing Development
Dean McNamara Place, Newtownshandrum.

Drawing Title: Proposed Site Layout Plan

Conhairle Contae Chorcaí
Ailtirí | Stiúrthóireacht Tithíochta
Cork County Council
Architects | Housing Directorate
County Hall, Cork
Tel: (021) 4285433
e-mail: architects.housing@corkcoco.ie

Job Reference: N2022023	Sheet: A3	Design Team: Architect: SK	
Dwg. No.: DR-CCC-A-PL-120		Technician: ToF	
Date: Nov. 23	Scale: 1:250	Issue for: Planning	Surveyor: RB
			Snr. Architect: R. Henry

Rialtas na hEireann Government of Ireland — Housing for All — Project Ireland 2040

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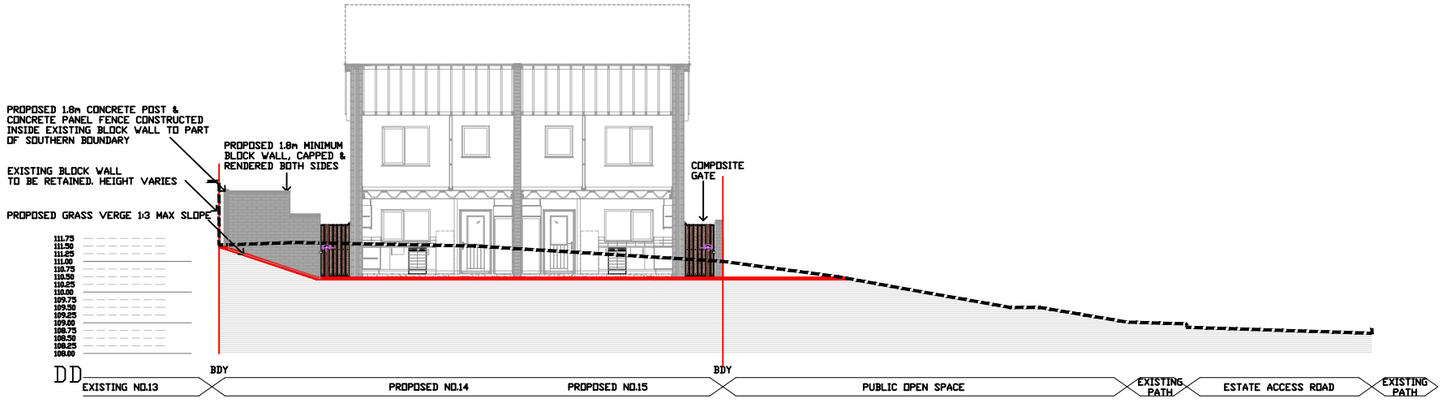
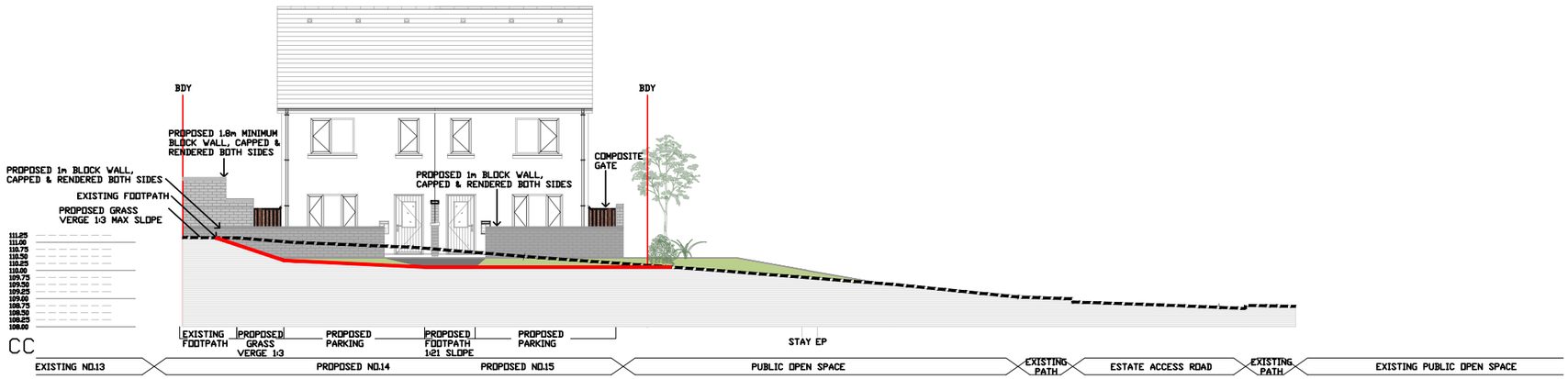
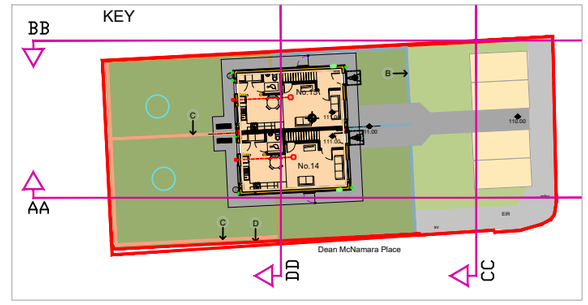
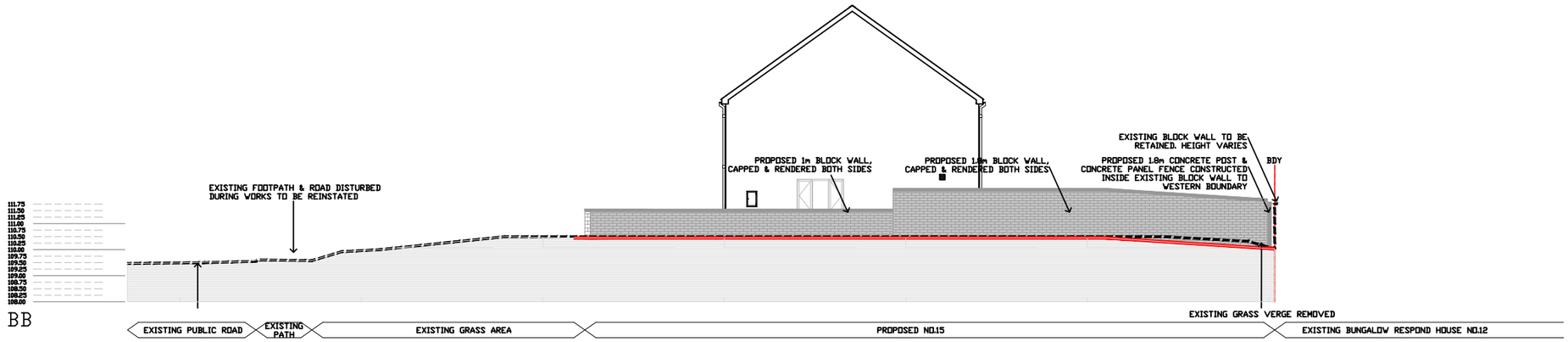
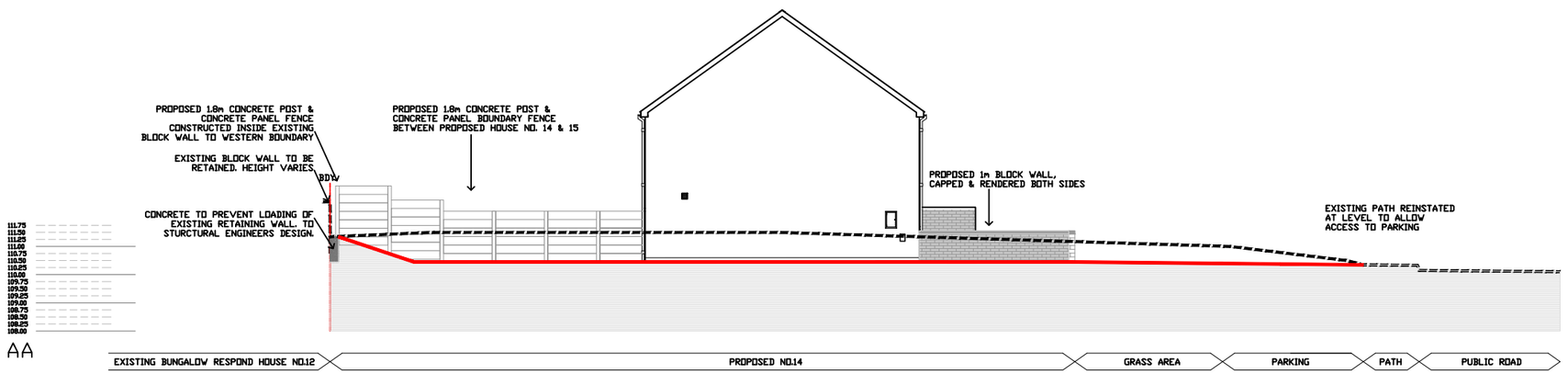
5. THE DRAWING IS TO BE READ IN CONJUNCTION WITH ALL SPECIFICATION DOCUMENTS.











EXISTING GROUND LINE
PROPOSED GROUND LINE

Rev. No.	Revision Description	Date

Project Stage: Single Stage Submission

Project Title: Proposed Housing Development
Dean McNamara Place, Newtownshandrum.

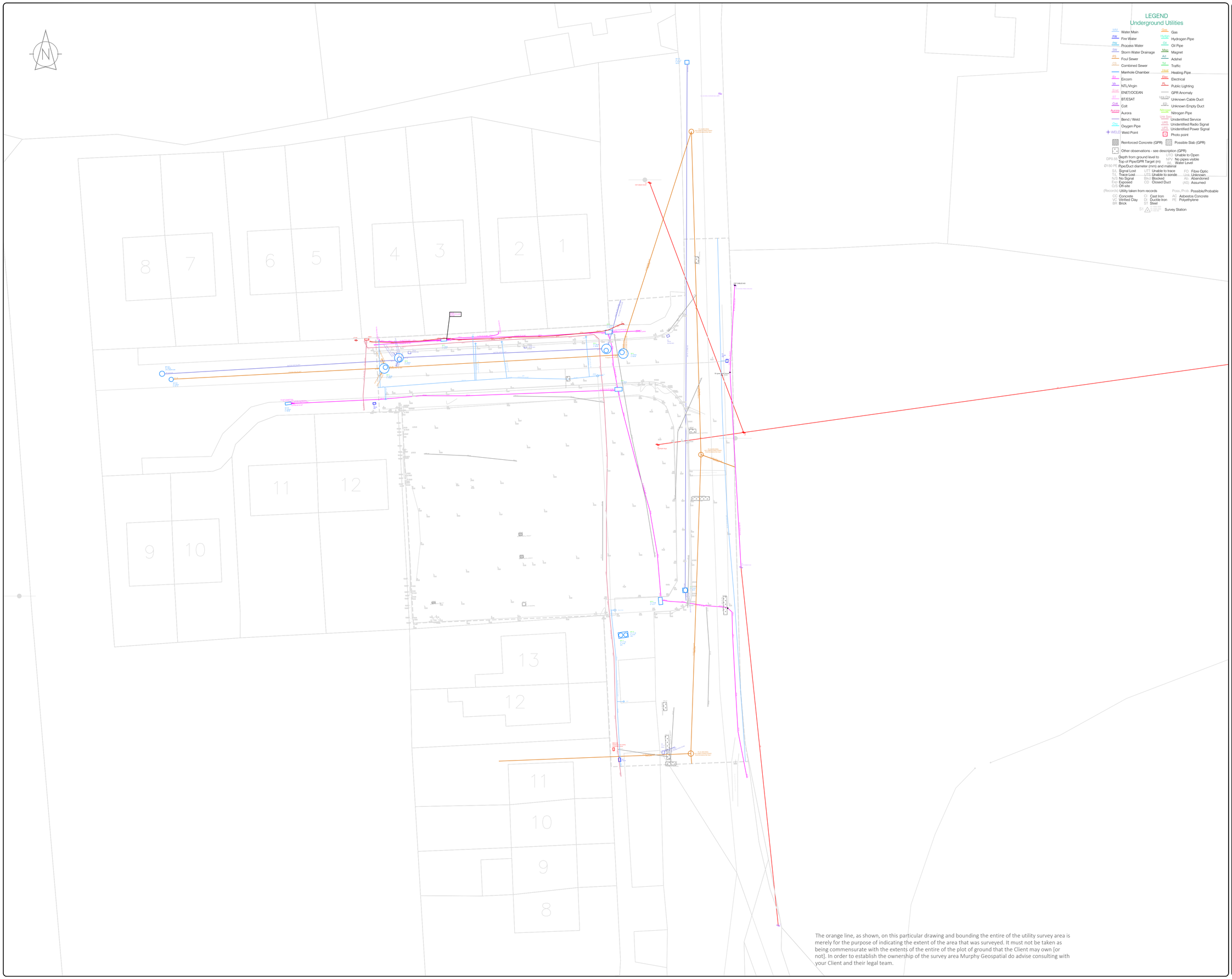
Drawing Title: Site Sections
A, B, C & D

Conhairle Contae Chorcaí
Ailtiri | Stiúrthóireacht Tithiochta
Cork County Council
Architects | Housing Directorate
County Hall, Cork
Tel: (021) 4285433
e-mail: architects.housing@corkcoco.ie

Job Reference: N2022023	Sheet: A3	Design Team: Architect: SK; Technician: ToF; Surveyor: RB; Snr. Architect: R. Henry	
Dwg. No.: DR-CCC-A-PL-140			
Date: Nov. 23	Scale: 1:200	Issue for: Planning	Rialtas na hÉireann Government of Ireland; Tionscadal Éireann Project Ireland 2040

APPENDIX 3

UTILITY SURVEY DRAWING & REPORT



The orange line, as shown, on this particular drawing and bounding the entire of the utility survey area is merely for the purpose of indicating the extent of the area that was surveyed. It must not be taken as being commensurate with the extents of the entire of the plot of ground that the Client may own [or not]. In order to establish the ownership of the survey area Murphy Geospatial do advise consulting with your Client and their legal team.

Murphy Geospatial Ltd. Disclaimer

The survey aims to map all existing utilities and sub surface structures and provide information with respect to pipe size, material type and drainage connectivity. However GPR surveying is limited by the following guidelines and it may not be possible to accurately survey, define and locate all services and sub surface features.

- Locational accuracy is determined by referring to the manufacturers guidelines for the detectors used.
- Existing record information showing underground services is often incomplete and unknown accuracy; therefore it should be regarded only as an indication.
- In ideal conditions these spatial accuracies for the underground utilities are +/- 5% for the RD4000 and +/- 10% of depth for the GPR to 2.5m deep. However, variations within the subsurface may alter this estimated accuracy.
- Although all reasonable steps have been taken to locate all features, there is no guarantee that all will be shown on the drawing as some above ground features may have obstructed the survey.
- GPR surveying operates best within high resistivity material. Clay overburden can impair GPR surveying.
- Due to the attenuation of the radar signal with depth, resolution is restricted, hence making identification of anomalies difficult with increasing depth.
- The depth penetration and quality of the data depends on the ground conditions on the site. Poor data may be a result of areas with high conductivity. Also, high reflective materials close to the surface i.e. rebar may hide deeper anomalies.
- It is not always possible to trace the entire length of each underground service.
- It is always our intention to use the Utility providers' details, if supplied prior to survey commencement as a guide for location purposes. However, should we not be able to locate those guided services we shall not be held responsible for the accuracy, or otherwise, of the location of that service, as issued by the utility provider and therefore shown "Taken from Records" on the drawing and we are not liable for any loss that may arise due to the lack of accuracy in the guided information.
- Unless otherwise stated, all services and sub surface structures shown on Murphy Geospatial Limited plan drawings have been surveyed using approved detectors and the connections between manholes, if not traced, are assumed to run straight.
- Plan accuracies of the order of + or - 150mm may be achieved but this figure will depend on the depth of the service below ground level. Where similar services run on close proximity, separation may be impossible. Successful tracing of non metallic pipes may be limited.
- Please note that not all buried pipes, cables and ducts can be detected and mapped in consideration of their depth, location, material type, geology and proximity to other utilities. Even an appropriate and professionally executed survey may not be able to achieve a 100% detection rate.
- Services which have been untraceable are shown from Records where possible.
- DP represents distance from the surface level to the top of the service/ radar.

No allowance has been made within our quotation, unless otherwise stated, for the location and mapping of undeclared services. Failure to detect or fully map any declared service will be recorded within the notes accompanying our final drawings.

Where technically possible, depth indications will be given. These should be used for guidance only and wherever critical accuracy is required these should be confirmed by the Client by undertaking trial excavations or similar. Bends, lateral service connections, or the close proximity of other services and local magnetic, atmospheric or ground conditions, could in certain situations influence the accuracy of the plan and depth indication facility. Depths will not be provided unless we are reasonably confident of their validity.

Where Murphy Geospatial Limited issues a CAD drawn utility service plan, this should be read in conjunction with all available public utility records etc. As part of our exhaustive Quality Control procedures, Murphy Geospatial Limited Endeavour to add relevant Public Utility record information onto the final issue drawing. An allowance should be made for the width of services, particularly where these are laid in bands or are of significant size etc. For clarification or appropriate easement bands, we would recommend that direct contact is made with the Asset Owner or Statutory Undertaker.

We exclude the following, except where otherwise specified and possible to do so;

- All private service connections, (including water or gas fittings where no through flow of applied signal is possible.
- Pot ended or disconnected cables or terminated short lengths of pipe.
- Internal building services
- Fibre optic cables (except where laid with a standard communications cable or built in tracer wire or similar conductor system) or can be clearly located using ground penetrating radar.
- Small diameter cables less than 17mm diameter, or pipes less than 38mm diameter.
- Above ground services unless specifically requested.
- Lifting manhole covers which require longer than 10 minute effort using standard heavy duty lifting apparatus.
- Services positioned directly below other pipes or cables etc (i.e. masking signal) - intrusive verification options available on request.
- Deep non metallic pipes, ducts or culverts (unless probing or Pipe Track 3d is specified as part of the fully invasive survey option).
- Passing through defective pipework (displaced joints etc) or acute bends between access points.

Please note that our Quotation does not allow for location of individual service feeds to properties unless reasonable to do so, as access would be required into each property to apply direct connections to inlet points and this would significantly increase the scope of work, survey cost and also cause possible disruption to occupants.

All work carried out by Murphy Geospatial Limited (MGS) conforms to the guidelines set out by The Survey Association (TSA).

North

Site Location

Map Sheet Layout:

Surveyed by :	MGS	Date: September 2023	Datum: Malin Head
Drawn by :	JF	Date: 16.10.2023	Grid System:
Checked by :	DS	Date: 16.10.2023	Irish National Grid ☐ ITM ☒

Revisions

No.	Date	Description
0	16.10.23	First Drawing

SCSI Chartered property, land and construction surveyors
THE SURVEY ASSOCIATION FULL MEMBER
EUROPEAN GPR ASSOCIATION
RICS the mark of property professionalism worldwide

Murphy GEOSPATIAL

Topographic surveys, Measured Building Surveys, Setting-Out, As-Built Surveys, Hydrographic Surveys, Legal Mapping, Pipeline Surveys, Services Location, Ground Penetrating Radar, Laser Scanning, Rectified Photography

Kildare Cork Dublin Belfast Glasgow Manchester London

Head Office
Global House
Kilcullen Business Campus
Kilcullen Co. Kildare, Ireland

Phone: (+353) 045 484040
Fax: (+353) 045 484004
Email: info@murphygs.ie

Client :	DJF Engineering
Project :	8 sites Cork
Date : 16.10.2023	**Scale :** NTS@A1
Description :	Utility Survey
Drawing Number :	**MGS54243_U_Newtownshandrum**

Murphy GEOSPATIAL

Geospatial certainty you can trust murphygs.ie

Utility Survey Report

Project Name – 8 sites Cork - Newtownshandrum

Project Number – 54243

Client – DJF Engineering

Document Register

Rev	Date	Prepared by	Role	Checked by	Role	Revision Reason
00	16.10.23	JF	CAD TECHNICIAN	DS	Quality Manager	First issue

Contents

1 Introduction

1.1 Terms of Reference

Location: **Newtownshandrum**

Client: **DJF Engineering**

Utility Survey Date start: **19/09/2023**

This report should be viewed with the following drawings:

MGS54243_ U_Newtownshandrum.dwg

This document is the technical report for this investigation; it therefore supersedes any previous reports whether written or oral.

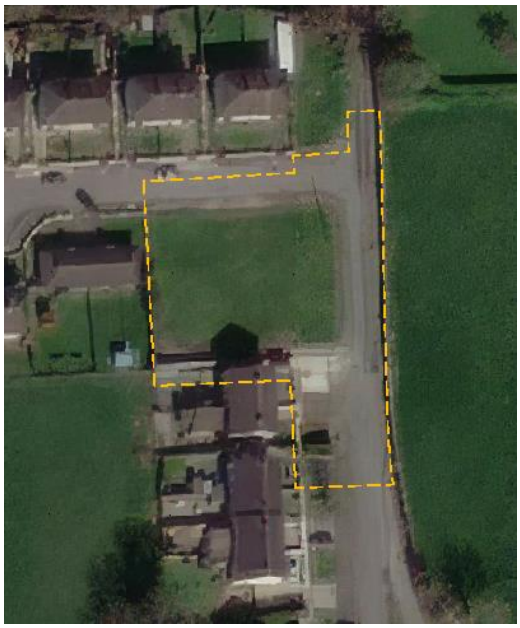
1.2 Background/Purpose of Investigation

Murphy Geospatial were requested to carry out a full GPR & utility survey on behalf of DJF Engineering. The intention of this survey is to detect, locate and record all existing Utilities and highlight any anomalies in the required area for upcoming works.

1.3 Objective of project

The objective of the survey was to locate the position and depth of all existing underground utilities using a combination of non-intrusive survey techniques. As the main investigative techniques used are largely non-destructive, the findings given in this report are based on indirect measurements and the interpretation of acoustic, electrical and electromagnetic signals. The findings represent the best professional opinions of the authors, based on our experience and the results of non-intrusive pipe location carried out elsewhere on similar materials and projects.

1.4 Site aerial view



1.5 Key Personnel

Project Manager: **Aidan Doherty**

Responsible for the management of the overall project.

Senior Surveyor: **Luke Maguire**

Lead surveyor responsible for the site work.

Safety Advisor: **Dermot Guiney**

Responsible for safety inductions (internal requirements only) and advising on safe working practices.

Production Manager: **Zuzana Knotkova**

Responsible for processing of the dataset and production of the final deliverables.

Quality Manager: **Daniel Stempien**

Responsible for processing and quality assessment of data

1.6 Specifications and International Standards

All survey works were carried out in accordance with the following guidelines and standards:

- European GPR Association - Policy on the Use of GPR in Utility Detection
- American Society of Civil Engineers- Standard Guideline for the collection and depiction of existing subsurface utility data.
- Radio detection- abc & xyz of locating buried pipes and cables.
- PAS128: 2014 – Publicly Available Specification 128 2014

2 Survey Report

2.1 Survey Restrictions

No obstructions or restrictions were reported on site.

2.2 Field Data Survey

Field data was surveyed in ITM (OSGM15) coordinate system. All levels are related to Malin Head Datum. Survey results were overlaid on DJF topographical background.

2.3 Traffic Management

No Traffic Management was required for this survey.

2.4 Methodology

2.4.1 Underground Utility & GPR Survey

Murphy Geospatial detect conductive services with the use of the Radio detection RD8100 receivers and transmitters which use very low electromagnetic frequencies to detect the services utilising the following methods:-

Direct Connection – This technique incorporates the use of a signal generator which is capable of generating sine waves at very low frequencies, typically 8 kHz or 33 kHz which can be applied to a metallic service. The service acts like an aerial and conducts the transmitted signal, which can then be detected on the surface using the receiver.

This is the most accurate method of locating a buried service and is applied in the first instance where access to pipes and cables is possible.

Signal Clamp – The signal clamp will be used to trace buried LV and HV cables. The signal will be applied via a clamp which is placed around the cable at a point the service enters or exits the ground.

Induction – Where a direct signal cannot be applied, the transmitter is used to radiate an indirect signal actively. The transmitter has a built-in aerial, which is capable of transmitting an electromagnetic field into the ground which conducts along the pipe or cable and can be detected on the surface using a receiver.

Passive – In Passive mode, the receiver is used without the transmitter to detect signals, which are generated by power cables or from distant radio transmitters, which constantly induce a signal into metallic services.

This method should only be used once both Direct Connection and Induction methods have been exhausted.

2.4.2 GPR Methodology:

A number of different GPR grids were set out over the site. Data field files were collected with a multi frequency array antenna system to give maximum depth penetration whilst maintaining a high resolution at both shallow and deep depths. Full calibration was carried out at the start scan with constant quality monitoring during acquisition and frequent recalibration checks were carried out where necessary.

Depth readings from GPR rely on multiplying the measured two-way travel time by the velocity of the radio signals passing through the materials under investigation. As the surface and subsurface of the site changes, frequent recalibration of the subsurface velocities results in an accurate calculation of depths and thicknesses of located features relative to the surface.

Post site processing then took place in the office, using specialised software, GPR Slice. A number of processing stages were involved, including start time correction, amplitude gain adjustments, Gaussian filtering, dynamic correction and noise removal. Once the raw data was processed individual targets were identified on each survey line and linear features mapped out over the survey areas. These GPR results are then incorporated into Autocad for final processing.

2.5 Equipment Used

- Radiodetection RD8200 EML kit
- Dual-Frequency GPR GSSI Utility Scan DF
- Sonde & Copper Flex
- Trimble S5 Total Station
- Trimble R12 GPS & Trimble TSC5 Controller

2.6 Surveyors Involved

Luke Maguire

2.7 Works Programme

Site Works Commenced on 18/09/2023

Delivery of drawings – 16/10/2023

2.8 Software Used for Processing

Autodesk Civil 3D 2020

AutoCAD 2020

GPR Slice V7.0

GeoPal

Microsoft Office

2.9 Quality Assurance Site Procedures

Equipment used was calibrated and tested in line with manufacturer guidelines. Calibration certificates can be provided on request.

Distance & angle checks were carried out on site regularly. Specialised software was used to verify accuracy of all measurements taken on site throughout the survey.

2.10 Findings

2.10.1 Drainage

Comments	Quality Level QL-A,B,C,D	Methodology M1 - M4
Storm water runs from manhole 6 to manhole 3. No connection was found for outfall pipe in manhole 3. Foul sewer runs from manhole 7 to manhole 2. No connection was found for discharge pipe running towards north. Drainage service record drawings show this pipe running to manhole located outside of survey area in the north. This manhole and two other manholes shown on records are possibly buried and were not found on site. Their indicative location and connections were shown on the drawing.	B1P/B2P (located) B4 (records)	M2P

2.10.2 Water Mains/Fire Mains

Comments	Quality Level QL-A,B,C,D	Methodology M1 - M4
Due to non-metallic nature of the pipes no signal was detected of some of the valves, water meters and hydrants found within survey area. Location of the possible water main pipes were shown on the drawing based on the GPR results, however due to the signal being absorbed by the pipe material rather than reflected back to the radar antenna, GPR results were not fully conclusive for entire water main network and only some sections of this network were identified – please refer to the drawing. Sections of the water main pipes which were shown on records drawings, but which couldn't be located and verified on site were marked with 'records' note and it is recommended to treat their location as indicative only. Also, assumed connections were shown where possible.	B2P (located) B4 (records /assumed)	M2P

2.10.3 Electricity, HV, LV, Street lighting, Traffic

Comments	Quality Level QL-A,B,C,D	Methodology M1 - M4
No evidence of the underground electrical lines was found on site. ESB records drawings don't show any underground connections within this area. Public lighting connection was identified connecting to the lamp post present on site.	B2P	M2P

2.10.4 Eir, Enet, UPC (Virgin), BT and other Comms

Comments	Quality Level QL-A,B,C,D	Methodology M1 - M4
Eir network was identified on site running between various chambers. No signal was detected from the exposed possibly Eir cable found in the eastern part of the area and its connections was shown based on records drawings. No evidence of Enet, BT and UPC network was found on site. Enet, BT and UPC records drawings don't show any connections into the site.	B2P (located) B4 (records)	M2P

2.10.5 Gas, Oil & Fuel mains

Comments	Quality Level QL-A,B,C,D	Methodology M1 - M4
No evidence of gas was found on site. GNI records drawings don't show any gas pipes in the area.	N/A	M2P

2.10.6 Unknown Cables/Empty Ducts and Services

Comments	Quality Level QL-A,B,C,D	Methodology M1 - M4
Unknown services were identified running through or nearby the area. It was not possible to verify the nature of those services.	B2P/B3P	M2P

2.10.7 GPR data conclusion

Comments
Generally, the depth of investigation from GPR does not exceed 2.0 metres in this area. As well as all the confirmed utility services which have been identified, there are unidentified features shown as GPR Anomalies. These features may be the result of services which are running through the sites, abandoned services, natural geological features or land drains amongst other things.

2.11 Manhole and pit schedules

Each manhole/inspection cover within the survey area was opened and the contents documented. These measurements are recorded on a digital manhole description sheet using Geopal applications. The manholes were individually numbered. All depths recorded inside the chamber were by disto, measuring tape or leveling staff. Details included:

- Cover Levels
- Invert levels
- Service Type
- Service Material
- Pipe sizes
- Chamber dimensions
- Direction of flow
- Photographs
- Siltation, stagnant water, or any other notable observations

After completing manhole investigation each manhole sheets was exported to Excel format and submitted together with final drawing and GPR report as a part of final deliverables.

2.12 Recommendations

Services which are shown on service records drawings, but which couldn't be located and verified on site and services which couldn't be traced due to no signal being obtained or signal being lost during the trace will require further investigation.

It is recommended to carry out slit trenching investigation in this area which would allow identifying location and depths of these untraceable services.

Drainage pipes which could not be traced, will require further investigation. It is recommended to jet wash those pipes and carry out CCTV investigation works which would allow to identify connection points for these pipes.

Manholes which could not be opened and inspected (marked as UTO) will require further investigation. Also, manholes which are shown on service records drawings, but which could not be found or verified on site will require further investigation.

3 Pas Detection Methods and Quality Level Tables

Survey type (Establish with client prior to survey)		Quality level (Practitioner to determine post survey)	Post-Processing	Location Accuracy		Supporting Data
				Horizontal [1]	Vertical [2]	
D	Desktop utility records search	QL-D	-	Undefined	Undefined	-
C	Site reconnaissance	QL-C	-	Undefined	Undefined	A segment of utility whose location is demonstrated by visual reference to street furniture, topographical features or evidence of previous street works (reinstatement scar).
B	Detection [3]	QL-B4	-	Undefined	Undefined	A utility segment which is suspected to exist but has not been detected and is therefore shown as an assumed route.
		QL-B3	No	±500 mm	Undefined (No reliable depth measurement possible)	Horizontal location only of the utility detected by one of the geophysical techniques used
		QL-B3P	Yes			
		QL-B2	No	±250 mm or ±40% of detected depth whichever is greater	±40% of detected depth	Horizontal and vertical location of the utility detected by one of the geophysical techniques used. [4]
		QL-B2P	Yes			
		QL-B1	No	±150 mm or ±15% of detected depth whichever is greater	±15% of detected depth	Horizontal and vertical location of the utility detected by multiple geophysical techniques used. [5]
		QL-B1P	Yes			
A	Verification	QL-A	-	±50 mm	±25 mm	Horizontal and vertical location of the top and/or bottom of the utility.

1) Horizontal location is to the centreline of the utility.
2) Vertical location is to the top of the utility.
3) For detection, it is a requirement that a minimum of GPR and EML techniques are used (see 8.2.1.1.2).
4) Electronic depth readings using EML equipment are not normally sufficient to achieve a QL-B2 or higher.
5) Some utilities can only be detected by one of the existing detection techniques. As a consequence, such utilities cannot be classified as a QL-B1.

Method 1) (to be determined in consultation with the client)	Survey Grid/Search Resolution 2)				Quality Levels achievable	Typical Application (informative)
	EML 3)	GPR		Other Techniques 4)		
		General	Post-Processing			
M1	Orthogonal search transect at ≤10 m intervals and when following a utility trace, search transects at ≤5 m intervals	Use as applicable	No	≤5 m survey grid	B1, B2, B3, B4	Used where the density of services is typical of an undeveloped area
M1P			Yes		B1P, B2P, B3P	
M2	Orthogonal search transect at ≤5 m intervals and when following a utility trace, search transects at ≤2 m intervals	Either: a) ≤2 m orthogonal; or b) high density array 5)	No	≤2 m survey grid	B1, B2, B3, B4	Used where the density of services is typical of a suburban area or where the utility services cross a boundary of a survey area
M2P			Yes		B1P, B2P, B3P	
M3	Orthogonal search transect at ≤2 m intervals and when following a utility trace, search transects at ≤1 m intervals	Either: a) ≤1 m orthogonal; or b) high density array 5)	No	≤1 m survey grid	B1, B2, B3, B4	Used where the density of services is typical of a busy urban area or for clearance surveys prior to operations such as borehole/drilling/fencing/ tree planting
M3P			Yes		B1P, B2P, B3P	
M4	Orthogonal search transect at ≤2 m intervals and when following a utility trace, search transects at ≤0.5 m intervals	Either: a) ≤0.5 m orthogonal; or b) high density array 5)	No	≤0.5 m survey grid	B1, B2, B3, B4	Used where the density of services is typical of a congested city area
M4P			Yes		B1P, B2P, B3P	

NOTE 1 In general the effort increases from M1 to M4 and the addition of post-processing. For areas with a greater density of utilities or areas considered high risk by the client, a detection method that has a higher level of effort should be selected.
NOTE 2 "P" indicates off-site post-processing has been included.

1) It is a requirement that a minimum of GPR and EML techniques are used.
2) The tolerance for orthogonal transect centres and survey grids shall be ±0.1 m.
3) It is a requirement that passive EML is deployed over the whole survey area and that where an active EML method can be used, it is used.
4) The transect centre depends on technique used.
5) A high density array comprises 100 mm or closer antenna separation.

4 Disclaimers

The survey aims to map all existing utilities and sub-surface structures and provide information with respect to pipe size, material type and drainage connectivity. However, GPR surveying is limited by the following guidelines and it may not be possible to accurately survey, define and locate all services and sub-surface features. Survey Results are representative of the date and time of survey only.

- Locational accuracy is determined by referring to the manufacturers guidelines for the detectors used.
- Existing record information showing underground services is often incomplete and unknown accuracy; therefore, it should be regarded only as an indication.
- In ideal conditions these spatial accuracies for the underground utilities are +/- 5% for the RD8100 and +/- 10% of depth for the GPR to 2.5m deep. However, variations within the subsurface may alter this estimated accuracy.
- Although all reasonable steps have been taken to locate all features, there is no guarantee that all will be shown on the drawing as some above ground features may have obstructed the survey.
- GPR surveying operates best within high resistivity material. Clay overburden can impair GPR surveying.
- Due to the attenuation of the radar signal with depth, resolution is restricted, hence making identification of anomalies difficult with increasing depth.
- The depth penetration and quality of the data depends on the ground conditions on the site. Poor data may be a result of areas with high conductivity. Also, high reflective materials close to the surface i.e. rebar may hide deeper anomalies.
- It is not always possible to trace the entire length of each underground service.
- It is always our intention to use the Utility providers' details, if supplied prior to survey commencement as a guide for location purposes. However, should we not be able to locate those guided services we shall not be held responsible for the accuracy, or otherwise, of the location of that service, as issued by the utility provider and therefore shown “Taken from Records” on the drawing and we are not liable for any loss that may arise due to the lack of accuracy in the guided information.
- Unless otherwise stated, all services and sub-surface structures shown on Murphy Geospatial plan drawings have been surveyed using approved detectors and the connections between manholes, if not traced, are assumed to run straight.
- Plan accuracies of the order of + or - 150mm may be achieved but this figure will depend on the depth of the service below ground level. Where similar services run in close proximity, separation may be impossible. Successful tracing of non-metallic pipes may be limited.
- Please note that not all buried pipes, cables and ducts can be detected and mapped in consideration of their depth, location, material type, geology and proximity to other

utilities. Even an appropriate and professionally executed survey may not be able to achieve a 100% detection rate.

- Services which have been untraceable are shown from Records where possible.
- DP represents distance from the surface level to the top of the service/ radar.

No allowance has been made within our quotation, unless otherwise stated, for the location and mapping of undeclared services. Failure to detect or fully map any declared service will be recorded within the notes accompanying our final drawings.

Where technically possible, depth indications will be given. These should be used for guidance only and wherever critical accuracy is required these should be confirmed by the Client by undertaking trial excavations or similar. Bends, lateral service connections, or the close proximity of other services and local magnetic, atmospheric or ground conditions, could in certain situations influence the accuracy of the plan and depth indication facility. Depths will not be provided unless we are reasonably confident of their validity.

Where Murphy Geospatial issues a CAD drawn utility service plan, this should be read in conjunction with all available public utility records etc. As part of our exhaustive Quality Control procedures, Murphy Geospatial endeavour to add relevant Public Utility record information onto the final issue drawing. An allowance should be made for the width of services, particularly where these are laid in bands or are of significant size etc. For clarification or appropriate easement bands, we would recommend that direct contact is made with the Asset Owner or Statutory Undertaker.

We exclude the following, except where otherwise specified and possible to do so:

- All private service connections, (including water or gas fittings where no through flow of applied signal is possible).
- Pot ended or disconnected cables or terminated short lengths of pipe.
- Internal building services
- Fibre optic cables (except where laid with a standard communications cable or built in tracer wire or similar conductor system) or can be clearly located using ground penetrating radar.
- Small diameter cables less than 17mm diameter, or pipes less than 38mm diameter.
- Above ground services unless specifically requested.
- Lifting manhole covers which require longer than 10 minute effort using standard heavy duty lifting apparatus.
- Services positioned directly below other pipes or cables etc (i.e. masking signal) - intrusive verification options available on request.
- Deep non-metallic pipes, ducts or culverts (unless probing or Pipe Track 3d is specified as part of the fully invasive survey option).

- Passing through defective pipework (displaced joints etc) or acute bends between access points.

Please note that our Quotation does not allow for location of individual service feeds to properties unless reasonable to do so, as access would be required into each property to apply direct connections to inlet points and this would significantly increase the scope of work, survey cost and also cause possible disruption to occupants.

Service provider utility drawings may not be up to date or give sufficient coverage of all areas surveyed, as such extra precaution should be taken when excavation works are carried out on site and it is recommended to contact service providers before commencing any excavation works within surveyed areas.

All work carried out by Murphy Geospatial conforms to the guidelines set out by The Survey Association (TSA).

5 GNI Gas Pipeline Disclaimer

Gas Networks Ireland (GNI), their affiliates and assigns, accept no responsibility for any information contained in this document concerning location and technical designation of the gas distribution and transmission network ("the Information"). Any representations and warranties express or implied, are excluded to the fullest extent permitted by law. No liability shall be accepted for any loss or damage including, without limitation, direct, indirect, special, incidental, punitive or consequential loss including loss of profits, arising out of or in connection with the use of the Information (including maps or mapping data). NOTE: DIAL BEFORE YOU DIG Phone 1850 427 747 or e-mail dig@gasnetworks.ie – The actual position of the gas/electricity distribution and transmission network must be verified on site before any mechanical excavating takes place. If any mechanical excavation is proposed, hard copy maps must be requested from GNI re gas. All work in the vicinity of the gas distribution and transmission network must be completed in accordance with the current edition of the Health & Safety Authority publication, 'Code of Practice For Avoiding Danger From Underground Services' which is available from the Health and Safety Authority (1890 28 93 89) or can be downloaded free of charge at www.hsa.ie.

6 General GPR Limitations

GPR surveying is limited by the following guidelines		Minimizing GPR Limitations
Depth and size of Utility	In good ground conditions and within the depth range of two metres the ability to detect a utility will reduce in diameter by 1mm for each 10mm of depth. i.e. a 200mm pipe can be detected at 2m and a 50mm pipe at 0.5m but a 25mm plastic water service pipe to a house cannot be detected at 1.2m with radar	Murphy Geospatial incorporated Radio Detection surveys in areas where GPR was found to be ineffective.
Shadowing	This can happen where shallow buried utilities hide or mask deeper buried utilities below.	Murphy Geospatial use mutli frequency radar systems to reduce the effect of shadowing.
Soil Condition	GPR surveying operates best within high resistivity material. Clay overburden can impair GPR surveying. The depth penetration and quality of the data depends on the ground conditions on site. Poor data maybe a result of areas with high conductivity	Murphy Geospatial calibrate our GPR Systems for varying soil types on each project.
Plan Accuracies	Plan accuracies of the order of + or – 150mm maybe achieved but this figure will depend on the depth of the service below ground level.	Murphy Geospatial incorporated Radio Detection surveys in areas where GPR was found to be ineffective.
Utility location	Although all reasonable steps have been taken to locate all features, there is no guarantee that all will be shown on the drawing as some above ground features may have obstructed the survey.	Murphy Geospatial utility surveyors are all qualified and certified to locate underground services.
Existing Utility Records	Existing record information showing underground services is often incomplete and unknown accuracy; therefore, it should be regarded only as an indication.	It is always our intention to use the Utility provider's details, if supplied prior to survey commencement, as a guide for location purposes. However, should we not be able to locate those guided services we shall not be held responsible for the accuracy, or otherwise, of the location of that service, as issued by the utility provider and therefore

		shown “Taken From Records” on the drawing and we are not liable for any loss that may arise due to the lack of accuracy in the guided information.
Loss of Signal	It is not always possible to trace the entire length of each underground service.	Murphy Geospatial will indicate on the drawing if a service trace is lost.
Utility Congestion	Where similar services run on close proximity, separation maybe impossible.	Murphy Geospatial incorporated Radio Detection surveys in areas where GPR was found to be ineffective.
Pipe Material	Successful tracing of non-metallic pipes maybe limited due to material construction of the pipe.	Murphy Geospatial incorporate Radio Detection/ Manhole& PWG surveys in areas where GPR was found to be ineffective.

The American Society of Civil Engineers in their ‘Standard Guidance for the collection and depiction of existing subsurface utility data’ has a useful rule of thumb for GPR which in, metric values, can be summarised as: ‘In good ground conditions and within the depth range of two metres the ability to detect a utility will reduce in diameter by 1mm for each 10mm of depth. i.e. a 200mm pipe can be detected at 2m and a 50mm pipe at 0.5m but a 25mm plastic water service pipe to a house cannot be detected at 1.2m with radar’.

APPENDIX 4

GEOTECHNICAL INVESTIGATION REPORT

IGSL Limited

Cork County Council

Cork Housing Projects
Site D
Newtownshandrum

Interpretative Report

Report No. 24961-D

November 2023

Report

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Project: Cork Housing Projects – Site D Newtownshandrum

Project No. 24961D

Revision	**Date**	**Title**		
Rev 0	11/12/2023	Ground Investigation Report		
	Copies	Document Format	Prepared By	Reviewed By
		PDF	Brian Green Chartered Engineer	David Green Chartered Engineer
	To	Cork County Council		
Revision	**Date**	**Title**		
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Revision	**Date**	**Title**		
	Copies	Document Format	Prepared By	Reviewed By
	To			
Revision	**Date**	**Title**		
	Copies	Document Format	Prepared By	Reviewed By
	To			

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FOREWORD

The following conditions and notes on the geotechnical site investigation procedures should be read in conjunction with this report.

Standards

The ground investigation works for this project have been carried out by IGSL in accordance with Eurocode 7 - Part 2: Ground Investigation & Testing (EN 1997-2:2007). This has been used together with complementary documents such as BS 5930 (1999), BS 1377 (Parts 1 to 9) and Engineers Ireland Specification & Related Documents for Ground Investigation in Ireland (2006). A new National Annex for use in the Republic of Ireland is currently in circulation for comment and will be adopted in the near future. In the meantime, the following Irish (IS) and European Standards or Norms are referenced:

- IS EN 1997-2 Eurocode 7: 2007 – Geotechnical Design – Part 2: Ground Investigation & Testing
- IS EN ISO 22475-1:2006 Geotechnical Investigation and Sampling – Sampling Methods & Groundwater Measurements
- IS EN ISO 14688-1:2002 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 1: Identification and Description
- IS EN ISO 14688-2:2004 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 2: Classification Principles
- IS EN ISO 14689-1:2004 Geotechnical Investigation and Testing - Identification & Classification of Rock, Part 1: Identification & Description

Reporting

Recommendations made and opinions expressed in this report are based on the strata observed in the exploratory holes, together with the results of in-situ and laboratory tests. No responsibility can be held by IGSL Ltd for ground conditions between exploratory hole locations.

The engineering logs provide ground profiles and configuration of strata relevant to the investigation depths achieved and caution should be taken when extrapolating between exploratory points. No liability is accepted for ground conditions extraneous to the investigation points.

This report has been prepared for Cork County Council, and the information should not be used without prior written permission. The recommendations developed in this report specifically relate to the proposed development. IGSL Ltd accepts no responsibility or liability for this document being used other than for the purposes for which it was intended.

In-Situ Testing

Standard penetration tests were conducted strictly in accordance with Section 4.6 of IS EN 1997-2:2007. The SPT equipment (hammer energy test) has been calibrated in accordance with EN ISO 22476-3:2005 and the Energy Ratio (E_r). A calibration certificate is available upon request. The E_r is defined as the ratio of the actual energy E_{meas} (measured energy during calibration) delivered to the drive weight assembly into the drive rod below the anvil, to the theoretical energy (E_{theor}) as calculated from the drive weight assembly. The measured number of blows (N) reported on the engineering logs are uncorrected. In sands, the energy losses due to rod length and the effect of the overburden pressure should be taken into account (see IS EN ISO 22476-3:2005).

Groundwater

The depth of entry of any influx of groundwater is recorded during the course of boring operations. However, the normal rate of boring does not usually permit the recording of an equilibrium level for any one water strike. Where possible drilling is suspended for a period of twenty minutes to monitor the subsequent rise in water level. Groundwater conditions observed in the borings or pits are those

appertaining to the period of investigation. It should be noted however, that groundwater levels are subject to diurnal, seasonal and climatic variations and can also be affected by drainage conditions, tidal variations etc.

Engineering Logging

Soil and rock identification has been based on the examination of the samples recovered and conforms with IS EN ISO 14688-1:2002 and IS EN ISO 14689-1:2004. Rock weathering classification conforms to IS EN ISO 14689-1:2003 while discontinuities (bedding planes, joints, cleavages, faults etc) are classified in accordance with 4.3.3 of IS EN ISO 14689-1:2003. Rock mechanical indices (TCR, SCR, RQD) are defined in accordance with IS EN ISO 22475-1:2006.

Retention of Samples

Samples shall be retained for a period of 60 days following approval of the final factual report, as detailed in the Scope of Works.

1.0 Introduction

It is proposed to construct infill housing in a total of eight sites around County Cork.

Investigations of ground conditions were carried out to ascertain foundation requirements for the structures and to assess the suitability of the sub-soils for soakaway purposes. Also required were assessments of soil contamination and classification of subsoils for landfill disposal.

This report describes the ground conditions at Newtownshandrum, and relates this information to the proposed development. The investigation entailed the following fieldworks.

- Trial pits were excavated in two locations to ascertain the sub-soil stratification
- Dynamic probing techniques were employed in three locations to obtain a soil resistance profile.
- Plate Bearing Tests were performed to obtain information for sub-base design purposes
- An infiltration test was performed for soakaway design purposes.
- Foundations of the southern boundary wall were exposed and details recorded.

The site location is shown in Figure 1.

Figure 1 – Site Location

2.0 Ground Conditions

2.1 Trial Pits

Trial pits were excavated in the locations indicated as TP1 and TP2 on the site plan enclosed in Appendix 8. The descriptions and depths of the various soils encountered are shown on the trial pit records enclosed in Appendix 1. Also shown on these records are the depths at which samples were recovered, and the groundwater conditions observed during the course of excavation operations.

Trial pit TP01 revealed Made Ground composed largely of brown sandy gravelly clay containing some fragments of brick and concrete blocks. The Made Ground was present to a depth of 1.0 metres. At TP02, Made Ground of similar composition was present to a depth of 0.9 metres, although no non-natural material was evident. The material from 0.9 to 1.4 metres was organic and had the appearance of an original Topsoil / subsoil layer.

Both trial pits encountered underlying deposits of firm to stiff mottled grey / brown sandy gravelly clay with occasional sub-rounded to sub-angular cobbles and boulders. This material persisted to the excavated depth of 3.0 metres in TP02. Below approximately 2 metres at TP01, there was a transition to brown gravelly clay in a stiff condition, and the pit was terminated in this material at a depth of 3.0 metres.

Water seepages were noted at depths of 2.6 and 1.8 metres, at TP01 and TP02 respectively. Some instability occurred in association with the water ingress.

2.2 Dynamic Probing

Dynamic probing techniques were employed in three locations to obtain a profile of probe resistance.

The dynamic probe utilised by IGSL Ltd complies with the requirements of ISO 22476-2: 2005+A1: 2011 – Geotechnical Investigation and testing – Field testing - Part 2: Dynamic probing. DPH probing comprises a 50 kg drop weight, 500mm drop height and a 43.7mm diameter (90°) cone.

In accordance with the standards, the number of blows required to drive the probe through each 100mm increment of penetration is recorded. Probing is generally terminated when blow counts, N_{100} values, exceed 25, in order to avoid damage to equipment. Detailed probe records are provided on which the blow counts are recorded both numerically and graphically.

Probe results are used primarily in conjunction with known information on soil composition and stratification, to define more accurately the soil profile, and to detect any soft or loose zones.
The probe records are presented in Appendix 2, while the results are summarised and discussed in Section 5.

2.3 Plate Bearing Tests

Plate bearing tests were performed in two locations to obtain a measure of the CBR values. A 450 mm diameter plate was used, and tests were performed at depths of 0.50 metres and 0.7 metres below present ground level. Tests were performed in accordance with BS 1377 Part 9: 1990. "In-situ Tests". The incremental loading test (4.1.6.4.2) was used.

The maximum applied load was estimated on the basis of obtaining an accumulative displacement of at least 1.25 mm. The load was then applied in five approximately equal increments to the design load. To measure recovery the load was removed in three increments. A second phase of loading and unloading was performed to assess the benefits of further compaction.

The settlement under each increment was measured against time until movement had effectively ceased and the results are presented as graphs of applied pressure against settlement. Calculation of Modulus of Sub-grade Reaction (k) and CBR values are in accordance with NRA HD25-26/10 Volume7: Pavement Design and Maintenance. The test records from the initial and reload stages are enclosed in Appendix 3, while the calculated K values are shown in Table 1.

Location	Depth (m bgl)	Soil Type	Ks value (MPa/m)		CBR %	
			First Cycle	Reload Cycle	First Cycle	Reload Cycle
PBT01	0.5	Made Ground	17	19	1.3	1.6
PBT02	0.7	Made Ground	16	18	1.1	1.4

Table 1

2.4 Infiltration Tests

An infiltration test was performed in a selected location to ascertain the suitability of the sub-soils for soakaway purposes. Testing was performed in accordance with BRE Digest 365 'Soakaway Design'. To obtain a measure of the infiltration rate of the sub-soils, water was poured into the test pit to ensure total saturation of the sub-soils, and records were taken of the fall in water level against time. Following the saturation stage the test was performed once more. However, in view of the very low infiltration rate over a period of 3 hours, a further cycle of testing was considered impractical.

The infiltration rate is the volume of water dispersed per unit exposed area per unit of time, and is generally expressed as metres/minute or metres/second. Detailed records for the monitored stage following saturation are enclosed in Appendix 4.

2.5 Foundation Inspections

The southern boundary wall foundations were exposed in two locations as shown on the site plan. The findings are summarised on the records enclosed in Appendix 5.

3.0 Laboratory Testing (Geotechnical).

3.1 Classification

The results of plastic and liquid limit tests classify the fine fraction largely as clay of low to medium plasticity (CL and CI), while moisture contents ranged between 11% and 22%.

Grading curves for selected samples indicate that the sub-soils are well graded. The fines fraction of the test specimens varied from 46% to 49%.

3.2 Chemical Analysis

Sulphate and pH analyses were conducted on selected samples by a nominated accredited environmental laboratory (Eurofins Chemtest) in accordance with the BRE Special Digest SD1. Results are presented in reports prepared by the laboratory.

The results of chemical testing showed low concentrations of soluble sulphates of <0.01 and 0.035 g/l in association with anear-neutral pH values of 8.1 and 7.6.

4.0 Laboratory Testing (Environmental)

Environmental testing was scheduled on two samples of the upper soils in order to screen for inherent contamination and to assess their suitability for disposal to an inert landfill.

Samples were tested in accordance with the RILTA Suite, which is used to determine the suitability of soils for disposal to a landfill. The RILTA suite includes Heavy Metals, Polycyclic Aromatic Hydrocarbons (PAH), TPH-CWG, BTEX, PCB and Total Organic Carbon (TOC) carried out on dry soil samples. Also included are leachate analyses, whereby leachate is generated in accordance with CEN 10:1 specification and this is tested for the presence of recognised contaminants including Heavy Metals, Dissolved Organic Carbon (DOC) and Total Dissolved Solids (TDS). An Asbestos Screen is also included in the RILTA Suite.

5.0 Discussion

5.1 General

The trial pits revealed Made Ground composed largely of sandy gravelly clay, which was shown locally to contain non-natural material including brick and concrete fragments.

The Made Ground was underlain by firm to stiff (medium to high strength) mottled brown gravelly clay with occasional sub-rounded to sub-angular cobbles and boulders at depths of 1.0 and 1.4 metres. In TP02, stiff (high strength) brown sandy gravelly clay was present below approximately 2 metres.

Water seepages were noted at depths of 2.6 metres and 1.8 metres, at TP01 and TP02 respectively. Some instability occurred in association with the water ingress.

The natural soils at this site are the product of glacial deposition. While the main body of soil is in a stiff condition, the reduced strength of the firm / stiff upper soils is related to weathering, signified by a mottled coloration

The dynamic probe results are summarised in Table 2. For purposes of discussion, sustained N_{100} values of less than 3 are generally considered unsuitable for founding purposes, while N_{100} values greater than 10 represent a very stiff or dense condition.

Location	N_{100} >= 3 (m bgl)	N_{100} > 10 (m bgl)	Refusal (m bgl)
DP01	1.20	2.20	3.10
DP02	1.20	2.00	3.50
DP03	1.20	2.00	2.30

Table 2

It can be seen from Table 2 that an N_{100} value greater than 3 was achieved at approximately 1.2 metres below ground level.

5.2 Structural Foundations

For purposes of discussion, it is tentatively assumed that the imposed bearing pressures from the proposed residential units will not exceed 50 kPa, which is a typical value for conventional 2-storey housing. To achieve this bearing resistance, sustained blow-counts (N_{100} values) of 3 or greater should be sought. From the dynamic probe results this implies founding depths of c. 1.20 metres. This relates to the trial pit findings where firm to stiff gravelly clay was encountered at depths of 1.0 and 1.4 metres.

Where the probe N_{100} blow-counts exceed 10, the presumed bearing resistance can be increased to 175 to 200 kPa.

It will important to ensure that foundations are placed below any Made Ground or organic subsoils (such as the possible original Topsoil layer encountered in TP02). It would also be advisable to

incorporate steel reinforcing in foundation concrete to minimise the effects of differential settlements.

5.3 Floor Slabs

The results of plate bearing tests, conducted at depths of 0.50 m and 0.70m BGL, have measured low moduli of subgrade reaction, reflecting the soft or uncompact condition of the Made Ground.

It will therefore be necessary to remove the Made Ground and organic deposits to support the floor slabs on the underlying firm to stiff sandy gravelly clay. As discussed in Section 5.2, these soils would be expected to yield a significantly higher stiffness, once adequately drained and proof-rolled.

It is expected that a suitable bearing stratum for floor slabs should be attainable within 1.0 to 1.4 metres of current ground level in most locations. Monitoring of the excavations will determine the thickness of Made Ground and any underlying organic soils requiring removal, while plate tests should be conducted on the prepared formation to confirm the improved modulus values.

Proof rolling of the formation (static rolling with roller having a mass per metre width of roll of not less than 5400 kg is advised to counteract disturbance or loosening due to the bulk excavation works. Under no circumstance should vibratory or dynamic rolling be used on the formation soils as this may lead to dilation and produce ‘cow-bellying’.

5.4 Pavement Design

The sub-base requirements should be determined in accordance with NRA HD25-26/10 Volume7: Pavement Design and Maintenance. Figure 4.1 of this document shows sub-base requirements in relation to the CBR value of the sub-grade. Designs can be sub-base only or sub-base in conjunction with a capping layer. The minimum permitted design CBR is 2.5%.

Both plate bearing tests indicated initial (Cycle 1) CBR values of less than 2.5% and little benefit was gained from further compaction (Cycle 2).

Since the plate bearing tests were performed at depths of 500 mm and 700 mm below existing ground level, it is likely that the low CBR values relate to the Made Ground and near-surface soil as noted in the trial pits. Any Made Ground and soft organic soils should be removed to expose the underlying firm / stiff gravelly clay soils, which should yield significantly higher CBR values after proof-rolling.

Close inspection of the prepared formation in conjunction with additional plate bearing tests will be essential to verify the design CBR value and to identify any remaining soft or loose upper soils. Where proof rolling fails to increase the CBR values to acceptable levels (i.e. > 2.5%), the capping thicknesses should be designed in accordance with NRA HD 25-26/10 with reference to Section 3.23 (“Soft Subgrades”), removing any excessively soft material (CBR <2.5%) as described and replacing with 6F capping or starter layer material (Class 6A / 6B).

Atterberg Limits tests have classified the upper cohesive soils as having low to medium plasticity characteristics. If exposed to water ingress, this material would be expected to weaken rapidly as a result of dilation (“cowbellying”). It will therefore be imperative to maintain a dry subgrade

before construction of the capping layer. Drainage measures should be implemented as required before construction.

Stripped subgrade should also be protected from surface water ingress or disturbance from unnecessary pedestrian or vehicular traffic. The time between stripping to formation level and placement of the capping layer should be minimised.

Any proof rolling of the natural subgrade soils should be performed statically using a smooth roller in order to avoid vibratory disturbance. Initial placement of the capping layer should also be carried out using a static roller for the same reason.

A geotextile separator at subgrade level and geogrid reinforcement within the capping layer would be recommended to stiffen the pavement make-up and to cater for variations within the subgrade.

It is important that argillaceous sedimentary rocks (i.e. muddy limestone, calcareous mudstone, shale, etc.) are not used in sub-base, capping or as a starter layer. These have high potential to give rise to degradation (i.e. poor durability and soundness) and slaking and therefore would not be suitable. All granular fills (particularly Series 600 and 800 material) should be thoroughly examined, tested and approved in advance of being used in the pavement construction.

5.5 Groundwater and Trench Stability

Water seepages were noted in both trial pits, at depths of 2.6 metres and 1.8 metres respectively and this led to some instability of the pit sidewalls. Based on this information, it would be reasonable to expect that shallow excavations for foundations (i.e. within 1.4 metres of current ground level) should not experience significant groundwater ingress. In areas where surface drainage is poor, some control of surface waters may be necessary.

While the control of water should not present problems in temporary shallow excavations, it is important to appreciate that the short duration of the trial pits (typically 45 minutes) may not have been sufficient time to permit the groundwater table to establish to its true level.

In addition, trial pits do not provide any information regarding seasonal fluctuations in the water table. It would, therefore, be advisable to ascertain the groundwater conditions closer to commencement of construction.

Both trial pits experience some degree of instability during excavation and therefore it should not be assumed that temporary excavations for foundations will remain stable. Some provision should be made for trench control measures (e.g. trench box or battered slopes) as required. Where seemingly stable excavations are left open for extended periods (e.g. drainage trenches), instability may occur as the sidewalls relax, in which case trench control measures will be required.

5.6 Chemical Attack on Buried Concrete

The results of Sulphate and pH testing showed very low Sulphate and near-neutral pH levels.

With reference to Table C1 of BRE Special Digest 1: 2005, the level of Sulphate suggests a design Sulphate Class of DS-1. Assuming a static groundwater table, an ACEC (Aggressive

Chemical Environment for Concrete) Classification of AC-1s is applicable, since the pH levels are greater than 5.5.

In terms of concrete to I.S. EN 206-1:2013, the chemical testing demonstrates that concrete could be manufactured to Class XA1.

5.7 Soakaway Design

Since the field test exhibited a very low infiltration rate, conventional soakaways are very likely to be deemed impractical for this relatively small site due to excessive storage (attenuation) requirements.

It is instead likely that storm-water will be discharged to an existing surface water system, using attenuation techniques to regulate the flow.

5.8 Landfill Disposal of Excavated Soils

The results of WAC analyses showed that both samples satisfy the criteria for inert waste as set out in the European Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.

It is therefore anticipated that surplus soils would be accepted by an inert landfill if removed from site.

It should be noted that the chosen landfill should be furnished with the WAC results in advance of any soils being removed from site. Depending on the extent and depth of excavation, the landfill may require additional testing to achieve the frequency of analysis (i.e. number of samples per unit volume of excavation) that meets their license requirements.

Appendix 1 Trial Pit Records

TRIAL PIT RECORD

REPORT NUMBER 24961D

CONTRACT	Cork Housing Project - Newtownshandrum	**TRIAL PIT NO.**	**TP01**
		SHEET	Sheet 1 of 1
LOGGED BY	AP	**CO-ORDINATES**	547,452.82 E 622,141.07 N
		DATE STARTED	29/09/2023
		DATE COMPLETED	29/09/2023
CLIENT	Cork County Council	**GROUND LEVEL (m)**	111.32
ENGINEER	DJF	**EXCAVATION METHOD**	Kubota 6T

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 MADE GROUND: Soft to firm brown sandy, silty, slightly gravelly clay with brick and block fragments.					AA207780 AA207781	B Env	0.70-1.00 0.70-1.00		
1.0 Firm to stiff grey mottled brown sandy gravelly cobbly CLAY with some boulders. Gravel fine to coarse, subangular to subrounded limestone. Cobbles subangularr to subrounded limestone. Boulders subangular to subrounded limestone (<0.3m)		1.00	110.32		AA207782	B	1.60-1.90		
2.0 Stiff brown slightly gravelly cobbly CLAY with occasional boulders. Gravel fine to coarse, subangular to subrounded limestone. Cobbles subangular to subrounded limestone. Boulders subangular to subrounded limestone (<0.25m).		2.00	109.32	1 (Seepage)	AA207783	B	2.60-2.90		
3.0 End of Trial Pit at 3.00m		3.00	108.32						
4.0									

Groundwater Conditions
Damp, some seepage at 2.6m

Stability
Poor to moderate

General Remarks
Stopped due to spec

IGSL TP LOG 24961D.GPJ IGSL.GDT 11/12/23

TRIAL PIT RECORD

REPORT NUMBER 24961D

CONTRACT	Cork Housing Project - Newtownshandrum	**TRIAL PIT NO.**	**TP02**
		SHEET	Sheet 1 of 1
LOGGED BY	AP	**CO-ORDINATES**	547,437.75 E 622,139.56 N
		DATE STARTED	29/09/2023
		DATE COMPLETED	29/09/2023
CLIENT	Cork County Council	**GROUND LEVEL (m)**	111.55
ENGINEER	DJF	**EXCAVATION METHOD**	Kubota 6T

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 MADE GROUND: Soft to firm, brown slightly sandy, silty, slightly gravelly clay (Topsoil)		0.20	111.35						
MADE GROUND: Firm to stiff greyish brown sandy gravelly CLAY with some cobbles. Gravel fine to coarse, subangular to subrounded limestone. Cobbles, subangular to subrounded limestone.					AA182120 AA182121	B Env	0.60-0.90 0.60-0.90		
Possible original Topsoil composed of firm dark brown sandy, silty, slightly gravelly clay		0.90	110.65						
1.0					AA182122 AA182123	B Env	1.20-1.40 1.20-1.40		
Firm to stiff grey brown sandy gravelly cobbly CLAY. Gravel fine to coarse, subangular to subrounded limestone. Cobbles subangular to subrounded limestone. Occasional limestone boulder, subangular to subrounded (<0.25m).		1.40	110.15	1 (Seepage)					
2.0					AA182124	B	2.50-2.90		
3.0 End of Trial Pit at 3.00m		3.00	108.55						
4.0									

Groundwater Conditions
Damp, some seepage at 1.8m

Stability
Moderate

General Remarks
Stopped due to spec

TRIAL PIT RECORD

REPORT NUMBER 24961D

CONTRACT	Cork Housing Project - Newtownshandrum	**TRIAL PIT NO.**	**SW01**
		SHEET	Sheet 1 of 1
LOGGED BY	AP	**CO-ORDINATES**	547,435.12 E 622,142.66 N
		DATE STARTED	29/09/2023
		DATE COMPLETED	29/09/2023
CLIENT	Cork County Council	**GROUND LEVEL (m)**	111.14
ENGINEER	DJF	**EXCAVATION METHOD**	Kubota 6T

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
MADE GROUND: Soft to firm, brown slightly sandy, silty, slightly gravelly clay (Topsoil)		0.20	110.94						
MADE GROUND: Firm to stiff greyish brown sandy, gravelly CLAY with some cobble. Gravel fine to coarse, subangular to subrounded limestone. Cobbles, subangular to subrounded limestone.		0.60	110.54		AA182118	B	0.50-0.60		
Possible original Topsoil composed of firm dark brown sandy, silty ,slightly gravelly clay		0.90	110.24						
Firm to stiff grey brown sandy gravelly cobbly CLAY. Gravel fine to coarse, subangular to subrounded limestone. Cobbles subangular to subrounded limestone					AA182119	B	1.30-1.50		
End of Trial Pit at 1.50m		1.50	109.64						

0.0
1.0
2.0
3.0
4.0

Groundwater Conditions

Stability
Good

General Remarks
Stopped due to spec

IGSL TP LOG 24961D.GPJ IGSL.GDT 11/12/23

Appendix 2 Dynamic Probe Results

DYNAMIC PROBE RECORD

REPORT NUMBER 24961D

CONTRACT	Cork Housing Project - Newtownshandrum	**PROBE NO.**	**DP01**
		SHEET	Sheet 1 of 1
CO-ORDINATES	547,452.06 E 622,146.08 N	**DATE DRILLED**	02/10/2023
GROUND LEVEL (mOD)	110.85	**DATE LOGGED**	02/10/2023
CLIENT	Cork County Council	**PROBE TYPE**	DPH
ENGINEER	DJF		
HAMMER MASS (kg)	50		
INCREMENT SIZE (mm)	100		
FALL HEIGHT (mm)	500		

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.		0.00			0.00	1
						0.10	0
						0.20	0
						0.30	0
						0.40	0
						0.50	0
						0.60	3
						0.70	3
						0.80	3
						0.90	3
1.0						1.00	2
						1.10	2
						1.20	3
						1.30	3
						1.40	10
						1.50	11
						1.60	11
						1.70	7
						1.80	6
						1.90	7
2.0						2.00	6
						2.10	7
						2.20	10
						2.30	19
						2.40	20
						2.50	15
						2.60	20
						2.70	20
						2.80	22
						2.90	22
3.0						3.00	23
						3.10	25
	End of Probe at 3.20 m			107.65			
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 24961D.GPJ IGSL.GDT 11/12/23

DYNAMIC PROBE RECORD

REPORT NUMBER 24961D

CONTRACT	Cork Housing Project - Newtownshandrum	**PROBE NO.**	**DP02**
		SHEET	Sheet 1 of 1
CO-ORDINATES	547,453.34 E 622,134.23 N	**DATE DRILLED**	02/10/2023
GROUND LEVEL (mOD)	111.50	**DATE LOGGED**	02/10/2023
CLIENT	Cork County Council	**PROBE TYPE**	DPH
ENGINEER	DJF		
HAMMER MASS (kg)	50		
INCREMENT SIZE (mm)	100		
FALL HEIGHT (mm)	500		

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.		0.00			0.00	0
						0.10	0
						0.20	0
						0.30	0
						0.40	1
						0.50	5
						0.60	7
						0.70	8
						0.80	4
						0.90	4
1.0						1.00	1
						1.10	1
						1.20	4
						1.30	6
						1.40	11
						1.50	9
						1.60	10
						1.70	9
						1.80	5
						1.90	7
2.0						2.00	10
						2.10	11
						2.20	8
						2.30	8
						2.40	13
						2.50	13
						2.60	10
						2.70	14
						2.80	13
						2.90	13
3.0						3.00	9
						3.10	10
						3.20	12
						3.30	24
						3.40	25
	End of Probe at 3.50 m			108.00			
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 24961D.GPJ IGSL.GDT 11/12/23

DYNAMIC PROBE RECORD

REPORT NUMBER 24961D

CONTRACT	Cork Housing Project - Newtownshandrum	**PROBE NO.**	**DP03**
		SHEET	Sheet 1 of 1
CO-ORDINATES	547,441.40 E 622,140.40 N	**DATE DRILLED**	02/10/2023
GROUND LEVEL (mOD)	111.44	**DATE LOGGED**	02/10/2023
CLIENT	Cork County Council	**PROBE TYPE**	DPH
ENGINEER	DJF		
HAMMER MASS (kg)	50		
INCREMENT SIZE (mm)	100		
FALL HEIGHT (mm)	500		

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)
0.0	.		0.00			0.00	7
						0.10	2
						0.20	2
						0.30	4
						0.40	5
						0.50	4
						0.60	3
						0.70	3
						0.80	3
						0.90	2
1.0						1.00	2
						1.10	2
						1.20	3
						1.30	4
						1.40	5
						1.50	7
						1.60	6
						1.70	3
						1.80	5
						1.90	6
2.0						2.00	10
						2.10	20
						2.20	25
	End of Probe at 2.30 m			109.14			
3.0							
4.0							

Graphic Probe Record: 0 5 10 15 20 25

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 24961D.GPJ IGSL.GDT 11/12/23

Appendix 3 Plate Bearing Tests

PLATE TEST REPORT SHEET (F3.1)

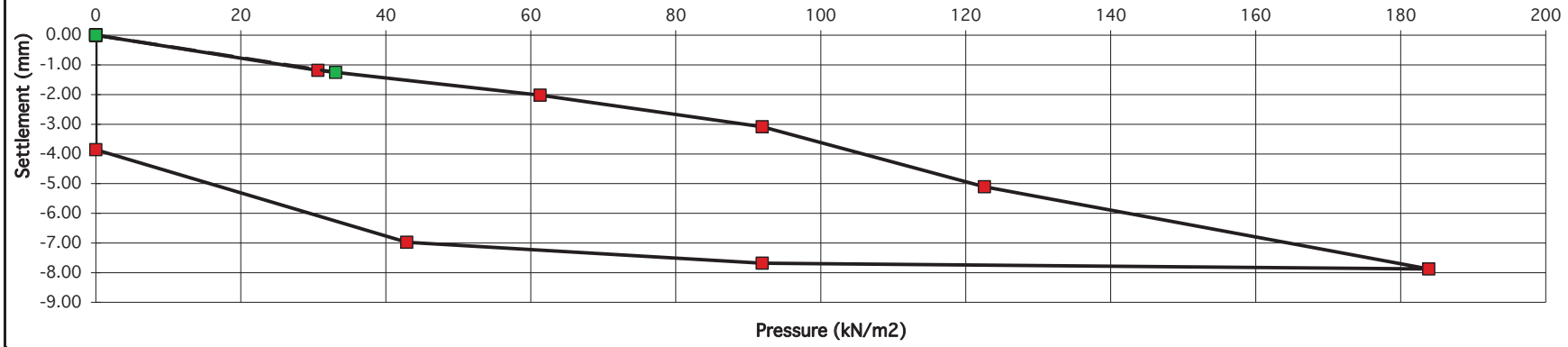
Applied Pressure/Settlement Curve

Reference No.	R150338
Contract	24961D-Newtownshandrum, Co. Cork
Test No.	PBT No.1 Load
Location	E547460.957, N622135.668
Depth	110.285mOD (0.5mbgl)
Client	Cork Co.Co.
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	Alan Phelan
Authorised by	
Date	28/09/2023

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND-slightly sandy,slighlty gravelly CLAY

Sample Ref No. .....
Depth ..... m bgl



Gradient at 1.25 mm settlement intersection = 26
Modulus of subgrade reaction = 17 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 1.3 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

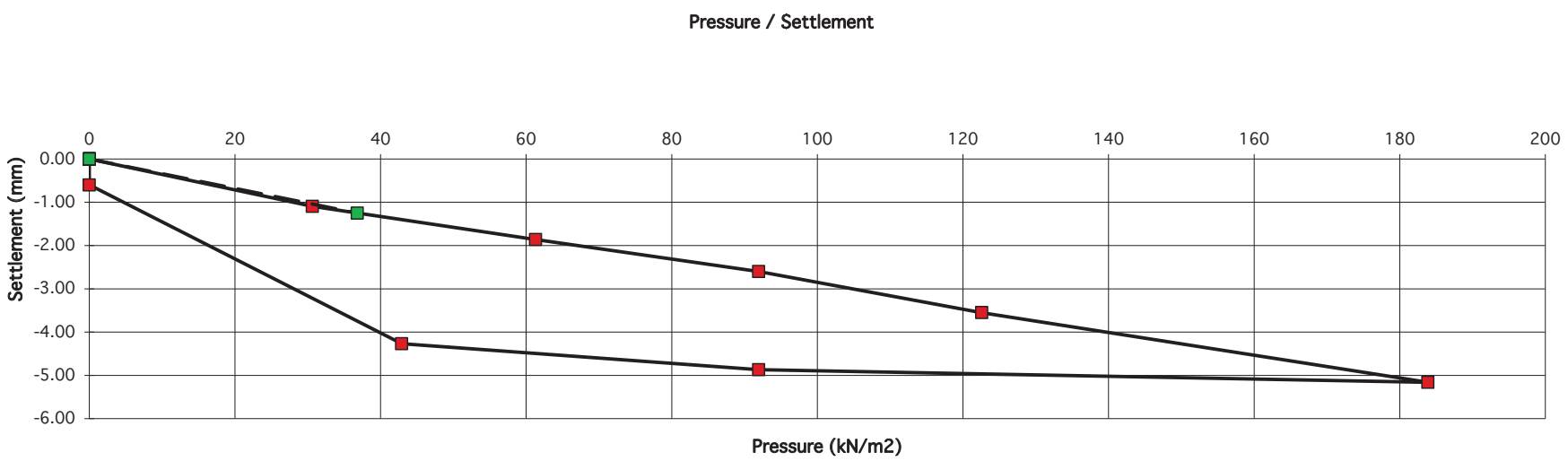
Reference No.	R150338
Contract	24961D-Newtownshandrum, Co. Cork
Test No.	PBT No.1 Reload
Location	E547460.957, N622135.668
Depth	110.285mOD (0.5mbgl)
Client	Cork Co.Co.
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	Alan Phelan
Authorised by	
Date	28/09/2023

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND-slightly sandy,slighlty gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 29
Modulus of subgrade reaction = 19 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 1.6 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

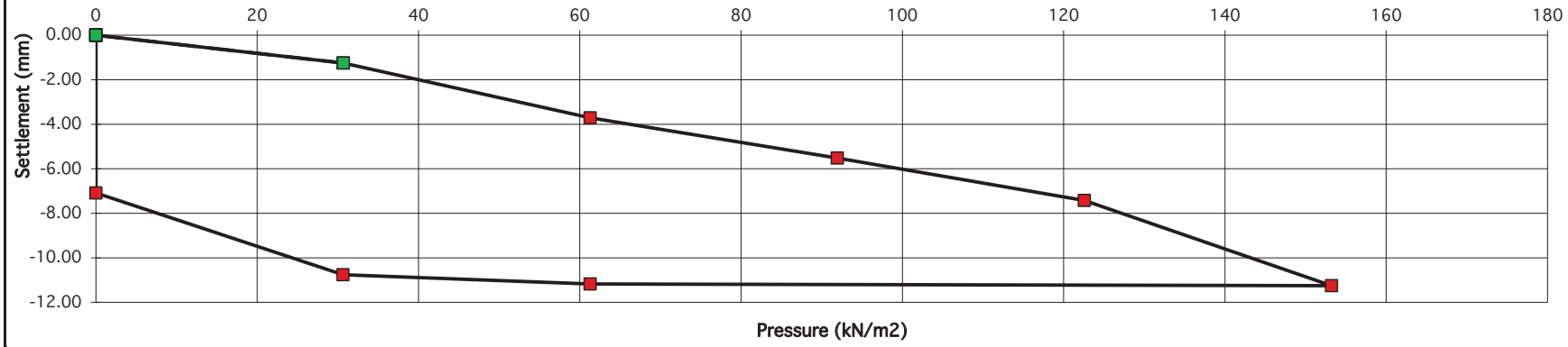
Reference No.	R150339
Contract	24961D-Newtownshandrum, Co. Cork
Test No.	PBT No.2 Load
Location	E547461.253, N622146.041
Depth	109.842mOD (0.7mbgl)
Client	Cork Co.Co.
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	Alan Phelan
Authorised by	
Date	29/09/2023

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND-slightly sandy,slighlty gravelly CLAY

Sample Ref No.

Depth m bgl



Gradient at 1.25 mm settlement intersection = 25
Modulus of subgrade reaction = 16 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 1.1 %

PLATE TEST REPORT SHEET (F3.1)

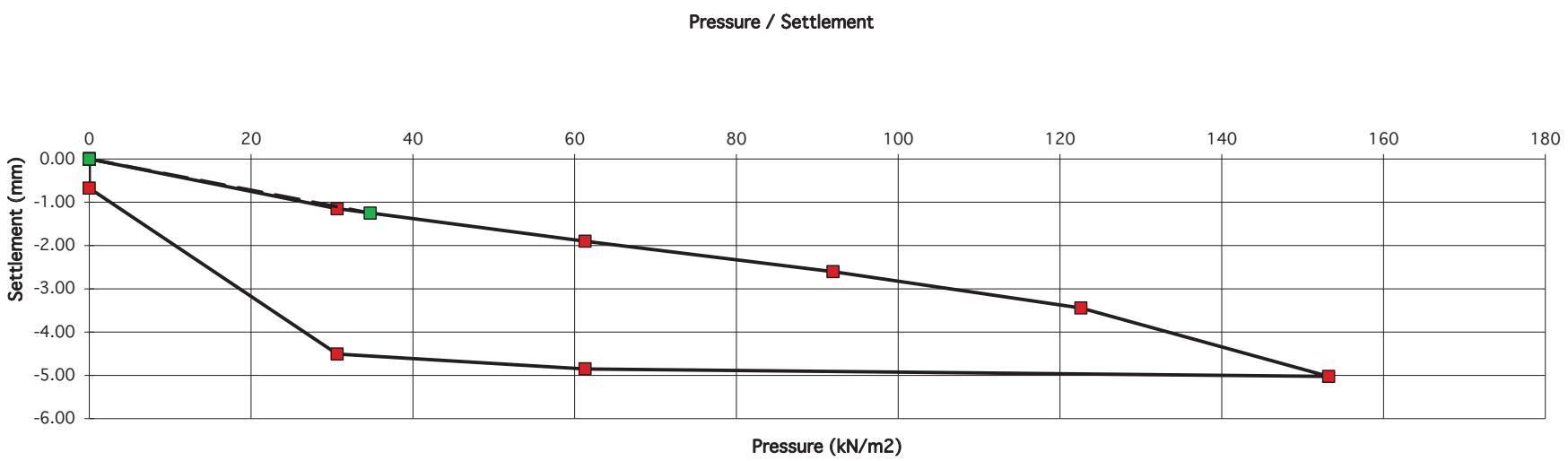
Applied Pressure/Settlement Curve

Reference No.	R150339
Contract	24961D-Newtownshandrum, Co. Cork
Test No.	PBT No.2 Reload
Location	E547461.253, N622146.041
Depth	109.842mOD (0.7mbgl)
Client	Cork Co.Co.
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	Alan Phelan
Authorised by	
Date	29/09/2023

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND- slightly sandy,slighlty gravelly CLAY

Sample Ref No. .....
Depth ..... m bgl



Gradient at 1.25 mm settlement intersection = 28
Modulus of subgrade reaction = 18 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 1.4 %

Appendix 4 Infiltration Test Results

Soakaway Design f -value from field tests (F2C) IGSL

Contract: Newtownshandrum, Co. Cork Contract No.24961D
Test No. SW01
Client JDF
Date: 29/09/2023

Summary of ground conditions

from	to	Description	Ground water
0.00	0.20	MADE GROUND: Soft to firm, brown slightly sandy, silty, slightly gravelly	Damp
0.20	0.60	MADE GROUND: Firm to stiff greyish brown sandy, gravelly cobbly CLAY.	
0.60	0.90	Possible original topsoil - dark brown sandy, silty, slightly gravelly clay	
0.90	1.50	Firm to stiff grey brown sandy gravelly cobbly CLAY.	

Notes: E547435.124, N622142.655, 111.137mOD

Field Data

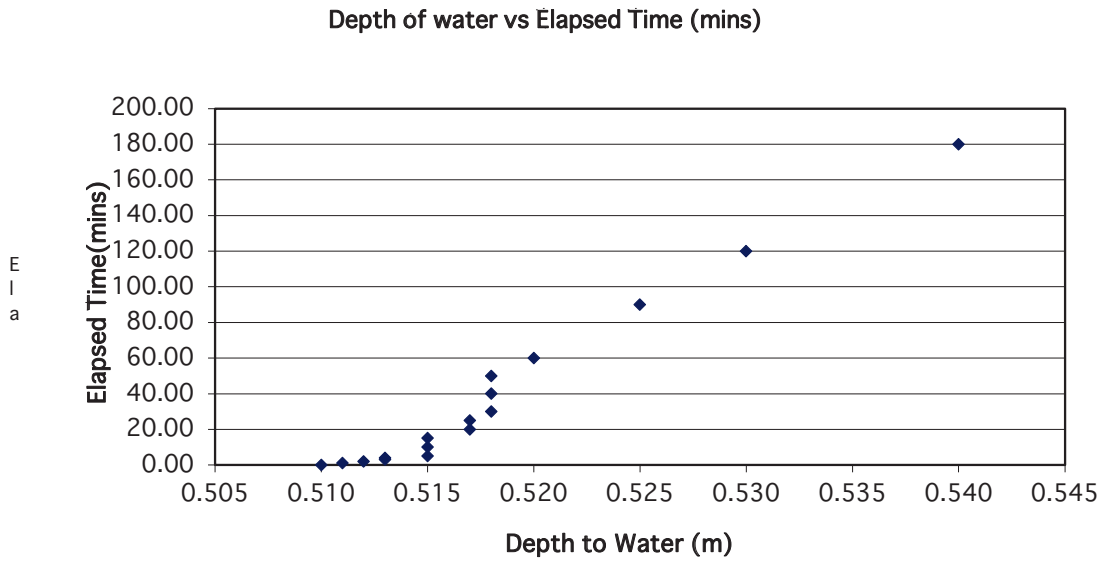
Depth to Water (m)	Elapsed Time (min)
0.510	0.00
0.511	1.00
0.512	2.00
0.513	3.00
0.513	4.00
0.515	5.00
0.515	10.00
0.515	15.00
0.517	20.00
0.517	25.00
0.518	30.00
0.518	40.00
0.518	50.00
0.520	60.00
0.525	90.00
0.530	120.00
0.540	180.00

Field Test

Depth of Pit (D)	1.50	m
Width of Pit (B)	0.50	m
Length of Pit (L)	2.00	m
Initial depth to Water =	0.51	m
Final depth to water =	0.54	m
Elapsed time (mins)=	180.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	1	m2
*Av. side area of permeable stratum over test perio	4.875	m2
Total Exposed area =	5.875	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 2.8E-05 m/min or 4.72813E-07 m/sec



Appendix 5 Foundation Inspection

FOUNDATION INSPECTION PIT RECORD

Report Number:24961D

Contract:	24961D-Newtownshandrum, Co. Cork
Location:	E547437.38 N622125.383 GL111.777m OD
Engineer	JDF
Client:	Cork Co. Council
Logged by:	A.Phelan
Date:	29/09/2023

TRIAL PIT NO. **FP.1**

PHOTOS

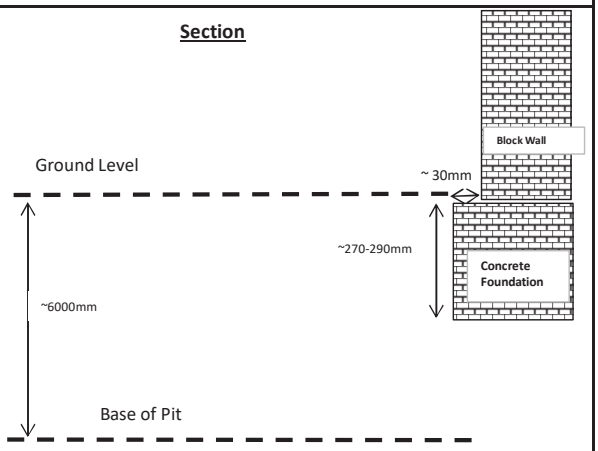
Summary of ground conditions

from	to	Description	Ground water
(GL)0.00	0.30	MADE GROUND: Firm dark brown s/sandy silty s/gravelly clay (topsoil) plastic & rubble fragments	Dry
0.30	0.60	MADE GROUND: Firm to stiff brown sandy gravelly cobbly CLAY with plastic & rubble fragments	

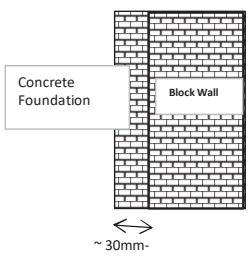
Foundation depth: ~270-290mm

Location:

Section



Plan



FOUNDATION INSPECTION PIT RECORD

Report Number:24961D

Contract:	24961D-Newtownshandrum, Co. Cork
Location:	E547452.738 N622126.092 GL111.566m OD
Engineer	JDF
Client:	Cork Co. Council
Logged by:	A.Phelan
Date:	29/09/2023

TRIAL PIT NO. **FP.2**

PHOTOS

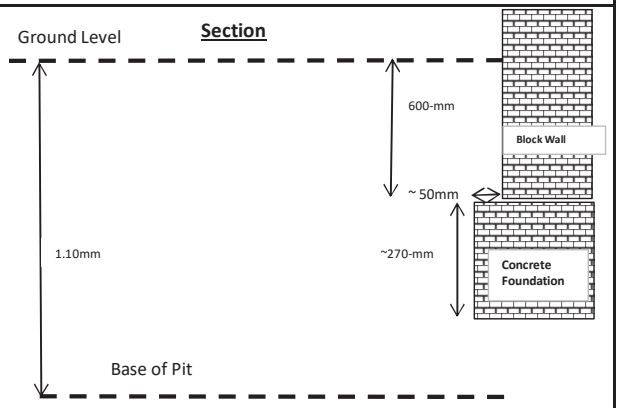
Summary of ground conditions

from	to	Description	Ground water
(GL)0.00	0.80	MADE GROUND: Firm dark brown s/sandy silty s/gravelly clay (topsoil) plastic & rubble fragments	Some seepage at base (1.1m).
0.80	1.10	MADE GROUND: Stiff brown sandy, clayey COBBLE fill. Cobble subangular to subrounded.	

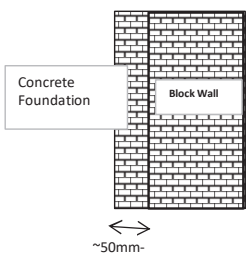
Foundation depth: ~270mm

Location:

Section



Plan



Appendix 6 Laboratory Test Results (Geotechnical)

IGSL Ltd
Materials Laboratory
Unit J5, M7 Business Park
Newhall, Naas
Co. Kildare
045 846176

Test Report

Determination of Moisture Content, Liquid & Plastic Limits

Tested in accordance with BS1377:Part 2:1990, clauses 3.2, 4.3, 4.4 & 5.3**

Report No. **R151859** Contract No. 24961-D Contract Name: Site D Newtownshandrum Cork Housing Project

Customer Cork Co. Co. DJFES Engineers

Samples Received: 02/11/23 Date Tested: 02/11/23

BH/TP*	Sample No.	Depth* (m)	Lab. Ref	Sample Type*	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425µm	Preparation	Liquid Limit Clause	Classification (BS5930)	Description
SW01	AA182119	1.3	A23/4545	B	14	29	15	14	74	WS	4.4	C L	Grey brown sandy gravelly CLAY
TP01	AA207782	1.6	A23/4546	B	11	27	NP	NP	61	WS	4.4		Grey brown sandy gravelly SILT
TP01	AA207783	2.6	A23/4547	B	12	24	11	13	66	WS	4.4	C L	Brown slightly sandy, slightly gravelly, CLAY
TP02	AA182122	1.2	A23/4548	B	22	39	21	18	66	WS	4.4	C I	Brown sandy gravelly CLAY
TP02	AA182124	2.5	A23/4549	B	11	28	14	14	72	WS	4.4	C L	Brown slightly sandy, slightly gravelly, CLAY

Preparation: WS - Wet sieved
AR - As received
NP - Non plastic

Liquid Limit Clause: 4.3 Cone Penetrometer definitive method
4.4 Cone Penetrometer one point method

Sample Type: B - Bulk Disturbed
U - Undisturbed

Remarks:
Results relate only to the specimen tested,in as received condition unless otherwise noted.
NOTE: **These clauses have been superceded by EN 17892-1 and EN17892-12.
Opinions and interpretations are outside the scope of accreditation. * denotes Customer supplied information.

IGSL Ltd Materials Laboratory

Persons authorized to approve reports
H Byrne (Laboratory Manager)

Approved by	Date	Page
H Byrne	28/11/23	1 of 1

TEST REPORT
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)

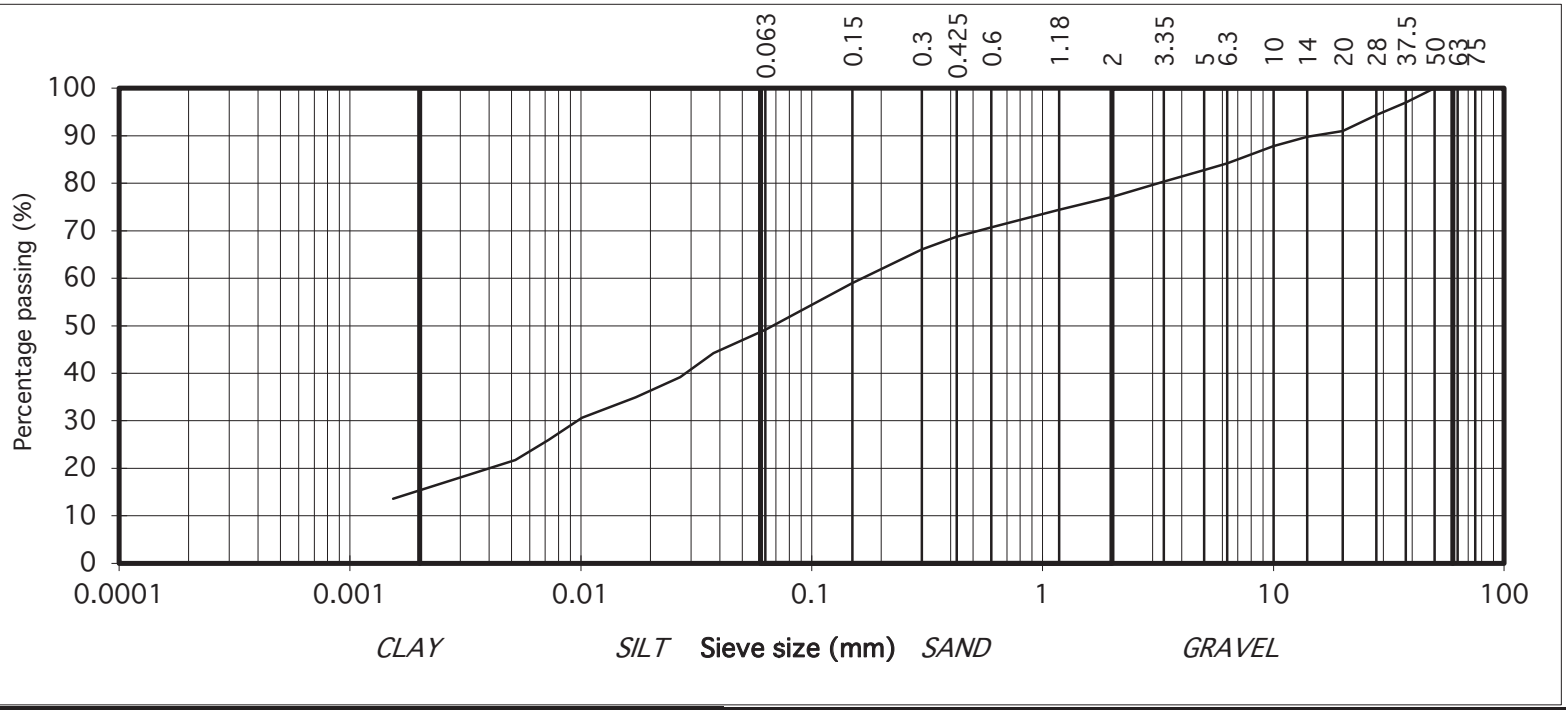
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	97	
28	94	
20	91	
14	90	
10	88	
6.3	84	
5	83	
3.35	80	
2	77	
1.18	74	SAND
0.6	71	
0.425	69	
0.3	66	
0.15	59	
0.063	49	SILT/CLAY
0.037	44	
0.027	39	
0.017	35	
0.010	31	
0.007	26	
0.005	22	
0.002	14	

Contract No. 24961-D Report No. R151855
Contract Name : Site D Newtownshandrum Cork Housing Project
BH/TP No. TP01
Sample No.* AA207783 Lab. Sample No. A23/4547
Sample Type: B
Depth* (m) 2.60 Customer: Cork Co.Co. DJFES Eng.
Date Received 02/11/2023 Date Testing started 02/11/2023
Description: Brown slightly sandy, slightly gravelly, CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.
This report shall not be reproduced except in full without the written approval of the Laboratory.



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
	28/11/23	1 of 1

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)

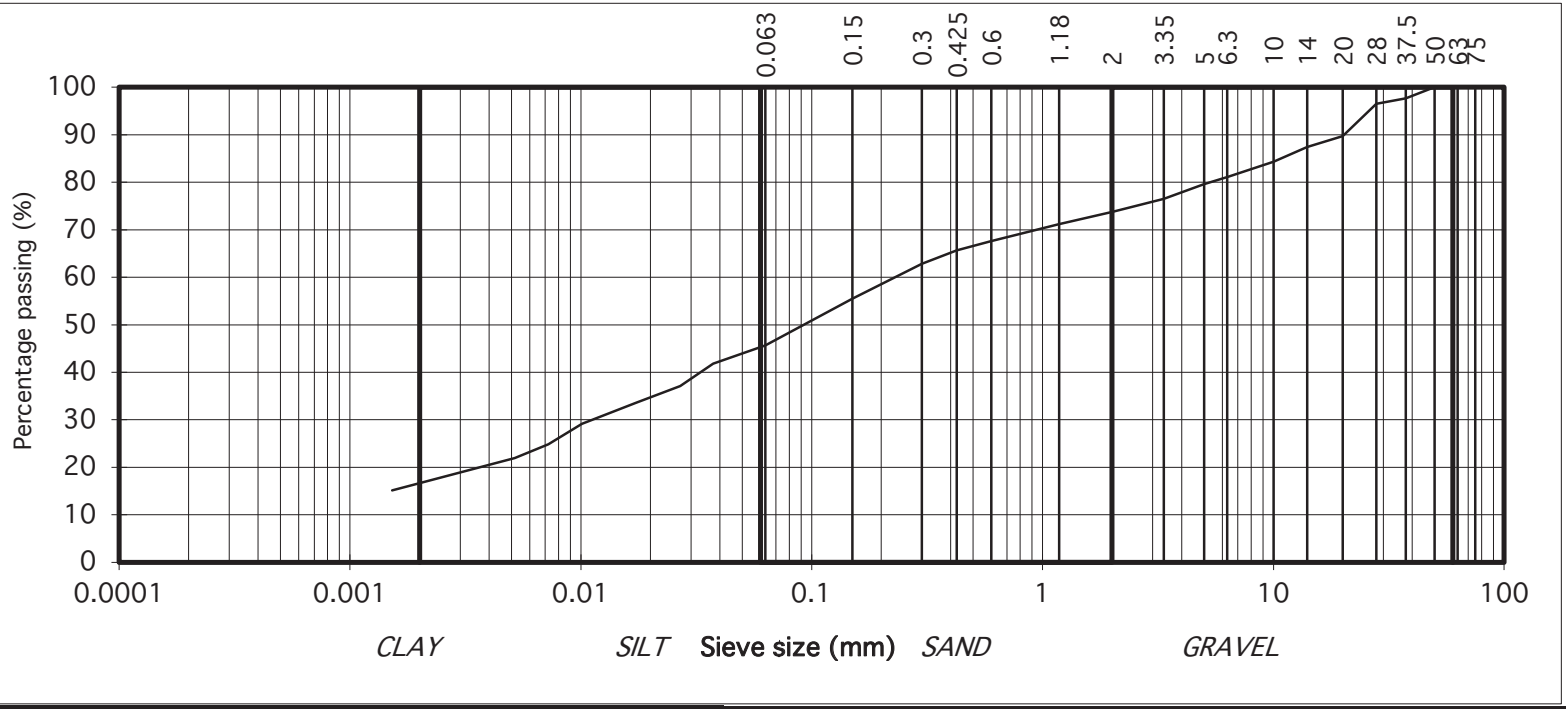
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	98	
28	97	
20	90	
14	87	
10	84	
6.3	81	
5	80	
3.35	76	
2	74	
1.18	71	SAND
0.6	68	
0.425	66	
0.3	63	
0.15	56	
0.063	46	SILT/CLAY
0.037	42	
0.027	37	
0.017	34	
0.010	29	
0.007	25	
0.005	22	
0.002	15	

Contract No. 24961-D Report No. R151854
Contract Name : Site D Newtownshandrum Cork Housing Project
BH/TP No. TP02
Sample No.* AA182124 Lab. Sample No. A23/4549
Sample Type: B
Depth* (m) 2.50 Customer: Cork Co.Co. DJFES Eng.
Date Received 02/11/2023 Date Testing started 02/11/2023
Description: Brown slightly sandy, slightly gravelly, CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2 Sample size did not meet the requirements of BS1377

Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.
This report shall not be reproduced except in full without the written approval of the Laboratory.



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
	28/11/23	1 of 1

Appendix 7 Laboratory Test Results (Environmental)

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	23-36885-1
Initial Date of Issue:	13-Nov-2023
Re-Issue Details:	
Client	IGSL
Client Address:	M7 Business Park Naas County Kildare Ireland
Contact(s):	Darren Keogh
Project	24961 - D Cork Housing Project

Quotation No.:		**Date Received:**	03-Nov-2023
Order No.:		**Date Instructed:**	03-Nov-2023
No. of Samples:	4		
Turnaround (Wkdays):	7	**Results Due:**	13-Nov-2023
Date Approved:	13-Nov-2023		

Approved By:

Details: Stuart Henderson, Technical Manager

Results - Leachate

Project: 24961 - D Cork Housing Project

Client: IGSL				**Chemtest Job No.:**		23-36885	23-36885
Quotation No.:				**Chemtest Sample ID.:**		1726700	1726701
Order No.:				Client Sample Ref.:		AA207781	AA182121
				Sample Location:		TP01	TP02
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.70	0.60
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
pH at 20C	U	1010	10:1		N/A	7.7	8.3
Ammonium	U	1220	10:1	mg/l	0.050	< 0.050	0.073
Ammonium	N	1220	10:1	mg/kg	0.10	0.45	0.81
Boron (Dissolved)	U	1455	10:1	mg/kg	0.01	0.16	< 0.01
Benzo[j]fluoranthene	N	1800	10:1	µg/l	0.010	< 0.010	< 0.010

Results - Soil

Project: 24961 - D Cork Housing Project

Client: IGSL				**Chemtest Job No.:**	23-36885	23-36885	23-36885	23-36885
Quotation No.:				**Chemtest Sample ID.:**	1726699	1726700	1726701	1726702
Order No.:				Client Sample Ref.:	AA207780	AA207781	AA182121	AA182122
				Sample Location:	TP01	TP01	TP02	TP02
				Sample Type:	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.70	0.70	0.60	1.20
				Asbestos Lab:		COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
ACM Type	U	2192		N/A		-	-	
Asbestos Identification	U	2192		N/A		No Asbestos Detected	No Asbestos Detected	
Moisture	N	2030	%	0.020	18	16	12	15
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones and Roots	Stones
Soil Texture	N	2040		N/A	Clay	Clay	Clay	Clay
pH (2.5:1) at 20C	N	2010		4.0	[A] 8.1			[A] 7.6
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40		[A] < 0.40	[A] < 0.40	
Magnesium (Water Soluble)	N	2120	g/l	0.010	[A] < 0.010			[A] < 0.010
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	[A] < 0.010			[A] 0.035
Total Sulphur	U	2175	%	0.010	[A] 0.043			[A] 0.035
Sulphur (Elemental)	M	2180	mg/kg	1.0		[A] 17	[A] 1.8	
Chloride (Water Soluble)	M	2220	g/l	0.010	[A] < 0.010			[A] < 0.010
Nitrate (Water Soluble)	N	2220	g/l	0.010	0.013			0.067
Cyanide (Total)	M	2300	mg/kg	0.50		[A] < 0.50	[A] < 0.50	
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		[A] 2.1	[A] 2.5	
Ammonium (Water Soluble)	M	2220	g/l	0.01	< 0.01			< 0.01
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.047	[A] 0.043	[A] 0.036	[A] 0.055
Arsenic	M	2455	mg/kg	0.5		12	7.2	
Barium	M	2455	mg/kg	0		65	51	
Cadmium	M	2455	mg/kg	0.10		0.58	0.37	
Chromium	M	2455	mg/kg	0.5		15	10	
Molybdenum	M	2455	mg/kg	0.5		< 0.5	< 0.5	
Antimony	N	2455	mg/kg	2.0		< 2.0	< 2.0	
Copper	M	2455	mg/kg	0.50		19	13	
Mercury	M	2455	mg/kg	0.05		0.20	0.07	
Nickel	M	2455	mg/kg	0.50		25	16	
Lead	M	2455	mg/kg	0.50		33	19	
Selenium	M	2455	mg/kg	0.25		1.2	0.79	
Zinc	M	2455	mg/kg	0.50		79	57	
Chromium (Trivalent)	N	2490	mg/kg	1.0		15	10	
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50	
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10		< 10	< 10	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C8-C10	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C10-C12	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	

Results - Soil

Project: 24961 - D Cork Housing Project

Client: IGSL			**Chemtest Job No.:**		23-36885	23-36885	23-36885	23-36885
Quotation No.:			**Chemtest Sample ID.:**		1726699	1726700	1726701	1726702
Order No.:			Client Sample Ref.:		AA207780	AA207781	AA182121	AA182122
			Sample Location:		TP01	TP01	TP02	TP02
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.70	0.70	0.60	1.20
			Asbestos Lab:			COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Aliphatic TPH >C12-C16	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C16-C21	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C21-C35	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0	[A] < 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C8-C10	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C10-C12	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C12-C16	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0	[A] < 5.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		[A] < 10	[A] < 10	
Benzene	M	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	
Toluene	M	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	
Ethylbenzene	M	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	
m & p-Xylene	M	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	
o-Xylene	M	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	
Naphthalene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Acenaphthylene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Acenaphthene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Fluorene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Phenanthrene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Anthracene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Fluoranthene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Pyrene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Benzo[a]anthracene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Chrysene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Benzo[b]fluoranthene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Benzo[k]fluoranthene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Benzo[a]pyrene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Coronene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	
Total Of 17 PAH's	N	2800	mg/kg	0.20		[A] < 0.20	[A] < 0.20	

Results - Soil

Project: 24961 - D Cork Housing Project

Client: IGSL			**Chemtest Job No.:**		23-36885	23-36885	23-36885	23-36885
Quotation No.:			**Chemtest Sample ID.:**		1726699	1726700	1726701	1726702
Order No.:			Client Sample Ref.:		AA207780	AA207781	AA182121	AA182122
			Sample Location:		TP01	TP01	TP02	TP02
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.70	0.70	0.60	1.20
			Asbestos Lab:			COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
PCB 28	N	2815	mg/kg	0.0010		[A] < 0.0010	[A] < 0.0010	
PCB 52	N	2815	mg/kg	0.0010		[A] < 0.0010	[A] < 0.0010	
PCB 90+101	N	2815	mg/kg	0.0010		[A] < 0.0010	[A] < 0.0010	
PCB 118	N	2815	mg/kg	0.0010		[A] < 0.0010	[A] < 0.0010	
PCB 153	N	2815	mg/kg	0.0010		[A] < 0.0010	[A] < 0.0010	
PCB 138	N	2815	mg/kg	0.0010		[A] < 0.0010	[A] < 0.0010	
PCB 180	N	2815	mg/kg	0.0010		[A] < 0.0010	[A] < 0.0010	
Total PCBs (7 congeners)	N	2815	mg/kg	0.0010		[A] < 0.0010	[A] < 0.0010	
Total Phenols	M	2920	mg/kg	0.10		< 0.10	< 0.10	

Results - Single Stage WAC

Project: 24961 - D Cork Housing Project

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-36885						
Chemtest Sample ID:	1726700						
Sample Ref:	AA207781						
Sample ID:							
Sample Location:	TP01						
Top Depth(m):	0.70						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 0.21	3	5	6
Loss On Ignition	2610	M	%	2.4	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] 93	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH at 20C	2010	M		7.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0060	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0074	0.074	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	0.0059	0.059	0.5	10	70
Copper	1455	U	0.0084	0.084	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0008	0.0082	0.5	10	30
Nickel	1455	U	0.0037	0.037	0.4	10	40
Lead	1455	U	0.0049	0.049	0.5	10	50
Antimony	1455	U	0.0007	0.0066	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	0.014	0.14	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.13	1.3	10	150	500
Sulphate	1220	U	9.1	91	1000	20000	50000
Total Dissolved Solids	1020	N	23	230	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	4.8	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	16

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 24961 - D Cork Housing Project

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-36885						
Chemtest Sample ID:	1726701						
Sample Ref:	AA182121						
Sample ID:							
Sample Location:	TP02						
Top Depth(m):	0.60						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	[A] 0.57	3	5	6
Loss On Ignition	2610	M	%	2.4	--	--	10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	M	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH at 20C	2010	M		7.9	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0070	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0071	0.071	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	0.0023	0.023	0.5	10	70
Copper	1455	U	0.0048	0.048	2	50	100
Mercury	1455	U	0.00008	0.00083	0.01	0.2	2
Molybdenum	1455	U	0.0009	0.0090	0.5	10	30
Nickel	1455	U	0.0065	0.065	0.4	10	40
Lead	1455	U	0.0038	0.038	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	0.0012	0.012	0.1	0.5	7
Zinc	1455	U	0.022	0.22	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.21	2.1	10	150	500
Sulphate	1220	U	1.5	15	1000	20000	50000
Total Dissolved Solids	1020	N	62	620	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	2.7	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	12

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1726699	AA207780		TP01		A	Amber Glass 250ml
1726699	AA207780		TP01		A	Plastic Tub 500g
1726700	AA207781		TP01		A	Amber Glass 250ml
1726700	AA207781		TP01		A	Plastic Tub 500g
1726701	AA182121		TP02		A	Amber Glass 250ml
1726701	AA182121		TP02		A	Plastic Tub 500g
1726702	AA182122		TP02		A	Amber Glass 250ml
1726702	AA182122		TP02		A	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH at 20°C	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH at 20°C	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurememrnt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.

Test Methods

SOP	Title	Parameters included	Method summary
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Appendix 8 Site plan

ExpertGPS

24961D Newtownshandrum

3 0 3 6 9 12 15 18 21 24 27 30 33 36 39 42 45 48 51 54 m

Scale: 1 : 300.

MN

2°27'

APPENDIX 5

IRISH WATER CONFIRMATION OF FEASIBILITY

CONFIRMATION OF FEASIBILITY

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

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

www.water.ie

Maurice Manning

Cork County Council
Architects Department
County Hall
Carrigrohane Road
Cork
Co. Cork
T12 R2NC

14 June 2023

Our Ref: CDS23002642 Pre-Connection Enquiry
14-15 Dean Macnamara Place, Newtownshandrum, Co. Cork

Dear Applicant/Agent,

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

Irish Water has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 2 unit(s) at 14-15 Dean Macnamara Place, Newtownshandrum, Co. Cork **(the Development)**.

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

- **Water Connection** - Feasible without infrastructure upgrade by Irish Water:

  It is noted on Irish Waters GIS system that there is an existing watermain located within the Development boundary. The layout of the development must ensure that this pipe is protected and adequate separation distances are provided between Irish Water infrastructure and any structures on site. If the proposed development requires the diversion of existing infrastructure, the customer will be required to enter into a diversion agreement and grant a deed of easement over the infrastructure to Irish Waters diversions department (diversions@water.ie). To facilitate your requirements and avoid delays the customer is advised to engage with Irish Water as early as possible.

- **Wastewater Connection** - Feasible without infrastructure upgrade by Irish Water

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water 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 Irish Water.

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/

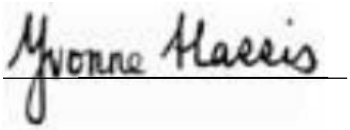
Where can you find more information?

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

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

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

Yours sincerely,



Yvonne Harris
Head of Customer Operations

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 Irish Water's network(s). • Before the Development can connect to Irish Water's network(s), you must submit a connection application and be granted and sign a connection agreement with Irish Water.
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?	• Irish Water connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Irish Water's network(s), including works in the public space, must be carried out by Irish Water*. *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 Irish Water's network(s)?	• Requests for maps showing Irish Water's network(s) can be submitted to: datarequests@water.ie

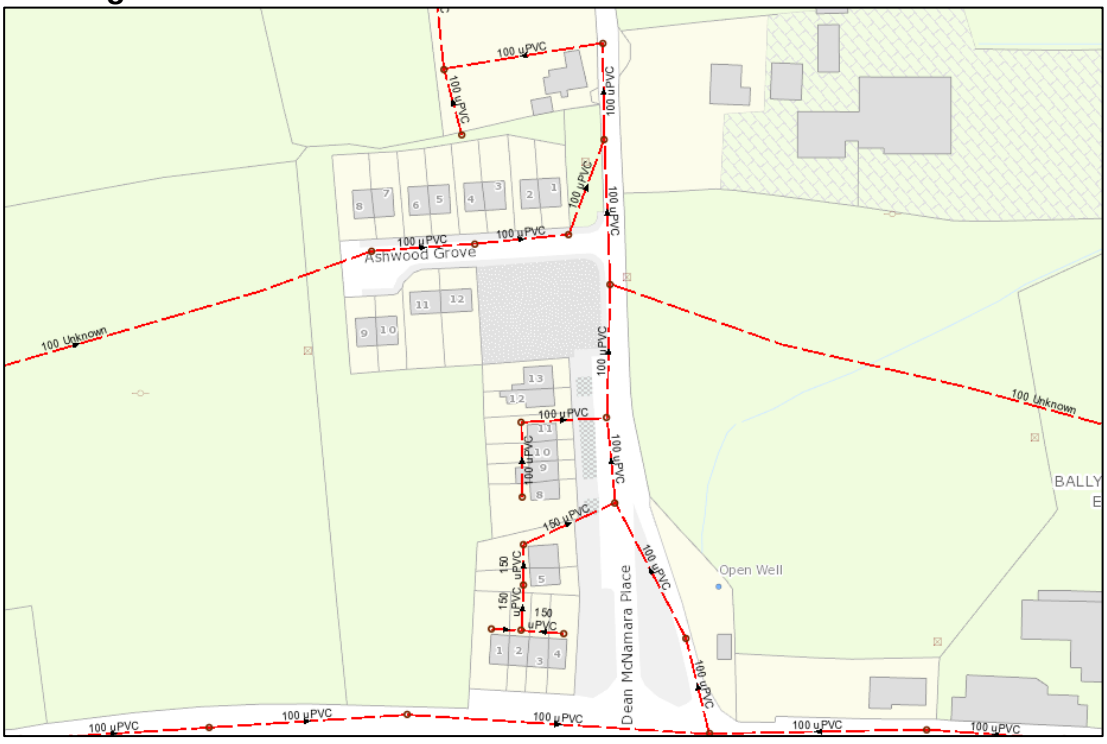
What are the design requirements for the connection(s)?	• The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with ***the Irish Water Connections and Developer Services Standard Details and Codes of Practice,*** available 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 Irish Water's Network(s)

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

Existing Water Infrastructure:

Existing Wastewater Infrastructure:



Note: The information provided on the included maps as to the position of Irish Water'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 Irish Water.

Whilst every care has been taken in respect of the information on Irish Water's network(s), Irish Water 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 Irish Water's underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Irish Water'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.

APPENDIX 6

FOUNDATION SKETCHES

A3

GENERAL NOTES:

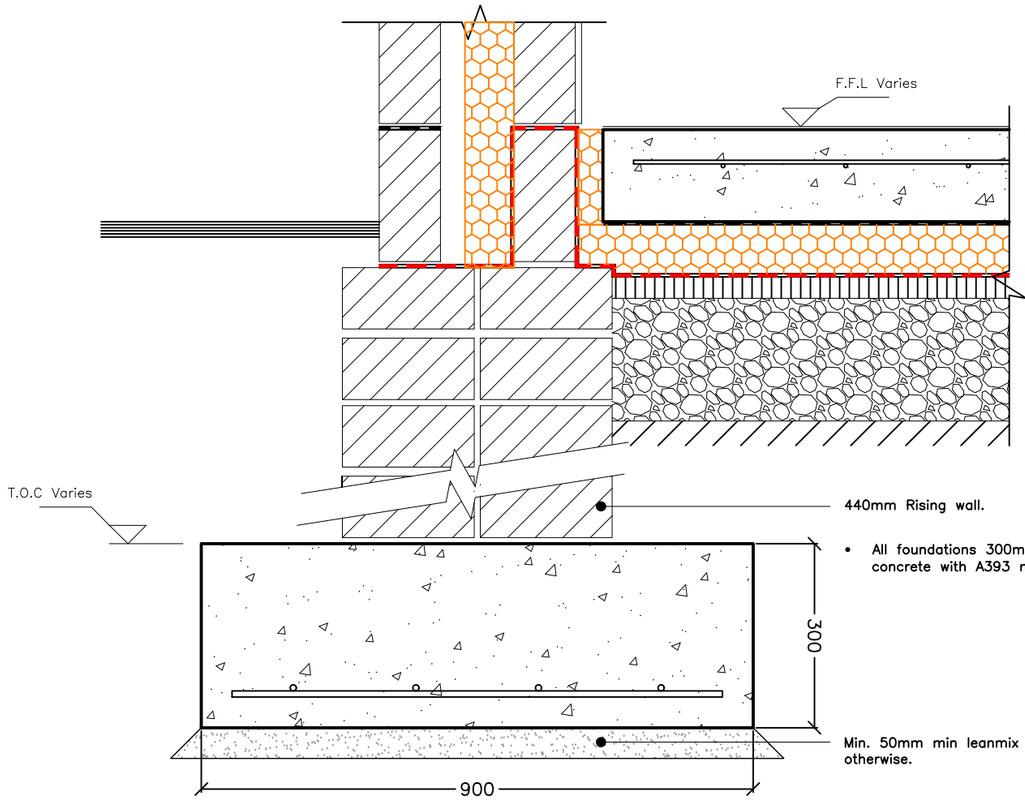
This drawing is not to be scaled:

Figured dimensions only to be used.

All dimensions to be site checked.

Drawings issued for information only.

Refer to Site Assessment Report for recommended levels.



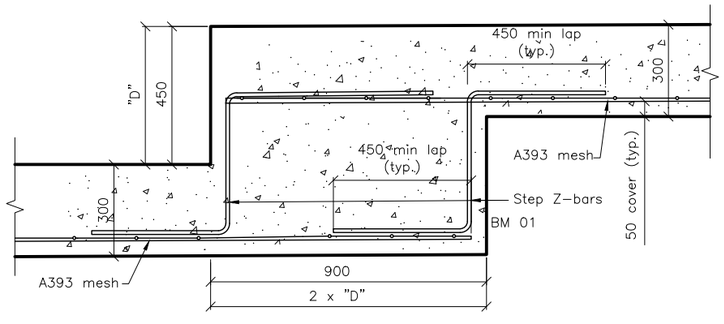
FLOOR SLAB CONSTRUCTION:

- 150mm deep power floated, C28/35 concrete slab on grade with A252 mesh top
- DPM/slip membrane
- Insulation to Architect's details
- Radon Barrier
- Fill under floor slab to comply in full with SR21:2016 Annex E
- 50mm T3 blinding (0/4mm)
- 200mm T2 radon gas permeable layer (4/40mm)
- Min 150mm T1 structural fill graded aggregate (0/32mm) or gravel (0/40mm) compacted in layers to firm bearing virgin ground
- T0 structural graded granular fill (0/125mm) only for use at depths greater than 900mm below radon barrier if required

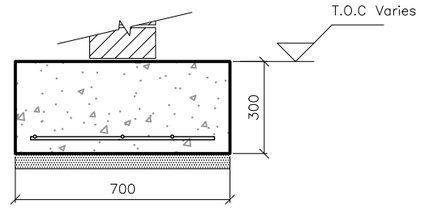
- All foundations 300mm dp. (unless noted otherwise) C30/37 concrete with A393 mesh btm (70 cover)

Min. 50mm min leanmix concrete (C12/15) blinding, unless noted otherwise.

Typical External Wall Foundation With Ground Bearing Slab
Scale 1:10



Stepped Foundation Detail
Scale 1:20



Typical Internal Wall Foundation Detail
Scale 1:20

REV	DETAILS	BY	CH'D	DATE
A	ISSUED FOR INFORMATION	FH	SH	04.01.24

DJF ENGINEERING SERVICES LTD.
Consulting Engineers • Project Managers
Tramore House, Reeveswood, Douglas Road, Cork. T12 R8XW
Tel: (021) 2302424 Email: info@djfes.com Web: www.djfes.com

Client: Cork County Council
Comhairle Contae Chorcaí

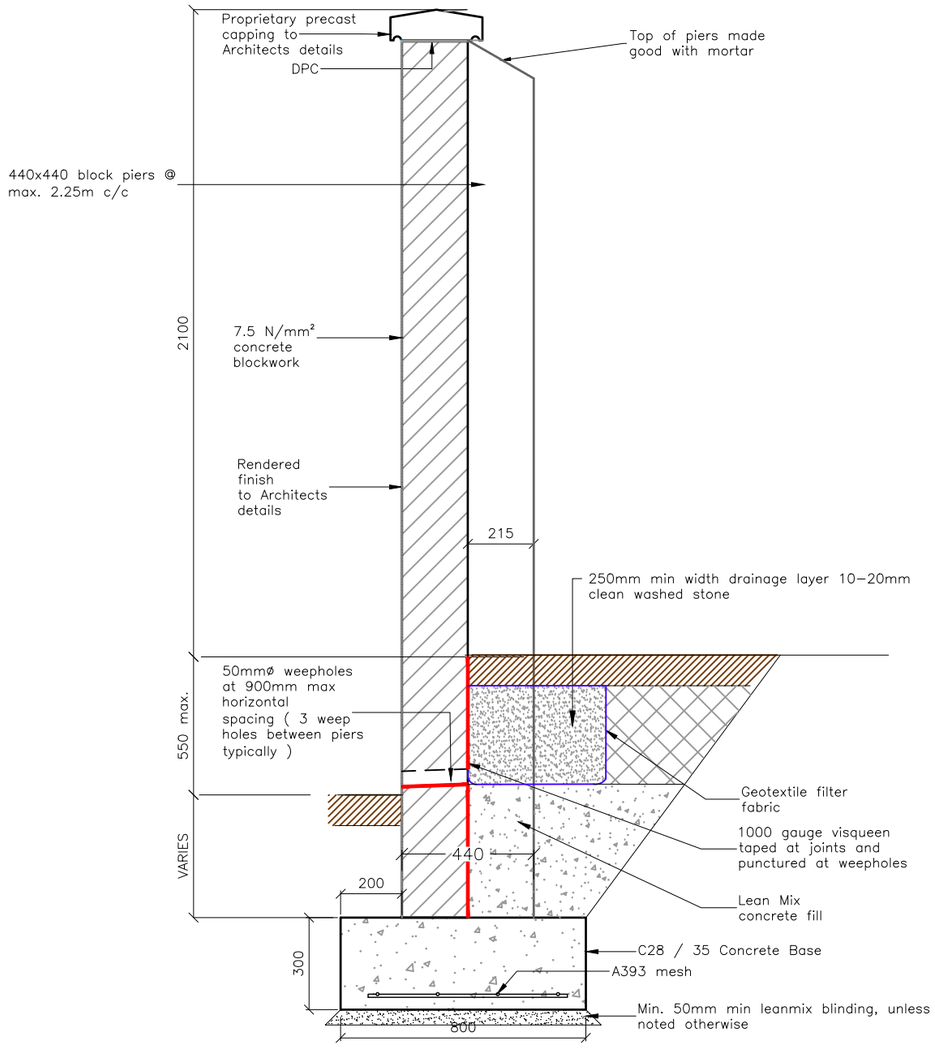
Status: INFORMATION

Project Title: Site Investigations

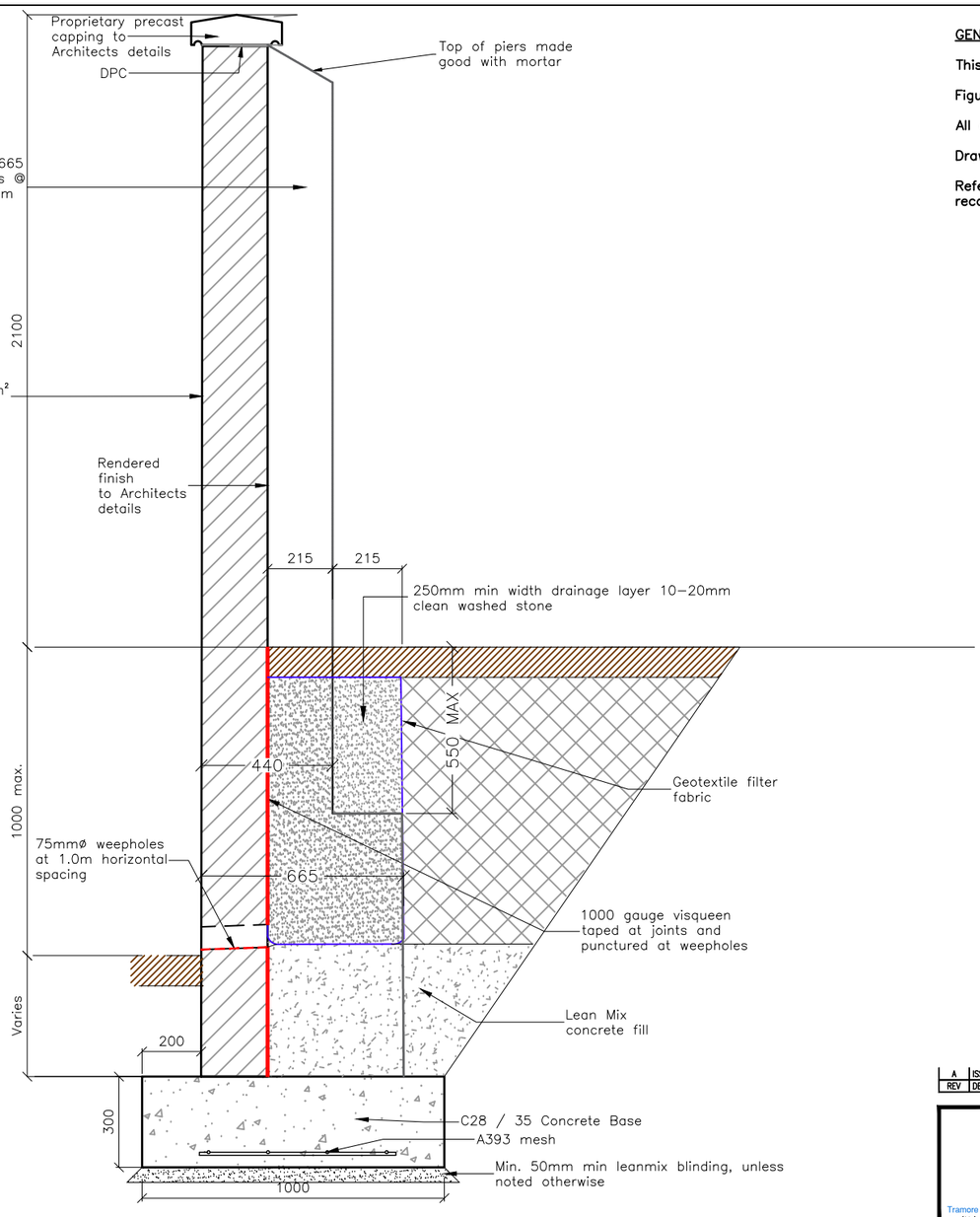
Drawing Title: Typical Foundation & Ground Bearing Slab Details

Scales	Drawing No.	Rev
1:10/20 -A3	5011-002	A

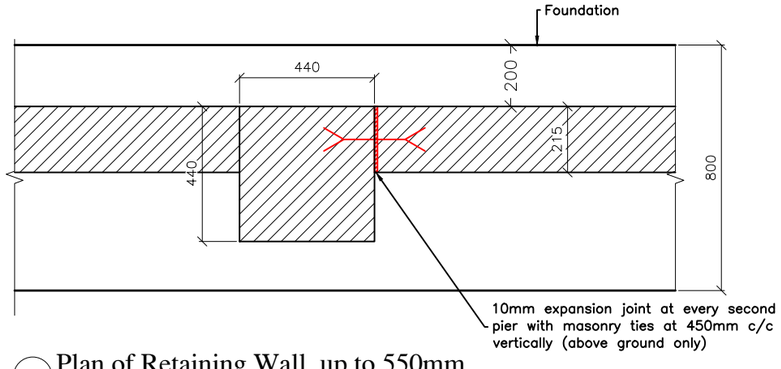
A3



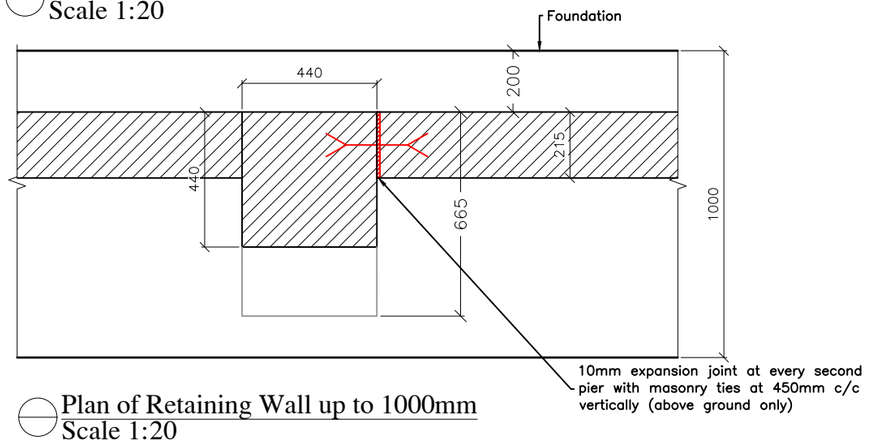
Retaining Wall up to 550mm
Scale 1:20



Retaining Wall up to 1000mm
Scale 1:20



Plan of Retaining Wall up to 550mm
Scale 1:20



Plan of Retaining Wall up to 1000mm
Scale 1:20

GENERAL NOTES:

This drawing is not to be scaled:

Figured dimensions only to be used.

All dimensions to be site checked.

Drawings issued for information only.

Refer to Site Assessment Report for recommended levels.

REV	DETAILS	BY	CH'D	DATE
A	ISSUED FOR INFORMATION	FH	SH	04.01.24

DJF ENGINEERING SERVICES LTD.
Consulting Engineers • Project Managers
Tramore House, Reeveswood, Douglas Road, Cork. T12 R8XW
Tel (021) 2392424 Email info@djfes.com Web www.djfes.com

Client: Cork County Council, Comhairle Contae Chorcaí

Status: INFORMATION

Project Title: Site Investigations

Drawing Title: Typical Site Retaining Wall Details

Scales		Drawing No.	Rev
1:20	-A3	5011-003	A

CORK COUNTY COUNCIL

PLANNING & DEVELOPMENT & FORESHORE (AMENDMENT) ACT 2022
PLANNING & DEVELOPMENT ACT 2000 (as amended)

Notice is hereby given, pursuant to the provisions of the Planning and Development and Foreshore (Amendment) Act 2022 and in accordance with the requirements of the Planning and Development (Section 179A) Regulations 2023 that Cork County Council propose to undertake the following development:

SCHEDULE

LOCATION	NATURE & EXTENT OF DEVELOPMENT	OFFICES AT WHICH PLANS AND PARTICULARS MAY BE INSPECTED
Lands at Dean McNamara Place, Newtownshandrum In the townland of: Newtown North, Co. Cork	• The construction of 2no. two storey – two bed residential units • New parking area • Hard landscaping, including footpaths • Soft landscaping including green areas and planting • Connection to public utilities. • All associated site works.	Housing Directorate, Floor 4, County Hall, Cork Cork County Council, Kanturk Mallow Municipal District Offices, Annabella, Mallow, Co. Cork

The plans and particulars may be inspected as follows:
1. By visiting the stated offices above.

2. Online at the following address:
https://www.corkcoco.ie/en/resident/planning-and-development/public-consultations

3. On receipt of a written request the Council will post or email a copy of the plans and particulars to a member of the public who wishes to receive a copy.

4. The request should be headed: 'Housing Scheme at Dean McNamara Place, Newtownshandrum", and addressed to the Housing Directorate, Cork County Council, Floor 4 Co. Hall, Cork or emailing part8housing@corkcoco.ie, stating whether you wish to have the plans etc. sent in hard copy form or by email.

As per Article 81A of the Planning and Development (Section 179A) Regulations 2023 an Environmental Impact Assessment (EIA) screening determination has been made and concludes that there is no real likelihood of significant effects on the environment arising from the proposed development once standard industry environmental management systems are in place. A determination has been made that an **EIA is not required.** A determination has been made that the proposed development **is not required to undergo an appropriate assessment (AA)** under the Habitats Directive.

As per Article 81A a person may question the validity of any decision of the planning authority by way of an application for judicial review, under Order 84 of the Rules of the Superior Courts (S.I. No. 15 of 1986), in accordance with sections 50 and 50A of the Act.

Plans and particulars of the proposed development will be available for inspection and/or purchase at the locations outlined above (see Point No. 1 above) on each day during which the said offices are open for the transaction of business (excluding Bank Holidays) for a period beginning on 16th February 2024 and ending on 17th April 2024.

Director of Services, Housing Directorate,
Cork County Council

It should be noted that the Freedom of Information Act applies to all records held by Cork County Council

SITE NOTICE

CORK COUNTY COUNCIL

PLANNING & DEVELOPMENT & FORESHORE (AMENDMENT) ACT 2022
PLANNING & DEVELOPMENT ACT 2000 (as amended)

Notice is hereby given, pursuant to the provisions of the Planning and Development and Foreshore (Amendment) Act 2022 and in accordance with the requirements of the Planning and Development (Section 179A) Regulations 2023 that Cork County Council propose to undertake the following development:

SCHEDULE

LOCATION	NATURE & EXTENT OF DEVELOPMENT	OFFICES AT WHICH PLANS AND PARTICULARS MAY BE INSPECTED
Lands at Dean McNamara Place, Newtownshandrum in the townlands of: Newtown North, Co. Cork	• The construction of 2no. two storey – two bed residential units • New parking area • Hard landscaping, including footpaths • Soft landscaping including green areas and planting • Connection to public utilities. • All associated site works.	Housing Directorate, Floor 4, County Hall, Cork Cork County Council, Kanturk Mallow Municipal District Offices, Annabella, Mallow, Co. Cork

The plans and particulars may be inspected as follows:

1. By visiting the stated offices above.

2. Online at the following address:
https://www.corkcoco.ie/en/resident/planning-and-development/public-consultations

3. On receipt of a written request the Council will post or email a copy of the plans and particulars to a member of the public who wishes to receive a copy.

4. The request should be headed: 'Housing Scheme at Dean McNamara Place, Newtownshandrum", and addressed to the Housing Directorate, Cork County Council, Floor 4 Co. Hall, Cork or emailing part8housing@corkcoco.ie, stating whether you wish to have the plans etc. sent in hard copy form or by email.

As per Article 81A of the Planning and Development (Section 179A) Regulations 2023 an Environmental Impact Assessment (EIA) screening determination has been made and concludes that there is no real likelihood of significant effects on the environment arising from the proposed development once standard industry environmental management systems are in place. A determination has been made that an **EIA is not required.** A determination has been made that the proposed development **is not required to undergo an appropriate assessment (AA)** under the Habitats Directive.

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