SLIGO COUNTY COUNCIL

PROVISION OF A 25 UNIT HOUSING DEVELOPMENT AT CARNEY CO. SLIGO

SCREENING FOR ENVIRONMENTAL IMPACT ASSESSMENT

JANUARY 2024

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DOCUMENT APPROVAL

PROJECT	Provision of a 25 Unit Housing Development at Carney, Co. Sligo	
CLIENT / JOB NO	Hamilton Young Architects	7068
DOCUMENT TITLE	Screening for Environmental Impact Assessment	

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PROVISION OF A 25 UNIT HOUSING DEVELOPMENT

AT CARNEY, CO. SLIGO

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1. INTRODUCTION

Jennings O'Donovan & Partners Limited have been commissioned by Sligo County Council Housing Section to carry out an Environmental Impact Assessment Screening under (Directive 2011/92/EU), as amended by Directive 2014/52/EU under Article 6(3) for the Provision of Works of a 25 Unit Housing Development at Carney, Co. Sligo. The works hereafter in this report will be identified as 'the Project'.

This report provides an Environmental Impact Assessment screening for a Part 179A housing development consisting of an area of land measuring 1.084 ha (Phase 1) located at Carney, Co. Sligo. The 179A measure was implemented to allow for accelerated delivery of social, affordable and cost-rental housing by local authorities by way of exemption from the local authority own development 'Part 8' process in the section 179 of the Planning and Development Act 2000, as amended (the Act) in strictly defined circumstances.

The amendments to the Act and the Planning and Development Regulations 2001, as amended (the regulations) are balanced with the need to provide for the accelerated delivery of social and affordable housing while also ensuring proper planning and sustainable development by means of the introduction of a temporary time-bound exemption from the 'Part 8' process for the approval of local authority own development housing projects on local authority or State owned lands. This planning amendment will assist local authorities to accelerate housing delivery and is being utilised for this screening process.

This Part 179A process is being pursued by Sligo County Council Housing Section.

The EIA Screening Report has been prepared to assess the potential impacts on the environment of the Proposed Development at the subject site. The full details of the scheme are as follows:

The proposal is for a residential development consisting of the construction of 25 no. new residential units. The development also includes a village green, and a public open space by the burnt mound.

The above approach delivers a mixture of 1, 2, 3, 4 and 5-bedroomed units, in accordance with the Urban Housing Policy P-UHOU-3. The public open space of 20.5% provided is also in accordance with this Urban Housing Policy.

It is proposed to direct the foul sewer of the development to the existing network south of the site onto L3402 Oxfield Road.
An attenuation tank is proposed under the village green, which would store runoff and release it slowly into the public network.

This report is prepared with input from Hamilton Young Architects and Jennings O' Donovan & Partners Ltd (JOD) so that the possible effect on the environment has been examined through the process of an EIAR Screening and the most appropriate form of development delivered at this site.

1.1 Purpose of this Statement

The purpose of this Environmental Impact Assessment Screening Statement is to determine whether or not an Environmental Impact Assessment Report is required for the Proposed Development and to identify any environmental issues that might arise. It is worth noting that this Proposed Development is below any threshold, and we do not consider a Schedule 7A screening process will be required.

This report is supported and informed by accompanying documentation including an Appropriate Assessment Screening Report prepared by JOD.

1.2 Statement of Authority

This Screening for this EIA Report has been prepared by a qualified and accredited expert as follows:

Dr. Monica Sullivan MCIEEM is Principal Environmental Scientist and lead ecologist with JOD. She has a Ph.D. in Environmental Sciences from Trinity College Dublin and has over 35 years' experience in the natural sciences. She is a chartered environmental scientist and has lectured since the mid 1990's – 2017 in invertebrate zoology, ecology and environmental pollution control to both masters and degree students. She has a clear understanding of the legislative framework governing the extent of environmental investigations, assessments and reports required to secure the necessary approvals on all types of projects. Dr. Sullivan has extensive experience in preparing EIA Screening and Scoping reports and works as part of a multi-disciplinary professional team, providing input to Environmental Impact Assessment Reports.

2. THE PROPOSED DEVELOPMENT AND ENVIRONMENTAL SENSITIVITIES

2.1 The Proposed Development

All drawings for the proposed works are outlined in Appendix I with associated construction works outlined in the Method Statement in Appendix III. The proposed residential development will consist of eight building types. Three are single storey type; two will have one bedroom, and one will have two bedrooms. The other five building types are two storey buildings with up to five bedrooms. The proposed road layout is outlined in Drawing 6972-JOD-XX-ZZ-DR-C-200-008 with road construction Details and Sections given in Drawing 6972-JOD-XX-ZZ-DR-C-200-009. Excavation details are outlined in Drawing 6972-JOD-XX-ZZ-DR-C-200-012.

A public open space is proposed in the form of a village green area (Drawing No 273SO3-ST2-100 : Site Plan) at the southwest of the site. The proposed site area for Phase 1 is 1.084 ha.

It is proposed to direct the foul water to the public network using gravity systems (Foul Water Sewer Drawing 6972-JOD-XX-ZZ-DR-C-200-003, Appendix I). The connection is made on the south side, on Oxfield Road.

Groundwater will be pumped out of excavations (as required) to permit the construction of foundations and rising walls. The quantity of water which will be pumped out will be limited and is not expected to noticeably lower the groundwater table. Standard procedure includes keeping the pumps active until the concrete has cured. Site control measures will be in place to ensure hydrocarbons and chemicals are kept away from groundwater. Spill kits will be onsite at all times, alongside personnel trained in their use.

The storm drainage for the entire development has been designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS) and incorporates normal sustainable drainage systems (SuDS) measures before out falling to the existing Uisce Éireann storm water network (Drawing:6972-JOD-XX-ZZ-DR-C-200-001). The storm drainage network will be watertight to prevent leaks which could contaminate the groundwater in the area and is designed to cater for surface water from hard surfaces in the proposed development including roadways, footpaths and the proposed buildings (Storm Sewer Drawing 6972-JOD-XX-ZZ-DR-C-200-002). The proposed attenuation tank will be lined to prevent groundwater contamination occurring. The existing drain on the site will be culverted over its' entire length to facilitate the construction of the proposed footpath and active travel works. An attenuation tank is proposed under the village green, which would store runoff and release it slowly into the public network. There is an existing step-down well (Drawing no. 6972-JOD-XX-ZZ-DR-C-200-012) on the site (north side of Oxfield Road) which will be upgraded and incorporated into the development as a feature. The proposed watermain layout is outlined in Drawing 6972-JOD-XX-ZZ-DR-C-200-007).

Figure 2.1: Site Plan for the new housing development at Carney, Co. Sligo

2.2 Location

The Proposed Development (1.084 ha) is located in the village of Carney on the Maugherow peninsula, in County Sligo (centred on G 65756 43568). The housing development is located at the intersection of L3402 Oxfield Road and L3304. (**Figure 2.2**).

To the south of the Proposed Development is Lissadell Park Housing estate, located on Oxfield Road. Due west are the Cloch Óir and Slieve Mor housing estates. To the east and north are agricultural fields, mainly pastures.

The site slopes from c.10.27m at its southeastern end to between c.15.37 and 16.59 at its northwestern end Appendix I.

The proposed site has a street frontage of approximately 200m on Slieve Mor/Carney Road (L3304), and approx. 100m on L3402 Oxfield Road. The access junction to the new Proposed Development will be on the west boundary onto L3304.

Figure 2.2 Approximate location of the Proposed Development

The Project is approximately a ten-minute drive from Sligo town. Carney village (population 395, according to 2016 census) comprises of a couple housing estates, a football club, a GAA club, a pub/restaurant and a local shop. There is a village walk of 1.8km located east, north and south of the Project, with much of the terrain featured through Floods broad-leaved wood. Surrounding lands are mainly given to agriculture.

Carney is located at approximately 8km northeast of Sligo town, and approximately 6km south of Grange. The village is served by Bus Éireann route 474 (Maugherow – Sligo) which leaves for Sligo town in the mornings and returns in the afternoon/evening.

The local landscape, beyond the residential estates neighbouring the site, is largely agricultural (**Figure 2.3**). Land ownership is generally delineated by walls /fencing in the urban area with treelines and hedgerows and stone walls in the wider more agricultural areas.

The site is located relatively near the coast (approximately 650m southwest), as well as the Ballygilgan nature reserve (30 hectares) located 1.3km west of the Project; this reserve was created for the protection of Barnacle geese which have wintered here for centuries. The reserve is known locally as' 'the Goosefield' or 'Seafield'; it is an area of improved pasture beside Lissadell, approximately 10 kilometres northwest of Sligo town. The Reserve is west of the village of Carney on the shore of Drumcliff Bay, Special Area of Conservation, between local Road L3303 and Lissadell Strand.

Carney is located approximately 4km southwest of Benbulben and enjoys a scenic view on the Dartry mountain range.

The Project covers an area of around 1.084 hectares.

Figure 2.3: Local landscape in the environs of the Proposed Development.

2.3 Land, Soils and Flooding

The Proposed Development is located in a rural landscape. The main bedrock is Ballyshannon Limestone Formation with pale grey calcarenite limestone. Irish Drilling Limited conducted excavations on site to carry out trial pit tests, borehole tests and dynamic probe tests and noted that the sequence of strata encountered generally consisted of soft organic peaty silt/clay overlying glacial tills. In general, the Glacial tills consisted of slightly gravelly sandy silt/clay with cobbles and boulders and/or silty sands and/or gravels with cobbles and boulders.

There is no risk from groundwater flooding according to the Office of Public Works (OPW) website, myplan.ie website or the CFRAM study accessed (July 2023). OPW groundwater flood mapping confirmed that the site is not at risk from groundwater flooding (**Figure 2.4**). In addition, there is no risk of tidal or pluvial flooding.

Irish Drilling Limited carried out site investigations in April 2023 and noted that the ground conditions were as expected for the area (underlain by carboniferous limestone formation) with soft organic peaty silt/ clay overlying glacial till. The soils onsite predominant consist of glacial tills with slightly gravelly sandy silt/clay with cobbles and boulders and/or silty sands and/or gravels with cobbles and boulders. A ground investigation was conducted in April and May of 2023, including dynamic probes, boreholes and trial pits (**Appendix II**). Out of the six trial pits tested, two of them (TP-01 and TP-02) were dry, TP-03 reported a moderated ingress of water at 0.6m below ground level and TP-04reported ingress of water between 2.6m to 3.1m below ground level. Based on these onsite tests, it is anticipated that the groundwater table will be above the excavated level for some of the foundations and services. Depending on the volume of water in the excavation when pumping is needed the water will either be pumped into a geotextile lined hole where the water can infiltrate back into the ground leaving suspended material behind or pumped through the proposed petrol interceptor to flow via gravity through proposed storm water pipeline to proposed culvert.

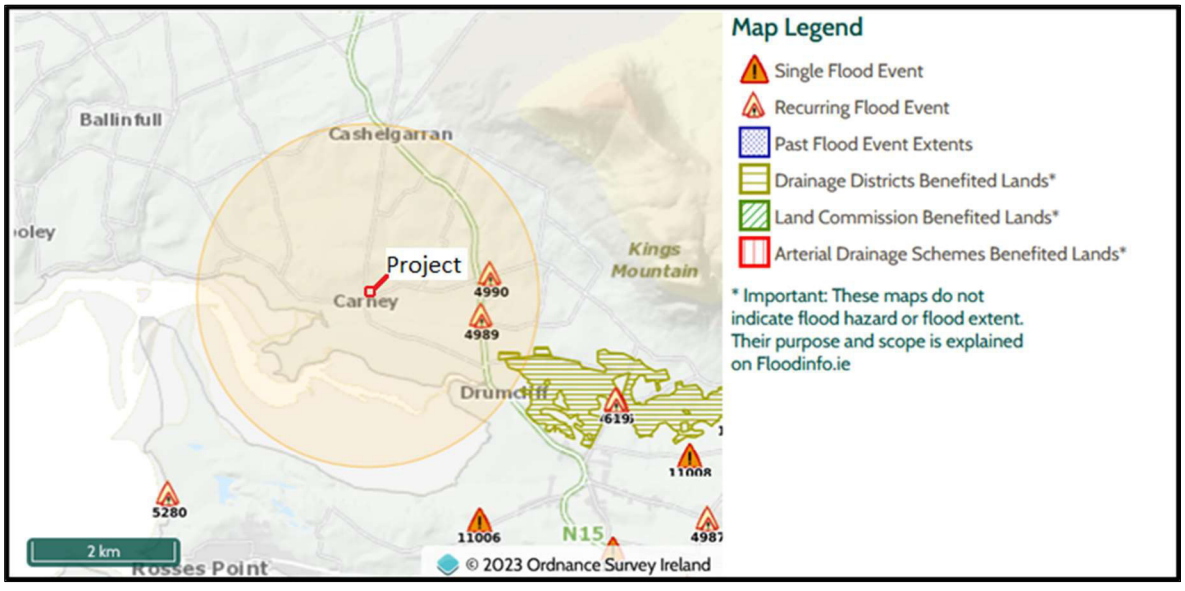

Figure 2.4: Flood Map for the Proposed Site (Source: FloodInfo.ie, 2023)

The scheme consists of 25 units in total comprising of 10 No. units of 1-bed houses, 5 No. units of 2-bed houses, 8 No. units of 3-bed houses, 1 No. unit of a 4-bed house, and 1 No. unit of a 5-bed house. Three of these houses are universally designed (a 1-bed house, a 2-bed house, and a 3-bed house).

The proposed use of natural resource of land will be significantly different to the existing land use situation. A small housing development with associated backyards and infrastructure will be developed. The main habitat of this land has been assessed as 'Recolonising bare ground' and is of low ecological significance. Landscaping and 25 no. individual gardens are likely to lead to planted flowerbeds, lawns shrubbery and trees that could enhance biodiversity in this area.

The construction or operation of the Proposed Development (with no basements proposed) would not use such a quantity of soils or water to result in significant adverse effects on the local urban environment.

Ground conditions encountered during the completion of the fieldwork generally consisted of soft organic peaty silt/clay overlying glacial tills. The Glacial tills in general consisted of slightly gravelly sandy silt/clay with cobbles and boulders and/or silty sands and/or gravels with cobbles and boulders.

Groundwater, Stormwater and Foul Drainage

The site is in an area of a regionally important aquifer that is noted as being extremely vulnerable, and the groundwater approximately 100m to the left, in the housing estate of Cloch Oir is classified as 'X – Rock at or Near Surface'. The associated ground waterbody (GWB) is the Grange East which covers an area of approx. 39.8km². The Water Framework Directive (WFD) latest status for the Grange East GWB (2016-2021) is 'Good', indicating no change from the previous 2013-2018 and 2010-2015 records held. Status for near surface and sub surface nitrate susceptibility (IE_WE_35G) at the Site ranges from 3-5, and the status for near surface phosphate susceptibility (IE_WE_35G010200) at the Site is also ranges from 3-5. There are no drinking water rivers or lakes in the local area and the Site is also not within a GSI public or group water scheme source protection area.

The nature of the Proposed Development will generate a demand for water, but this is for residential use and is not considered significant. Adherence to best practice Construction and Environmental Management during the construction phase will ensure that the Proposed Development would not result in pollution of groundwater or any surface water.

Management of surface water for the Proposed Development has been designed to comply with the policies and guidelines outlined in the *Greater Dublin Strategic Drainage Study (GDSDS)* and with the requirements of the Sligo City Council.

In advance of other works taking place on the site the existing partially culverted watercourse will be fully culverted over the extent of the site to ensure pollution from the construction works on the development cannot enter the watercourse.

Storm drainage for the entire development will be designed in accordance with the *Recommendations for Site Development Works for Housing Areas* and also the recommendations of the GDSDS. The details of the pipe designs are outlined in Drawing 6972-JOD-XX-ZZ-DR-C-200-002 and 6972-JOD-XX-ZZ-DR-C-200-003,. The storm water drainage design has been designed to cater for surface water from hard surfaces in the Proposed Development including roadways (a section of the adjacent Slieve Mor road to the West of the site), footpaths, and the proposed buildings.

An attenuation tank is included in the design with a capacity of 263m^3 and the network discharges to an existing public storm network at the south of the site, on L3402 Oxfield Road.

It is also noted that all wastewater will flow by gravity to an existing public sewer will discharge into the public network at the south of the site, on L3402 Oxfield Road. All sewer works will be designed and constructed in accordance with the following:

- Irish Water Code of practice for wastewater infrastructure, connections and developer services, design and construction requirements for self-lay developments July 2020 (revision 2), IW-CDS-5030-03
- Irish Water Wastewater infrastructure standard details, connections and developer services, construction requirements for self-lay developments; July 2020 (revision 04), IW-CDS-5030-01

In line with Codes of Practices as outlined above, it is considered that the Proposed Development provides treatment of collected run-off, provides a SUDS treatment train approach and is low risk of pollutants. The SuDS principles that influence the planning and design process, enabling SuDS to mimic natural drainage are:

- Storing runoff and releasing it slowly (attenuation)
- Harvesting and using the rain close to where is falls
- Allowing water to soak into the ground (infiltration)
- Slowly transporting (conveying) water on the surface
- Filtering out pollutants
- Allowing sediments to settle out by controlling the flow of the water

The proposed drainage scheme takes into account a number of the above listed principles through the following measures:

- The proposed attenuation tank stores runoff and releases it slowly into the public network
- Providing public open space green areas allowing rainfall to naturally percolate into the ground
- Strategic placing of gullies to keep road surface gradients as gentle as possible to cater for the slow transporting of water on the surface
- Proposing a class 1 petrol/oil interceptor to remove pollutants from the system

Further detailed information is provided in the Strom & Foul Sewer Layout Drawing 6972-JOD-XX-ZZ-DR-C-200-001, Appendix I.

2.4 Biodiversity

A site visit carried out on July 24th, 2023 noted five main habitats (according to Fossit, 2000) in the survey area, namely: WL1: Hedgerow, WL2: Treeline, BL1: Stone walls, ED2: Recolonising bare ground and FW4: Drainage ditch. No rare, threatened, or protected species of plants as per the Red Data Book (Curtis and McGough, 1988) were found. No species listed in the Flora Protection Order (2022) were found to be growing within or adjacent to the Project works.

A 1.9 ha polygon was drawn around the Project, no protected species have been recorded within this area. The Project is entirely contained in the one-kilometre Grid square 'G6543'. Two protected species has been recorded in this square namely, the common frog *(Rana temporaria)*, with the last recording in 1962 and also and the West European Hedgehog *(Erinaceus Europaeus)* recorded more recently in 2020. Frogs could be associated with the watercourses along the site boundary, whilst the hedgehog may be associated with the Project marginal hedgerows/ treelines. A preconstruction frog and mammal (badger and hedgehog inclusive) survey will be carried out at the site.
Boundary enhancement shall occur along the eastern treeline/hedgerow habitat where gaps exist (Landscape layout, Appendix I). These gaps shall be supplemented with species that include alder (*Alnus glutinosa*), aspen (*Populus tremula*) and black popular (*Populus nigra*). Where choosing the latter species, more than one shall be planted for cross pollination. Thickening of the eastern boundary hedgerow/ treeline and the planting of the other areas will contribute to the green infrastructure on site and promote foraging corridors for bats and other mammals, to potentially link the urban and rural habitats and possibly also mitigate future events.

All new trees shall be strictly sourced from native Irish stock nurseries only (not imported from abroad). Tree species will include a mixture of whitebeam (*Sorbus hibernica*), rowan (*Sorbus aucuparia*), hawthorn (*Crataegus monogyna*), silver birch (*Populus pubescens*) and Scots pine (*Pinus sylvestris*).

2.5 Air and Climate

The EPA designate the area as Air Zone D: Rural Ireland for Air and Climatic factors.

Co. Sligo has one air quality monitoring station located in Sligo town (54.2730°N, -8.4804°E). Particulate matter and nitrogen oxide is measured at Sligo town. The monitoring station is located at Michael Conlon Road in the grounds of the Old Mill.

In relation to the Proposed Development, the monitoring station is located approx. 7.9km southeast.

The EPA Air Quality site was accessed on August 04th, 2023 and the following ratings noted:

1. Sligo town is currently offline, the last recording had an Air Quality Index for Health (AQIH) is unknown (station currently offline and has been for the last 21 months) with latest PM_{25} average of 107.91 µg/m³, PM_{10} of 113.83 µg/m³ and NO^2 of 8.24 µg/m³.

Since all of the indices are high, this indicates 'Moderate' air quality. This AQIH relates to large towns, which are generally higher than rural areas.

There is no significant impact on air pollution expected from the Proposed Development outside of potential temporary dust impact. Air and Climate are not likely to be significantly affected by the Proposed Development.

3. CURRENT AND DRAFT SLIGO COUNTY DEVELOPMENT PLANS

The Sligo County Development Plan 2017-2023 has been consulted alongside Draft Sligo County Development Plan 2023-2029.

Sligo City is identified as a City, Tier 1 in the Municipal District of Sligo which has a social housing waiting list of 770.

The Plan 2017-2023 outlines Housing Strategy Policies and Objectives that include:

Strategic housing policies

It is the policy of Sligo County Council to:

SP-HOU-1 Encourage a balanced supply of private housing in the county, in a manner that is consistent with the Core Strategy and the Settlement Structure, and which will support the creation of sustainable communities through the provision of an appropriate range of housing types and high-quality residential environments.

SP-HOU-2 Reserve 20% of eligible sites which are subject to new residential development (or a mix of uses including residential) for the development of social and affordable units, in accordance with the Housing Strategy and the requirements of Part V of the Planning and Development Act 2000.

SP-HOU-3 Ensure that the needs of older people, people with disabilities and other special-needs persons and households are adequately catered for in new developments.

Strategic housing objectives

It is an objective of Sligo County Council to:

SO-HOU-1 Implement the relevant provisions of the Sligo City and County Joint Housing Strategy 2010-2017.

SO-HOU-2 Continue to monitor the extent of residential development in the county area to ensure that sufficient land is zoned to accommodate housing demand over the Plan period.

SO-HOU-3 Ensure that 20% of all sites eligible for Part V is reserved for the development of new social and affordable residential units.

SO-HOU-4 Continue with the programme of refurbishment and regeneration of existing local authority housing stock.

SO-HOU-5 Establish a register of eligible households interested in acquiring affordable housing.

4. EIA SCREENING

4.1 EU Directive as Amended and Associated Transposing Regulations

The primary objective of the EIA Directives is to ensure that projects which are likely to have significant effects on the environment are subject to an assessment of their likely effects.

Directive 2014/52/EU amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment came into effect on May 16th, 2017.

The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) transpose the requirements of Directive 2014/52/EU, amending previous Directive 2011/52/EU, on the assessment of the effects of certain public and private projects on the environment (the EIA Directive) into planning law with effect from 1st September 2018. The regulations amend the Planning and Development Regulations 2001.

Directive 2014/52/EU does not make any amendments to the list of projects set out in the two annexes to the 2011 Directive. In the Irish legislation, Annexes I and II are broadly transposed by way of the Planning and Development Regulations 2001, as amended, in Schedule 5 Parts 1 and 2, with national thresholds added to certain Part 2 classes of development.

Schedule 5 Part 1 projects require EIA if the stated threshold set therein has been met or exceeded or where no thresholds are set.

Schedule 5 Part 2 projects meeting or exceeding national thresholds set out therein, or where no thresholds are set, require EIA.

Schedule 5 Part 2 Sub-threshold projects require screening for EIA, except in cases where the likelihood of significant effects can be readily excluded.

The new Annex II A, is transposed into the Planning and Development Regulations 2001 as amended by the insertion of schedule 7A – "*information to be provided by the applicant or developer for the purposes of screening sub-threshold development for environmental impact assessment*."

Art 92 of the Planning and Development Regulations 2001 as amended provides that;

> "*sub-threshold development" means development of a type set out in Part 2 of Schedule 5 which does not equal or exceed, as the case may be, a quantity, area or other limit specified in that Schedule in respect of the relevant class of development*".

4.2 Planning and Development Regulations 2001-2019 and Considerations of the 2001-2021 (unofficial consolidation)

The first stage of EIA screening is provided in Article 120 of the Planning and Development Regulations 2001 as amended (S.I. No. 296/2018 - European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

Art 120 (1) (a) provides that; "*where the authority proposes to carry out a subthreshold development, the authority shall carry out a preliminary examination of, at the least, the nature, size or location of the development*".

Art 120 (1) (b) provides that after the preliminary examination is carried out, and where the local authority concludes, based on such preliminary examination, that—

"(i) there is no real likelihood of significant effects on the environment arising from the proposed development, it shall conclude that an EIA is not required,

(ii) there is significant and realistic doubt in regard to the likelihood of significant effects on the environment arising from the proposed development, it shall prepare, or cause to be prepared, the information specified in Schedule 7A for the purposes of a screening determination, or

(iii) there is a real likelihood of significant effects on the environment arising from the proposed development, it shall—

(I) conclude that the development would be likely to have such effects, and

(II) prepare, or cause to be prepared, an EIAR in respect of the development."

Accordingly, Schedule 7A is triggered if there is significant and realistic doubt in regard to the likelihood of significant effects on the environment. Subsection (1b) in summary provides where the local authority prepares, or causes to be prepared, the information specified in Schedule 7A, then the information shall be accompanied by any further relevant information and may be accompanied by a description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid or prevent what might otherwise have been significant adverse effects on the environment of the development.

The Regulations provide that where any person considers that a development proposed to be carried out by a local authority would be likely to have significant effects on the environment, he or she may, at any time before the expiration of 4 weeks beginning on the date of publication of the notice apply to the Board for a screening determination as to whether the development would be likely to have such effects.

4.3 Criteria for Determining Whether the Proposed 179A Housing Development at Carney Should be Subject to an Environmental Impact Assessment.

The proposed Careny housing development does not contravene the Sligo County Development Plan, the housing strategy or the residential zoning status.

All housing development projects seeking to utilise the exemption under Section 179A of the Act must have regard to the criterion specifying that the exemption will not apply to development requiring either EIA or AA, and developments should be screened for Environmental Impact Assessment and Appropriate Assessment as appropriate in accordance with the precautionary principle.

Schedule 7 provides the following criteria for assessment:

1. Characteristics of the Proposed Development

The characteristics of proposed development, in particular:

(a) the size and design of the whole of the proposed development,

(b) cumulation with other existing development and/or development the subject of a consent for proposed development for the purposes of section 172(1A)(b) of the Act and/or development the subject of any development consent for the purposes of the Environmental Impact Assessment Directive by or under any other enactment,

(c) the nature of any associated demolition works,

(d) the use of natural resources, in particular land, soil, water and biodiversity,

(e) the production of waste,

(f) pollution and nuisances, EIA Screening Report 6

(g) the risk of major accidents, and/or disasters which are relevant to the project concerned, including those caused by climate change, in accordance with scientific knowledge, and

(h) the risks to human health (for example, due to water contamination or air pollution).

2. *Location of the Proposed Development*

The environmental sensitivity of geographical areas likely to be affected by the proposed development, with particular regard to:

(a) the existing and approved land use,

(b) the relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground,

(c) the absorption capacity of the natural environment, paying particular attention to the following areas:

(i) wetlands, riparian areas, river mouths;

(ii) coastal zones and the marine environment;

(iii) mountain and forest areas;

(iv) nature reserves and parks;

(v) areas classified or protected under legislation, including Natura 2000 areas designated pursuant to the Habitats Directive and the Birds Directive and;

(vi) areas in which there has already been a failure to meet the environmental quality standards laid down in legislation of the European Union and relevant to the project, or in which it is considered that there is such a failure;

(vii) densely populated areas;

(viii) landscapes and sites of historical, cultural or archaeological significance.

3. *Types and characteristics of potential impacts:*

The likely significant effects on the environment of the Proposed Development in relation to criteria set out under paragraphs 1 and 2, with regard to the impact of the project on the factors specified in paragraph (b)(i)(I) to (V) of the definition of 'environmental impact assessment report' in section 171A of the Act, taking into account:

(a) the magnitude and spatial extent of the impact (for example, geographical area and size of the population likely to be affected),

(b) the nature of the impact,

(c) the transboundary nature of the impact,

(d) the intensity and complexity of the impact,

(e) the probability of the impact,

(f) the expected onset, duration, frequency and reversibility of the impact,

(g) the cumulation of the impact with the impact of other existing and/or development, the subject of a consent for proposed development for the purposes of section 172(1A)(b) of the Act and/or development the subject of any development consent for the purposes of the Environmental Impact Assessment Directive by or under any other enactment, and

(h) the possibility of effectively reducing the impact.

4.4 Section 28 Guidelines for Environmental Impact Assessment

The revised Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment August 2018 were issued under section 28 of the Planning and Development Act 2000, as amended, replacing the 2013 Guidelines, and accordingly planning authorities and An Bord Pleanála are required to have regard to them in the performance of their planning functions.

The Guidelines provides a glossary as follows:

Screening

The process of determining if development of a class prescribed in Part 2 of Schedule 5 to the 2001 Regulations that does not equal or exceed a threshold specified in that Schedule in respect of that class is likely to have significant effects on the environment and should be made the subject of EIA.

Source-Pathway-Target Model

A model identifying the source of likely significant impacts, if any, the environmental factors which will potentially be affected and the route along which those impacts may be transferred from the source to the receiving environmental factors.

2001 Regulations

The Planning and Development Regulations 2001–2018 (as amended by the Transposing Regulations, S.I. No. 296 of 2018).

The Guidelines provide that for all sub-threshold developments listed in Schedule 5 Part 2, where no EIAR is submitted or EIA determination requested, a screening determination is required to be undertaken by the competent authority unless, on preliminary examination it can be concluded that there is no real likelihood of significant effects on the environment. This is initiated by the competent authority following the receipt of a planning application or appeal. The examination should have regard to the criteria set out in Schedule 7 to the 2001 Regulations. A preliminary examination is undertaken, based on professional expertise and experience, and having regard to the 'Source – Pathway – Target' model as defined above.

4.5 Sub threshold development and the Proposed Part 179A proposal

Sub-threshold projects in Schedule 5, Part 2 require screening for EIA, except in cases where the likelihood of significant effects can be readily excluded.

Schedule 5 Part 2 outlines Annex II discretionary thresholds determined by Ireland (each EU Member State) which if met or exceeded require a mandatory EIA. It includes Infrastructure projects:

(a) Industrial estate development projects where area would exceed 15 ha.

(b) (i) Construction of more than 500 dwelling units.

(ii) Construction of a car-park providing more than 400 spaces, other than a car-park provided as part of, and incidental to the primary purpose of, a development.

(iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere.

Having regard to the above thresholds, this application for 25 dwelling Units on a site of 1.084 ha (with below threshold parking incidental to the development) may be described as a sub threshold development.

4.6 Methodology

The following screening has had regard to the following:

- Planning and Development Act 2000 as amended
- Planning and Development Regulations 2018 (as amended)
- Planning and Development (Housing) and Residential Tenancies Act 2016 (as amended)
- Directive 2011/92/EU
- Directive 2015/52/EU
- Directive 2014/52/EU of 16 April 2014 amending Directive 2011/92/EU
- Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licensing
- Directive 2015/52/EU
- Systems – Key Issues Consultation Paper (2017; DoHPCLG)
- Preparation of guidance documents for the implementation of EIA directive (Directive 2011/92/EU as amended by 2014/52/EU) – Annex I to the Final Report (COWI, Millieu; April 2017)
- The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018)
- Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports, Environmental Protection Agency, 2017
- Environmental Impact Assessment of Projects: Guidance on Screening, European Commission, 2017
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment August 2018, DoHPLG.
- Environmental Impact Assessment (EIA) Guidance for Consent Authorities regarding Subthreshold Development 2003, DoHPLG.

- Interpretation of definitions of project categories of Annex I and II of the EIA Directive (EU, 2015)
- Circular Letter: PL 05/2018 27th August 2018 Transposition into Planning Law of Directive 2014/52/EU amending Directive 2011/92/EU on the effects of certain public and private projects on the environment (the EIA Directive) and Revised Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment.
- Circular Letter: PL 10/2018 22 November 2018 Public notification of timeframe for application to An Bord Pleanála for screening determination in respect of local authority or State authority development.

4.7 Section 179A Assessed Against Criteria

The 'Environmental Impact Assessment (EIA) Guidance for Consent Authorities Regarding Sub-Threshold Development' groups criteria for deciding whether or not a proposed development would be likely to have significant effects on the environment under three main headings (with sub-headings) which correspond to the updated Schedule 7 are outlined in Section 4.3 above. The Proposed Development will be assessed under these headings hereunder, namely Section 4.7.1, 4.7.2 and 4.7.3.

4.7.1 Characteristics of the Proposed Development

The characteristics of the Proposed Development, in particular:

(a) the size and design of the whole of the Proposed Development,

The proposed residential development will consist of eight building types. Three of them are single storey. Two of those have one bedroom, and one has two bedrooms. The other five building types have two storeys, and up to five bedrooms. A public open space is proposed, in the form of a village green area at the southwest of the site, and open space along the L3405 Carney – Cashelgarran Road, and is 0.205 ha.
The proposed site area for phase 1 is 1.084 ha.

It is proposed to direct the foul water to the public network using gravity systems. The connection is made on the south side of the side, on Oxfield Road.

An attenuation tank is proposed under the village green, and it will have a capacity of 263m^3.

(b) cumulation with other existing development and/or development the subject of a consent for the Proposed Development for the purposes of section 172(1A)(b) of the Act and/or development the subject of any development consent for the purposes of the Environmental Impact Assessment Directive by or under any other enactment.

4.7.1.1 Application site

A planning application was granted 'with conditions' in 2008 for a larger development that included the current project site and consisted of the construction of 56 number two storey dwelling units, 1 number dormer type dwelling with carport, 4 number commercial units with total area of 273 m^2 with 4 number duplex units over and a community play area along with all associated site works. The two storey dwellings will consist of 8 number 4 bed detached, 8 number 4 bed semi-detached, 16 number 3 bed semi-detached, 2 number terraced blocks consisting of (4 number 2 bed units) per block. 4 number terraced blocks consisting of (3 number 3 bed units) per block and 1 number terraced block consisting of (4 number 3 bed units). No evidence of any construction exists on site. The planning application number is 07827, and the conditions set by Sligo County Council are available on the County Council's website[1].

Sligo County Council will be using the Section 179A Notice under the Planning and Development (Section 179A) Regulations 2023 of the Planning and Development Act 2000, as amended to allow for the accelerated delivery of this Project.

4.7.1.2 Wider area

The accompanying Appropriate Assessment Screening considered that while the effects on European Sites were not expected as a result of the construction and operation of the Proposed Development, the potential for cumulative effects on these designated sites due to other plans and projects acting in-combination with the Proposed Development were considered. Sligo County Council on-line planning application portal was used to search planning applications close to the Proposed Development. A five-year search timeframe was assessed. Retention, refused and withdrawn planning applications were excluded. In the wider area (within 1000m), there are a number of permissions for domestic extensions and small-scale commercial developments. Table 5.1 outlines fourteen applications within a radius of approx. 1000m in the last 5 years.

Table 5.1 Planning applications in close proximity to the Proposed Development.

Planning Reference	Description of Development	Site Address	Decision Date	Distance from Site
22159	Development consisting of the conversion of an existing 2-storey agricultural outbuilding (188.4m2) located to the rear of Carney House; and the construction of a ground floor extension (30.6m2) to the east of the existing outbuilding to provide 2 no. 3-bedroom semi-	Carney House, Carney , Co. Sligo, F91 TP02	04/07/2022	approx. 90m from the project site

[1] https://www.eplanning.ie/SligoCC/AppFileRefDetails/07827/0

Planning Reference	Description of Development	Site Address	Decision Date	Distance from Site
	detached dwellings; along with associated amendments to existing elevations; associated siteworks and connections to existing services.			
22380	development consisting of the construction of a storey and half dwelling house which will be connected to the public sewer and services and all associated site works	Seaview, Carney, Co. Sligo	19/01/2023	approx. 160m from the project site
19249	development consisting of construction of a dwelling house, proprietary effluent treatment unit and soil polishing filter on site together with all ancillary site works and services.	Cullaghmore, Carney, Co. Sligo	31/10/2019	approx. 250m from the project site
1972	development consisting of construction of a new forestry road entrance including all associated site works.	Cullagh More, Carney, Co. Sligo	29/04/2019	approx. 805m from the project site

There were no other planning applications in the area at the time of writing (August, 2023).

Having regard to the scale of the permitted developments in the vicinity, the AA Screening Assessment noted that there will be no in-combination effects with local planning applications.

(c) the nature of any associated demolition works,

The site is currently a vacant greenfield site; no demolition works are proposed.

(d) the use of natural resources, in particular land, soil, water and biodiversity,

The site is currently a greenfield site, with residential developments to the west and south. There is a drainage ditch on site that will be culverted. Such associated works will comply with IFI *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters* (2016) The nature of the proposed residential development will generate a demand for water, but this is for residential use and is not considered significant. Sustainable urban drainage systems (SUDS) will be incorporated into the public drainage network. The storm drainage for the entire Proposed Development will be designed in accordance with the *Recommendations for Site Development Works for Housing Areas* and also the recommendations of the *Greater Dublin Strategic Drainage Study* (GDSDS).

Adherence to best practice Construction and Environmental Management during the construction phase will ensure that development will not result in pollution of groundwater or surface water.

The site was surveyed by Jennings O'Donovan and Partners Limited lead chartered ecologist, Dr. Monica Sullivan MCIEEM CEnv in 2023. She noted that there was no evidence of ground level animal pathways or any tree /ground nesting birds onsite.

Where it is proposed that any further shrubbery vegetation will be removed (including during the operation phase), compensatory native species will be planted. Where possible, any removal of vegetation will take place outside of the nesting season (i.e. March 1st to August 31st). No tree nesting birds were noted on site in 2023.

Biodiversity Net Gain Ireland is experiencing a biodiversity crisis and there are high level objectives to halt and ameliorate biodiversity loss. Sligo County Council propose to enhance biodiversity by offering Open Space Area 1 as a wildflower garden (Drawing: 23SO3-ST2-106). New native trees and shrubs to all the other open areas, except for the Village Green (Area 2), which will be grassed so that it is a usable play space for children. The Council propose to include small growing native trees in the individual front gardens. The Council also propose to enhance the boundary along the eastern treeline / hedgerow habitat, where gaps currently exist for biodiversity net gain - promoting wildlife, planting new wild flowers, shrubs and native trees and to showcase best practice in relation to biodiversity and climate change.

(e) the production of waste

The Proposed Development of 25 No. housing units will generate general household waste. Operational waste for the residential development will be controlled by each housing unit. In terms of the production of waste, measures will be outlined to maximise the quantity of waste recycled by providing sufficient waste recycling infrastructure, waste reduction initiatives and waste collection and waste management information to the residents of the Proposed Development.

During the construction phase, construction waste will be generated which will be the subject of a construction Waste Management Plan.

The main use of natural resources will be land. Other resources used will be construction materials which will be typical raw materials used in the construction of residential developments. The scale and quantity of the materials used will not be such that would cause concern in relation to significant effects on the environment.

There will be some waste materials produced in the construction of the proposed scheme which will be disposed of using licensed waste disposal facilities and contractors. As is standard practice the scale of the waste production in conjunction with the use of licensed waste disposal facilities and contractors will not cause concern for likely significant effects on the environment.

(f) pollution and nuisances

Noise, vibration, lighting and dust arising from construction activities and construction traffic have the potential for pollution or nuisance.

It is probable that minor impacts of noise pollution during the construction phase will occur. However, plant machinery and motorised vehicles on local roads within the area are not unexpected or out of character. Working hours will be limited to hours set by the planning conditions. Minor impacts identified will occur predominately during the construction phase in terms of construction related noise, dust and traffic. The frequency of impacts will vary throughout the construction phase, but it still not considered to be significant. The minor impacts will be temporary and will not lead to long term residual impacts.

The Proposed Development is on a Greenfield site. Currently, there is street lighting along the southern and western boundary of the site. Proposed lighting within the development has been designed to adhere to the best practice lighting standards provided in the Institute of Lighting Professionals (ILP) guidance document Guidance Note 08/18 – Bats and Artificial Lighting in the UK (2018).

Bat species are not qualifying features of the surrounding European Sites.

Any risk of surface water pollution can be avoided by adherence to best practice Construction and Environmental Management during the construction phase which will ensure that the Proposed Development would not result in pollution of groundwater or surface water.

The Proposed Development is primarily for a small residential development. Accordingly, there are no significant expected significant residues or emissions. Aspects of energy efficiency are incorporated into the modern energy efficient design of the buildings.

(g) the risk of major accidents, and/or disasters which are relevant to the project concerned, including those caused by climate change, in accordance with scientific knowledge,
Standard construction practices will be employed throughout the construction phase to mitigate the potential of any major accidents or disasters from occurring. The Proposed Development will result in no particular risk of accidents arising from substances or technologies used. Traffic will be generated during the construction period, but for a temporary and defined period only.

(h) the risks to human health (for example, due to water contamination or air pollution).
The nature of the Proposed Development and the engineering provisions will not lead to the likelihood of any risk to human health. The Proposed Development is of standard construction method and of appropriate scale and does not require the use of particular

substances or use of technologies which of themselves are likely to give rise to significant environmental effects.

The Proposed Development is located within the settlement of Carney with a noted population of 395 in 2016. There are no operational impacts associated with this residential development that would be likely to cause significant effects in terms of human health. **The Proposed Development will increase the local area population by c. 95 no. people once complete and fully occupied.** This increase in population can be accommodated within this area and there is a sufficiency of physical and social infrastructure in the area to support this additional development such as transport links, schools, a church and local shops.

4.7.2 Location of the Proposed Development

The location of the Proposed Development is described in section 2 above.

The environmental sensitivity of geographical areas likely to be affected by the Proposed Development**, with particular regard to—**

(a) the existing and approved land use

The existing and approved land is a vacant greenfield site and considered of low ecological significance however boundary vegetation would provide habitats for many species of flora and fauna. The site was previously unused. It was considered for a residential development in the mid-2000s, but construction never happened. Residential dwellings and amenities are common in the local area. There will be no significant impact on the local ecology or agricultural practices as a result of this development.

The land on which the site is proposed is 'Greenfield'. As such, the use of this material asset is in a manner compatible with the zoning designation and is entirely appropriate. Once constructed, the operation phase will provide an important material asset for the area in terms of 25 no. residential units. Whilst the demand on water services, power, telecommunications and transport infrastructure will all increase as a result of the development, the impact on these material assets will not be significant and can be facilitated within planned demand loads for the area.

(b) the relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground.

The proposal is not of such a scale that it would impact significantly upon the natural resources in this geographical area. The site is a greenfield site of low ecological significance and a common feature in the wider landscape. The application involves the loss of treelines/hedgerows on the west side, enhanced native tree planting is proposed

around all open areas except the village green which will be grassed as a usable play space for children which will redress this loss.

(c) the absorption capacity of the natural environment, paying particular attention to the following areas:

(i) wetlands, riparian areas, river mouths;

The proposal is not of such a location or scale that it would impact upon the absorption capacity of this aspect.

(ii) coastal zones and the marine environment;

The proposal is not of such a location or scale that it would impact upon the absorption capacity of this aspect.

(iii) mountain and forest areas;

The proposal is not of such a location or scale that it would impact upon the absorption capacity of this aspect.

(iv) nature reserves and parks

The proposal is not of such a location or scale that it would impact upon the absorption capacity of this aspect.

(v) areas classified or protected under legislation, including Natura 2000 areas designated pursuant to the Habitats Directive and the Birds Directive and;

The Appropriate Assessment Screening Report indicates no significant effect anticipated on any Natura 2000 sites or other designated sites.

(vi) areas in which there has already been a failure to meet the environmental quality standards laid down in legislation of the European Union and relevant to the project, or in which it is considered that there is such a failure;

This does not apply.

(vii) densely populated areas;

The surrounding area is not densely populated. Given the quantum of units and proposed density, there will be no environmental impact as a result of increased population.

(viii) landscapes and sites of historical, cultural or archaeological significance.

The National Monuments Service Archaeological Survey Database records a Burnt mound (23S03-ST2-102: Proposed Site Plan) on the western side of the

site. The burnt mound will not be removed for the proposed development and instead will be protected by a geo-textile membrane below ground for protection. A fence exclusion zone will only be in place for the duration of the construction period.

There are no National Inventory of Architectural Heritage (NIAH) sites within the boundary of the proposed development. The nearest NIAH Site is a water pump dating from 1880-1900 (Reg. No. 32400823), located approx. 30m south of the site's boundary on the footpath on the opposite side of the road. As the pump is set back from the carriageway and protected by a low stone wall, it will not be impacted by traffic associated with the works.

The proposed development is not expected to have any significant impacts on archaeology, architectural or cultural heritage.

4.7.3 Characteristics of Potential Impacts

(a) the magnitude and spatial extent of the impact (for example, geographical area and size of the population likely to be affected)

The magnitude of the proposal (1.084 ha) transforms a greenfield site into a small housing development. The Proposed Development is for 25 residential units, associated landscaping including parking to the front of each house and along the access road providing a total of 50 no. parking spaces. There are 10 No. 1 Bed houses, 5 No. 2 Bed houses, 8 No. 3 Bed houses, 1 No. 4 Bed house and 1 No. 5 Bed house. Three of these houses are universally designed.

The scale of the proposed development will extend the existing Carney village area and will increase the limited population density in this area. The development will provide serviced residential accommodation. The extent of the impact will be confined to that area in the immediate environs of the subject site and will be limited primarily to the residential population in the vicinity.

(b) the nature of the impact

The impact will be an increase in the residential population to provide a specific type of housing. The impact will provide housing in a time of severe shortage and in accordance with the Sligo County Development Plan core strategy and as identified above in Section 4.

(c) the transboundary nature of the impact,

This does not apply.

(d) the intensity and complexity of the impact,

The proposal in itself is not of a complex nature such that it warrants an EIAR.

(e) the probability of the impact

Should approval be given, the development will proceed.

(f) the expected onset, duration, frequency and reversibility of the impact,

The principal impacts associated with the proposal will most likely be concentrated during the construction phase. The Proposed Development will be permanent.

(g) the cumulation of the impact with the impact of other existing and/or development, the subject of a consent for the Proposed Development for the purposes of section 172(1A)(b) of the Act and/or development the subject of any development consent for the purposes of the Environmental Impact Assessment Directive by or under any other enactment, and this is addressed in section 5.7.1.2 (Wider Area) above.

(g) the possibility of effectively reducing the impact.

On the issue of the built structures, it is considered that the proposal will visually change the existing landscape, however, the design put forward is for a small rural residential housing estate approach which is a high standard architectural design, consistent with neighbouring structures with the provision of well-designed gardens, infrastructure and associated open spaces, lighting and landscaping.

In terms of wastewater treatment, it is considered that the impact upon the existing sewage system will be fully scoped having regard to the requirements of Irish Water. The floor levels of the Proposed Development will be constructed above the 100 year predicted flood events.

Foul Water and Storm Drainage

It is proposed to direct the foul sewer of the development to the existing network (Drawing: 6972-JOD-XX-ZZ-DR-C-200-001.

The proposed storm sewer for the site will discharge into the public network at the south of the site, on L3402 Oxfield Road.

Watermain

The water main has been designed in accordance with the Code of Practice for Water Infrastructure. A 110mm OD HDPE connection is proposed to be made to the existing ø 100mm Upvc watermain located in Slieve Mor Road to the west of the site, as shown on Drawing No. 6972-JOD-XX-ZZ-DR-C-200-007 included in **Appendix I**. A 25mm PE connection will be made to each unit.

4.8 Inter relationship with above factors

All details have been outlined as required under The 'Environmental Impact Assessment (EIA) Guidance for Consent Authorities Regarding Sub-Threshold Development' groups criteria for deciding whether or not a proposed development would be likely to have significant effects on the environment under three main headings which corresponded to the updated Schedule 7. It is considered that any of the previously identified relatively minor impacts would not in themselves be considered significant nor would they cumulatively result in a likely significant effect on the environment.

The supporting AA Screening Assessment for this Proposed Development has *shown there will be no likely significant effects to any European Site during the construction or operations phases of the Proposed Development. Works will be contained within the site; it is anticipated that there will be no in-combination impacts from any local planning applications.*

5. CONCLUSION

This EIA Screening Report has been prepared in relation to a Part 179A PP residential development on land situated at Carney, Co. Sligo in accordance with Article 120 (1) (b) of the Planning & Development Regulations, 2001 as amended, having regard to the following:

- The location, size and nature of this serviced site located in an urban setting and distanced from protected and/or environmentally sensitive sites.
- The proposed development is below the threshold of a mandatory EIA which would require an Environmental Impact Assessment Report (EIAR)
- The modest scale and quantum of the residential development proposed and integration with the adjoining Carney community and Sligo town.
- The description of possible effects on the environment are not considered significant and therefore further assessment pursuant to the Planning and Development Regulations 2001 as amended are not considered necessary.
- An Appropriate Assessment Screening has been carried out. It concluded that the proposed development will not cause direct or indirect impacts on any Natura 2000 sites, and that an Appropriate Assessment is not required.

It is considered that a sub-threshold EIAR is not required for the Proposed Development as the proposal is below the thresholds of Schedule 5 of the Planning and Development Regulations.

All standard practices will be employed throughout the construction and operation phase of the development to ensure that the Proposed Development will not create any significant impacts on the quality of the surrounding environment.

6. REFERENCES

Biodiversity Maps, https://maps.biodiversityireland.ie/Map

EPA (2017) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Draft). Environmental Protection Agency.

EPA Maps, **https://gis.epa.ie/EPAMaps/AAGeoTool**

EU (2017) Environmental Impact Assessment of Projects, Guidance on Screening (Directive 2011/92/EU as amended by 2014/52/EU).

Flood Maps, **https://www.floodinfo.ie/map/floodmaps/**

Geological Survey Ireland Spatial Resources (GSI), https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228

IDL, Site Investigation Report, 2023, Proposed Housing Development at Carney, Co. Sligo

IFI (2016) *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters.* IFI/2016/1-4298

APPENDIX I

DRAWINGS

1. Where this drawing is marked PLANNING PERMISSION below, this drawing been prepared soley for use as part of an application for full planning permission. It is not intended for construction or contractual purposes. It is to be read in conjunction with the other drawings and documents which constitute the statutory application.
2. Where this drawing is marked FOR TENDER or CONTRACT it is to be read in conjunction with the other drawings and documents which constitute the complete set of tender or contract documents.
3. Where this drawing is marked FOR CONSTRUCTION below, this drawing is to be cross-checked on site and with the set of any other drawings and documents of which it forms part, prior to any construction taking place on site. Figured dimensions only to be taken from this drawing. The Architects are to be informed immediately of any discrepancy which is identified.
4. Where this drawing is marked FOR TENDER or FOR CONSTRUCTION below, the Contractor is required to provide a CE Marked Declaration of Performance for all proposed materials in compliance with Building Regulations TGD Part D prior to placing an order.

SCHEDULE OF UNITS:

TYPE A	1 BED / 2 PERSON	9 No.
TYPE B	1 BED / 2 PERSON (OT)	1 No.
TYPE C	2 BED / 4 PERSON	4 No.
TYPE D	2 BED / 4 PERSON (UD)	1 No.
TYPE E	3 BED / 5 PERSON	7 No.
TYPE F	3 BED / 5 PERSON (OT)	1 No.
TYPE G	4 BED / 7 PERSON	1 No.
TYPE H	5 BED / 8 PERSON	1 No.
TOTAL NUMBER OF UNITS		25 No.

LEGEND OF UNIT TYPES:

A1 **HOUSE TYPE A** 1 BED/2P SINGLE STOREY	B **HOUSE TYPE B** 1 BED/2P (OT) SINGLE STOREY	C **HOUSE TYPE C** 2 BED/4P TWO STOREY	D **HOUSE TYPE D** 2 BED/4P (UD) SINGLE STOREY
E1 **HOUSE TYPE E** 3 BED/5P TWO STOREY	F **HOUSE TYPE F** 3 BED/5P (OT) TWO STOREY	G **HOUSE TYPE G** 4 BED/7P TWO STOREY	H **HOUSE TYPE H** 5 BED TWO STOREY

Application Site Area = 1.084ha
Public Open Space (including Village Green) = 0.20ha
(18.45% of Site Area - 15% minimum required)

LEGEND OF PAVING & ROAD FINISHES

- NEW ROADWAYS AND DRIVEWAYS FINISHED WITH BITUMEN MACADAM TO CIVIL ENGINEER'S SPECIFICATION
- SHARED SURFACE AREAS IN COLOURED ASPHALT TO CIVIL ENGINEER'S SPECIFICATION
- CAST IN-SITU CONCRETE FOOTPATHS WITH BRUSHED FINISH TO CIVIL ENGINEER'S SPECIFICATION
- SELECTED PAVER FINISH ON HARDCORE BASE TO CIVIL ENGINEER'S SPECIFICATION

LEGEND OF SOFT LANDSCAPING FINISHES

- NEW PUBLIC GRASSED AREAS TO ARCHITECT'S SPECIFICATION
- NEW PRIVATE GRASSED AREAS TO ARCHITECT'S SPECIFICATION
- NEW GROUND COVER AND SHRUB PLANTING TO ARCHITECT'S SPECIFICATION
- NEW TREES TO ARCHITECT'S SPECIFICATION
- EXISTING TREES RETAINED

GENERAL

- APPLICATION SITE BOUNDARY
- DROPPED KERB FOR PEDESTRIAN CROSSING

.\23S03 Sligo Co. Co. - 25 Houses at Carney, Co. Sligo\Sligo-County-Council.png

Rev.	Description	By	Date
P6			
P5			
P4			
P3	UNIT 23 LAYOUT REVISED	FD	08.08.23
P2	EXTERNAL BIN STORES REVISED	FD	31.07.23
P1	REAR GARDEN LEVELS ADDED	FD	28.07.23

N

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Drawing Status: STAGE 2 - PLANNING PERMISSION	Drawn By: MGW
Client: SLIGO COUNTY COUNCIL	Checked By: TMcD
Project: 25 No. SOCIAL HOUSING UNITS AT CURRAGHMORE, CARNEY, CO. SLIGO	Scale: 1:500
Title: PROPOSED SITE PLAN	Date: JULY 2023

Job No.	Stage	Drawing No.	Rev
23S03	ST2	102	P3


LEGEND OF SOFT LANDSCAPING FINISHES
(Refer to Notes also)
NEW PUBLIC GRASSED AREAS
NEW NATIVE WILDFLOWER MEADOW AREA
NEW NATIVE SPECIES GROUND COVER AND SHRUB PLANTING
NEW NATIVE SPECIES TREES
NOTES
1. All new trees shall be strictly sourced from native Irish stock nurseries only (not imported from abroad). Trees species will include a mixture of Whitebeam (Sorbus hibernica), Rowan (Sorbus aucuparia), Hawthorn (Crataegus monogyna), Silver Birch (Populus pubescens) and Scots Pine (Pinus sylvestris).
2. Boundary enhancement shall occur along the eastern tree line / hedgerow habitat where gaps exist. These gaps shall be supplemented with species that include Alder (Alnus glutinosa), Aspen (Populus tremula) and Black Poplar (Populus nigra). Where choosing the latter species, more than one shall be planted for cross pollination. Thickening of the eastern boundary hedgerow/tree line and planting of the other areas will contribute to the green infrastructure on site and promote foraging corridors for bats and other mammals, to potentially link the urban and rural habitats and possibly also mitigate future flood events.
Existing hedgerow/tree line retained and enhanced as per Note 2 above
L3305 CARNEY - CASHELGARRAN ROAD
L3402 OXFIELD - MILLTOWN ROAD
Home Zone shared surface
Public Open Space
AREA 1
Village Green
AREA 2
Harte's Well
STOP
N

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CE

HOUSE SCHEDULE:

TYPE A	1 BED / 2 PERSON	9 No.
TYPE B	1 BED / 2 PERSON (UD++)	1 No.
TYPE C	2 BED / 4 PERSON	4 No.
TYPE D	2 BED / 4 PERSON (UD)	1 No.
TYPE E	3 BED / 5 PERSON	7 No.
TYPE F	3 BED / 5 PERSON (UD++)	1 No.
TYPE G	4 BED / 7 PERSON	1 No.
TYPE H	5 BED / 8 PERSON	1 No.
TOTAL NUMBER OF UNITS		25 No.

HOUSE TYPE A
1 BED/2P
SINGLE STOREY

HOUSE TYPE B
1 BED/2P (UD++)
SINGLE STOREY

HOUSE TYPE C
2 BED/4P
TWO STOREY

HOUSE TYPE D
2 BED/4P (UD)
SINGLE STOREY

HOUSE TYPE E
3 BED/5P
TWO STOREY

HOUSE TYPE F
3 BED/5P (UD++)
TWO STOREY

HOUSE TYPE G
4 BED/7P
TWO STOREY

HOUSE TYPE H
5 Bed
TWO STOREY

Site Area = 0.998ha
Public Open Space (including Village Green) = 0.205ha
(20.5% of Site Area)

L3405 CARNEY - CASHELGARRAN ROAD

L3402 OXFIELD - MILTOWN ROAD

ACCESS ROAD

PUBLIC OPEN SPACE

Burnt Mound

VILLAGE GREEN

Home Zone shared surface

Well

Drainage ditch

New 3m wide footpath/cycle lane.

Substation (TBC)

Fence exclusion zone

Indicative further phase 2 layout shown dashed.

New 3m wide footpath/cycle lane.

New pedestrian crossing.

N

G			
F			
E			
D	LAYOUT UPDATED FOLLOWING MEETING WITH SLIGO CoCo ON THE 24/05/23	MW	25/05/23
C	LAYOUT UPDATED	MW	24/05/23
B	AMENDMENTS AS PER MEETING 10/05/2023	MW	16/05/23
Rev.	Description	By	Date

Sligo County Council
Comhairle Chontae Shligigh

HAMILTON YOUNG
ARCHITECTS
12 Beulah Buildings . Finisklin Road
Sligo, F91-NXT5
T: 071 916 1457 W: www.hya.ie

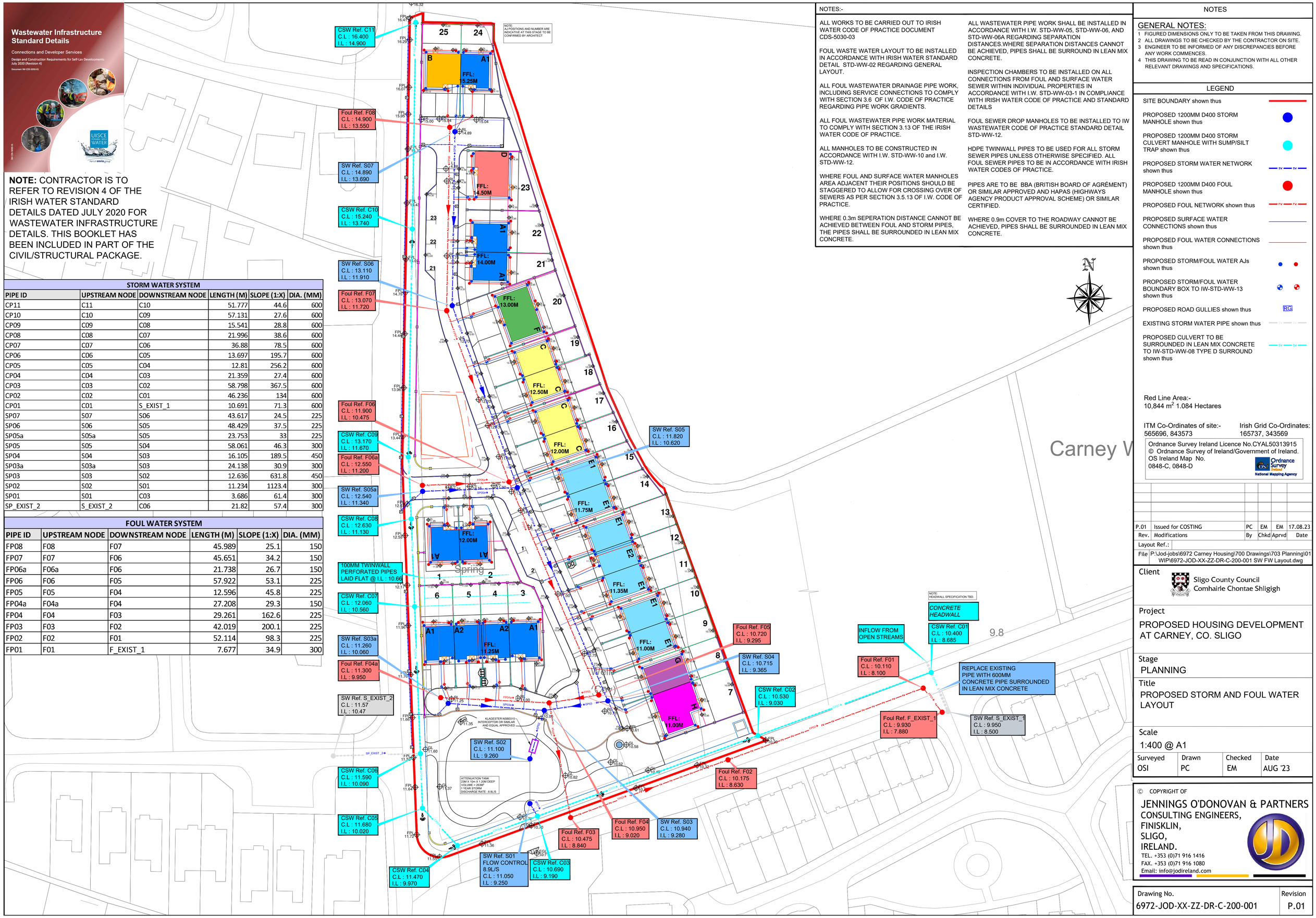
Drawing Status: STAGE 2	Drawn By: MGW
Client: SLIGO COUNTY COUNCIL	Checked By: TMcD
Project: CARNEY HOUSING DEVELOPMENT	Scale: 1:500
Title: PROPOSED SITE PLAN	Date: 05/05/2023

Job No.	Stage	Drawing No.	Rev
23S03	ST2	100	D

NOTE: CONTRACTOR IS TO REFER TO REVISION 4 OF THE IRISH WATER STANDARD DETAILS DATED JULY 2020 FOR WASTEWATER INFRASTRUCTURE DETAILS. THIS BOOKLET HAS BEEN INCLUDED IN PART OF THE CIVIL/STRUCTURAL PACKAGE.

STORM WATER SYSTEM					
PIPE ID	UPSTREAM NODE	DOWNSTREAM NODE	LENGTH (M)	SLOPE (1:X)	DIA. (MM)
CP11	C11	C10	51.777	44.6	600
CP10	C10	C09	57.131	27.6	600
CP09	C09	C08	15.541	28.8	600
CP08	C08	C07	21.996	38.6	600
CP07	C07	C06	36.88	78.5	600
CP06	C06	C05	13.697	195.7	600
CP05	C05	C04	12.81	256.2	600
CP04	C04	C03	21.359	27.4	600
CP03	C03	C02	58.798	367.5	600
CP02	C02	C01	46.236	134	600
CP01	C01	S_EXIST_1	10.691	71.3	600
SP07	S07	S06	43.617	24.5	225
SP06	S06	S05	48.429	37.5	225
SP05a	S05a	S05	23.753	33	225
SP05	S05	S04	58.061	46.3	300
SP04	S04	S03	16.105	189.5	450
SP03a	S03a	S03	24.138	30.9	300
SP03	S03	S02	12.636	631.8	450
SP02	S02	S01	11.234	1123.4	300
SP01	S01	C03	3.686	61.4	300
SP_EXIST_2	S_EXIST_2	C06	21.82	57.4	300

FOUL WATER SYSTEM					
PIPE ID	UPSTREAM NODE	DOWNSTREAM NODE	LENGTH (M)	SLOPE (1:X)	DIA. (MM)
FP08	F08	F07	45.989	25.1	150
FP07	F07	F06	45.651	34.2	150
FP06a	F06a	F06	21.738	26.7	150
FP06	F06	F05	57.922	53.1	225
FP05	F05	F04	12.596	45.8	225
FP04a	F04a	F04	27.208	29.3	150
FP04	F04	F03	29.261	162.6	225
FP03	F03	F02	42.019	200.1	225
FP02	F02	F01	52.114	98.3	225
FP01	F01	F_EXIST_1	7.677	34.9	300



NOTES:-

ALL WORKS TO BE CARRIED OUT TO IRISH WATER CODE OF PRACTICE DOCUMENT CDS-5030-03

FOUL WASTE WATER LAYOUT TO BE INSTALLED IN ACCORDANCE WITH IRISH WATER STANDARD DETAIL STD-WW-02 REGARDING GENERAL LAYOUT.

ALL FOUL WASTEWATER DRAINAGE PIPE WORK, INCLUDING SERVICE CONNECTIONS TO COMPLY WITH SECTION 3.6 OF I.W. CODE OF PRACTICE REGARDING PIPE WORK GRADIENTS.

ALL FOUL WASTEWATER PIPE WORK MATERIAL TO COMPLY WITH SECTION 3.13 OF THE IRISH WATER CODE OF PRACTICE.

ALL MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH I.W. STD-WW-10 and I.W. STD-WW-12.

WHERE FOUL AND SURFACE WATER MANHOLES AREA ADJACENT THEIR POSITIONS SHOULD BE STAGGERED TO ALLOW FOR CROSSING OVER OF SEWERS AS PER SECTION 3.5.13 OF I.W. CODE OF PRACTICE.

WHERE 0.3m SEPERATION DISTANCE CANNOT BE ACHIEVED BETWEEN FOUL AND STORM PIPES, THE PIPES SHALL BE SURROUNDED IN LEAN MIX CONCRETE.

ALL WASTEWATER PIPE WORK SHALL BE INSTALLED IN ACCORDANCE WITH I.W. STD-WW-05, STD-WW-06, AND STD-WW-06A REGARDING SEPARATION DISTANCES.WHERE SEPARATION DISTANCES CANNOT BE ACHIEVED, PIPES SHALL BE SURROUND IN LEAN MIX CONCRETE.

INSPECTION CHAMBERS TO BE INSTALLED ON ALL CONNECTIONS FROM FOUL AND SURFACE WATER SEWER WITHIN INDIVIDUAL PROPERTIES IN ACCORDANCE WITH I.W. STD-WW-03-1 IN COMPLIANCE WITH IRISH WATER CODE OF PRACTICE AND STANDARD DETAILS

FOUL SEWER DROP MANHOLES TO BE INSTALLED TO IW WASTEWATER CODE OF PRACTICE STANDARD DETAIL STD-WW-12.

HDPE TWINWALL PIPES TO BE USED FOR ALL STORM SEWER PIPES UNLESS OTHERWISE SPECIFIED. ALL FOUL SEWER PIPES TO BE IN ACCORDANCE WITH IRISH WATER CODES OF PRACTICE.

PIPES ARE TO BE BBA (BRITISH BOARD OF AGRÉMENT) OR SIMILAR APPROVED AND HAPAS (HIGHWAYS AGENCY PRODUCT APPROVAL SCHEME) OR SIMILAR CERTIFIED.

WHERE 0.9m COVER TO THE ROADWAY CANNOT BE ACHIEVED, PIPES SHALL BE SURROUNDED IN LEAN MIX CONCRETE.

NOTES

GENERAL NOTES:

1 FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
2 ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
3 ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
4 THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.

LEGEND

SITE BOUNDARY shown thus

PROPOSED 1200MM D400 STORM MANHOLE shown thus

PROPOSED 1200MM D400 STORM CULVERT MANHOLE WITH SUMP/SILT TRAP shown thus

PROPOSED STORM WATER NETWORK shown thus — SW — SW

PROPOSED 1200MM D400 FOUL MANHOLE shown thus

PROPOSED FOUL NETWORK shown thus — FW — FW

PROPOSED SURFACE WATER CONNECTIONS shown thus

PROPOSED FOUL WATER CONNECTIONS shown thus

PROPOSED STORM/FOUL WATER AJs shown thus

PROPOSED STORM/FOUL WATER BOUNDARY BOX TO IW-STD-WW-13 shown thus

PROPOSED ROAD GULLIES shown thus RG

EXISTING STORM WATER PIPE shown thus — SW — SW

PROPOSED CULVERT TO BE SURROUNDED IN LEAN MIX CONCRETE TO IW-STD-WW-08 TYPE D SURROUND shown thus — SW — SW

Red Line Area:-
10,844 m² 1.084 Hectares

ITM Co-Ordinates of site:- 565696, 843573

Irish Grid Co-Ordinates: 165737, 343569

Rev.	Modifications	By	Chkd	Aprvd	Date
P.01	Issued for COSTING	PC	EM	EM	17.08.23

Layout Ref.:
File P:\Jod-jobs\6972 Carney Housing\700 Drawings\703 Planning\01 WIP\6972-JOD-XX-ZZ-DR-C-200-001 SW FW Layout.dwg

Client
Sligo County Council
Comhairle Chontae Shligigh

Project
PROPOSED HOUSING DEVELOPMENT AT CARNEY, CO. SLIGO

Stage
PLANNING

Title
PROPOSED STORM AND FOUL WATER LAYOUT

Scale
1:400 @ A1

Surveyed	Drawn	Checked	Date
OSI	PC	EM	AUG '23

JENNINGS O'DONOVAN & PARTNERS
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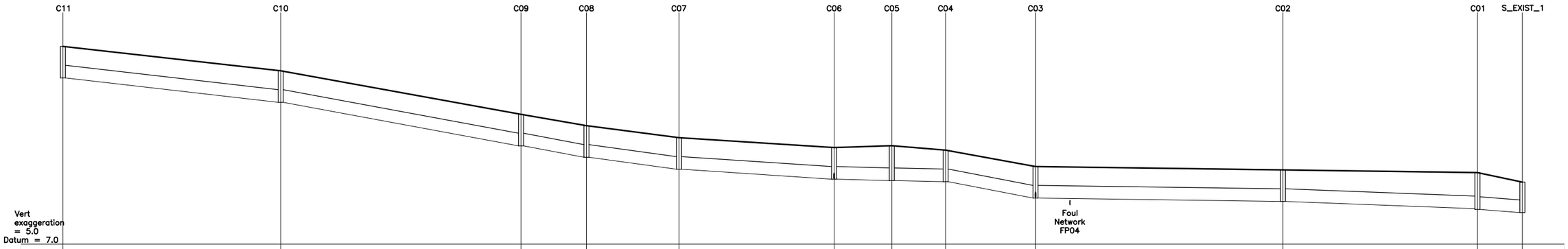
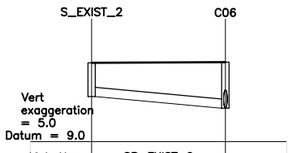
Drawing No. 6972-JOD-XX-ZZ-DR-C-200-001

Revision P.01



Vert exaggeration = 5.0
Datum = 7.0

Link Name	CP11	CP10	CP09	CP08	CP07	CP06	CP05	CP04	CP03	CP02	CP01	
Section Type	600mm	600mm	600mm	600mm	600mm	600mm	600mm	600mm	600mm	600mm	600mm	
Slope	1:44.6	1:27.6	1:28.8	1:38.6	1:78.5	1:195.7	1:256.2	1:27.4	1:367.5	1:134.0	1:71.3	
Cover Level	16.400	15.240	13.170	12.630	12.060	11.590	11.680	11.470	10.690	10.530	10.400	9.950
Invert Level	14.900	13.740 / 13.740	11.670 / 11.670	11.130 / 11.130	10.560 / 10.560	10.090 / 10.090	10.020 / 10.020	9.970 / 9.970	9.190 / 9.190	9.030 / 9.030	8.685 / 8.650	8.500
Length	51.777	57.131	15.541	21.996	36.880	13.697	12.810	21.359	58.798	46.236	10.691	



Vert exaggeration = 5.0
Datum = 9.0

Link Name	SP_EXIST_2	
Section Type	300mm	
Slope	1:57.4	
Cover Level	11.570	11.590
Invert Level	10.470	10.090
Length	21.820	

GENERAL NOTES:

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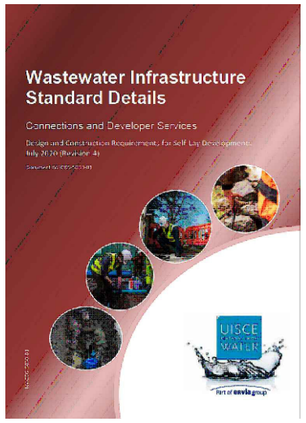
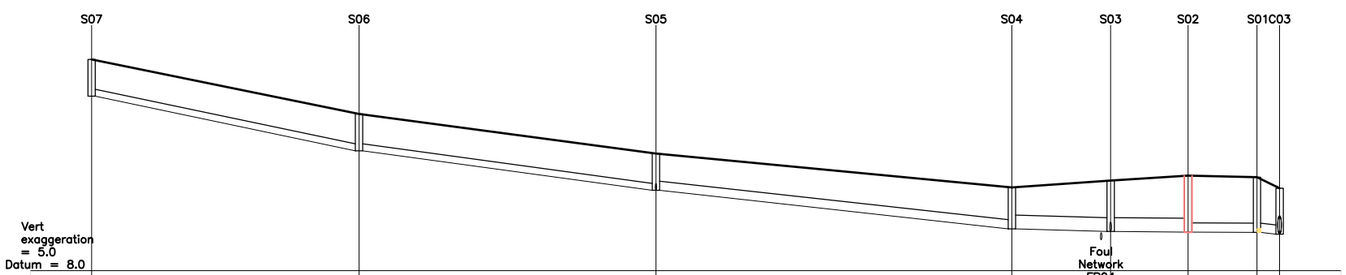
5. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD.
6. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS. CONTRACTOR TO VERIFY THE ACCURACY OF THIS PROPOSAL TO THE ENGINEER AND ALLOW FOR MINOR CORRECTIONS AS DEEMED NECESSARY WITH A REASONABLE TIMEFRAME.

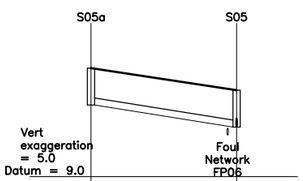


NOTE: CONTRACTOR IS TO REFER TO REVISION 4 OF THE IRISH WATER STANDARD DETAILS DATED JULY 2020 FOR WASTEWATER INFRASTRUCTURE DETAILS.



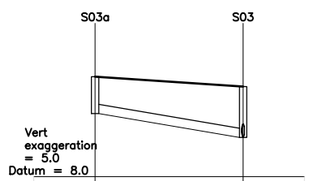
Vert exaggeration = 5.0
Datum = 8.0

Link Name	SP07	SP06	SP05	SP04	SP03	SP02	SP01
Section Type	225mm	225mm	300mm	450mm	450mm	300mm	300mm
Slope	1:24.5	1:37.5	1:46.3	1:189.5	1:631.8	1:1123.4	1:61.4
Cover Level	14.890	13.110	11.820	10.715	10.940	11.100	11.050 / 10.690
Invert Level	13.690	11.910 / 11.910	10.620 / 10.620	9.365 / 9.365	9.280 / 9.280	9.260 / 9.260	9.250 / 9.250 / 9.190
Length	43.617	48.429	58.061	16.105	12.636	11.234	3.686



Vert exaggeration = 5.0
Datum = 9.0

Link Name	SP05a
Section Type	225mm
Slope	1:33.0
Cover Level	12.540 / 11.820
Invert Level	11.340 / 10.620
Length	23.753



Vert exaggeration = 5.0
Datum = 8.0

Link Name	SP03a
Section Type	300mm
Slope	1:30.9
Cover Level	11.260 / 10.940
Invert Level	10.060 / 9.280
Length	24.138

P.01	Issued for COSTING	PC	EM	17.08.23
rev.	modifications	by	chkd	date

Layout Ref.:

file: P:\Jod-jobs\6972 Carney Housing\700 Drawings\703 Planning\01 WIP\6972-JOD-XX-ZZ-DR-C-200-002-003 SW FW Longsections.dwg

client
Sligo County Council
Comhairle Chontae Shligigh

project
PROPOSED HOUSING DEVELOPMENT AT CARNEY, CO. SLIGO

stage
PLANNING

title
PROPOSED STORM SEWER AND CULVERT SECTIONS

scale
HORIZ: 1:1000, VERT: 1:200 @ A3

surveyed	drawn	checked	date
	PC	EM	AUG '23

JENNINGS O'DONOVAN & PARTNERS
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IRELAND.
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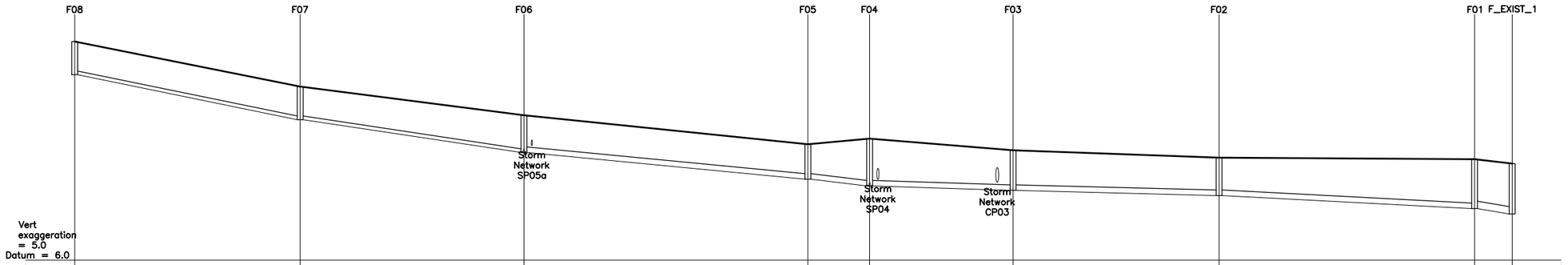
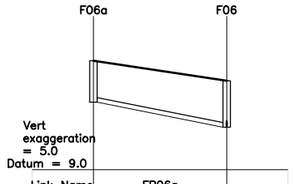
Email: info@jodireland.com

drawing no. 6972-JOD-XX-ZZ-DR-C-200-002

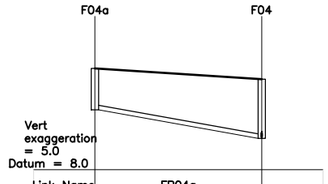
revision P.01



Link Name	FP08	FP07	FP06	FP05	FP04	FP03	FP02	FP01
Section Type	150mm	150mm	225mm	225mm	225mm	225mm	225mm	300mm
Slope	1:25.1	1:34.2	1:53.1	1:45.8	1:162.6	1:200.1	1:98.3	1:34.9
Cover Level	14.900	13.070	11.900	10.720	10.950	10.475	10.175	10.110 / 9.930
Invert Level	13.550	11.720 / 11.720	10.385 / 10.385	9.295 / 9.295	9.020 / 9.020	8.840 / 8.840	8.630 / 8.630	8.100 / 8.100 / 7.880
Length	45.989	45.651	57.922	12.596	29.261	42.019	52.114	7.677



Link Name	FP06a
Section Type	150mm
Slope	1:26.7
Cover Level	12.350 / 11.900
Invert Level	11.200 / 10.385
Length	21.738



Link Name	FP04a
Section Type	150mm
Slope	1:29.3
Cover Level	11.300 / 10.950
Invert Level	9.950 / 9.020
Length	27.208

NOTES

GENERAL NOTES:

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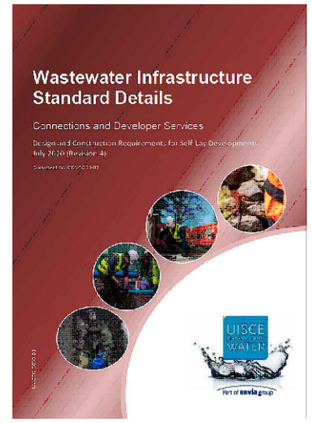
LEGEND



NOTE: CONTRACTOR IS TO REFER TO REVISION 4 OF THE IRISH WATER STANDARD DETAILS DATED JULY 2020 FOR WASTEWATER INFRASTRUCTURE DETAILS.

rev.	modifications	by	chkd	date
P.01	Issued for COSTING	PC	EM	17.08.23

Layout Ref.:

file: P:\Jod-jobs\6972 Carney Housing\700 Drawings\703 Planning\01 WIP\6972-JOD-XX-ZZ-DR-C-200-002-003 SW FW Longsections.dwg

client: Sligo County Council, Comhairle Chontae Shligigh

project: PROPOSED HOUSING DEVELOPMENT AT CARNEY, CO. SLIGO

stage: PLANNING

title: PROPOSED FOUL WATER SEWER SECTIONS

scale: HORIZ: 1:1000, VERT: 1:200 @ A3

surveyed	drawn	checked	date
	PC	EM	AUG '23

JENNINGS O'DONOVAN & PARTNERS
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FINISKLIN,
SLIGO,
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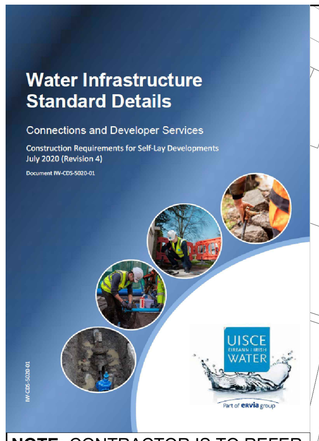
Email: info@jodireland.com

drawing no.	revision
6972-JOD-XX-ZZ-DR-C-200-003	P.01



NOTE: CONTRACTOR IS TO REFER TO REVISION 4 OF THE IRISH WATER STANDARD DETAILS DATED JULY 2020 FOR WATER INFRASTRUCTURE DETAILS. THIS BOOKLET HAS BEEN INCLUDED AS PART OF THE CIVIL/STRUCTURAL PACKAGE. ALL WORKS ARE TO BE CARRIED OUT TO IRISH WATER CODE OF PRACTICE DOCUMENT CDS-5020-01.

Double Air Valve to IW STD-W-22

Scour Valve to IW-STD-W-30B

Fire Hydrant to IW-STD-W-18

Boundary Box to IW-STD-W-03

Thrust Blocks at all changes of direction to IW STD-W-28

Fire Hydrant to IW-STD-W-18

By-Pass Flow Meter Chamber to IW STD-W-26F

Sluice Valves to IW STD-W-15

Pipe Connection to IW STD-W-04

Approx location of 100mm uPVC 1996

Sluice Valves to IW STD-W-15

Approx location of 1" HDPE 1980

Fire Hydrant to IW-STD-W-18

Scour Valve to IW-STD-W-30B

Approx. location of watermain labelled "2018"

NOTES

GENERAL NOTES:

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LEGEND

SITE BOUNDARY shown thus

WATERMAIN SUPPLY Ø 110mm OUTSIDE DIAMETER PE100, PIPE MATERIAL SHALL BE IN COMPLIANCE WITH IRISH WATER SECTION 3.9 OF THE CODE OF PRACTICE.

PROPOSED WATER SUPPLY CONNECTION WITH BOUNDARY BOX TO I.W. STD-W-03 shown thus (Public / Private)

FIRE HYDRANT TO I.W. STD-W-18 shown thus (3 No. Hyd)

SLUICE VALVE TO I.W. STD-W-15-2 shown thus (14 No. SV's)

SCOUR VALVE TO I.W. STD-W-30B shown thus (2 No. SC.v's)

BYPASS FLOW METER TO STD-W-26F shown thus (M)

DOUBLE AIR VALVE TO I.W. STD-W-22 shown thus (1 No. AV)

EXISTING WATERMAIN

HYDRANT 46M RADIUS shown thus

Red Line Area:-
10,844 m^2 1.084 Hectares

ITM Co-Ordinates of site:- 565696, 843573

Irish Grid Co-Ordinates: 165737, 343569

Rev.	Modifications	By	Chkd	Aprvd	Date
P.02	Site plan revised	PC	MF	MF	09.08.23
P.01	Issued for COSTING	PC	MF	MF	08.08.23

Layout Ref.:

File: P:\Jod-jobs\6972 Carney Housing\700 Drawings\703 Planning\01 WIP\6972-JOD-XX-ZZ-DR-C-200-007 WM Layout.dwg

Client: Sligo County Council, Comhairle Chontae Shligigh

Project: PROPOSED HOUSING DEVELOPMENT AT CARNEY, CO. SLIGO

Stage: PLANNING

Title: PROPOSED WATERMAIN LAYOUT

Scale: 1:400 @ A1

Surveyed	Drawn	Checked	Date
OSI	PC	MF	AUG '23

JENNINGS O'DONOVAN & PARTNERS
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SLIGO,
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Drawing No.	Revision
6972-JOD-XX-ZZ-DR-C-200-007	P.02

UNCONTROLLED PEDESTRIAN CROSSING WITH TACTILE PAVING AND MARKINGS TO TII SPECIFICATION CC-SCD-05123

125MM RAISED HOMEZONE. FINISH TO ARCHITECTS SPECIFICATION

TRAFFIC CALMING TRIANGLES M 112 TO 7.17.3 DTTS TRAFFIC SIGNS MANUAL ON ALL RAMPS

YIELD SIGN RUS 028 TO 5.3.1 TO 5.3.10 DTTS TRAFFIC SIGNS MANUAL AUG 2019 LOCATED OFF FOOTWAY MIN 2.3M HIGH

YIELD LINE MARKING RRM 018 TO 7.2.13 DTTS TRAFFIC SIGNS MANUAL FEB 2019

STOP LINE MARKING RRM 017 TO 7.2.2 DTTS TRAFFIC SIGNS MANUAL AUG 2019

YIELD SIGN MARKING M 115 TO 7.5.4 DTTS TRAFFIC SIGNS MANUAL FEB 2019

125MM RAISED TABLETOP FINISH TO ARCHITECTS SPECIFICATION

STOP SIGN MARKING M 114 TO 7.5.3 DTTS TRAFFIC SIGNS MANUAL AUG 2019

STOP SIGN RUS 027 TO 5.2.1 TO 5.2.9 DTTS TRAFFIC SIGNS MANUAL AUG 2019 MIN 2.3M HIGH

TRAFFIC CALMING TRIANGLES M 112 TO 7.17.3 DTTS TRAFFIC SIGNS MANUAL ON ALL RAMPS

UNCONTROLLED PEDESTRIAN CROSSING WITH TACTILE PAVING AND MARKINGS TO TII SPECIFICATION CC-SCD-05123

125MM RAISED HOMEZONE. FINISH TO ARCHITECTS SPECIFICATION

EXTEND FOOTPATH TO CONTROLLED PEDESTRIAN CROSSING

CONTROLLED PEDESTRIAN CROSSING AS ZEBRA CROSSING WITH BELISHA BEACONS, TACTILE PAVING AND MARKINGS TO TII SPECIFICATIONS CC-SCD-05125, CC-SCD-05134,CC-SCD-05137 AND CC-SCD-05138

Carney Wood

Spring

Hall (CW)

9.8

NOTES

GENERAL NOTES:

1 FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
2 ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
3 ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
4 THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.

LEGEND

LEGEND

SITE BOUNDARY shown thus

PROPOSED 345MM PRECAST CONCRETE CHANNEL KERB shown thus

PROPOSED ROAD GULLY shown thus (RG)

PROPOSED BUFF COLOURED TACTILE PAVING (400MMX400MM) (See TII CC-SCD-05030) shown thus

PROPOSED DIRECTION OF FALL / CAMBER shown thus

PROPOSED ROAD LEVEL shown thus (RL 11.000)

PROPOSED ROAD KERB shown thus

PROPOSED DROP KERB shown thus

PROPOSED HOMEZONE OUTLINE shown thus

NOTES :

All YIELD and STOP signage line markings are to be thermo plastic and conform with the Department of Transport, Tourism and Sport Traffic Sign Manual.

All line markings are to be thermo plastic and in accordance with the Department of Transport, Tourism and Sport Traffic Sign Manual.

All signage to conform with the with the Department of Transport, Tourism and Sport Traffic Sign Manual.

Red Line Area:-
10,844 m^2 1.084 Hectares

ITM Co-Ordinates of site:- 565696, 843573

Irish Grid Co-Ordinates: 165737, 343569

Rev.	Modifications	By	Chkd	Aprvd	Date
P.01	Issued for COSTING	PC	EM	EM	17.08.23

Layout Ref.:
File P:\Jod-jobs\6972 Carney Housing\700 Drawings\703 Planning\01 WIP\6972-JOD-XX-ZZ-DR-C-200-008-009 Road Layout And Construction Detail.dwg

Client
Sligo County Council
Comhairle Chontae Shligigh

Project
PROPOSED HOUSING DEVELOPMENT AT CARNEY, CO. SLIGO

Stage
PLANNING

Title
PROPOSED ROAD LAYOUT

Scale
1:400 @ A1

Surveyed	Drawn	Checked	Date
OSI	PC	XX	AUG '23

JENNINGS O'DONOVAN & PARTNERS
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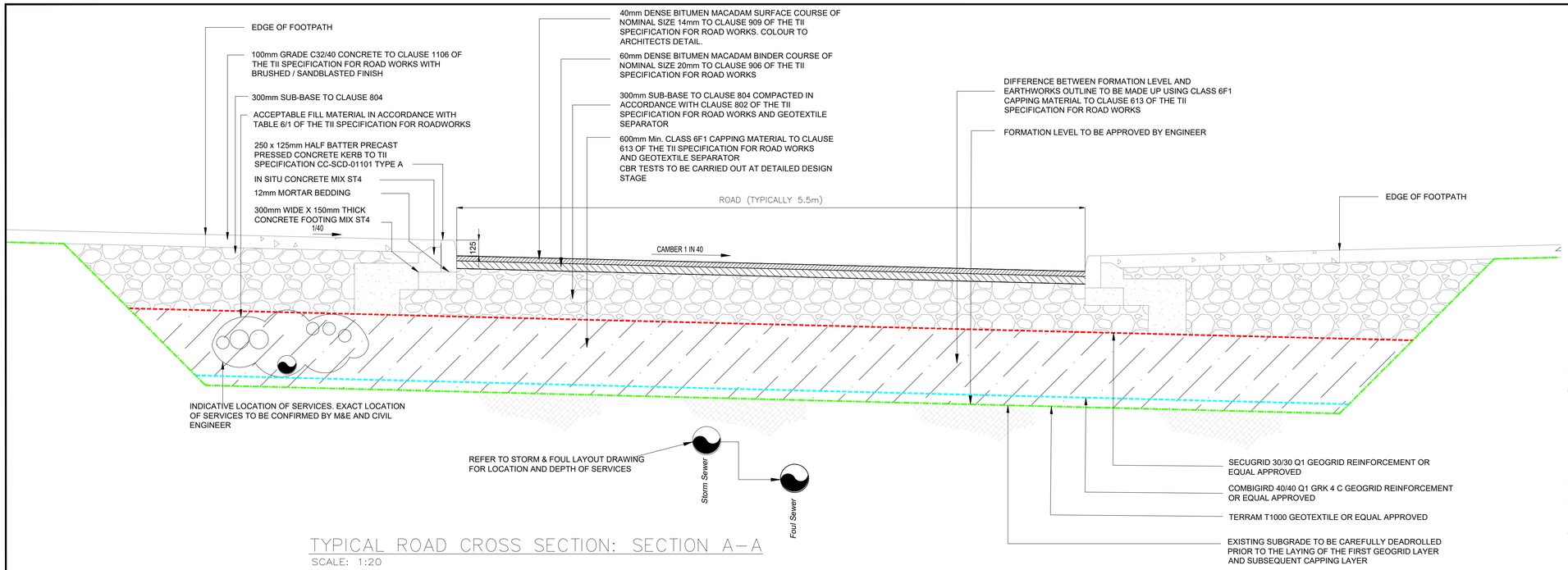
Email: info@jodireland.com

Drawing No. 6972-JOD-XX-ZZ-DR-C-200-008

Revision P.01



TYPICAL ROAD CROSS SECTION: SECTION A–A
SCALE: 1:20

NOTES

GENERAL NOTES:
1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
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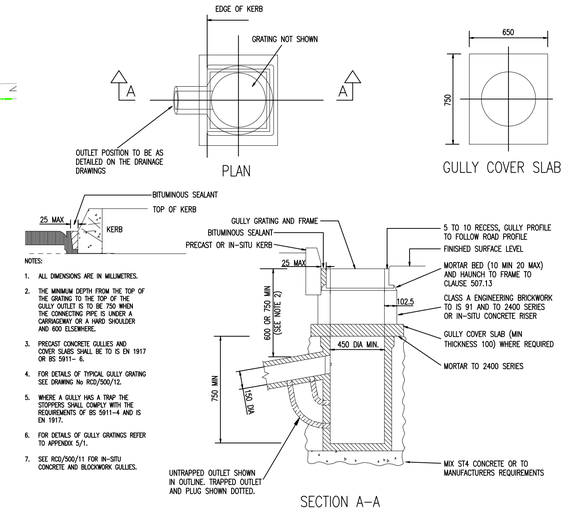
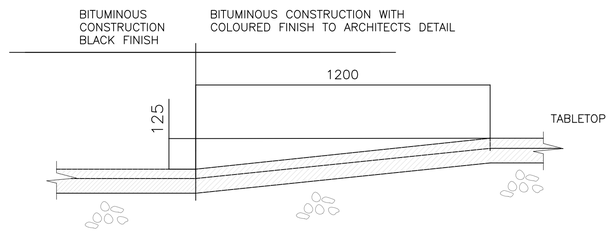
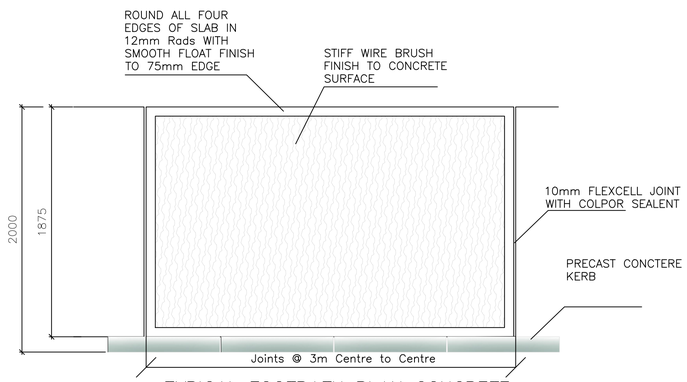
4. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.



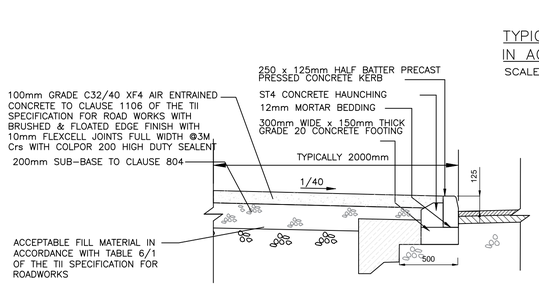
TYPICAL ROAD GULLEY DETAIL IN ACCORDANCE WITH TII DETAIL RCD 500/10
SCALE: NOT TO SCALE



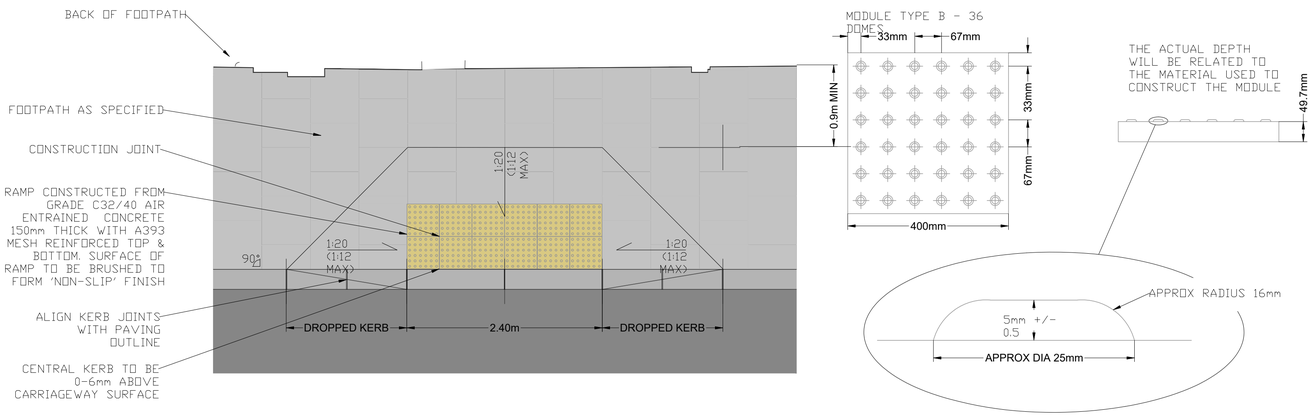
TRANSITION RAMP
SCALE: 1:12.5



TYPICAL FOOTPATH PLAN CONCRETE
SCALE: 1:25



TYPICAL CONCRETE FOOTPATH CROSS SECTION
SCALE: 1:20



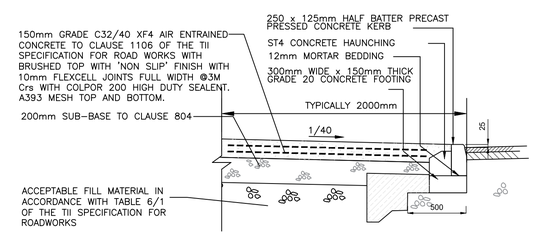
NOTES:

1. THE TACTILE DOMES ON THE TILES MUST BE LINED UP TO GIVE THE DIRECTION OF TRAVEL IN ORDER TO CROSS THE CARRIAGEWAY STRAIGHT
2. UTILITY CABINETS/CHAMBERS MUST NOT BE LOCATED WITHIN THE TACTILE PAVING AREA
3. REFER TO TACTILE PAVING GUIDANCE DOCUMENTATION
4. TACTILE BLISTER PAVING SHALL BE BEDDED ON 25 MM MOIST SAND/CEMENT MORTAR (3:1), JOINTS FILLED WITH 4:1 MIX WITHIN 2mm OF THE PAVING SURFACE

LEGEND

TACTILE PAVIOUR 400x400 BUFF FINISH (5mm JOINT) TACTILE TO BE LAID SO BLISTER PATTERN IS IN LINE WITH CROSSING

DROPPED KERB GEOMETRY AND EXCERPT FROM TII –TACTILE AND PAVING DETAILS AND RECOMMENDED GRADIENTS AT UNCONTROLLED PEDESTRIAN CROSSING CC–SCD–05136



TYPICAL CONCRETE FOOTPATH CROSS SECTION AT DRIVEWAY ENTRANCES
SCALE: 1:20

Rev.	Modifications	By	Chkd	Aprvd	Date
P.01	Issued for COSTING	PC	MF	MF	16.08.23

Layout Ref.:
File: P:\Jod-jobs\6972 Carney Housing\700 Drawings\703 Planning\01 WIP\6972-JOD-XX-ZZ-DR-C-200-008-009 Road Layout And Construction Detail.dwg

Client: Sligo County Council, Comhairle Chontae Shligigh

Project: PROPOSED HOUSING DEVELOPMENT AT CARNEY, CO. SLIGO

Stage: PLANNING

Title: PROPOSED ROAD CONSTRUCTION DETAILS AND SECTIONS

Scale: AS SHOWN @ A1

Surveyed	Drawn	Checked	Date
OSI	PC	MF	AUG '23

JENNINGS O'DONOVAN & PARTNERS
CONSULTING ENGINEERS,
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SLIGO,
IRELAND.
TEL. +353 (0)71 916 1416
FAX. +353 (0)71 916 1080
Email: info@jodireland.com

Drawing No.	Revision
6972-JOD-XX-ZZ-DR-C-200-009	P.01

Block 1,2 FFL=12.00m	Depth of Layer (m)
Floor	0.225
Raft boot	0.45
T3	0.05
T2	0.9
T1/0	1.755
FFL to Depth of Formation (m)	3.38

Block 3,4,5,6 FFL = 11.25m	Depth of Layer (m)
Floor	0.225
Raft boot	0.45
T3	0.05
T2	0.9
T1/0	1.215
FFL to Depth of Formation (m)	2.84

Block 7,8 FFL=11.00m	Depth of Layer (m)
Floor	0.225
Raft boot	0.45
T3	0.05
T2	0.9
T1/0	1.535
FFL to Depth of Formation (m)	3.16

Block 9,10 FFL-11.00m	Buildup (m)
Floor	0.225
Raft boot	0.45
T3	0.05
T2	0.9
T1/0	1.535
FFL to Depth of Formation (m)	3.16

Block 11,12,13 FFL = 11.35m	Buildup (m)
Floor	0.225
Raft boot	0.45
T3	0.05
T2	0.9
T1/0	0.715
FFL to Depth of Formation (m)	2.34

Block 14,15 FFL=11.75m	Buildup (m)
Floor	0.225
Raft boot	0.45
T3	0.05
T2	0.9
T1/0	1.115
FFL to Depth of Formation (m)	2.74

Block 16,17 FFL=12.00m	Buildup (m)
Floor	0.225
Raft boot	0.45
T3	0.05
T2	0.225
T1/0	0
FFL to Depth of Formation (m)	0.84

Block 18,19 FFL=12.50m	Buildup (m)
Floor	0.225
Raft boot	0.45
T3	0.05
T2	0.575
T1/0	0
FFL to Depth of Formation (m)	1.34

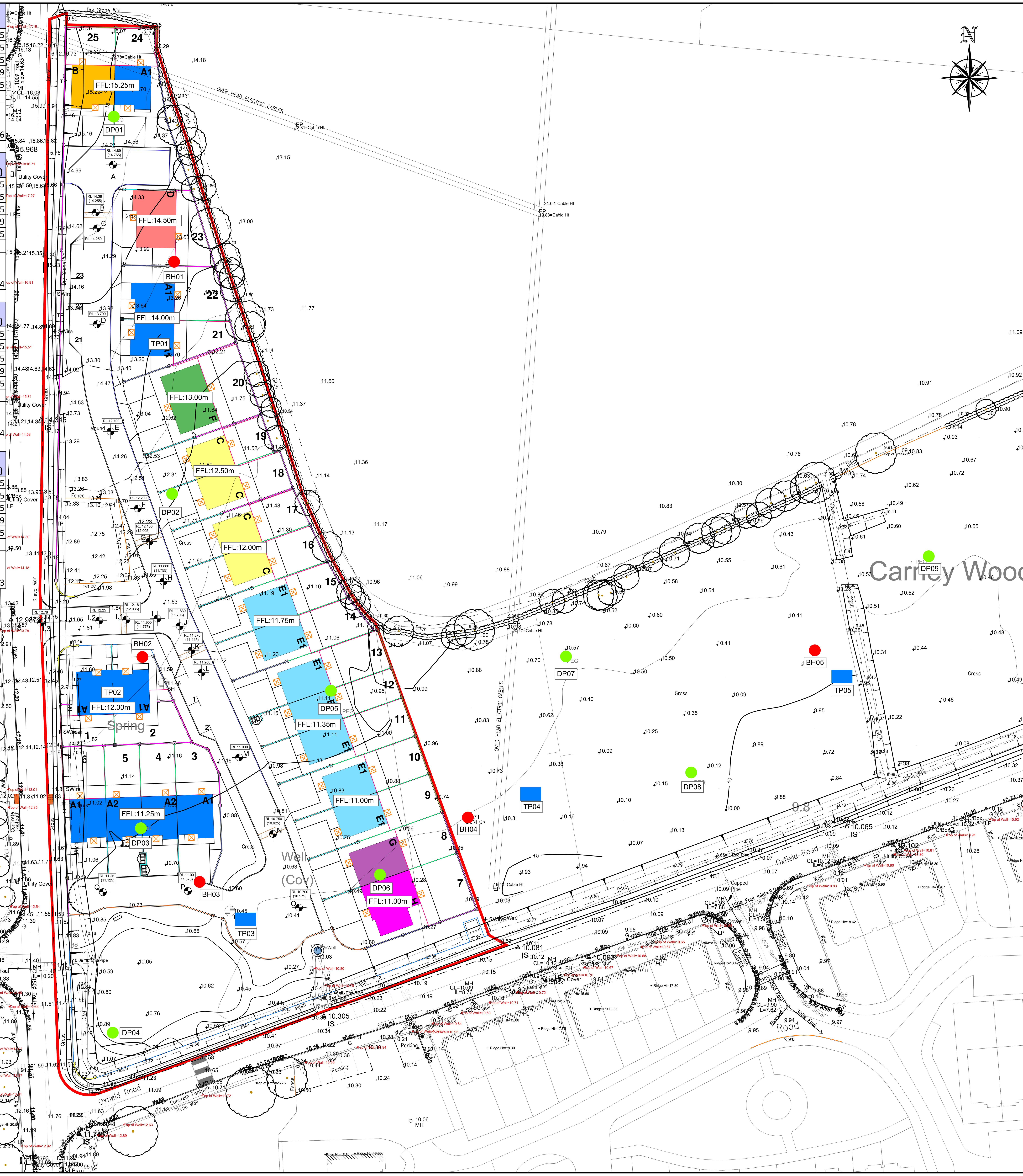
Block 20 FFL=13.00m	Buildup (m)
Floor	0.225
Raft boot	0.45
T3	0.05
T2	0.9
T1/0	0.215
FFL to Depth of Formation (m)	1.84

Block 21,22 FFL=14.00m	Buildup (m)
Floor	0.225
Raft boot	0.45
T3	0.05
T2	0.9
T1/0	0.445
FFL to Depth of Formation (m)	2.07

Block 23 FFL=14.50m	Buildup (m)
Floor	0.225
Raft boot	0.45
T3	0.05
T2	0.9
T1/0	0.945
FFL to Depth of Formation (m)	2.57

Block 24,25 FFL=15.25m	Buildup (m)
Floor	0.225
Raft boot	0.45
T3	0.05
T2	0.9
T1/0	0.105
FFL to Depth of Formation (m)	1.73

Node	Road Level	Depth of RL to Formation (mOD)	Surface, subbase and capping min. buildup (m)	6F1 Fill Required (m)
A	14.765	13.52	0.8	0.445
B	14.255	12.38	0.8	1.075
C	14.250	12.38	0.8	1.07
D	13.700	11.93	0.8	0.97
E	12.700	11.16	0.8	0.74
F	12.200	11.16	0.8	0.24
G	12.005	11.16	0.8	0.045
H	11.755	9.62	0.8	1.335
J	11.705	9.62	0.8	1.285
K	11.445	9.62	0.8	1.025
L	11.200	9.62	0.8	0.78
M	11.000	7.84	0.8	2.36
N	10.625	7.84	0.8	1.985
O	10.575	7.84	0.8	1.935
P	10.875	8.67	0.8	1.405
Q	11.125	8.41	0.8	1.915
I	11.775	9.62	0.8	1.355
I.1	12.035	9.62	0.8	1.615
I.2	12.25	9.62	0.8	1.83
I.3	12.78	9.62	0.8	2.36



NOTES

GENERAL NOTES:

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2 ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
3 ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
4 THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.

LEGEND

TRIAL PIT LOCATION shown thus — TP01

BOREHOLE LOCATION shown thus — BH01

DYNAMIC PROBE LOCATION shown thus — DP01

PROPOSED ROAD LEVEL shown thus — RL 14.89 (14.765) A

PROPOSED FINISHED FLOOR LEVEL shown thus — FFL:15.25m

Red Line Area:-
10,844 m^2 1.084 Hectares

ITM Co-Ordinates of site:- 565696, 843573

Irish Grid Co-Ordinates: 165737, 343569

Rev.	Modifications	By	Chkd	Aprvd	Date
P.01	Issued for COSTING	PC	EM	EM	17.08.23

Layout Ref.:

File: P:\Jod-jobs\6972 Carney Housing\700 Drawings\703 Planning\01 WIP\6972-JOD-XX-ZZ-DR-C-200-012 Depth Of Excavation To Foundation.dwg

Client: Sligo County Council Comhairle Chontae Shligigh

Project: PROPOSED HOUSING DEVELOPMENT AT CARNEY, CO. SLIGO

Stage: PLANNING

Title: PROPOSED EXCAVATION TO FORMATION DEPTH PLAN

Scale: 1:400 @ A1

Surveyed	Drawn	Checked	Date
OSI	PC	XX	AUG '23

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Drawing No.: 6972-JOD-XX-ZZ-DR-C-200-012

Revision: P.01

APPENDIX II

TRIAL HOLES

IRISH DRILLING LIMITED

LOUGHREA, CO. GALWAY, IRELAND

CONTRACT DRILLING
SITE INVESTIGATION

Phone: (091) 841 274
Fax: (091) 847 687

email: info@irishdrilling.ie

PROPOSED HOUSING DEVELOPMENT AT CARNEY, CO. SLIGO

DRAFT

SITE INVESTIGATION REPORT

Sligo County Council,
County Hall,
Riverside,
Sligo.

Jennings O' Donovan,
Consulting Engineers,
Finisklin,
Sligo.

	Prepared by	Approved by	Rev. Issue Date:	Revision No.
	Ronan Killeen	Declan Joyce	13th July 2023	23_SO_102/01
Signature				

FOREWORD

The borehole, probe and trial pit sample records have been compiled from an examination of the samples by a Geotechnical Engineer and from the Drillers' descriptions. The fieldwork was carried out in accordance with IS EN 1997-2 and BS5930, 2015 Code of Practice for Site Investigations with precedence given to IS EN 1997-2 where applicable.

The report presents an opinion on the configuration of the strata within the site based on the borehole and trial pit sample results. The assumptions, though reasonable, are given for guidance only and no liability can be accepted for changes in conditions not revealed by the boreholes and trial pits.

Contents:

1.0 Introduction.

Irish Drilling Ltd. (IDL) was instructed by Jennings O' Donovan Consulting Engineers, on behalf of Donegal County Council, to carry out a site investigation at the site of a proposed Housing Development.

This site investigation was carried out to provide detailed geotechnical information of the underlying ground conditions at the proposed development.

The fieldwork commenced on April 20th 2023 and was completed on May 29th 2023.

2.0 The Site & Geology

The site is located at Carney, County Sligo.

The site is agricultural in nature and the fieldwork was carried out predominantly on farmlands. An archaeological survey of the site was carried out prior to commencement of the geotechnical investigation.

A Site Plan, prepared by the client's representatives and showing approximate 'As-Built' fieldwork locations, is included with this report.

The following were the main published information sources used:
Geological Map of Ireland: 1:500,000 scale map series.

Site investigation data is available as point source data along the proposed route, and the majority of the ground in between the points can only be assumed to follow the characteristics of the nearest available data.

Overview of Subsoil Geology
Peat:
The deposition of peat occurred in post-glacial periods and is generally associated with the start of warmer and wetter climatic conditions. Peat is an unconsolidated usually dark brown to black organic material comprising a mixture of decomposed and undecomposed plant matter that accumulated in an acidic waterlogged environment. Peat has an extremely high-water content generally averaging over 90% by volume.

Glacial Till:
Glacial Till is what was often referred to as Boulder Clay. It is a diverse material that is largely deposited sub-glacially and has a wide range of characteristics due to the variety of parent materials and different processes of deposition. Tills are tightly packed, unsorted, heterogeneous, unbedded, and can have a wide range of particle sizes and types, which are often but not exclusively angular or sub-angular.

The type of parent material plays a critical role in providing the particles that create different subsoil permeability with sandstones giving rise to a high proportion of sand sized grains in the till matrix.

Solid Geology
The Geological Map of Ireland: (GSI 1:100,000 scale map series) indicate that the site is underlain by the Carboniferous Limestone Formation.

Ground conditions encountered during the completion of the fieldwork were typical and as expected for this region and predominantly consisted of Glacial Tills.

The Glacial Tills in general consisted of slightly gravelly sandy silt/clay with cobbles and boulders and/or silty sands and/or gravels with cobbles and boulders.

3.0 Fieldwork.

The following plant was mobilised to site to carry out fieldwork operations:

1nr. Hitachi 130 Tracked Excavator.
1nr. Geotool DPH Rig.
1nr. Dando 2000 Cable Percussive Boring Rig.

Fieldwork carried out to date has included the following:

Six cable percussion (Shell & Auger) boreholes were completed using a Dando 2000 Cable Percussive Boring Rig. The boreholes were bored to 'refusal' or to depths as instructed by the client's representatives.

The borehole depths ranged from 1.40m to 5.00m below ground level.

In–Situ testing consisting of Standard Penetration Tests were carried out at regular intervals (predominantly 1.0m intervals) or as instructed by the client's representatives.

Disturbed bulk and jar soil samples were taken at each change in strata and at a maximum of 1.50m intervals.

A 50mm diameter standpipe was installed in the following borehole locations to allow for monitoring of groundwater levels over a prolonged period of time: BH 04.

A summary of water readings recorded during the fieldwork period is included with this report as Appendix 4.

Six trial pits were excavated on site using a tracked excavator.

The pits were logged and photographed by an Engineer with observations made on ground conditions, pit stability, water ingress and services encountered.

Small and bulk disturbed soil samples were recovered at each change in strata and returned to the laboratory and presented for testing.

In-Situ tests consisting of Plate Bearing Tests were also carried out at five trial pit locations and the records of these tests are included in Appendix 5a.

Four Soil Infiltration Tests were carried out at trial pit locations TP 01, 03, 05 and 06 and in accordance with BRE Digest 365 and the records of same are included as Appendix 5b.

Eleven dynamic probes (Dynamic Probe Heavy, DPH) were carried out to 'refusal' using a LMSR-V(k) Geotool Dynamic Probing Rig.

The dynamic probe was carried out to depths ranging from 0.80m to 2.90m below ground level.

The Dynamic Probing Rig involves the dropping of a 50 kg hammer onto rods from a standard height (500mm) and recording the number of blows it takes to penetrate the rods (with a cone tip) to depth of 100mm increments into the soil.

The dynamic probe engineering logs then graph the number of blow counts required to penetrate each 100mm incremental depth. The probe is considered to have encountered 'refusal' when a blow count of 25 does not achieve the full 100mm incremental depth.

The records of the dynamic probe tests are included with this report in Appendix 3.

Environmental soil samples were taken at the following fieldwork locations and presented to the specialist laboratory for environmental testing: TP 01 to TP 06.

Waste classification testing was carried out on the samples and the records of same are included with appendix 6.

The borehole, probe and trial pit locations were set out on site using a Trimble CU Bluetooth GPS Surveying Unit and the co-ordinates are included on the logs presented in the appendices.

All fieldwork co-ordinates are reported to Irish Transverse Mercator (ITM) with Reduced Levels recorded relative to Malin Head Datum and with an accuracy level of + or – 0.10m.

The fieldwork was carried out in accordance with IS EN 1997-2 and BS5930, 2015 Code of Practice for Site Investigations with precedence given to IS EN 1997-2 where applicable.

4.0 Laboratory Testing

Representative samples recovered from the boreholes and trial pit locations were scheduled for testing in the laboratory.

The test schedules were prepared by the Client's Engineer and included some or all of the following tests on disturbed and undisturbed soil samples:

* Natural Moisture Content.
* Atterberg Limits.
* Particle Size Distribution.
* Triaxial (Quick Undrained)

Groundwater samples were recovered from the standpipe installed at BH 04, on July 11th 2023.The test schedule also included the following tests on groundwater samples recovered from BH 04:

- Ph
- Sulphate Content
- Conductivity
- Sodium
- Potassium
- Calcium
- Chloride
- Alkanity
- Iron
- Manganese
- BTEX

The test schedules were carried out predominantly at the IDL Laboratory located at Loughrea, County Galway.

A number of specialist tests not available at the IDL laboratory were carried out by designated laboratories on a subcontract basis as follows:

Laboratory chemical and environmental tests were carried out by Alcontrol Laboratories, UK.

Soil samples in general were recovered from the completion of cable percussive boreholes and trial pits. The records of soil laboratory test results carried out on same are reported in Appendix 6.

The soil and rock descriptions as noted on the borehole and trial pit logs are in general visual descriptions as observed and logged by our Engineers and are described in accordance with IS EN 1997-2 and BS5930, 2015 Code of Practice for Site Investigations.

Soils descriptions (cohesive or otherwise) are also initially assessed based on the texture and 'feel' of the soil materials as witnessed by our Geotechnical Engineers and in accordance with IS EN 1997-2 and BS5930.

Where laboratory classification tests have been carried out on soil samples then these visual descriptions have been amended accordingly to take into account the results of these classification tests.

The records of all fieldwork, laboratory test results and photographs are included in the appendices of this Report.

5.0 Ground Conditions

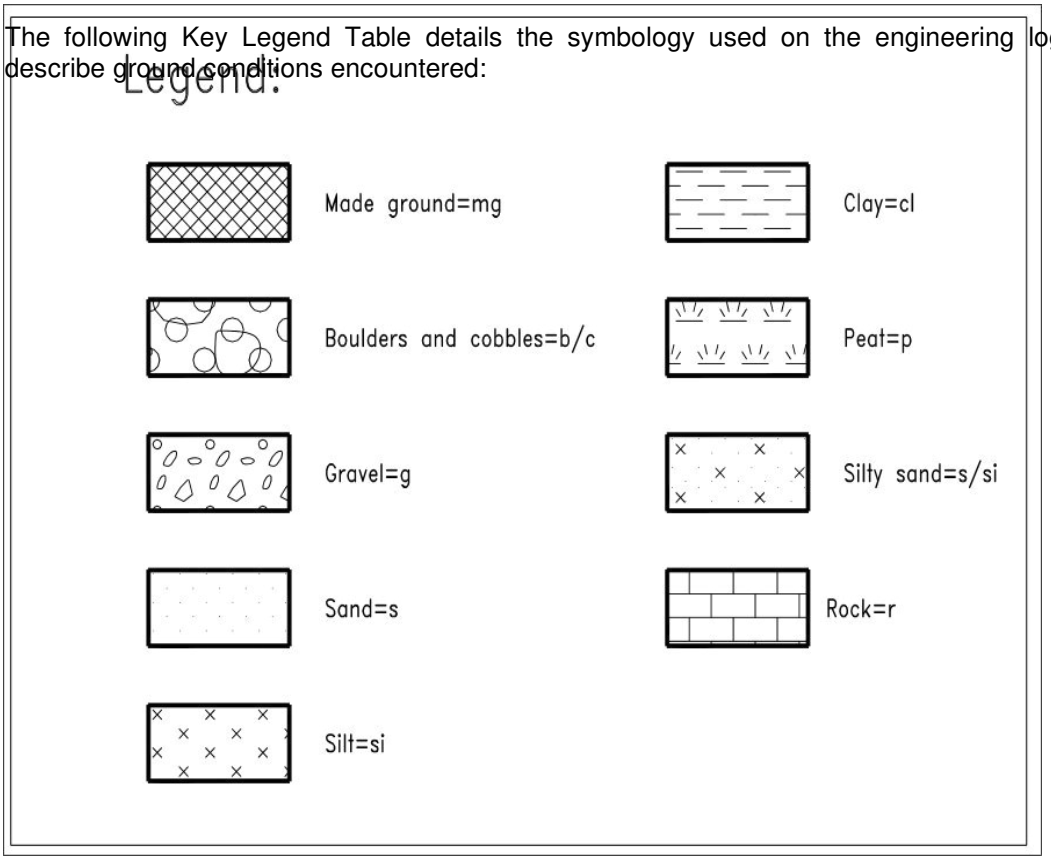
Ground conditions encountered during the completion of the fieldwork generally consisted of soft organic peaty silt/clay overlying glacial tills.

The Glacial Tills in general consisted of slightly gravelly sandy silt/clay with cobbles and boulders and/or silty sands and/or gravels with cobbles and boulders.

The dynamic probes also confirmed the extent of the soft to very soft soils with the following table summarising their depths:

Probe Location:	Depth of Soft to Very Soft Soils (bgl):
DP 01	G.L. to 0.60m
DP 02	G.L. to 0.90m
DP 03	G.L. to 1.40m
DP 04	G.L. to 1.40m
DP 05	G.L. to 1.70m
DP 06	G.L. to 1.60m
DP 07	G.L. to 1.40m
DP 08	G.L. to 0.90m
DP 09	G.L. to 0.80m
DP 10	G.L. to 0.60m
DP 11	G.L. to 1.10m

The following Key Legend Table details the symbology used on the engineering logs to describe ground conditions encountered:



For detailed descriptions of the overburden encountered please refer to the engineering logs presented as Appendix 1 and Appendix 2.

5.1 Groundwater

Groundwater was not recorded in the borehole during fieldwork operations.

Groundwater was encountered in the following trial pits during excavations on April 20th 2023:

Borehole	Depth Below Ground Level (m)
TP 03	0.60m
TP 04	2.90m
TP 05	3.10m
TP 06	2.60m

Groundwater inflows may occur in many areas during the completion of excavations and the rate of inflow will vary with the permeabilities of the soils and rock.

The following table summarises typical permeability values:

Coefficient of Permeability (m/sec)	
SOILS	
Gravel	$1 – 10^{-1}$
Clean sands and sand-gravel mixtures	*$10^{-1} – 10^{-4}$*
Very fine sands, silts and silt/clay laminates	*$10^{-4} – 10^{-7}$*
Unfissured clays and silt/clay (>20% clay)	*$10^{-7} – 10^{-10}$*
Dessicated and fissured clays	*$10^{-1} – 10^{-7}$*
ROCK	
Heavily fractured rock	*$1 – 10^{-1}$*
Open-jointed rock	*$10^{-1} – 10^{-3}$*
Jointed rock	*$10^{-3} – 10^{-6}$*

It should be noted that where cavities are encountered that local permeabilities are likely to be higher than those quoted above.

6.0 Geotechnical Review

6.0.1 Foundations

Due to the presence of very soft and soft soils frequently to depths of up to about 1.70m below ground level deep pad or strip foundations could be considered.

The following allowable bearing pressures may be adopted:

Location	Depth	Allowable Bearing Pressure
BH 01	1.10m	200kN/m²
BH 02	2.00m	250kN/m²
	3.00m	300kN/m²
BH 03	1.20m	75kN/m²
	2.00m	200kN/m²
BH 04	2.00m	200kN/m²
	2.70m	250kN/m²
BH 05	2.00m	150kN/m²
	3.00m	200kN/m²
BH 06	1.00m	120kN/m²
	2.00m	200kN/m²
	3.00m	300kN/m²

Dynamic probe records indicate very soft ground conditions predominantly up to 2.00m depth throughout the site (DP 1 to DP 20). Blow counts of 0, 1 and 2 indicate very soft ground conditions and for detailed records of the dynamic probes completed please refer to Appendix 4.

Buoyancy forces may be counteracted by using a thickened slab or by using tension piles socketed into the bedrock.

While the water table was encountered above the depths of the recommended pad or strip foundations, as described above, it would be prudent to allow the self-weight of foundations to

exceed buoyancy forces – bearing in mind that the water table may be at ground level at times of flooding or excessive rainfall.

Pad or strip foundations may be designed bearing on 'sound' strong to very strong bedrock using an allowable bearing pressure of 600kN/m^2.

Consideration could also be given to using piled foundations.

The length of pile will depend on the pile type and diameter, the design loads and the strength of the soils and rock.

Driven piles could be considered provided that the noise and vibration levels are within acceptable limits.

Obstructions in the form of boulders are likely to be encountered and it may be necessary to remove these obstructions.

If bored piles are used, difficulties may arise, particularly in the form of 'boiling' of the saturated granular deposits when boring below the water table.

If the overburden soils are unable to provide enough friction and end bearing for the proposed design loads it may be necessary to continue the piles down to bedrock.

The advice of specialist piling contractors should be sought with regard to the pile design and feasibility of their type of pile.

Any loose or soft pockets of overburden should be removed and replaced with compacted hardcore fill or 'lean-mix' concrete.

The following parameters are recommended for retaining structures (lateral earth pressures)

Strata	Unit Wt. saturated/dry kN/m^3	Cohesion (undrained) kPa	Angle of internal friction ϕ degrees
Fill	22/20	0	20
Loose Sand and Gravel	20/16	0	28
Dense Sand and Gravel	21/17	0	35
Soft slightly organic clay	16/10	20	0
Firm sandy clay	17/12	40	0
Firm to stiff glacial till	20/17	75	0
Stiff glacial till	20/17	100	0
Very stiff glacial till	20/17	200	0
Rock	23/23	1,000	30

6.0.2 Access Road and Pavements

In-Situ Plate Bearing Tests carried out at a number of trial pit locations indicate approximate CBR values as follows (refer to Appendix 5):

Trial Pit:	Depth below Ground Level (m)	CBR Value (%)
TP 02	0.50	0.9
TP 03	0.80	0.3
TP 04	0.60	0.3
TP 05	0.80	0.5
TP 06	0.80	0.9

Where soft or loose ground conditions are encountered and in particular where CBR values of less than 2% are encountered it would be prudent to place a geotextile such as Terram on the

subsoil and also possibly a geogrid to provide additional reinforcement and to reduce the amount of imported fill and minimise differential settlement under applied loads.

Pavements on broken rock or on rockhead may be designed using a CBR of 15%.

6.0.3 Chemical tests

The results of chemical tests indicate that most of the samples are in the DS-1 Category with regard to protection of concrete from chemical attack.

Protection to iron or alloy pipes may be required and it would be advisable to consult with the suppliers of pipes and other ducting to determine if the pH values encountered are acceptable and if protection or coating of the pipes is necessary.

7.0 Excavations

In the interest of safety, personnel should not be allowed enter unsupported excavations deeper than 1.0m.

Excavations are likely to be unstable and some form of side supports are likely to be required to maintain stable excavations.

Excavations in the overburden are also likely to be difficult with boulders and cobbles expected and the use of a heavy hydraulic breaker may be required to remove boulders particularly when working within the confines of a narrow trench.

The walls of excavations of depth in excess of 1 m (with the exception of excavations in compact rock) may be secured be means of:

- Producing the excavation with inclined (escarpment) walls
- Installation of shoring, sheeting or bracing to the vertical walls to prevent movement that could cause damage to adjacent services, pavements and structures

Furthermore, the following requirements are recommended:

- Where possible at the crest of excavations, rainwater should be directed away from the excavation.
- The escarpments should be checked after every rainfall and after a long break in work, as well as every time before starting work.
- Safe distances must be maintained between the excavations and existing buildings.
- The state of the lining or the escarpments must be inspected each time before works start in the excavation.

The use of sumps and pumping is highly likely to be required to deal with groundwater inflows.

8.0 Stability of cuttings/embankments

The construction of large embankments or stockpiling of excavated materials raises problems of stability if the induced stresses increase to levels approaching the in-situ shear strengths of the soil foundation. Checks on bearing capacity, slope stability and displacement are necessary. If embankments are built over soft soil the soil may be 'squeezed out' under the loads.

Ronan Killeen
Declan Joyce
Chartered Engineers
Irish Drilling Limited
July 13th 2023

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(6) Kauzenkamp, K.W., Roels, J.M. and Hoppener, C. (1993), Assessment of soil contamination: General criteria and site specific modifications. In contaminated soil '93. Fourth Int. TNO /KfK Conference on Contaminated Soil. F Arendt, G.J. Annokkee, R. Bosman and W.J. van den Brink (eds.). Kluwer Academic Publishers.

(7) BRE Special Digest (1:2005) Concrete in aggressive ground.

(8) Spagnoli, G. (2008) An empirical correlation between different dynamic penetrometers.

Appendix 01
Borehole Records
(Cable Percussive)

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BOREHOLE LOG

Project	Location	BOREHOLE No
Proposed Housing Development	Carney, Co Sligo	**BH-01**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	28-05-23 28-05-23	13.48	E 565,705.0 N 843,659.1

Engineer	GROUNDWATER STRIKES	Sheet
Jennings O'Donovan	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status DRAFT

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
							Firm greyish brown sandy gravelly CLAY.	
0.50-1.00	B1					(1.10)		
				12.38		1.10		
1.10	SPT	50 for 10 mm (25, 50)					Obstruction as possible mudstone rock.	
				12.08		1.40		
1.40	SPT	50 for 10 mm (25, 50)					BH terminated at 1.40m bgl. Refusal.	
1.40	D3							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
28-05-23	13.00	1.40	1.10	203		1.1	1.4	1:00			BH backfilled.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used: Dando 2000		Driller: JP	Logged By: JP

IDL AGS4 UK BH CARNEY HOUSING CP FILE 1 JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
Proposed Housing Development	Carney, Co Sligo	**BH-02**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	28-05-23 28-05-23	11.62	E 565,698.8 N 843,581.8

Engineer	GROUNDWATER STRIKES	Sheet
Jennings O'Donovan	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status DRAFT

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
							Firm brown silty CLAY.	
0.50-1.00	B1					(1.10)		
				10.52		1.10		
1.20	SPT	N = 7 (1, 1, 1, 2, 2, 2)					Soft brown silty gravelly CLAY.	
1.20-1.70	B3					(1.40)		
2.00	SPT	N = 46 (4, 5, 9, 11, 12, 14)					2.00m: becoming stiff.	
				9.12		2.50		
2.70	D5					(0.50)	Obstruction as black granite.	
				8.62		3.00		
3.00	SPT	50 for 10 mm (25, 50)					BH terminated at 3.00m bgl. Refusal.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
28-05-23	17.30	3.00	3.00	203		2.5	3	1:00			BH backfilled.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used Dando 2000		Driller JP	Logged By JP

IDL AGS4 UK BH CARNEY HOUSING CP FILE 1 JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
Proposed Housing Development	Carney, Co Sligo	**BH-03**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	27-05-23 27-05-23	10.67	E 565,710.0 N 843,537.8

Engineer	GROUNDWATER STRIKES	Sheet
Jennings O'Donovan	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status DRAFT

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.40-0.80	B1					(2.00)	Firm brown silty gravelly CLAY.	
1.20	SPT	N = 10 (1, 2, 2, 2, 3, 3)						
1.20-1.30	B3							
				8.67		2.00		
2.00	SPT	50 for 83 mm (20, 5, 38, 12)		8.47		2.20	Obstruction as black granite.	
2.20	SPT	50 for 50 mm (25, 50)					BH terminated at 2.20m bgl. Refusal.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
27-05-23	13.00	2.20	2.00	203		2	2.2	1:00			BH backfilled.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used: Dando 2000		Driller: JP	Logged By: JP

IDL AGS4 UK BH CARNEY HOUSING CP FILE 1 JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
Proposed Housing Development	Carney, Co Sligo	**BH-04**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	29-05-23 29-05-23	10.55	E 565,762.5 N 843,550.4

Engineer	GROUNDWATER STRIKES	Sheet / Status
Jennings O'Donovan	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	Sheet 1 of 1 Status DRAFT

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
							Firm brown silty gravelly CLAY.	
0.50-1.00	B1							
1.20	SPT	N = 8 (1, 1, 2, 2, 2, 2)				(2.70)		
1.20-1.70	B3							
2.00	SPT	N = 32 (3, 5, 7, 7, 8, 10)					2.00m: becoming very stiff.	
2.00-2.50	B5							
				7.85		2.70		
2.70-2.80	B6			7.75		2.80	Obstruction as black granite.	
2.80	SPT	50 for 5 mm (25, 50)					BH terminated at 2.80m bgl. Refusal.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
29-05-23	10.00	2.80	2.80	203		2.7	2.8	1:00			50mm standpipe installed.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used: Dando 2000		Driller: JP	Logged By: JP

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BOREHOLE LOG

Project	Location	BOREHOLE No
Proposed Housing Development	Carney, Co Sligo	**BH-05**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	27-05-23 27-05-23	10.30	E 565,830.4 N 843,583.1

Engineer	GROUNDWATER STRIKES	Sheet / Status
Jennings O'Donovan	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	Sheet 1 of 1 Status DRAFT

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
							Soft brown sandy gravelly CLAY.	
0.50-1.00	B1							
1.20	SPT	N = 4 (1, 1, 1, 1, 1, 1)						
1.20-1.70	B3							
						(4.00)		
2.00	SPT	N = 17 (2, 2, 3, 3, 4, 7)					2.00m; becoming stiff.	
2.00-2.50	B5							
2.80	D6							
3.00	SPT	N = 28 (3, 4, 4, 7, 7, 10)						
3.00-3.50	B8							
				6.30		4.00		
4.00	SPT	47 for 155 mm (18, 7, 20, 25, 2)					Firm dark brown sandy gravelly CLAY with cobbles.	
4.00-4.50	B10					(0.50)		
				5.80		4.50		
4.50	SPT	50 for 10 mm (25, 50)					BH terminated at 4.50m bgl. Refusal.	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
27-05-23	17.30	4.50	4.50	203	

Chiselling

From	To	Hours
4	4.5	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used: Dando 2000		Driller: JP	Logged By: JP

IDL AGS4 UK BH CARNEY HOUSING CP FILE 1 JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
Proposed Housing Development	Carney, Co Sligo	**BH-06**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	26-05-23 26-05-23	10.67	E 565,880.3 N 843,607.6

Engineer	GROUNDWATER STRIKES	Sheet / Status
Jennings O'Donovan	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	Sheet 1 of 1 Status DRAFT

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.40-0.80	B1			9.77		(0.90) 0.90	Firm brown silty peaty CLAY.	
1.20	SPT	N = 17 (1, 0, 1, 4, 5, 7)		8.17		(1.60) 2.50	Medium dense sandy clayey GRAVEL.	
1.20-1.70	B3							
2.00	SPT	N = 32 (4, 5, 7, 7, 9, 9)					2.00m: becoming dense.	
2.00-2.50	B5							
2.50-3.00	B6			5.67		(2.50) 5.00	Stiff black sandy gravelly CLAY with cobbles.	
3.00	SPT	N = 42 (5, 7, 9, 9, 12, 12)					3.00m: becoming very stiff.	
3.00-3.50	B8							
3.80	D9							
4.00	SPT	50 for 175 mm (18, 7, 19, 20, 11)						
4.00-4.50	B11							
5.00	SPT	50 for 15 mm (25, 50)					BH terminated at 5.00m bgl. Refusal.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
26-05-23	17.30	5.00	5.00	203		4.5	5	1:00			BH backfilled.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used: Dando 2000		Driller: JP	Logged By: JP

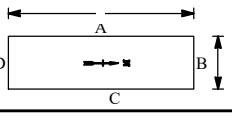
IDL AGS4 UK BH CARNEY HOUSING CP FILE 1 JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

Appendix 02
Trial Pit Records

PROJECT: Proposed Carney Housing Development	**TRIALPIT: TP-01**
LOCATION: Carney, Co Sligo	**Sheet 1 of 1**
CLIENT: Sligo County Council	**Co-ordinates:** **Rig: Hitachi 130**
ENGINEER: Jennings O'Donovan	**E 565,702.1 N 843,646.2** **Rev: 1**
Ground level: 13.03m O.D.	**DATE: 20.4.23**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							12.53	0.50	Soft dark brown peaty SILT with roots.	
			ES 1	0.50-1.00						
			ES 2	0.50-1.00						
			ES 3	0.50-1.00						
			D 4	0.50-1.00					Firm to stiff brown gravelly SILT with occasional cobbles and occasional boulders. Cobbles are angular to subangular of limestone. Boulders are angular to subangular of limestone.	
1			B 5	0.50-1.00			11.93	1.10		
						END			TP terminated at 1.10m bgl. Obstruction as probable rock.	
2										
3										
4										
5										
6										
7										
8										
9										
10										

Remarks: Soil infiltration test expedited in TP. TP dry on excavation. TP backfilled with arisings.

Scale: 1:50

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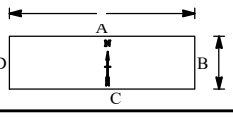
TRIALPIT CARNEY HOUSING TPS FILE 1 REV1 JULY 7 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

PROJECT: Proposed Carney Housing Development	**TRIALPIT: TP-02**
LOCATION: Carney, Co Sligo	**Sheet 1 of 1**
CLIENT: Sligo County Council	**Co-ordinates:** **Rig: Hitachi 130**
ENGINEER: Jennings O'Donovan	**E 565,692.8 N 843,578.0** **Rev: 1**
Ground level: 11.77m O.D.	**DATE: 20.4.23**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B/ATE	0.50					Firm brown gravelly organic SILT with occasional cobbles. Cobbles are subangular to subrounded of limestone.	
			ES 1	0.50-1.00						
			ES 2	0.50-1.00			10.97	0.80	0.60m: becoming stiff.	
			ES 3	0.50-1.00						
1			B 4	0.50-1.00					Firm brown gravelly SILT with occasional cobbles and occasional boulders. Cobbles are angular to subangular of limestone. Boulders are angular to subangular of limestone.	
			B 5	1.00-1.50						
			D 6	1.00-1.50			10.17	1.60		
						END			TP terminated at 1.60m bgl. Obstruction as possible rock.	
2										
3										
4										
5										
6										
7										
8										
9										
10										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:50

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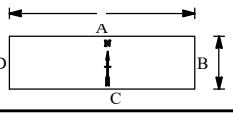
TRIALPIT CARNEY HOUSING TPS FILE 1 REV1 JULY 7 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

PROJECT: Proposed Carney Housing Development	**TRIALPIT: TP-03**
LOCATION: Carney, Co Sligo	**Sheet 1 of 1**
CLIENT: Sligo County Council	**Co-ordinates:** **Rig: Hitachi 130**
ENGINEER: Jennings O'Donovan	**E 565,719.0 N 843,530.5** **Rev: 1**
Ground level: 10.45m O.D.	**DATE: 20.4.23**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit unstable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							9.95	0.50	Soft dark blackish brown peaty SILT with roots.	
			ES 1	0.50-1.00						
			ES 2	0.50-1.00						
			ES 3	0.50-1.00						
			B 4	0.50-1.00					Soft brown organic gravelly SILT with occasional cobbles. Cobbles are subangular to subrounded of limestone.	
1			PLATE	0.80			9.35	1.10		
									Soft brown very gravelly SILT with frequent cobbles and frequent boulders. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
			D 5	1.50-2.00						
			B 6	1.50-2.00						
2									2.00m: becoming firm.	
							7.85	2.60		
						END			TP terminated at 2.60m bgl. Obstruction as possible rock.	
3										
4										
5										
6										
7										
8										
9										
10										

Remarks: Soil infiltration test expedited in TP. Moderate ingress of water at 0.60m bgl. TP backfilled with arisings.

Scale: 1:50

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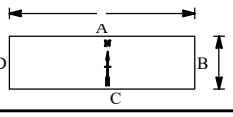
TRIALPIT CARNEY HOUSING TPS FILE 1 REV1 JULY 7 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

PROJECT: Proposed Carney Housing Development	**TRIALPIT: TP-04**
LOCATION: Carney, Co Sligo	**Sheet 1 of 1**
CLIENT: Sligo County Council	**Co-ordinates:**
ENGINEER: Jennings O'Donovan	**E 565,774.8 N 843,555.0**
	Rig: Hitachi 130
	Rev: 1
Ground level: 10.48m O.D.	**DATE: 20.4.23**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							10.18	0.30	Soft dark brown gravelly SILT with roots.	
			ES 1	0.50-1.00					Soft brown slightly gravelly organic SILT with rare cobbles. Cobbles are subangular to subrounded of limestone.	
			ES 2	0.50-1.00						
			ES 3	0.50-1.00						
			B 4	0.50-1.00			9.48	1.00		
1			PLATE	0.60					Soft brown gravelly sandy SILT with occasional cobbles and rare boulders. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
			D 5	2.00-2.50						
2			B 6	2.00-2.50					2.20m: becoming firm.	
		▼1					7.48	3.00		
3									Very stiff grey gravelly SILT with occasional cobbles and occasional boulders. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
			D 7	3.50-4.00						
			B 8	3.50-4.00						
4							5.98	4.50		
						END			TP terminated at 4.50m bgl - maximum reach of excavator.	
5										
6										
7										
8										
9										
10										

Remarks: Moderate ingress of water at 2.90m bgl. TP backfilled with arisings.

Scale: 1:50

Irish drilling LTD

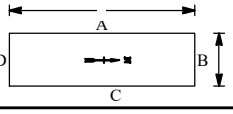
Ph.
Fax

TRIALPIT CARNEY HOUSING TPS FILE 1 REV1 JULY 7 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

PROJECT: Proposed Carney Housing Development	**TRIALPIT: TP-05**
LOCATION: Carney, Co Sligo	**Sheet 1 of 1**
CLIENT: Sligo County Council	**Co-ordinates:** **Rig: Hitachi 130**
ENGINEER: Jennings O'Donovan	**E 565,835.7 N 843,578.0** **Rev: 1**
Ground level: 10.06m O.D.	**DATE: 20.4.23**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							9.66	0.40	Very soft dark brown peaty SILT with roots.	
									Soft light brown organic gravelly SILT with occasional cobbles. Cobbles are subangular to subrounded of limestone.	
			U ATE ES 1 ES 2 ES 3 B 4	0.80 0.80-1.20 0.80-1.20 0.80-1.20 0.80-1.20			8.86	1.20	1.10m: becoming firm.	
1									Firm brown slightly sandy very gravelly SILT with frequent cobbles and frequent boulders. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
2			B 5	2.00-2.50						
3		▼1					7.06	3.00		
			D 6 B 7	3.20-3.70 3.20-3.70					Stiff grey gravelly SILT with occasional cobbles and occasional boulders. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. 3.30m: becoming very stiff.	
							6.36	3.70		
							END		TP terminated at 3.70m bgl. Unable to progress TP - sidewall collapse.	
4										
5										
6										
7										
8										
9										
10										

Remarks: Soil infiltration test expedited in TP. Rapid ingress of water at 3.10m bgl. TP backfilled with arisings.

Scale: 1:50

Irish drilling LTD

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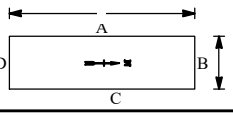
Fax

PROJECT: Proposed Carney Housing Development	**TRIALPIT: TP-06**
LOCATION: Carney, Co Sligo	**Sheet 1 of 1**
CLIENT: Sligo County Council	**Co-ordinates:**
ENGINEER: Jennings O'Donovan	**E 565,915.2 N 843,618.5**
	Rig: Hitachi 130
	Rev: 1
Ground level: 10.89m O.D.	**DATE: 20.4.23**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit slihgtly unstable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							10.69	0.20	Soft dark brown SILT with roots.	
									Firm brown organic gravelly SILT with occasional cobbles. Cobbles are subrounded to subangular of limestone.	
			ES 1	0.50-1.00						
			ES 2	0.50-1.00						
			ES 3	0.50-1.00			10.09	0.80		
			B 4	0.50-1.00					Firm brown slightly sandy very gravelly SILT with frequent cobbles and frequent boulders. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
1			PLATE	0.80						
			B 5	1.00-1.50						
2			B 6	2.00-2.50						
		▼1					8.19	2.70		
									Stiff grey gravelly SILT with occasional cobbles and occasional boulders. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
3										
			D 7	3.50-4.00						
			B 8	3.50-4.00					3.60m: becoming very stiff.	
4							6.39	4.50		
						END			TP terminated at 4.50m bgl - maximum reach of excavator.	
5										
6										
7										
8										
9										
10										

Remarks: Soil infiltration test expedited in TP. Moderate ingress of water at 2.60m bgl. TP backfilled with arisings.

Scale: 1:50

Irish drilling LTD

Ph.
Fax

TRIALPIT CARNEY HOUSING TPS FILE 1 REV1 JULY 7 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

Appendix 03
Dynamic Probe Records

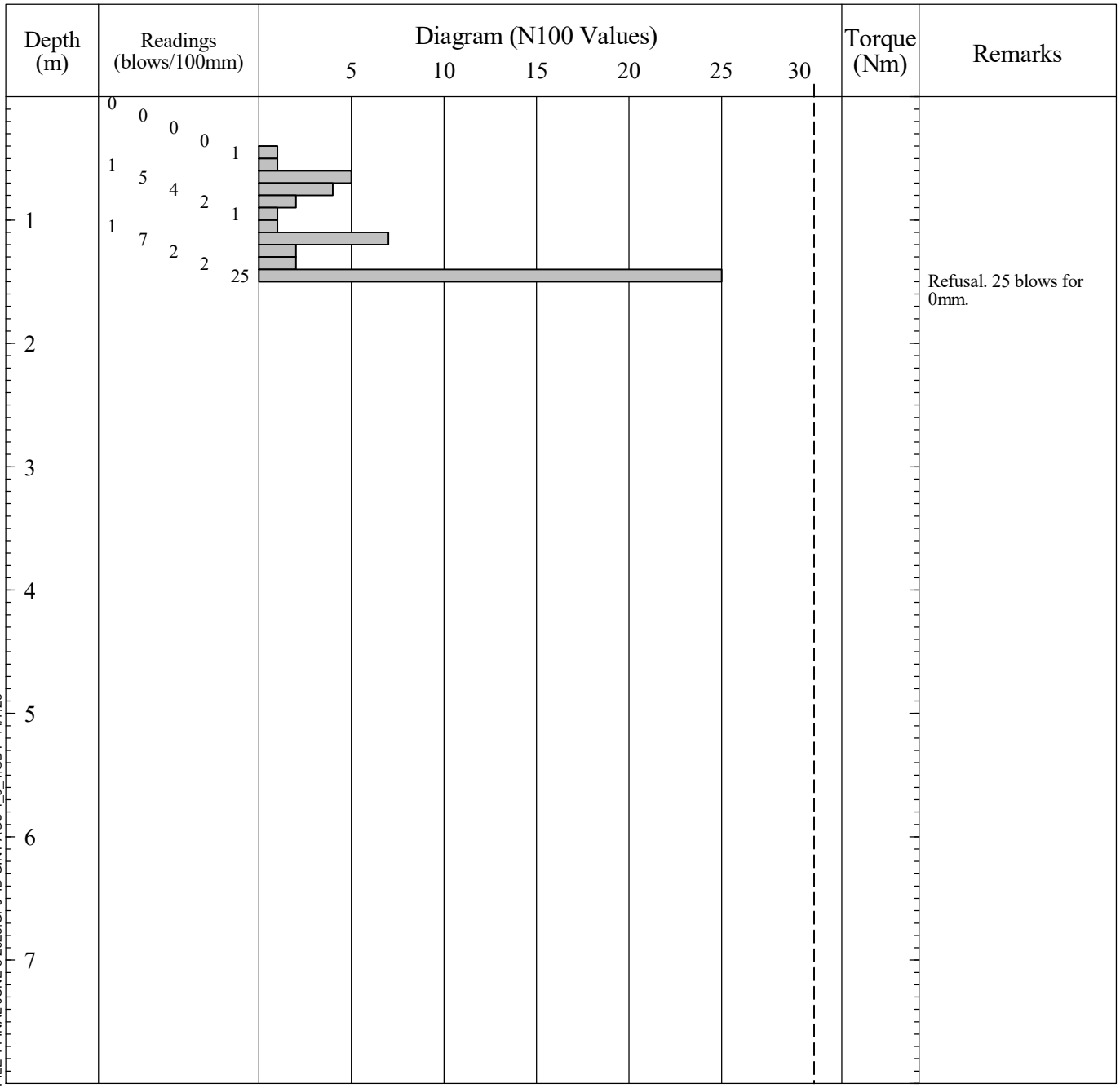
Irish drilling LTD

DYNAMIC PROBE LOG

Project	Location	PROBE No
Proposed Housing Development	Carney, Co Sligo	**DP-01**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	21-04-23 21-04-23	14.92	E 565,693.2 N 843,687.5

Engineer	Sheet / Status
Jennings O'Donovan	Sheet 1 of 1 Status FINAL



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 1.40m bgl.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used DPH Rig		Driller SS	Logged By SS

AGS4 DYNAMIC PROBE CARNEY HOUSING DPS FILE 1 FINAL JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

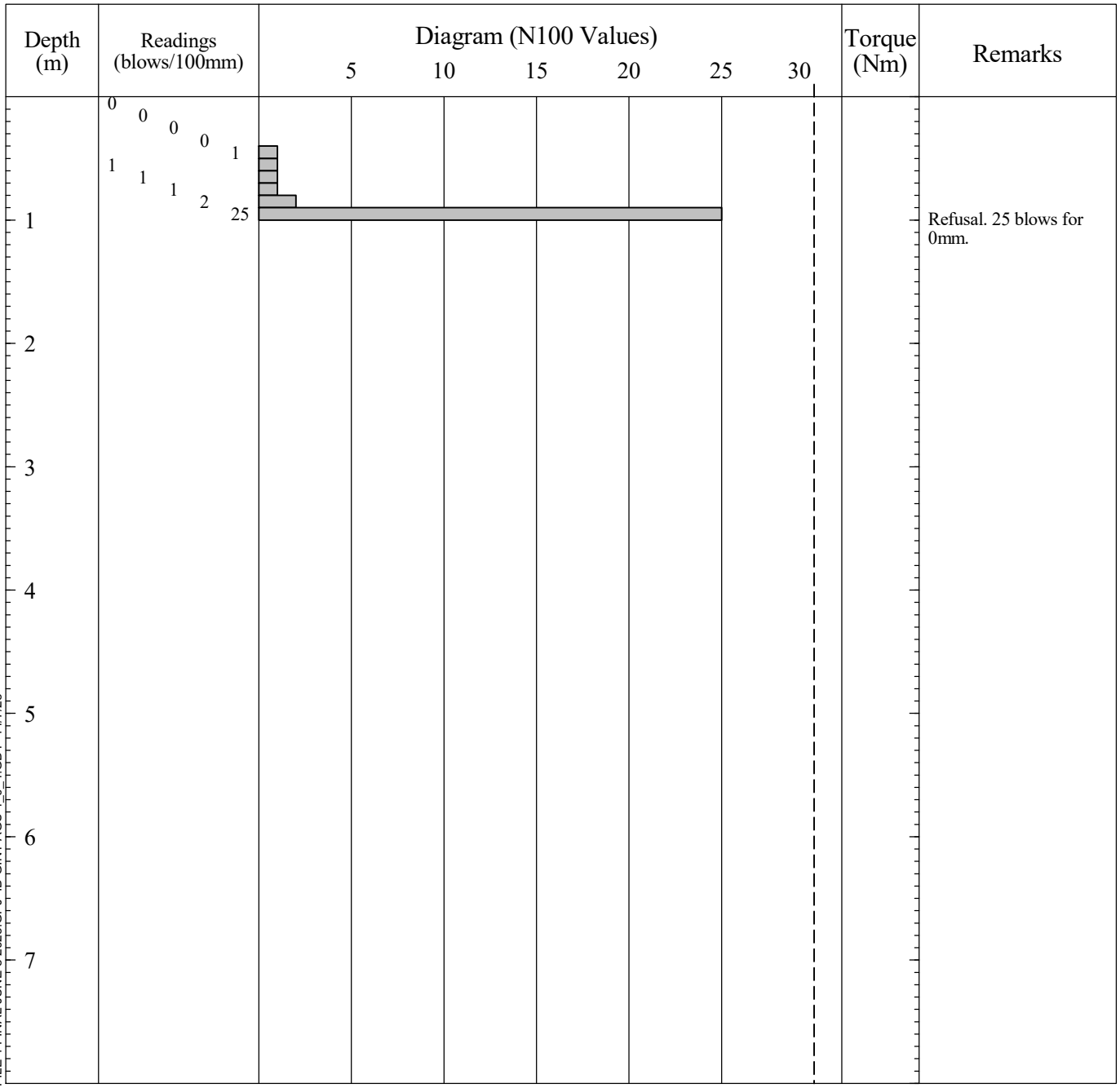
Irish drilling LTD

DYNAMIC PROBE LOG

Project	Location	PROBE No
Proposed Housing Development	Carney, Co Sligo	**DP-02**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	21-04-23 21-04-23	12.06	E 565,704.6 N 843,613.7

Engineer	Sheet / Status
Jennings O'Donovan	Sheet 1 of 1 Status FINAL



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 0.90m bgl.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used DPH Rig		Driller SS	Logged By SS

AGS4 DYNAMIC PROBE CARNEY HOUSING DPS FILE 1 FINAL JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

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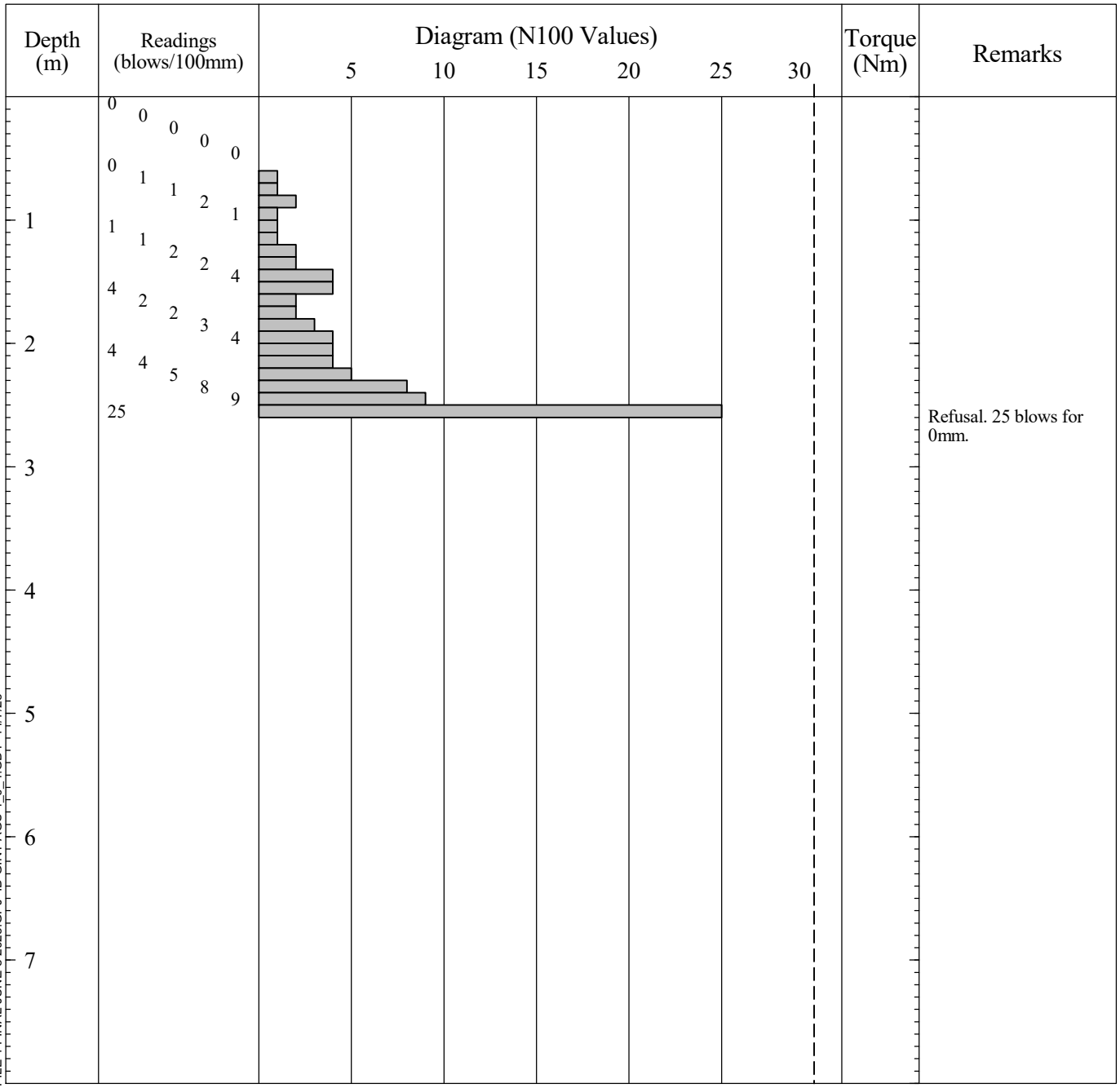
DYNAMIC PROBE LOG

Project	Location	PROBE No
Proposed Housing Development	Carney, Co Sligo	**DP-03**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	21-04-23 21-04-23	10.91	E 565,698.5 N 843,548.3

Engineer	Sheet	Status
Jennings O'Donovan	1 of 1	FINAL



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 2.50m bgl.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used: DPH Rig		Driller: SS	Logged By: SS

AGS4 DYNAMIC PROBE CARNEY HOUSING DPS FILE 1 FINAL JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

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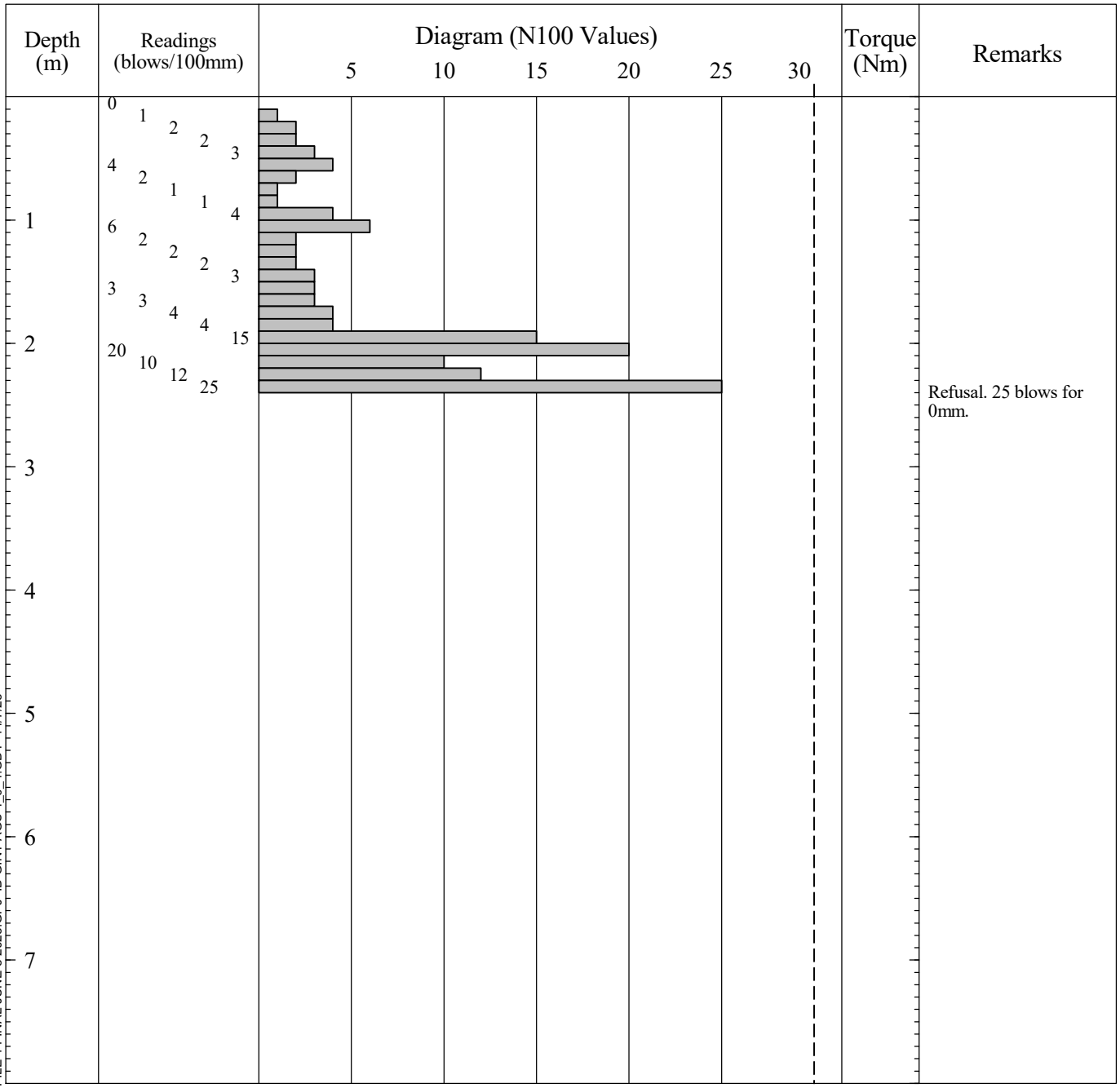
DYNAMIC PROBE LOG

Project	Location	PROBE No
Proposed Housing Development	Carney, Co Sligo	**DP-04**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	21-04-23 21-04-23	11.08	E 565,693.0 N 843,508.3

Engineer	Sheet	Status
Jennings O'Donovan	1 of 1	FINAL



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 2.30m bgl.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used DPH Rig		Driller SS	Logged By SS

AGS4 DYNAMIC PROBE CARNEY HOUSING DPS FILE 1 FINAL JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

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DYNAMIC PROBE LOG

Project	Location	PROBE No
Proposed Housing Development	Carney, Co Sligo	**DP-05**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	21-04-23 21-04-23	11.01	E 565,735.7 N 843,575.2

Engineer	Sheet / Status
Jennings O'Donovan	Sheet 1 of 1 Status FINAL

Depth (m)	Readings (blows/100mm)	Diagram (N100 Values)	Torque (Nm)	Remarks
1	0 0 0 0 0 0 0 0 3 6 3 1 1 1 2	5 10 15 20 25 30		
2	2 3 2 4 9 25			Refusal. 25 blows for 0mm.
3				
4				
5				
6				
7				

Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 2.00m bgl.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used: DPH Rig		Driller: SS	Logged By: SS

AGS4 DYNAMIC PROBE CARNEY HOUSING DPS FILE 1 FINAL JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

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DYNAMIC PROBE LOG

Project	Location	PROBE No
Proposed Housing Development	Carney, Co Sligo	**DP-06**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	21-04-23 21-04-23	10.44	E 565,745.3 N 843,539.2

Engineer	Sheet	Status
Jennings O'Donovan	1 of 1	FINAL

Depth (m)	Readings (blows/100mm)	Diagram (N100 Values)	Torque (Nm)	Remarks
0	0 0 0 0 0			
0	0 0 0 0 0			
0	1 1 2 2			
2	6 4 3 5			
9	4 4 14 7			
10	25			Refusal. 25 blows for 0mm.

5 10 15 20 25 30

1 2 3 4 5 6 7

Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 2.60m bgl.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used: DPH Rig		Driller: SS	Logged By: SS

AGS4 DYNAMIC PROBE CARNEY HOUSING DPS FILE 1 FINAL JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

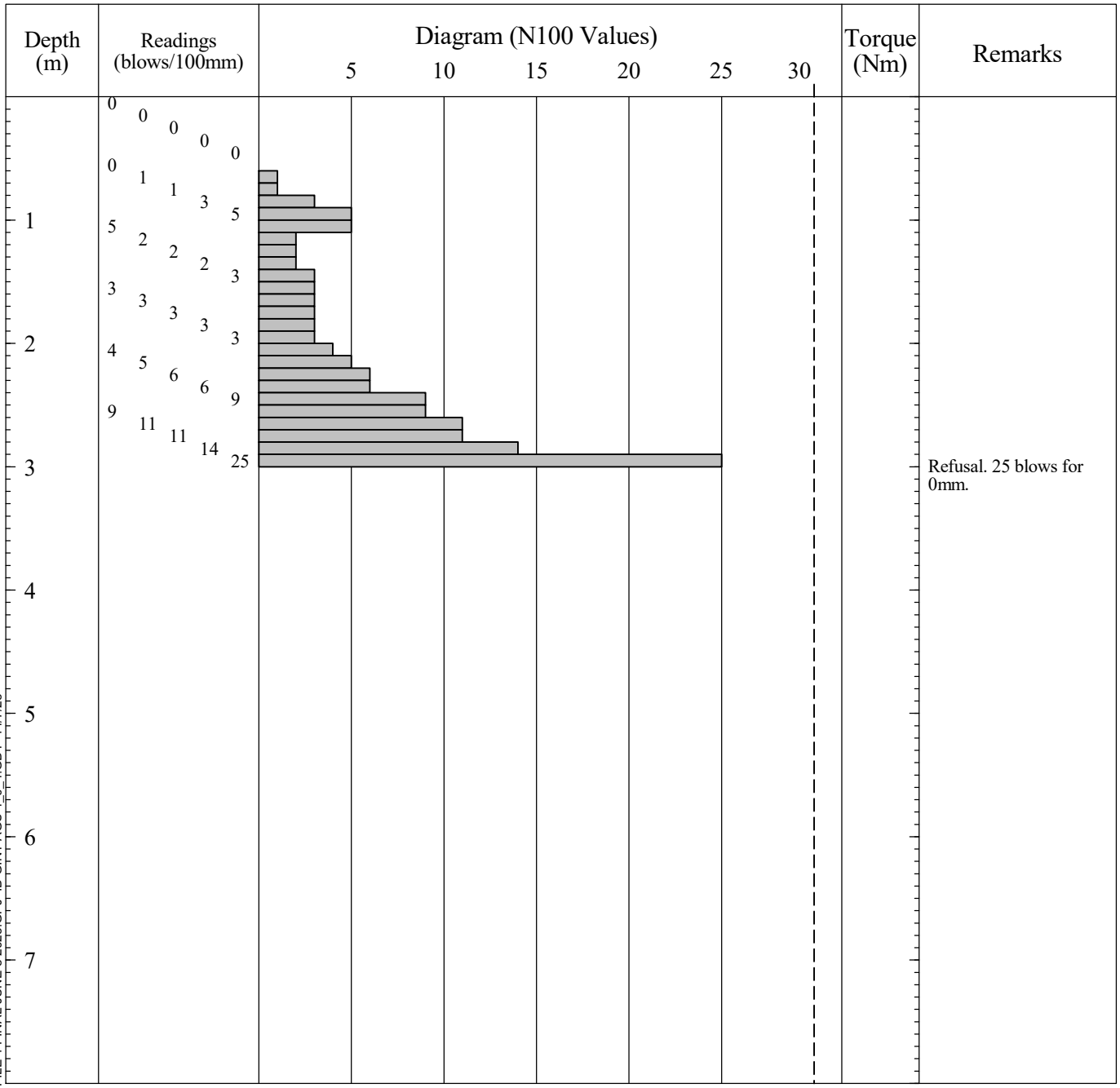
Irish drilling LTD

DYNAMIC PROBE LOG

Project	Location	PROBE No
Proposed Housing Development	Carney, Co Sligo	**DP-07**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	21-04-23 21-04-23	10.48	E 565,781.7 N 843,581.9

Engineer	Sheet	Status
Jennings O'Donovan	1 of 1	FINAL



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 2.90m bgl.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used: DPH Rig		Driller: SS	Logged By: SS

AGS4 DYNAMIC PROBE CARNEY HOUSING DPS FILE 1 FINAL JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

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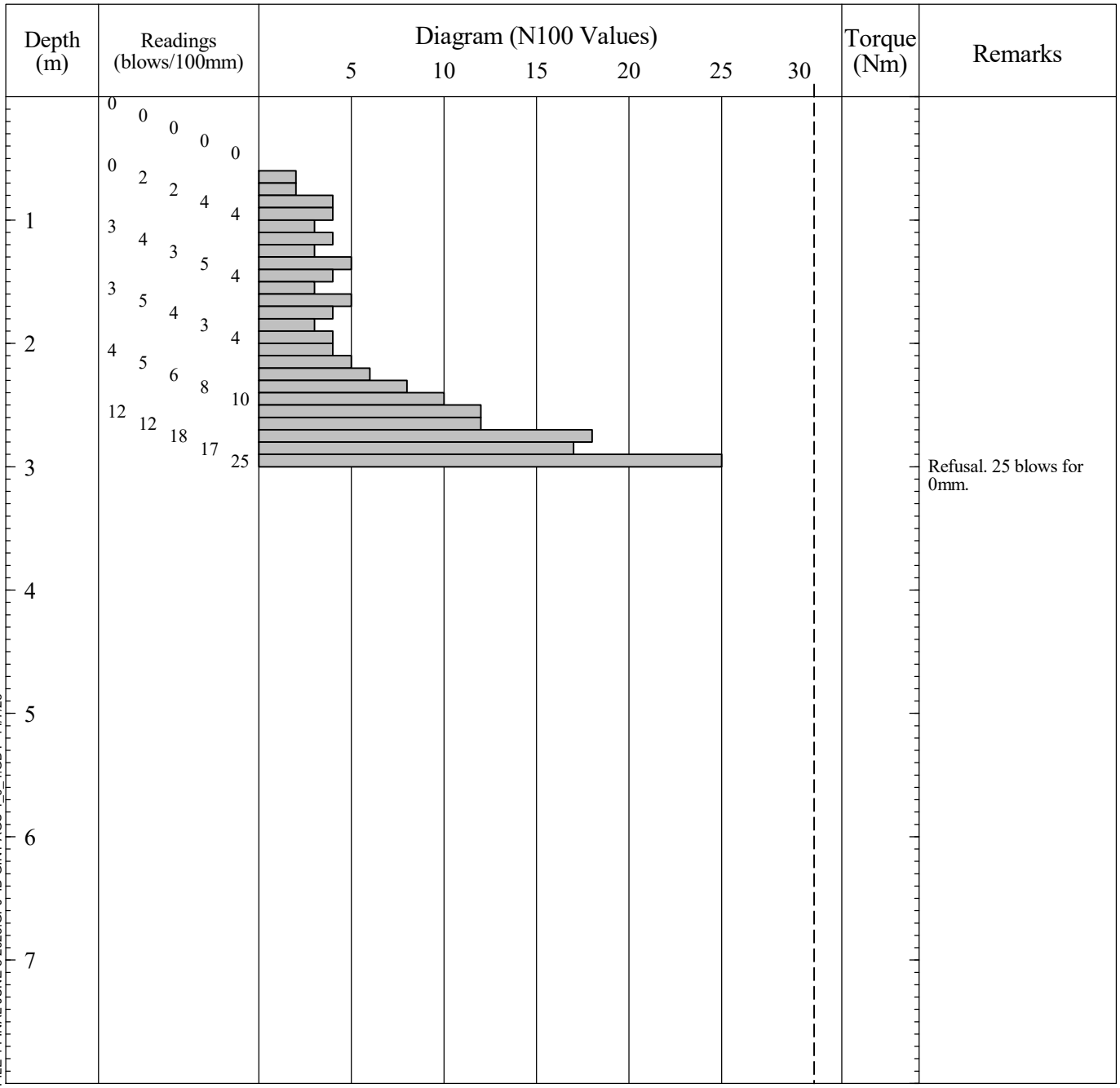
DYNAMIC PROBE LOG

Project	Location	PROBE No
Proposed Housing Development	Carney, Co Sligo	**DP-08**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	21-04-23 21-04-23	10.25	E 565,806.2 N 843,559.2

Engineer	Sheet	Status
Jennings O'Donovan	1 of 1	FINAL



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 2.90m bgl.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used: DPH Rig		Driller: SS	Logged By: SS

AGS4 DYNAMIC PROBE CARNEY HOUSING DPS FILE 1 FINAL JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

Irish drilling LTD

DYNAMIC PROBE LOG

Project	Location	PROBE No
Proposed Housing Development	Carney, Co Sligo	**DP-09**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	21-04-23 21-04-23	10.58	E 565,852.7 N 843,601.5

Engineer	Sheet / Status
Jennings O'Donovan	Sheet 1 of 1 Status FINAL

Depth (m)	Readings (blows/100mm)	Diagram (N100 Values)	Torque (Nm)	Remarks
0	0 0 0 0 0	5 10 15 20 25 30		
1	0 1 2 4 4			
2	2 3 4 7 8			
	10 9 8 10 11			
	10 8 10 15 25			Refusal. 25 blows for 0mm.
3				
4				
5				
6				
7				

Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 2.40m bgl.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used: DPH Rig		Driller: SS	Logged By: SS

AGS4 DYNAMIC PROBE CARNEY HOUSING DPS FILE 1 FINAL JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

Irish drilling LTD

DYNAMIC PROBE LOG

Project	Location	PROBE No
Proposed Housing Development	Carney, Co Sligo	**DP-10**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	21-04-23 21-04-23	11.10	E 565,902.9 N 843,641.8

Engineer	Sheet / Status
Jennings O'Donovan	Sheet 1 of 1 Status FINAL

Depth (m)	Readings (blows/100mm)	Diagram (N100 Values)	Torque (Nm)	Remarks
0	1 1 1 1	5 10 15 20 25 30		
1	2 10 12 25			Refusal. 25 blows for 0mm.
2				
3				
4				
5				
6				
7				

Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 0.80m bgl.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used: DPH Rig		Driller: SS	Logged By: SS

AGS4 DYNAMIC PROBE CARNEY HOUSING DPS FILE 1 FINAL JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

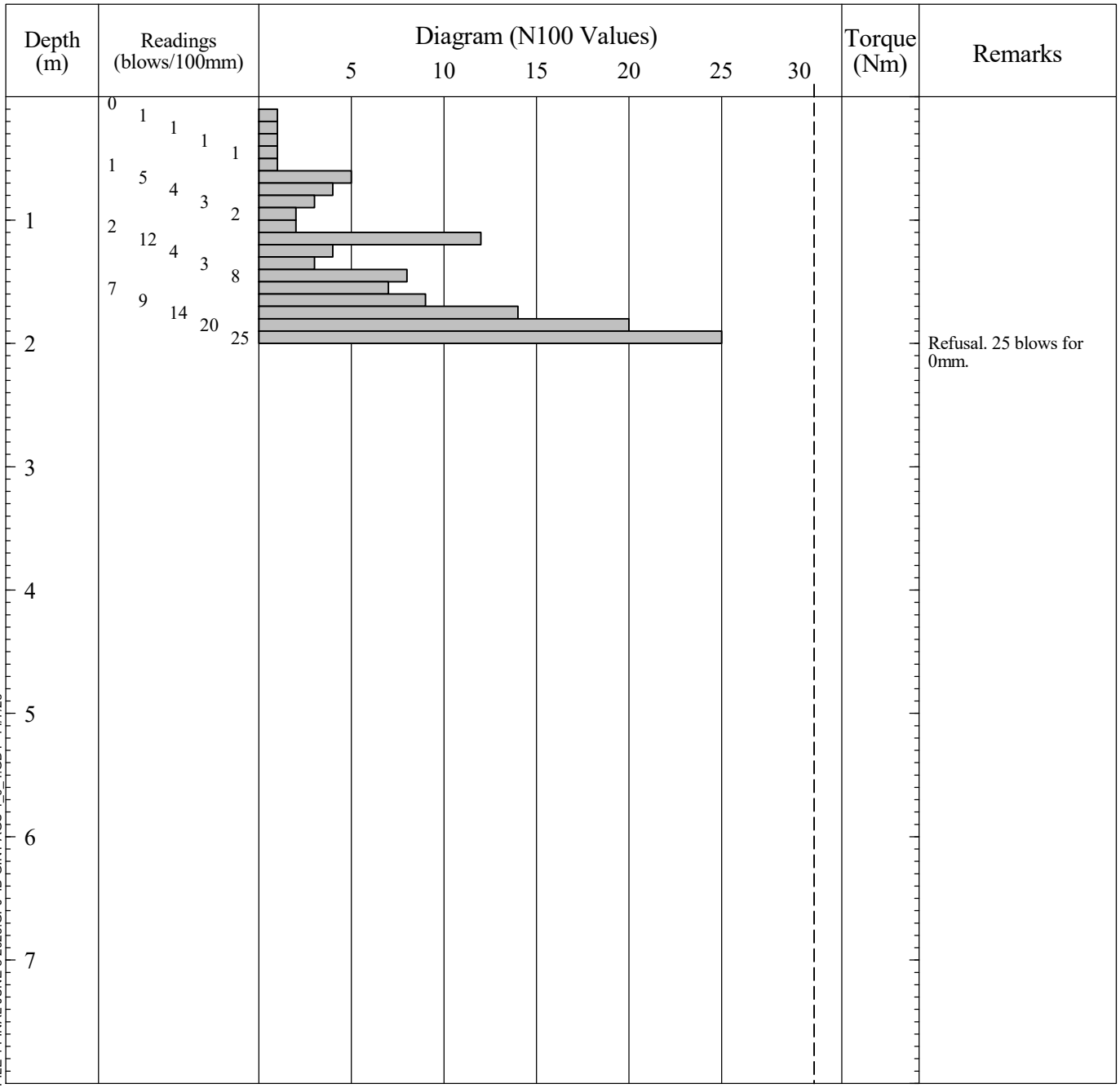
Irish drilling LTD

DYNAMIC PROBE LOG

Project	Location	PROBE No
Proposed Housing Development	Carney, Co Sligo	**DP-11**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2023SO102	21-04-23 21-04-23	10.92	E 565,914.8 N 843,594.4

Engineer	Sheet / Status
Jennings O'Donovan	Sheet 1 of 1 Status FINAL



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 1.90m bgl.

All dimensions in metres Scale 1:50	Client: Sligo County Council	Method/ Plant Used DPH Rig		Driller SS	Logged By SS

AGS4 DYNAMIC PROBE CARNEY HOUSING DPS FILE 1 FINAL JUNE 8 2023.GPJ ID GINT AGS 4_0_4.GDT 14/7/23

Appendix 04
Groundwater Readings

IRISH DRILLING LTD.
Loughrea Co. Galway

Tel: (091) 841274 Fax: (091) 880861

Contract:
Housing Development at Carney, County Sligo

Date:	13.07.2023	Sheet No.	1
Tested by:	DOR	Checked:	RK

Water Levels in Standpipes

	Date			
Boreholes	**02.06.2023**	**11.07.2023**	**Type**	**Remarks**
BH 04	1.08m	0.32m	50mm standpipe	

Remarks:
All readings record depth from ground level to top of water level.

Appendix 05a
Plate Bearing Test Records

IRISH DRILLING LTD.
Loughrea Co. Galway

Tel: (091) 841274
Lab@IrishDrilling.ie

Contract:	Carney Sligo			
Client:				2023SO102
Engineer:				
Date:	13/12/2021			
Tested by:	DOR	Checked:	DCD	

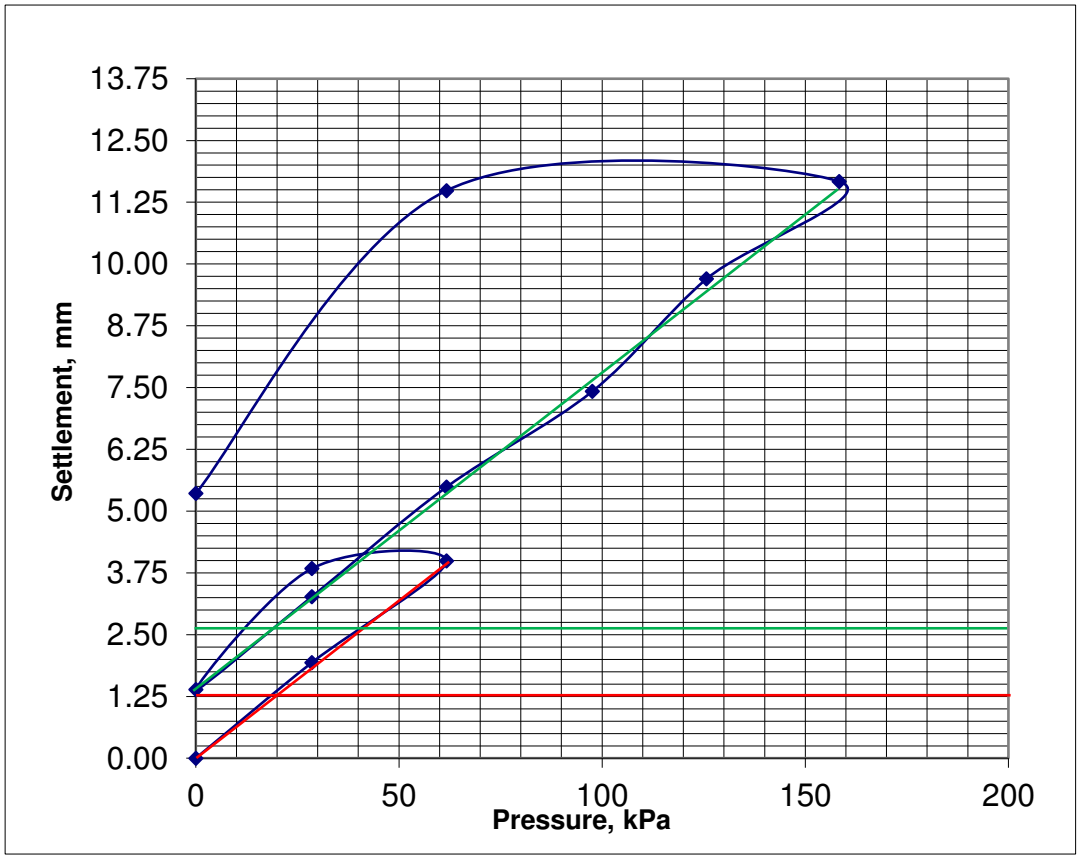
Plate Bearing Test: BS 1377:Part 9: 1990

Plate diameter (mm) **600**
Pump E

Test Location Number:	TP 02	Depth / Level:	0.5m
Natural ground			

PLATE TEST

Pressure kN/m^2	Settlement mm
0	0.00
28.6	1.94
61.7	3.99
28.6	3.84
0	1.39
28.6	3.27
61.7	5.49
97.6	7.42
125.7	9.70
158.4	11.67
61.7	11.49
0	5.36



Pressures to give 1.25mm settlement

Cycle 1		Cycle 2
1.25	(y) Settlement mm	1.25
20	(p) Pressure kN/m^2	20
16.00	Gradient (p/y)	16.00
0.829	Correction factor (to 762mm plate)	0.829
13.26	(k_s) Modulus of subgrade reaction kPa/mm	13.26
0.9	Approximate CBR (%)*	0.9

$$CBR = 6.1 \times 10^{-8} \times (k_{762})^{1.733}\%$$

*National Roads Authority, Design Manual for Roads and Bridges; Volume 7 Section 2, Part 2A HD25-26/10 (2010)**

IRISH DRILLING LTD.
Loughrea Co. Galway

Tel: (091) 841274
Lab@IrishDrilling.ie

Contract:	Carney Sligo			
Client:				2023SO102
Engineer:				
Date:	20/04/2023			
Tested by:	DOR	Checked:	DCD	

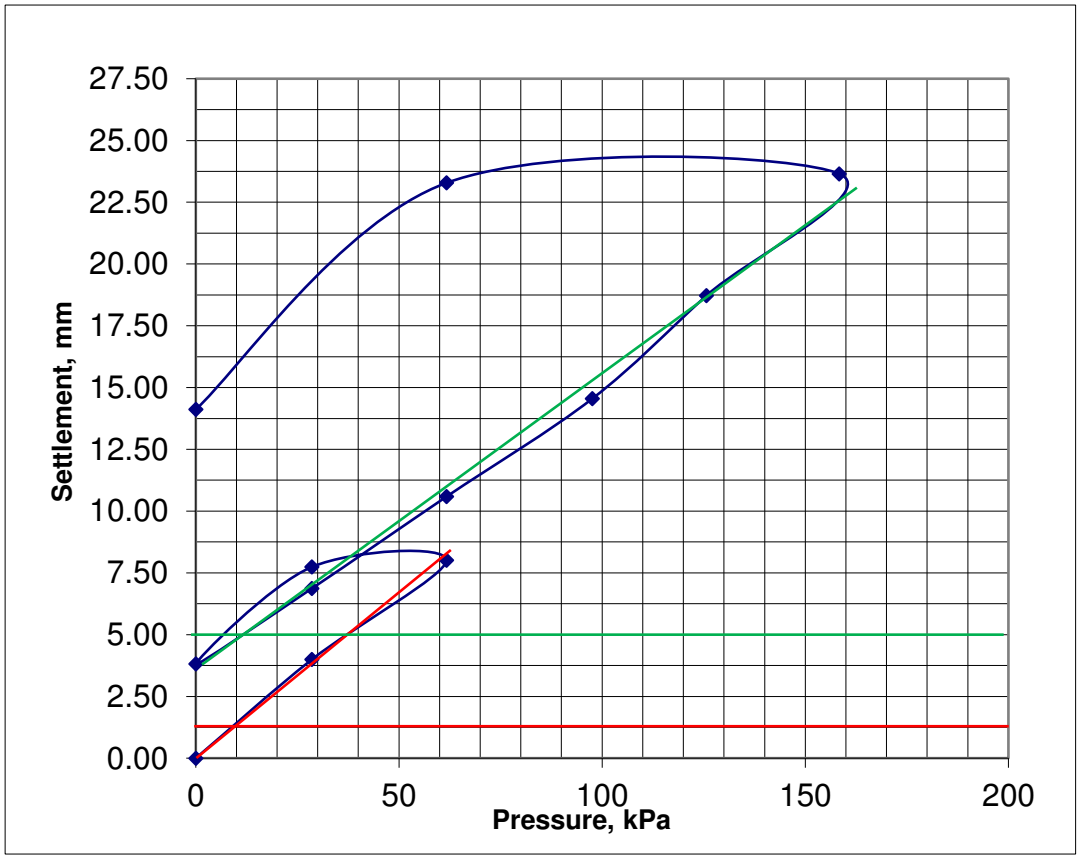
Plate Bearing Test: BS 1377:Part 9: 1990

Plate diameter (mm) **600**
Pump E

Test Location Number:	TP 03	Depth / Level:	0.8m
Natural ground			

PLATE TEST

Pressure kN/m^2	Settlement mm
0	0.00
28.6	4.00
61.7	8.02
28.6	7.74
0	3.81
28.6	6.87
61.7	10.59
97.6	14.55
125.7	18.73
158.4	23.65
61.7	23.28
0	14.12



Pressures to give 1.25mm settlement

Cycle 1		Cycle 2
1.25	(y) Settlement mm	1.25
10	(p) Pressure kN/m^2	12
8.00	Gradient (p/y)	9.60
0.829	Correction factor (to 762mm plate)	0.829
6.63	(k_s) Modulus of subgrade reaction kPa/mm	7.96
0.3	Approximate CBR (%)*	0.4

$$CBR = 6.1 \times 10^{-8} \times (k_{762})^{1.733}\%$$

*National Roads Authority, Design Manual for Roads and Bridges; Volume 7 Section 2, Part 2A HD25-26/10 (2010)**

IRISH DRILLING LTD.
Loughrea Co. Galway

Tel: (091) 841274
Lab@IrishDrilling.ie

Contract:	Carney Sligo			
Client:				2023SO102
Engineer:				
Date:	20/04/2023			
Tested by:	DOR	Checked:	DCD	

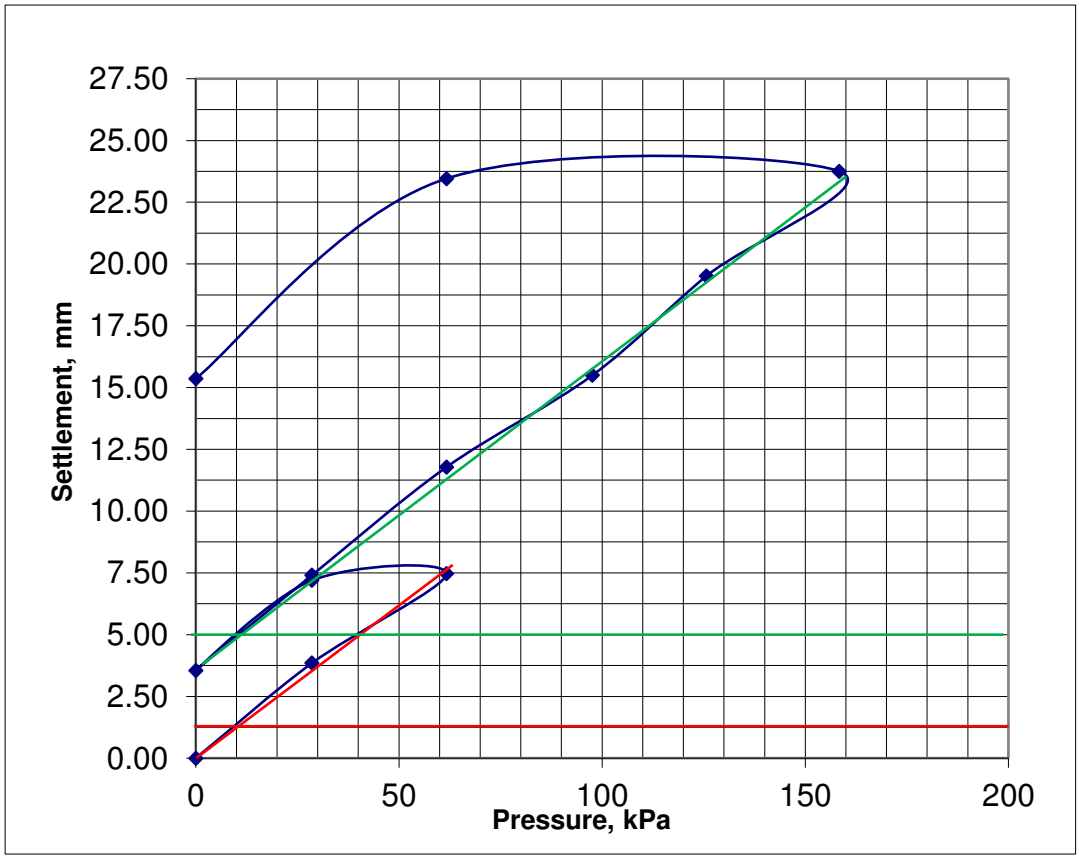
Plate Bearing Test: BS 1377:Part 9: 1990

Plate diameter (mm) **600**
Pump E

Test Location Number:	TP 04	Depth / Level:	0.6m
Natural ground			

PLATE TEST

Pressure kN/m^2	Settlement mm
0	0.00
28.6	3.85
61.7	7.47
28.6	7.20
0	3.55
28.6	7.41
61.7	11.78
97.6	15.50
125.7	19.52
158.4	23.75
61.7	23.46
0	15.36



Pressures to give 1.25mm settlement

Cycle 1		Cycle 2
1.25	(y) Settlement mm	1.25
10	(p) Pressure kN/m^2	10
8.00	Gradient (p/y)	8.00
0.829	Correction factor (to 762mm plate)	0.829
6.63	(k_s) Modulus of subgrade reaction kPa/mm	6.63
0.3	Approximate CBR (%)*	0.3

$$CBR = 6.1 \times 10^{-8} \times (k_{762})^{1.733}\%$$

*National Roads Authority, Design Manual for Roads and Bridges; Volume 7 Section 2, Part 2A HD25-26/10 (2010)**

IRISH DRILLING LTD.
Loughrea Co. Galway

Tel: (091) 841274
Lab@IrishDrilling.ie

Contract:	Carney Sligo			
Client:				2023SO102
Engineer:				
Date:	20/04/2023			
Tested by:	DOR	Checked:	DCD	

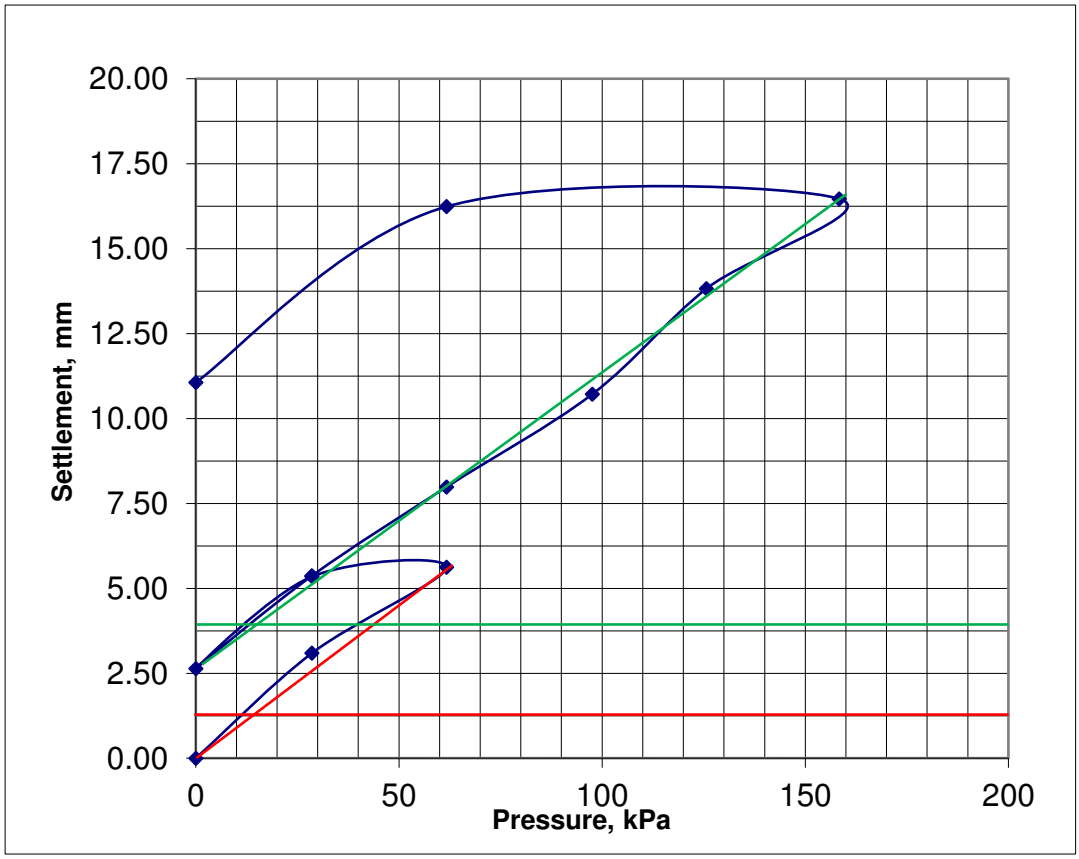
Plate Bearing Test: BS 1377:Part 9: 1990

Plate diameter (mm) **600**
Pump E

Test Location Number:	TP 05	Depth / Level:	0.8m
Natural ground			

PLATE TEST

Pressure kN/m^2	Settlement mm
0	0.00
28.6	3.09
61.7	5.62
28.6	5.35
0	2.64
28.6	5.37
61.7	7.98
97.6	10.72
125.7	13.82
158.4	16.46
61.7	16.24
0	11.06



Pressures to give 1.25mm settlement

Cycle 1		Cycle 2
1.25	(y) Settlement mm	1.25
15	(p) Pressure kN/m^2	15
12.00	Gradient (p/y)	12.00
0.829	Correction factor (to 762mm plate)	0.829
9.95	(k_s) Modulus of subgrade reaction kPa/mm	9.95
0.5	Approximate CBR (%)*	0.5

$$CBR = 6.1 \times 10^{-8} \times (k_{762})^{1.733}\%$$

*National Roads Authority, Design Manual for Roads and Bridges; Volume 7 Section 2, Part 2A HD25-26/10 (2010)**

IRISH DRILLING LTD.
Loughrea Co. Galway

Tel: (091) 841274
Lab@IrishDrilling.ie

Contract:	Carney Sligo			
Client:				2023SO102
Engineer:				
Date:	20/04/2023			
Tested by:	DOR	Checked:	DCD	

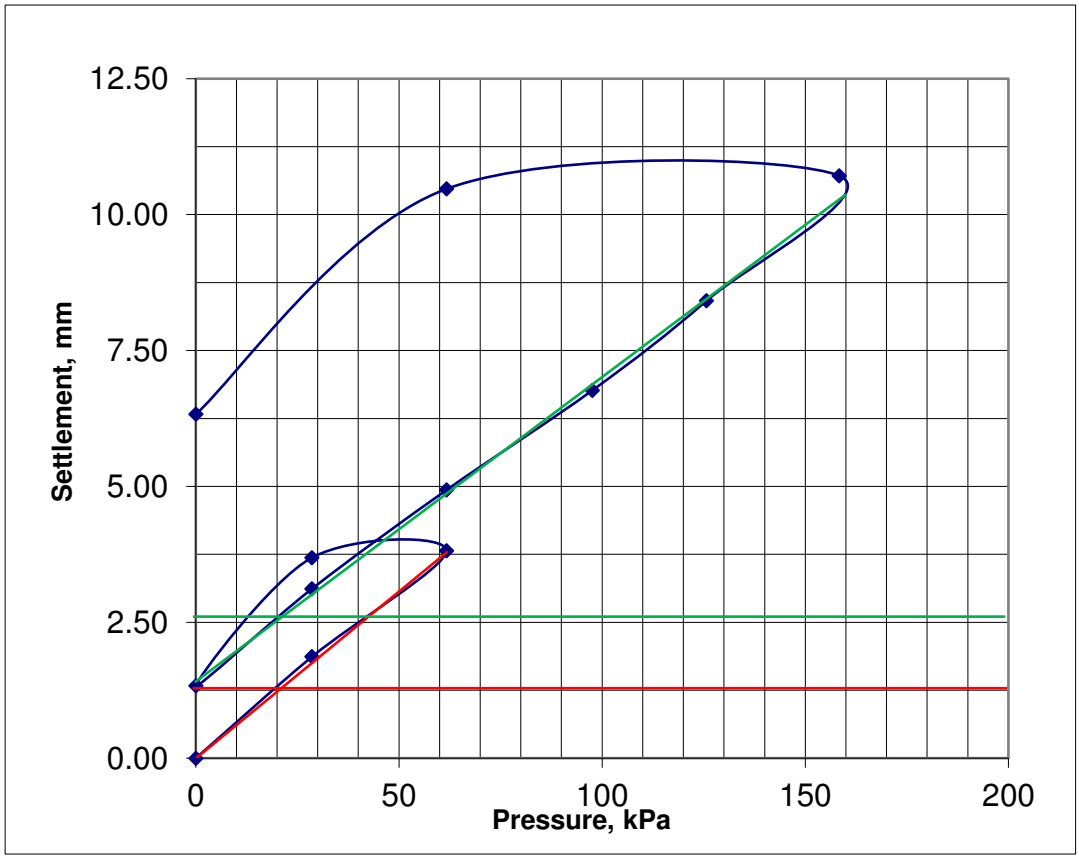
Plate Bearing Test: BS 1377:Part 9: 1990

Plate diameter (mm) **600**
Pump E

Test Location Number:	TP 06	Depth / Level:	0.8m
Natural ground			

PLATE TEST

Pressure kN/m^2	Settlement mm
0	0.00
28.6	1.87
61.7	3.82
28.6	3.69
0	1.33
28.6	3.12
61.7	4.93
97.6	6.77
125.7	8.42
158.4	10.71
61.7	10.47
0	6.33



Pressures to give 1.25mm settlement

Cycle 1		Cycle 2
1.25	(y) Settlement mm	1.25
20	(p) Pressure kN/m^2	20
16.00	Gradient (p/y)	16.00
0.829	Correction factor (to 762mm plate)	0.829
13.26	(k_s) Modulus of subgrade reaction kPa/mm	13.26
0.9	Approximate CBR (%)*	0.9

$$CBR = 6.1 \times 10^{-8} \times (k_{762})^{1.733}\%$$

*National Roads Authority, Design Manual for Roads and Bridges; Volume 7 Section 2, Part 2A HD25-26/10 (2010)**

Appendix 05b
Soil Infiltration Test Records

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 info@irishdrilling.ie	*Contract:* Carney Housing Development *Client:* Sligo County Council *Engineer:* JOD *Date:* 21/04/2023 *Tested by:* DOR

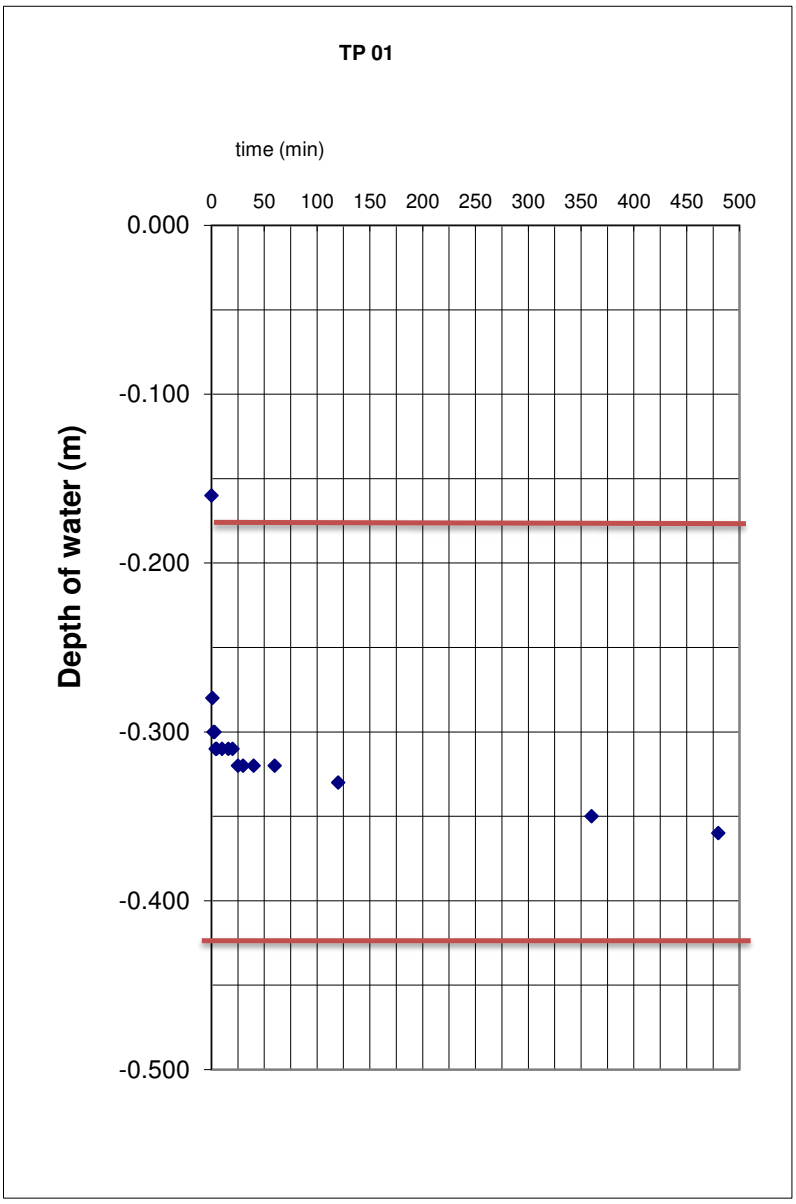
INFILTRATION TEST - to BRE 365

TP 01

1st FILL

Top of water level: 0.16 m
Base of trial pit: 1.10 m
Dims. of trial pit: 2.8 x 1.2

time min	WL m
0	-0.160
1	-0.280
2	-0.300
3	-0.300
4	-0.310
5	-0.310
10	-0.310
16	-0.310
20	-0.310
25	-0.320
30	-0.320
40	-0.320
60	-0.320
120	-0.330
360	-0.350
480	-0.360



Result:
Soil Infiltration Rate = 1.12 x 10^{-5} m/s
T_{25} interpolated.
T_{75} interpolated.

IRISH DRILLING LTD.
Loughrea Co. Galway

Tel: (091) 841274 info@irishdrilling.ie

Contract: Carney Housing Development
Client: Sligo County Council
Engineer: JOD
Date: 21/04/2023
Tested by: DOR

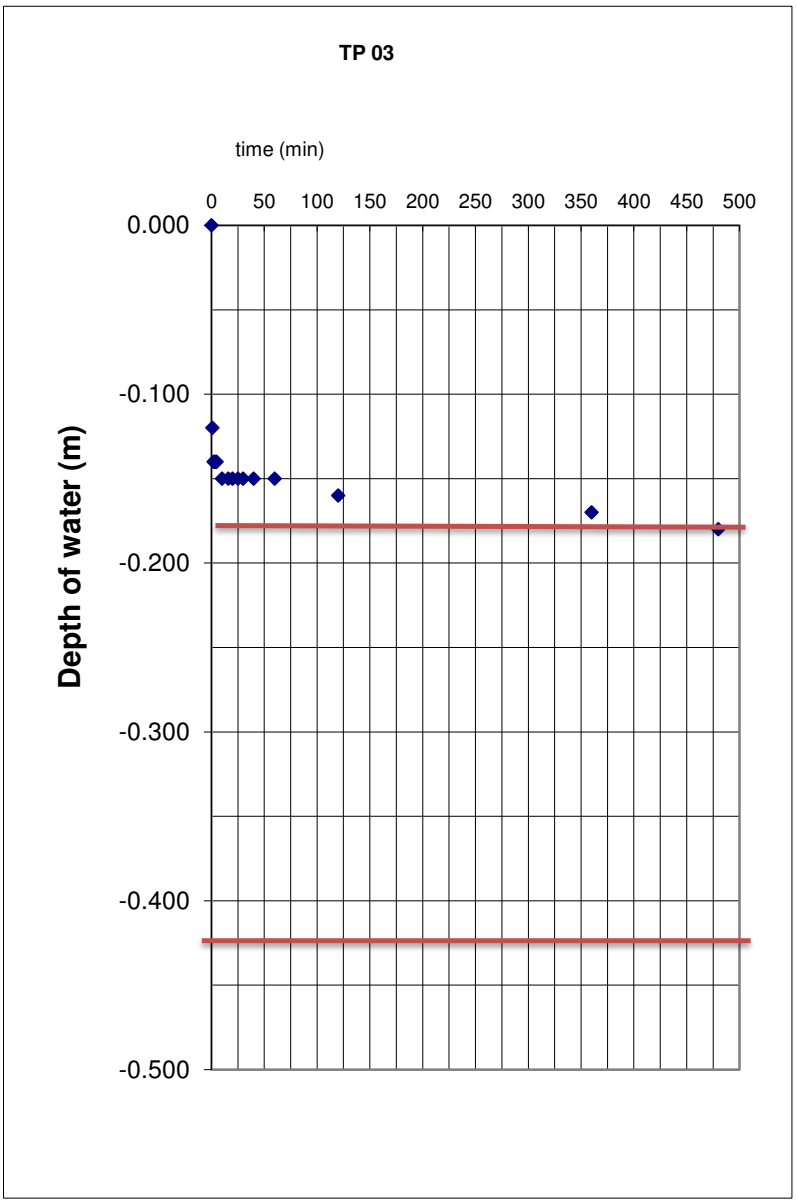
INFILTRATION TEST - to BRE 365

TP 03

1st FILL

Top of water level: 0.00 m
Base of trial pit: 1.50 m
Dims. of trial pit: 2 x 1.5

time min	WL m
0	0.000
1	-0.120
2	-0.140
3	-0.140
4	-0.140
5	-0.140
10	-0.150
16	-0.150
20	-0.150
25	-0.150
30	-0.150
40	-0.150
60	-0.150
120	-0.160
360	-0.170
480	-0.180



Result:
Soil Infiltration Rate = 3.57 x 10^{-6} m/s
T_{25} interpolated.
T_{75} interpolated.

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 info@irishdrilling.ie	*Contract:* Carney Housing Development *Client:* Sligo County Council *Engineer:* JOD *Date:* 22/04/2023 *Tested by:* DOR

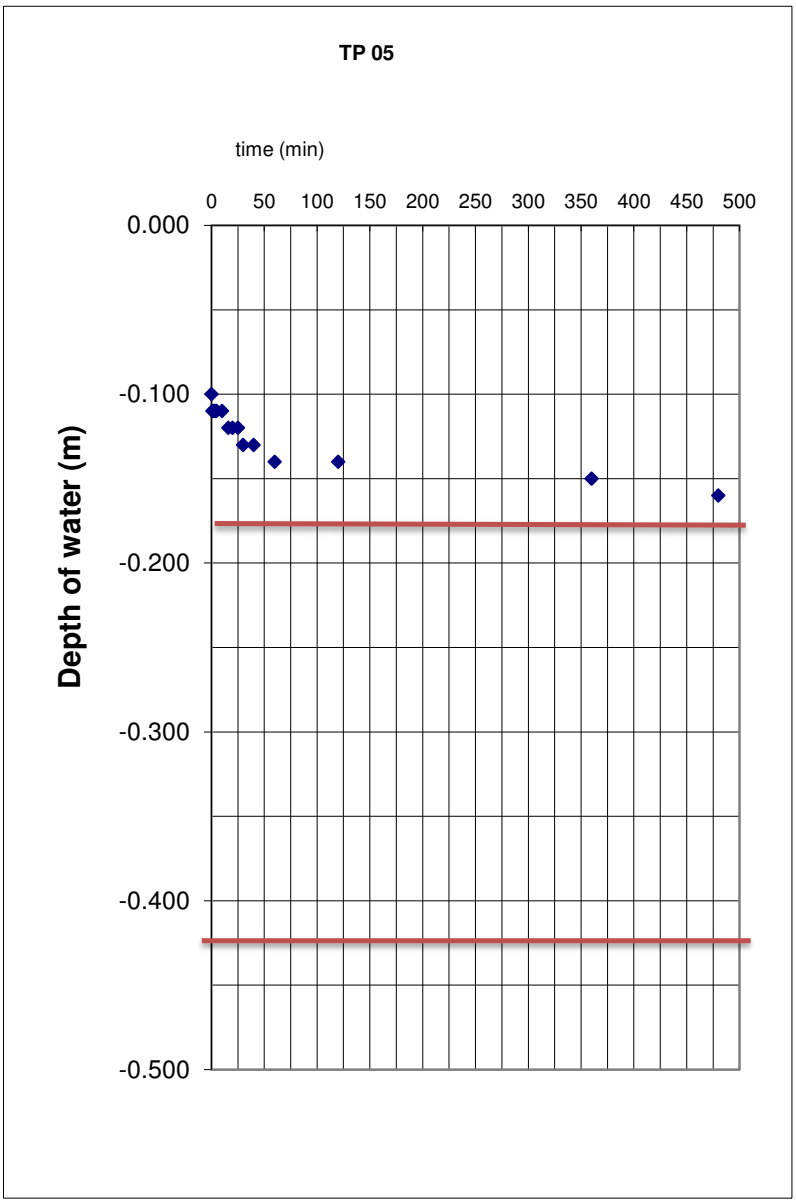
INFILTRATION TEST - to BRE 365

TP 05

1st FILL

Top of water level: 0.10 m
Base of trial pit: 1.50 m
Dims. of trial pit: 2 x 1.5

time min	WL m
0	-0.100
1	-0.110
2	-0.110
3	-0.110
4	-0.110
5	-0.110
10	-0.110
16	-0.120
20	-0.120
25	-0.120
30	-0.130
40	-0.130
60	-0.140
120	-0.140
360	-0.150
480	-0.160



Result:
Soil Infiltration Rate = 3.40 x 10^{-6} m/s
T_{25} interpolated.
T_{75} interpolated.

IRISH DRILLING LTD.
Loughrea Co. Galway

Tel: (091) 841274 info@irishdrilling.ie

Contract: Carney Housing Development
Client: Sligo County Council
Engineer: JOD
Date: 22/04/2023
Tested by: DOR

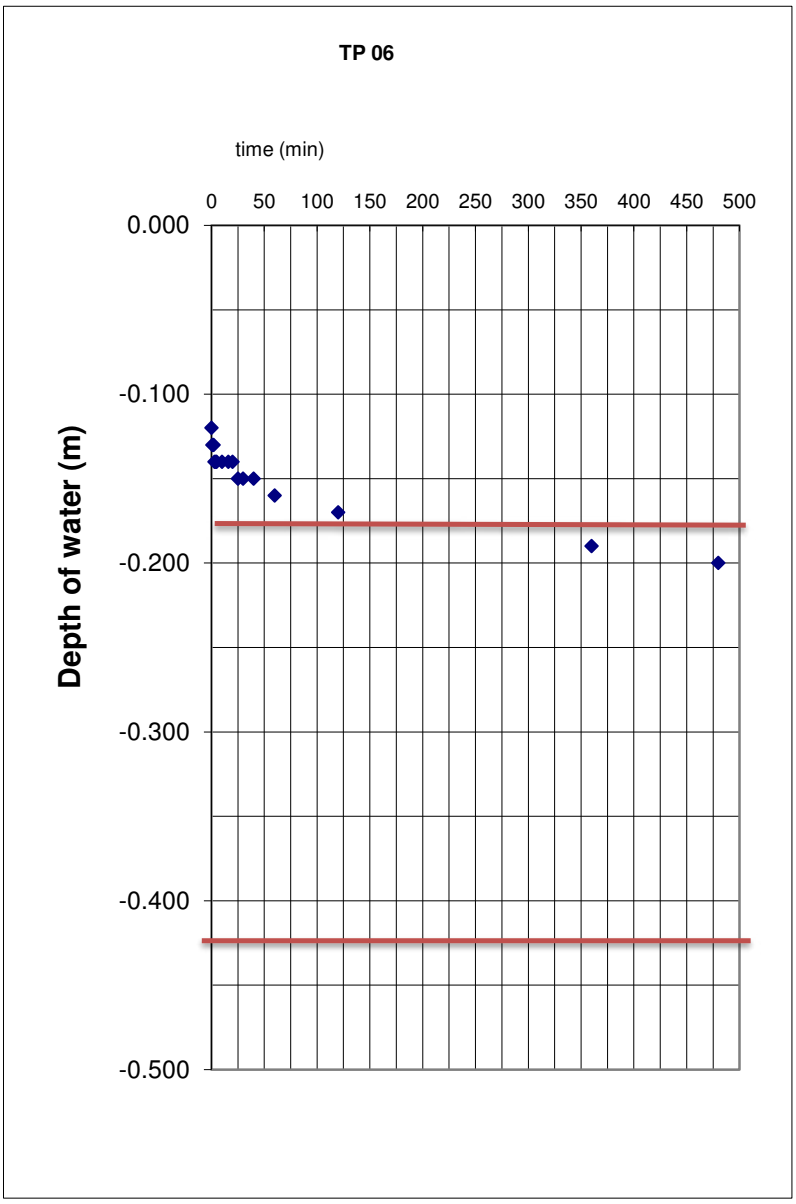
INFILTRATION TEST - to BRE 365

TP 06

1st FILL

Top of water level: 0.12 m
Base of trial pit: 1.50 m
Dims. of trial pit: 1.7 x 1.4

time min	WL m
0	-0.120
1	-0.130
2	-0.130
3	-0.140
4	-0.140
5	-0.140
10	-0.140
16	-0.140
20	-0.140
25	-0.150
30	-0.150
40	-0.150
60	-0.160
120	-0.170
360	-0.190
480	-0.200



Result:
Soil Infiltration Rate = 3.86 x 10^{-6} m/s
T_{25} interpolated.
T_{75} interpolated.

Appendix 06
Laboratory Test Results

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	05 May 2023
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	230426-65
Your Reference:	2023SO102
Location:	Carney Sligo
Report No:	687874
Order Number:	12425

We received 6 samples on Wednesday April 26, 2023 and 6 of these samples were scheduled for analysis which was completed on Friday May 05, 2023. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.

Approved By:

Sonia McWhan

Operations Manager

1291

CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27899672	TP01	ES1	0.50 - 0.50	20/04/2023
27899677	TP02	ES1	0.50 - 0.50	20/04/2023
27899684	TP03	ES1	0.50 - 0.50	20/04/2023
27899695	TP04	ES1	0.50 - 0.50	20/04/2023
27899701	TP05	ES1	0.80 - 0.80	20/04/2023
27899710	TP06	ES1	0.50 - 0.50	20/04/2023

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	27899672			27899677			27899684			27899695			27899701			27899710		
			Customer Sample Reference	TP01			TP02			TP03			TP04			TP05			TP06		
			AGS Reference	ES1			ES1			ES1			ES1			ES1			ES1		
			Depth (m)	0.50 - 0.50			0.50 - 0.50			0.50 - 0.50			0.50 - 0.50			0.80 - 0.80			0.50 - 0.50		
			Container	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Anions by Kone (w)	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
CEN Readings	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
Coronene	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
EPH by GCxGC-FID	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Fluoride	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
Loss on Ignition in soils	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Mercury Dissolved	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
PCBs by GCMS	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
pH	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
pH Value of Filtered Water	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		

Validated

CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			27899672			27899677			27899684			27899695			27899701			27899710		
Customer Sample Reference			TP01			TP02			TP03			TP04			TP05			TP06		
AGS Reference			ES1			ES1			ES1			ES1			ES1			ES1		
Depth (m)			0.50 - 0.50			0.50 - 0.50			0.50 - 0.50			0.50 - 0.50			0.80 - 0.80			0.50 - 0.50		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Phenols by HPLC (W)	All	NDPs: 0 Tests: 6	X			X			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
VOC MS (S)	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	

CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
27899672	TP01	0.50 - 0.50	Dark Brown	Sandy Clay Loam	Stones	Vegetation
27899677	TP02	0.50 - 0.50	Light Brown	Sandy Clay Loam	Stones	Vegetation
27899684	TP03	0.50 - 0.50	Light Brown	Sandy Silt Loam	Stones	Vegetation
27899695	TP04	0.50 - 0.50	Light Brown	Sandy Clay Loam	Stones	Vegetation
27899701	TP05	0.80 - 0.80	Dark Brown	Sandy Loam	Stones	Vegetation
27899710	TP06	0.50 - 0.50	Dark Brown	Sandy Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP01	TP02	TP03	TP04	TP05	TP06
			Depth (m)	0.50 - 0.50	0.50 - 0.50	0.50 - 0.50	0.50 - 0.50	0.80 - 0.80	0.50 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	20/04/2023	20/04/2023	20/04/2023	20/04/2023	20/04/2023	20/04/2023
			Sample Time	-	-	-	-	-	-
			Date Received	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023
			SDG Ref	230426-65	230426-65	230426-65	230426-65	230426-65	230426-65
			Lab Sample No.(s)	27899672	27899677	27899684	27899695	27899701	27899710
			AGS Reference	ES1	ES1	ES1	ES1	ES1	ES1
Moisture Content Ratio (% of as received sample)	%	PM024		29	25	25	18	11	25
Loss on ignition	<0.7 %	TM018		5.1 M	4.85 M	2.31 M	3.33 M	2.28 M	5.62 M
Organic Carbon, Total	<0.2 %	TM132		0.75 M	0.76 M	0.214 M	0.317 M	0.302 M	1.2 M
pH	1 pH Units	TM133		7.39 M	7.58 M	8.46 M	8.56 M	8.46 M	7.27 M
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
ANC @ pH 4	<0.03 mol/kg	TM182		0.0635	0.0605	4.82	<0.03	1.97	0.0841
ANC @ pH 6	<0.03 mol/kg	TM182		<0.03	<0.03	0.0633	0.037	0.0595	<0.03
PAH Total 17 (inc Coronene) Moisture Corrected	<10 mg/kg	TM410		<10	<10	<10	<10	<10	<10
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200
EPH Surrogate % recovery**	%	TM415		105	102	101	97.6	96.4	94.6
Mineral Oil >C10-C40 (EH_2D_AL)	<5 mg/kg	TM415		<5	<5	<5	<5	<5	<5

CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP01	TP02	TP03	TP04	TP05	TP06
			Depth (m)	0.50 - 0.50	0.50 - 0.50	0.50 - 0.50	0.50 - 0.50	0.80 - 0.80	0.50 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	20/04/2023	20/04/2023	20/04/2023	20/04/2023	20/04/2023	20/04/2023
			Sample Time	-	-	-	-	-	-
			Date Received	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023	26/04/2023
			SDG Ref	230426-65	230426-65	230426-65	230426-65	230426-65	230426-65
			Lab Sample No.(s)	27899672	27899677	27899684	27899695	27899701	27899710
			AGS Reference	ES1	ES1	ES1	ES1	ES1	ES1
Dibromofluoromethane**	%	TM116		117	115	106	113	117	110
Toluene-d8**	%	TM116		97.5	95.7	95.9	96.7	96.8	94.4
4-Bromofluorobenzene**	%	TM116		97.5	93.3	90.3	97.6	98.1	87.7
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40	<40	<40

Validated

CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Carney Sligo
Mass Sample taken (kg)	0.120	**Natural Moisture Content (%)**	33.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	74.9
Particle Size <4mm	>95%		

Case	
SDG	230426-65
Lab Sample Number(s)	27899672
Sampled Date	20-Apr-2023
Customer Sample Ref.	TP01 ES1
Depth (m)	0.50 - 0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.75	3	5	6
Loss on Ignition (%)	5.1	-	-	10
Sum of BTEX (mg/kg)	<0.04	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	7.39	-	>6	-
ANC to pH 6 (mol/kg)	<0.03	-	-	-
ANC to pH 4 (mol/kg)	0.0635	-	-	-

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.0107	<0.0002	0.107	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00118	<0.001	0.0118	<0.01	0.5	10	70
Copper	0.0026	<0.0003	0.026	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00412	<0.0004	0.0412	<0.004	0.4	10	40
Lead	0.000921	<0.0002	0.00921	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00461	<0.001	0.0461	<0.01	4	50	200
Chloride	2.5	<2	25	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	59.7	<10	597	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	11	<3	110	<30	500	800	1000

Leach Test Information

Date Prepared	27-Apr-2023
pH (pH Units)	7.96
Conductivity (µS/cm)	78
Volume Leachant (Litres)	0.870

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)

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CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Carney Sligo
Mass Sample taken (kg)	0.116	**Natural Moisture Content (%)**	28.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	77.6
Particle Size <4mm	>95%		

Case	
SDG	230426-65
Lab Sample Number(s)	27899677
Sampled Date	20-Apr-2023
Customer Sample Ref.	TP02 ES1
Depth (m)	0.50 - 0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.76	3	5	6
Loss on Ignition (%)	4.85	-	-	10
Sum of BTEX (mg/kg)	<0.04	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	7.58	-	>6	-
ANC to pH 6 (mol/kg)	<0.03	-	-	-
ANC to pH 4 (mol/kg)	0.0605	-	-	-

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.00772	<0.0002	0.0772	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00106	<0.001	0.0106	<0.01	0.5	10	70
Copper	0.00363	<0.0003	0.0363	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00383	<0.0004	0.0383	<0.004	0.4	10	40
Lead	0.000502	<0.0002	0.00502	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	0.00128	<0.001	0.0128	<0.01	0.1	0.5	7
Zinc	0.0649	<0.001	0.649	<0.01	4	50	200
Chloride	7.6	<2	76	<20	800	15000	25000
Fluoride	0.51	<0.5	5.1	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	124	<10	1240	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	19.2	<3	192	<30	500	800	1000

Leach Test Information

Date Prepared	27-Apr-2023
pH (pH Units)	8.23
Conductivity (µS/cm)	163
Volume Leachant (Litres)	0.875

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)

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CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Carney Sligo
Mass Sample taken (kg)	0.112	**Natural Moisture Content (%)**	24.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	80.5
Particle Size <4mm	>95%		

Case	
SDG	230426-65
Lab Sample Number(s)	27899684
Sampled Date	20-Apr-2023
Customer Sample Ref.	TP03 ES1
Depth (m)	0.50 - 0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.214	3	5	6
Loss on Ignition (%)	2.31	-	-	10
Sum of BTEX (mg/kg)	<0.04	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.46	-	>6	-
ANC to pH 6 (mol/kg)	0.0633	-	-	-
ANC to pH 4 (mol/kg)	4.82	-	-	-

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.0142	<0.0002	0.142	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00137	<0.0003	0.0137	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00074	<0.0004	0.0074	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	0.00607	<0.001	0.0607	<0.01	0.1	0.5	7
Zinc	0.0113	<0.001	0.113	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	6	<2	60	<20	1000	20000	50000
Total Dissolved Solids	93.2	<10	932	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	8.57	<3	85.7	<30	500	800	1000

Leach Test Information

Date Prepared	27-Apr-2023
pH (pH Units)	7.94
Conductivity (µS/cm)	122
Volume Leachant (Litres)	0.878

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)

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CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Carney Sligo
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	18.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	84.1
Particle Size <4mm	>95%		

Case	
SDG	230426-65
Lab Sample Number(s)	27899695
Sampled Date	20-Apr-2023
Customer Sample Ref.	TP04 ES1
Depth (m)	0.50 - 0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.317	3	5	6
Loss on Ignition (%)	3.33	-	-	10
Sum of BTEX (mg/kg)	<0.04	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.56	-	>6	-
ANC to pH 6 (mol/kg)	0.037	-	-	-
ANC to pH 4 (mol/kg)	<0.03	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.0172	<0.0002	0.172	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00145	<0.0003	0.0145	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00151	<0.0004	0.0151	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	147	<10	1470	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	8.1	<3	81	<30	500	800	1000

Leach Test Information

Date Prepared	27-Apr-2023
pH (pH Units)	8.29
Conductivity (µS/cm)	192
Volume Leachant (Litres)	0.883

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)

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CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Carney Sligo
Mass Sample taken (kg)	0.100	**Natural Moisture Content (%)**	11.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	89.5
Particle Size <4mm	>95%		

Case	
SDG	230426-65
Lab Sample Number(s)	27899701
Sampled Date	20-Apr-2023
Customer Sample Ref.	TP05 ES1
Depth (m)	0.80 - 0.80

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.302	3	5	6
Loss on Ignition (%)	2.28	-	-	10
Sum of BTEX (mg/kg)	<0.04	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.46	-	>6	-
ANC to pH 6 (mol/kg)	0.0595	-	-	-
ANC to pH 4 (mol/kg)	1.97	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.0311	<0.0002	0.311	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.000338	<0.0003	0.00338	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.000579	<0.0004	0.00579	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	86	<10	860	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	3.54	<3	35.4	<30	500	800	1000

Leach Test Information

Date Prepared	27-Apr-2023
pH (pH Units)	8.20
Conductivity (µS/cm)	113
Volume Leachant (Litres)	0.890

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)

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CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Carney Sligo
Mass Sample taken (kg)	0.111	**Natural Moisture Content (%)**	23.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	80.8
Particle Size <4mm	>95%		

Case	
SDG	230426-65
Lab Sample Number(s)	27899710
Sampled Date	20-Apr-2023
Customer Sample Ref.	TP06 ES1
Depth (m)	0.50 - 0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	1.2	3	5	6
Loss on Ignition (%)	5.62	-	-	10
Sum of BTEX (mg/kg)	<0.04	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	7.27	-	>6	-
ANC to pH 6 (mol/kg)	<0.03	-	-	-
ANC to pH 4 (mol/kg)	0.0841	-	-	-

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.000745	<0.0005	0.00745	<0.005	0.5	2	25
Barium	0.00448	<0.0002	0.0448	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00244	<0.001	0.0244	<0.01	0.5	10	70
Copper	0.0091	<0.0003	0.091	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000107	<0.00001	0.000107	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00849	<0.0004	0.0849	<0.004	0.4	10	40
Lead	0.000754	<0.0002	0.00754	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	0.00105	<0.001	0.0105	<0.01	0.1	0.5	7
Zinc	0.00355	<0.001	0.0355	<0.01	4	50	200
Chloride	3.5	<2	35	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	37.2	<10	372	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	14.7	<3	147	<30	500	800	1000

Leach Test Information

Date Prepared	27-Apr-2023
pH (pH Units)	7.70
Conductivity (µS/cm)	50
Volume Leachant (Litres)	0.879

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)

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Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115	Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM018	Determination of Loss on Ignition
TM090	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Determination of Fluoride using the Kone Analyser
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM152	Analysis of Aqueous Samples by ICP-MS
TM168	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM182	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	The determination of PAH in soil samples by GC-MS
TM256	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM259	Determination of Phenols in Waters and Leachates by HPLC
TM410	Determination of Coronene in soils by GCMS
TM415	Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 230426-65 **Report Number:** 687874 **Superseded Report:**
Client Ref.: 2023SO102 **Location:** Carney Sligo

Test Completion Dates

Lab Sample No(s)	27899672	27899677	27899684	27899695	27899701	27899710
Customer Sample Ref.	TP01	TP02	TP03	TP04	TP05	TP06
AGS Ref.	ES1	ES1	ES1	ES1	ES1	ES1
Depth	0.50 - 0.50	0.50 - 0.50	0.50 - 0.50	0.50 - 0.50	0.80 - 0.80	0.50 - 0.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
ANC at pH4 and ANC at pH 6	03-May-2023	03-May-2023	03-May-2023	03-May-2023	03-May-2023	03-May-2023
Anions by Kone (w)	03-May-2023	03-May-2023	03-May-2023	03-May-2023	03-May-2023	03-May-2023
CEN 10:1 Leachate (1 Stage)	28-Apr-2023	28-Apr-2023	27-Apr-2023	27-Apr-2023	27-Apr-2023	27-Apr-2023
CEN Readings	03-May-2023	03-May-2023	04-May-2023	03-May-2023	03-May-2023	03-May-2023
Coronene	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023
Dissolved Metals by ICP-MS	03-May-2023	03-May-2023	03-May-2023	03-May-2023	03-May-2023	03-May-2023
Dissolved Organic/Inorganic Carbon	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023
EPH by GCxGC-FID	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023
Fluoride	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023
Loss on Ignition in soils	03-May-2023	03-May-2023	04-May-2023	03-May-2023	03-May-2023	03-May-2023
Mercury Dissolved	03-May-2023	03-May-2023	03-May-2023	03-May-2023	03-May-2023	03-May-2023
Moisture at 105C	27-Apr-2023	27-Apr-2023	27-Apr-2023	27-Apr-2023	27-Apr-2023	27-Apr-2023
PAH 16 & 17 Calc	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023
PAH by GCMS	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023
PCBs by GCMS	03-May-2023	03-May-2023	03-May-2023	03-May-2023	03-May-2023	03-May-2023
pH	05-May-2023	05-May-2023	05-May-2023	05-May-2023	05-May-2023	05-May-2023
pH Value of Filtered Water	03-May-2023	03-May-2023	05-May-2023	03-May-2023	03-May-2023	03-May-2023
Phenols by HPLC (W)	03-May-2023	03-May-2023	03-May-2023	02-May-2023	02-May-2023	03-May-2023
Sample description	27-Apr-2023	27-Apr-2023	27-Apr-2023	27-Apr-2023	27-Apr-2023	27-Apr-2023
Total Organic Carbon	04-May-2023	04-May-2023	04-May-2023	04-May-2023	04-May-2023	04-May-2023
VOC MS (S)	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023	02-May-2023

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Appendix 07
Trial Pit Photographs

Figure 1 H:\2023 SO 102 Carney\TP 01 (1).JPG

Figure 3 H:\2023 SO 102 Carney\TP 01 Per Test.JPG

Figure 2 H:\2023 SO 102 Carney\TP 01 (2).JPG

Figure 4 H:\2023 SO 102 Carney\TP 02 (1).JPG

Figure 5 H:\2023 SO 102 Carney\TP 02 (2).JPG

Figure 7 H:\2023 SO 102 Carney\TP 03 (2).JPG

Figure 6 H:\2023 SO 102 Carney\TP 03 (1).JPG

Figure 8 H:\2023 SO 102 Carney\TP 03 Per Test.JPG

Figure 9 H:\2023 SO 102 Carney\TP 04 (1).JPG

Figure 11 H:\2023 SO 102 Carney\TP 05 (1).JPG

Figure 10 H:\2023 SO 102 Carney\TP 04 (2).JPG

Figure 12 H:\2023 SO 102 Carney\TP 05 (2).JPG

Figure 13 H:\2023 SO 102 Carney\TP 05 Per Test.JPG

Figure 15 H:\2023 SO 102 Carney\TP 06 (2).JPG

Figure 14 H:\2023 SO 102 Carney\TP 06 (1).JPG

Figure 16 H:\2023 SO 102 Carney\TP 06 Per Test.JPG

Appendix 08
Site Plan

Cloch Oir

SLIEVE MOR ROAD

OXFIELD ROAD

Sea View

Lissadell Park

Carr

Voo(

Spring

Well (Cov)

DP01 E:565693 N:843689

BH01 E:565706 N:843661

TP01 E:565701 N:843647

DP02 E:565705 N:843614

BH02 E:565702 N:843585

TP02 E:565692 N:843579

DP03 E:565698 N:843547

BH03 E:565711 N:843534

TP03 E:565717 N:843529

DP04 E:565692 N:843507

DP05 E:565737 N:843576

DP06 E:565746 N:843542

DP07 E:565781 N:843583

BH04 E:565770 N:843552

TP04 E:565776 N:843554

DP08 E:565807 N:843559

BH05 E:565830 N:843583

TP05 E:565835 N:843577

DP09 E:565854 N:843603

BH06 E:565879 N:843607

TP06 E:565916 N:843621

DP10 565904 843644

DP11 E:565915 N:843595

PMC1

PMC2

PMC3

NOTES

GENERAL NOTES:

1 FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
2 ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
3 ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
4 THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.

LEGEND

SITE BOUNDARY OUTLINE

LAND OWNERSHIP BOUNDARY OUTLINE

TRIAL PIT LOCATION (6 No.) TP

BOREHOLE LOCATION (6 No.) BH

HEAVY DYNAMIC PROBE LOCATION (11 No.) DP

Red Line Area:-
21,537 m^2 2.154 Hectares

ITM Co-Ordinates of site:-
565696, 843573

OS Ireland Map No.
0848-C, 0848-D

Rev.	Modifications	By	Chkd	Aprvd	Date
T.01	Issued for SI TENDER	PC	MF	MF	08.02.23

Layout Ref.:
File P:\Jod-jobs\6972 Carney Housing\700 Drawings\706 Tender_Contract\01 WIP\SI Tender\6972-JOD-XX-ZZ-DR-C-100-002 Existing Site Layout.dwg

Client
Sligo County Council
Comhairle Chontae Shligigh

Project
PROPOSED HOUSING DEVELOPMENT AT CARNEY, CO. SLIGO

Stage
PRELIMINARY

Title
EXISTING SITE LAYOUT MAP

Scale
1:1000

Surveyed	Drawn	Checked	Date
OSI	PC	MF	FEB '23

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Drawing No. 6972-JOD-XX-XX-DR-C-100-002
Revision T.01

Appendix 09
AGS Data

APPENDIX III

METHOD STATEMENT

Sligo County Council
Comhairle Chontae Shligigh

Proposed Housing Development at Carney, Co. Sligo

Outline Method Statement

6972-JOD-XX-RP-C-0002

January 2024

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DOCUMENT APPROVAL

PROJECT	Proposed Housing Development at Carney, Co. Sligo	
CLIENT / JOB NO	Hamilton Young Architects	6972
DOCUMENT TITLE	Outline Method Statement	

	Prepared by	**Reviewed/Approved by**
Document **FINAL**	Name Eamon Morrissey	Name Seamus Lee
Date January 2024	Signature	Signature

1 INTRODUCTION

This report has been prepared to give an outline construction method for the Carney, Co. Sligo. The proposed development consists of the construction of 25 no. new residential units. The dwellings are a mixture of semi-detached dwellings, detached dwellings, and terraced dwellings. The development also includes a village green, and a public open space by the burnt mound.

The proposed site, which consists of approximately 1.084 hectares, and is a greenfield site. The site is located in Carney, Co. Sligo, north of Oxfield Rd and west of Slieve Mor road. It is proposed to access the site directly by vehicle from Slieve Mor at the western boundary of the site. There will be pedestrian traffic permeability at the southern boundary to Oxfield road. A footpath / cycleway in line with the Sligo Active Travel route will be constructed along the western and southern boundary of the site as part of the works.

2 METHOD STATEMENT

This Method Statement is prepared to give an indicative outline construction methodology for the works associated with the proposed development.

The construction tasks will be as follows.

2.1 Site Clearance

- Set up site boundary fencing where required.
- Prepare Contractors compound including parking, offices, and welfare facilities.
- A small drain running along the western and southern boundaries of the site will be culverted in line with the *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters* (2016) prior to any other construction works occurring on site.
- Clear and stockpile topsoil on site, with clear delineation of the boundary of the spoil heap.
- Carry out bulk earthworks to bring site levels to design level.

2.2 Building Construction

- Excavate for foundations, pumping out groundwater into the culverted stormwater drain when necessary. If pumping is required it will be carried out in line with the *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters* (2016).
- Construct building strip foundations in accordance with the most current version of *HomeBond House Building Manual*.
- Construct service connections in accordance with the most current version of *HomeBond House Building Manual*.

- Construct rising walls and ground floor slabs in accordance with the most current version of *HomeBond House Building Manual*.
- Construct above ground portion of buildings in accordance with the most current version of *HomeBond House Building Manual*.

2.3 Site Services

- Construct main storm and foul water drainage runs including manholes in accordance with the *Irish Water (Uisce Éireann) Code of Practice*.
- Install attenuation tanks, petrol interceptor and flow control valve in accordance with the *Irish Water (Uisce Éireann) Code of Practice*.
- Construct tie-ins to existing Irish Water (Uisce Éireann) storm and foul public networks in accordance with the *Irish Water (Uisce Éireann) Code of Practice*.
- Construct watermain network in accordance with the *Irish Water (Uisce Éireann) Code of Practice*.
- Construct electrical ducting network in accordance with *I.S. 10101:2020 - National Rules for Electrical Installations Edition 5.0* and erect lighting columns in accordance with the *Code of Practice for Public Lighting ET211*.

2.4 Landscaping and Finishing

- Construct garden walls and fences.
- Place topsoil to gardens and public green spaces.
- Construct development roads, footpaths kerbing in accordance with the *TII Specification for Road Works*.
- Plant new trees and hedging in accordance with the Landscaping Plan (See Appendix III of the screening reports).
- Level and seed topsoil.

3 NOTES

The document should be read in conjunction with the associated drawings, layouts and specifications. This document is not intended to be used as a construction stage document.