



Comhairle Contae Mhaigh Eo
Mayo County Council

**PROVISION OF A RESIDENTIAL DEVELOPMENT
AT
POLLRANNY
ACHILL ISLAND
COUNTY MAYO**

**SCREENING FOR ENVIRONMENTAL IMPACT
ASSESSMENT**

FEBRUARY 2023

Mayo County Council,
Aras an Chontae,
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MAYO COUNTY COUNCIL**PROVISION OF A RESIDENTIAL DEVELOPMENT****AT****POLLRANNY****ACHILL ISLAND****COUNTY MAYO****SCREENING FOR ENVIRONMENTAL IMPACT ASSESSMENT****CONTENTS**

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1 INTRODUCTION

This report provides an Environmental Impact Assessment screening for a Part 8 housing development consisting of an area of land measuring 1.149 ha located at Pollranny, Achill Island, Co. Mayo. This Part 8 process is being pursued by Mayo County Council.

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 proposed site is a mixture of both a greenfield and brownfield site. Units 01 - 04 and 09 - 16 will be developed on greenfield areas of the site, while units 05 - 08 and 17 - 20 will be developed on brownfield areas of the site. The site is located in Achill Sound, a village situated on the R319 road to Achill Island. It is proposed to access the site directly from the R319 road at the northern boundary of the site via the existing gated access.

All other site services and works to enable the development of the site will also be provided including bins, plant areas, boundary treatments and landscaping.

This statement is prepared with input from Mayo County Council and Jennings O' Donovan & Partners Ltd (JOD) to ensure that the possible effect on the environment has been examined through this 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 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 and an Ecological Impact Assessment, both reports prepared by Moore Group Environmental Services and also the IGSL Site Investigation Report, September 2022.

1.2 Statement of Authority

This Screening for EIA Report has been prepared by qualified and accredited experts 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 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 multi-disciplinary professional teams providing input to Environmental Impact Assessment Reports.

2 THE PROPOSED DEVELOPMENT AND ENVIRONMENTAL SENSITIVITIES

2.1 The Proposed Development

The proposal is for a residential development on a net site area of c. 1.149 ha. The proposal consists of the following:

- Construction of 20 no. semi-detached residential Units comprising as follows:
- Four units of one storey, one bedroom semi-detached houses
- Twelve Units of two storey, two bedroom semi-detached houses
- Four units of two storey, three bedroom semi-detached houses
- All associated site development works including landscaping, boundary treatments, public lighting, site services, drainage works and all associated infrastructure.



SITE OVER VIEW 01
SCALE:

Figure 2.1: Proposed 3D Site overview, from Mayo County Council Architects Department Drawing A628-MCC-90-XX-DR-A-0203-S2

2.2 Location

The Proposed Development (1.149 ha) is located at Pollranny within Achill Sound village, Achill Island, Co. Mayo. The site consists of a rectangular shaped field located between a GAA pitch (due west) and Colaiste Phobail Acla at Achill Sound (**Figure 2.2**).



Figure 2.2: Approximate location of the Proposed Development Site

Pollranny village is situated along the coastline of Co. Mayo in the province of Connacht. The Michael Davitt Bridge connects Pollranny on the mainland to Achill Island. Achill Sound is in the Gaeltacht region. Around the village are a number of car parks, homes, retail shops, and historical and archaeological sites; Achill has a long history of human settlement and there is evidence that Achill was inhabited as many as 5,000 years ago. Megalithic tombs and promontory forts testifying to this can be seen at Slievemore along the Atlantic Drive and on Achill Beg Island. Achill Sound has a population of approx. 238 people according to the 2016 statistics.

Tourism is the main activity in the area. Attempts have been made to set up small industrial units, however the island largely depends on tourism. The local environment is rural with the majority of land being bog, therefore limiting the level of agriculture that can occur.

The local landscape is predominantly coastal with domestic dwellings (**Plate 2.1**). Land ownership is generally delineated by scrub and bogland. Roads and pathways are a feature also separating lands and associated properties.



Plate 2.1: Commercial and domestic dwelling landscape in the vicinity of the Proposed Development.

2.3 Land, Soils and Flooding

Corine 2018 denote the entire site as urban fabric with artificial surfaces. According to the EclA report by Moore Group (July 2021), the footprint of the proposed development site can be categorised as Invasive Scrub (WS1) and Rank Wet Grassland (GS4) habitat types. The grass species present onsite include Cocksfoot (*Dactylis glomerata*) and to a lesser extent False oat-grass (*Arrhenatherum elatius*). Other species recorded on site include; Nettle (*Urtica dioica*), extensive Broad-leaved Dock (*Rumex obtusifolius*), Common sorrel (*Rumex acetosa*), Red clover (*Trifolium pratense*) and Ribwort plantain (*Plantago lanceolata*) with Cleavers (*Galium aparine*), Thistles (*Cirsium* spp.) and occasional Hogweed (*Heracleum sphondylium*). Bramble (*Rubus fruticosus* agg.) scrub occurs along field boundaries with Nettle (*Urtica dioica*), Cleavers (*Galium aparine*), Ivy (*Hedera helix*) also present. Parts of the site were relatively wet and showed spreads of Soft rush (*Juncus effusus*). An outcrop of Sitka Spruce (*Picea sitchensis*) is present in the southern half of the site.

The site contains extensive stands of *Gunnera tinctoria* (Chilean or giant rhubarb) and *Rhododendron ponticum*; the latter species is an invasive species listed on the Third Schedule of S.I. No. 477 of 2011, EC (Birds and Natural Habitats) Regulations 2011. While *Gunnera tinctoria* is not currently listed as a Third Schedule Species in Ireland, it is on the list of invasive species of Union Concern. The majority of these two invasive plants are located in the northern half of the site.

According to Moore Group (July 2021), there were no rare or protected species recorded on the site. The habitats under the footprint of the proposed development are of low local ecological value. Moore Group (July 2021) note that *The spread of Giant rhubarb and Rhododendron will be addressed by formulating an Invasive Species Management Plan for the infected area prior to construction works and site development. The management plan will be drawn up by an experience specialist in a timely fashion in order for treatment to commence prior to development.*

There are no Annexed Habitats or Species present within the boundary of the Proposed Development site. There are no otter habitats or badger setts within the study area and no potential for otters on the site. There is low potential for bat habitats or bat commuting on site. The area is relatively developed and has existing street lighting.

The main bedrock on site comprise of the Portnahally and Ashleam Bay Formation. The Portnahally formation is comprised of quartzites, semi-pelitic schists with grey to white quartzites and local thin semi-pelitic schist interbeds. The Ashleam Bay formation is comprised of schists, marbles and quartzites with black graphitic pelitic schists and interbedded dolomitic marble, non-graphitic semi-pelitic schists and pale quartzites.

IGSL carried out a geotechnical survey in July 2022, with the report issued in September 2022. IGSL noted the following on Stratification : "The investigation has fairly consistently identified a stratum of medium dense clayey sandy gravel grading to firm/stiff sandy gravelly clay underlying variable surface deposits of Topsoil/peat/fill extending to a maximum depth of 1.5m at DP07".

IGSL was informed of the invasive species *Gunnera Tinctora*.

There is no risk from groundwater flooding according to the Office of Public Works (OPW) website, myplan.ie website or the CFRAM study accessed (January 19, 2023). OPW groundwater flood mapping confirmed that the site is not at risk from groundwater flooding. In addition, there is no risk of tidal or pluvial flooding (Figure 2.4).

IGSL (2022) carried out Trial Pits and did not find any water ingress. IGSL boreholes struck water at depths of 6.5m to 8.1m. IGSL report comment on ground water is as follows : "*Trial Pit excavations were dry throughout. Water ingress in the boreholes was noted at various levels. Given the depth to water table recorded in the boreholes, significant water ingress to foundation excavations is not expected*".



Figure 2.4: Flood Map for the Proposed Site (Source: FloodInfo.ie, 2022)

The Site slopes down from the road to the north of the site, towards the south, from 15.50m OD adjacent to the road to 2.5m - 5.0m OD at the southern side of the site. The Site slopes down from East to West a distance of approximately 1.5m to 2.0m, from 15.50m OD adjacent to the road at the north eastern side to 14.0m OD at the western side. The proposed finished floor levels vary from 13.850m at the northern houses (Unit 03 – 04) to 7.8m at the southern houses (Unit 19-20)

The proposed use of natural resource of land will be similar to local land use with domestic dwellings. The Site itself will be changed largely from a greenfield dominated site to a brownfield site.

A small housing development with associated backyards and infrastructure will be developed. The main habitat of this land has been assessed as an area of low ecological significance (Moore Group, July 2021).

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 environment. Subsoils on site are made up mainly of metamorphic till. All proper engineering infrastructure will be developed to prevent any discharge to soils.

Approx. 12% of the Site will be a Green Area (Drawing MCC-90-XX-DR-A-0201-S2).

2.4 Water

The Proposed Development Site does not adjoin any watercourse but fronts onto Clew Bay. The site is in an area of a poor aquifer that is noted as being generally unproductive except for local zones. The associated ground waterbody (GWB) is the Belmullet GWB (EPA Code: IE_WE_G_0057) which covers an area of approx. 1215km². The Water Framework Directive (WFD) latest status for the Belmullet GWB (2013-2018) is 'Good', indicating no change from the previous 2007-2012 and 2010-2015 records held.

There is a status for near surface and sub surface nitrate susceptibility and phosphorus susceptibility at the site. EPA Pollution maps indicate any phosphorous or nitrate rankings near the development site. The near surface nitrate susceptibility is ranked at a 4 for the site and the near surface phosphorus susceptibility is ranked at a 3 at the site (1 being the highest ranking and 7 being the lowest). This is likely due to the rural location of the site. 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 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 (GSDSDS)* and with the requirements of Mayo City Council.

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 GSDSDS. Waste water emanating from the construction works associated with the overall development will be *channelled to a petrol interceptor, attenuation tank and then discharged via a headwall outfall to the coastal bay* as per Drawing 6672-JOD-XX-ZZ-DR-C-700-001.

It is also noted that all wastewater infrastructure will be designed and constructed in accordance with the following:

- 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
- Wastewater infrastructure standard details, connections and developer services, construction requirements for self-lay developments; July 2020 (revision 04), IW-CDS-5030-01

All water infrastructure will be designed and constructed in accordance with the following:

- Code of practice for water infrastructure, connections and developer services, design and construction requirements for self-lay developments, July 2020 (revision 2), IW-CDS-5020-03

- Water infrastructure standard details, connections and developer services, construction requirements for self-lay developments; July 2020 (revision 04), IW-CDA-5020-01

Where the above documents are revised by Irish Water, the latest revision of the relevant document shall be used.

2.4.1 Further Drainage notes

1. All wash hand basins on the first floor will have 'deep seal traps.'
2. An air admittance valve (AAV) will be installed on each branch connection to the wc' s on the first floor.
3. A soil vent pipe will be installed at the highest end of each continuous run. Any branch that is greater than 10m will also require a soil vent pipe to be installed. The soil vent pipe will terminate externally at least 900mm above any opening that is within 3m. A cage or cover on the pipe will not restrict the air flow.
4. All drainage pipes will have a full CCTV survey completed prior to final surfacing being completed, and all pipes will be air tested also.

In line with Codes of Practices as outlined above, it is considered that the development provides treatment of collected run-off, provides a SUDS treatment train approach and is low risk of pollutants. The proposed surface water system has therefore been designed to incorporate SuDS techniques which naturally reduce pollutants and improve water quality. Further detail information is provided in the Proposed Foul and Storm Layout Plan Drawing 6672-JOD-XX-ZZ-DR-C-700-001, Appendix A.

2.5 Biodiversity

Biodiversity is not likely to be significantly affected by the Proposed Development. The subject site is of limited ecological significance. The site in question consists of a rectangular shaped field located between a GAA pitch and Colaiste Phobail Acla at Achill Sound.

There are no records of rare plants in the site specific polygon selected on the Biodiversity map viewer. Habitats were recorded during fieldwork in April 2021.

There are no Annexed Habitats or Species present within the boundary of the Proposed Development site. The site contains extensive stands of *Gunnera tinctoria* and *Rhododendron ponticum*, the majority of which are located in the northern half of the site.

According to Moore Group (July 2021), there are no otter habitats in the study area and no potential for otters on the site. There are no badger setts in the study area. The field boundaries were also surveyed, and no setts were recorded. There is low potential for bat habitats or bat commuting on site. The area is relatively developed and has existing street lighting.

Furthermore, Moore Group Ltd have carried out an Appropriate Assessment Screening of the Proposed Development. Moore Group noted that it can be objectively concluded that there are not likely to be significant effects on any European Site as a result of the construction or operation of the Proposed Housing Development at Pollranny, Achill Sound Co. Mayo and that therefore, an Appropriate Assessment was not required.

2.6 Air and Climate

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

Co. Mayo has three air quality monitoring stations located at Ballina (54.1147°N, -9.1526°E), Castlebar (53.8510°N, -9.3003°E) and Claremorris (53.6866°N, -9.0134°E). Particulate matter is measured at Ballina and Claremorris with ozone and nitrogen oxides also included for Castlebar. The latter monitors are located in the grounds of the EPA offices on the outskirts of Castlebar.

In relation to the Proposed Development, Ballina is located approx. 48km north, Castlebar approx. 13km northwest and Claremorris approx. 13km east.

The EPA Air Quality site was accessed on October 14th 2022 and the following ratings noted:

1. Ballina has a current Air Quality Index for Health (AQIH) of 2 (last uploaded recording at 18.00pm, Feb 24, 2022) with latest PM₂₅ average of 17.76 µg/m³ and PM₁₀ of 19.6 µg/m³ (no recordings since, monitoring station offline).
2. Castlebar has a current AQIH of 2 ((last uploaded recording at 13.00pm, October 14, 2022) with latest PM₁₀ of 11.04 µg/m³, NO₂ average of 8.52 µg/m³ and O₃ average of 32.93 µg/m³.
3. Claremorris has a current AQIH current of 1 ((last uploaded recording at 12.00pm, October 14, 2022) with latest PM₂₅ average of 3.9 µg/m³ and PM₁₀ of 7.21 µg/m³.

Since all of the indices are less than 3, this indicates 'Good' air quality. These AQIH relate to small 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 MAYO COUNTY DEVELOPMENT PLAN 2022-2028

The Mayo County Development Plan 2022-2028 has been consulted alongside the Mayo County Development Plan 2014-2020. Achill Sound is identified as a village area, Tier IV Rural Settlement in the Municipal District of Westport-Belmullet which has a social housing waiting list of 237. A single category mixed-use zoning called Rural Settlement Consolidation Zoning applies to all Tier IV rural settlements. New development is encouraged to be delivered in a sustainable, sequential manner from the village core outwards, while promoting the reuse and redevelopment of vacant and derelict sites and buildings. This Project is in line with this recent Plan. Specific Policies and Objectives outlined in the Mayo CDP 2022-2028 include the following:

Rural Settlement and Village Settlement Plan Policies	
RSVP 1	To promote the development of rural settlements and villages to meet the needs of these established communities and to provide an alternative choice for those seeking to live in a more rural setting, while supporting existing local services and facilities.
RSVP 2	To support the consolidation of Mayo's rural settlements and villages, by promoting proposals that contribute to the sustainable and sequential development of serviceable lands.
RSVP 3	To encourage in-depth residential development in rural settlements and villages, of an appropriate scale, design and density, compatible with the intrinsic character and scale of those settlements/villages.
RSVP 4	To support, promote and encourage the appropriate development of infilling, brownfield or the use of derelict or under-utilised land or premises, subject to siting, design, protection of residential amenities and normal planning considerations.
RSVP 5	To encourage the re-use of existing vacant buildings for commercial or residential purposes and the development of infill sites to create compact, vibrant rural settlements and villages.
RSVP 6	To support public realm enhancements in rural settlements and villages, including signage, public lighting (Dark Sky Friendly), public seating, hard and soft landscaping and improvements to the road and footpath network, where appropriate.
RSVP 7	To support rural settlements and villages in their role as local rural service centres for their population and its rural hinterland.
RSVP 8	Support community-led developments in rural settlements/villages, where appropriate, including the implementation of Mayo Community Futures' Community Action Plans.

Rural Settlement and Village Settlement Plan Policies	
RSVP 9	To support the development of a “New Homes in Small Towns and villages” initiative which would augment the delivery of actions by Local Authorities, Irish Water, communities and other stakeholders, in the provision of services and serviced sites to create “build your own home” opportunities, within the existing footprint of rural settlements and villages, in order to provide new homes to meet housing demand.
RSVP 10	To liaise and work in conjunction with Irish Water in the delivery of an adequate level of water and wastewater services in rural settlements and villages, including pursuing wastewater treatment upgrades, where appropriate, through Irish Water’s Small Towns and Villages Growth Programme.
RSVP 11	To support the creation of cycling infrastructure within the rural villages and settlements, their hinterlands and at areas of interest and attractions.

Rural Settlement and Village Settlement Plan Objectives	
RSVO 1	To ensure that future housing occurs in rural settlements and villages within the settlement/village boundary (based on the sequential approach), where serviced lands are available.
RSVO 2	To ensure that all rural settlements and villages develop in a self-sufficient manner, utilising existing physical and social infrastructure, where appropriate.
RSVO 3	To promote and facilitate residential development commensurate with the nature and scale of the particular rural village or settlement, utilising brownfield and infill opportunities in order to regenerate and consolidate the rural settlements and villages.
RSVO 4	To support the development of appropriate housing in rural settlements and villages, in order to provide a choice for those who wish to live in a rural setting but not in the rural countryside, subject to a limited scope for individual small-scale multi-house developments of up to 12 houses only or 10% of the existing housing stock, unless it can be demonstrated to the satisfaction of the Planning Authority that local infrastructure, such as schools, community facilities and water services, are sufficiently developed to cater for a larger residential development.
RSVO 5	To facilitate the expansion of and provision of new mixed-use and employment generating development within rural settlements and

Rural Settlement and Village Settlement Plan Objectives	
	villages at an appropriate size and scale, subject to normal planning requirements and the “good neighbour” principle.
RSVO 6	To seek the improvement, consolidation and expansion of the public lighting footpath network in rural settlements and villages, including a footpath/cycle link where appropriate and feasible.
RSVO 7	To facilitate the expansion of the employment and service base in the village.
RSVO 8	To actively support the objectives of the “Rebuilding Ireland” Strategy to address the shortage of housing.
RSVO 9	To protect groundwater resources within Source Protection Zones.
RSVO 10	To improve recreational/community/social facilities in rural settlements and villages, where appropriate and as resources allow.
RSVO 11	To facilitate additional community facilities and services within the rural settlement and village envelope, where possible.
RSVO 12	To promote and facilitate development that is commensurate with the nature and extent of the existing settlement to support their role as local service centers.
RSVO 13	To ensure new developments do not adversely impact on the setting and/or integrity of the built or natural heritage in or adjacent to rural settlements and villages.
RSVO 14	To facilitate the provision of gateway features and natural edges on the key approaches to rural settlements and villages.
RSVO 15	To facilitate public realm improvements in rural settlements and villages, including signage, public seating, hard and soft landscaping and improvements to the road and footpath network, where appropriate and feasible.
RSVO 16	To consider proposals for small scale, clustered residential development in rural settlements and villages that are not serviced by a wastewater treatment plant. Subject to complying with the most up-to-date EPA Code of Practice Manual for Wastewater Treatment and Disposal Systems Serving Single Houses.

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 Part 8 Housing Development at Achill Sound Should be Subject to an Environmental Impact Assessment.

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 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 8 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 20 dwelling Units on a site of 1.149 ha (with below threshold parking (34 no. spaces) 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)
- Guidelines on the information to be contained in Environmental Impact Assessment Reports, Environmental Protection Agency, 2022
- 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 Part 8 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 and outlined in Section 5.3 above. The Proposed Development will be assessed under these headings hereunder, namely Section 5.7.1, 5.7.2 and 5.7.3.

4.7.1 Characteristics of the Proposed Development

The characteristics of proposed development, in particular:

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

The proposed development is for 20 residential units and associated private individual amenity spaces (Figure 4.1). The houses are 'Detached' style and are limited to an approximate height of approx. 6.5m.

Scale, massing, architectural expression and detailing are designed to be in keeping with the traditional houses of the area. Pedestrian footpaths sloped as "gently sloping paths" in compliance with TGD M to allow universal pedestrian access between all units/ site entrance and on-street parking. Speed limit will be limited to 30km/ h therefore cyclists and vehicles can share access route safely.

The size of the proposed development is small in terms of housing schemes. Having regard to the modest size and design of the proposal, it is not considered that it would be likely to have significant effects on the environment.

- (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.



Figure 4.1: Mayo County Council Proposed Site layout. Drawing A628-MCC-90-XX-DR-A-0201-S2

4.7.1.1 Application site

There is no recent planning history on the application site.

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 Development were considered. Mayo 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. From an examination of the Planning Authority records of permitted development in the vicinity, it may be noted that there are no significant consented developments in the local area. Table 5.1 outlines five 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
19554	Construct a standalone sports hall facility to include, a new purpose built indoor 668 sqm sports hall with recreational and play area, purpose-built sports gymnasium, changing rooms with toilet and shower facilities, store rooms, ancillary accommodation and office accommodation. The development will be inclusive of site development works with car parking and drainage connections to existing services along with all necessary site works and ancillaries	Colaiste Pobail Acla, Pollranny (Sweeny), Achill Sound, Co. Mayo	16/01/2020	approx. 11 metres east of the proposed development
20824	Construct New Single Storey Dwelling house With Connection To Public Services Along With All Necessary Site Works And Ancillaries.	Pollranny (Sweeny), Achill, Co. Mayo	16/12/2020	approx. 145 metres northeast of the proposed development
21877	Removal Of 2 No. Existing Telecommunication Poles And Replacement With A New 18 Metre Monopole Carrying Antennas, A Dish, A Relocated Grid Antenna, A Relocated Dish, Associated Equipment, Ground-Based Equipment Cabinets And All Associated Site Development	Eir Exchange, R319 Road, Pollranny, Achill Island, Co. Mayo	24/11/2021	approx. 325 metres northeast of the proposed development

Planning Reference	Description of Development	Site Address	Decision Date	Distance from Site
	Works. The Development Will Provide For Wireless Data And Broadband Services			
20386	Carry Out Alterations/Modifications To Existing Dwelling House Comprising Of 1. Demolition Of Existing Flat Roof Rear Extension and Front Porch And 2. Construction Of A New Extension To Southern Side Of Existing Dwelling (To Be Partly Located On Footprint Of Extensions To Be Removed Including All Ancillary Site Development Works.	Pollranny (Sweeny), Achill, Co. Mayo	10/01/2020	approx. 891 metres east of the proposed development
203	New Front Entrance Lobby, External Terrace Area, Canopy And Signage To Supermarket. Retention Of Unauthorised Structures Comprising Part Of Retail Area And Stair Well Of Existing Supermarket Of Total 64sqm. Retention Of Temporary Car Park On West Side Granted Under Planning Reference 08/453 For Supermarket Customer And Staff Use And Forming New Vehicle Entrance, Modification To Vehicle Entrance To Existing Car Park On East Side, Setting Back Boundary Walls, Forming New Footpaths, Parking Spaces, Accessible Ramps And Steps Between Both Vehicle Entrances. New Entrance	Achill Sound, Achill, Co. Mayo	22/06/2020	approx. 536 metres southwest the proposed development

Planning Reference	Description of Development	Site Address	Decision Date	Distance from Site
	Gate To Builder's Providers' Yard Off Existing Car Park, Modification To Car Park Layout And Goods Vehicle Set Down Area			

There were no other planning applications in the area at the time of writing (April 25, 2022).

Having regard to the scale of the permitted developments in the vicinity, the AA Screening assessment noted that there will be no likely significant effects to any European Site during the construction or operations phases of the Proposed Development. Therefore, there will be no in-combination effects with local planning applications.

- (c) the nature of any associated demolition works,

The site is currently vacant (old barracks); no demolition works are proposed.

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

There are hard surfaces associated with the site. The site is currently, in its entirety, an urban site, with associated concrete walls, fences and gates.

The proposed use of the natural resource of land is considered to be different to the existing situation with Invasive Scrub (WS1) and Rank Wet Grassland (GS4) habitat types dominating the vegetative sections of the Site. These habitats are of low ecological significance. It is planned to eradicate the Site of the invasive species infestation prior to any construction commencing; this will be of great benefit to the area, as it will reduce the risk of the spread of these noxious plants to neighbouring areas.

In the 2014-2020 Mayo County Development Plan, the subject site is 'Mixed-use Zoning' but allows for densities which are in context with Achill Sound.

IGSL (2022) assessed the soil data collected from the boreholes against the LQM/CIEH Suitable 4 Use Levels for Human Health Risk Assessment (S4ULs). All material tested complied with the residential S4ULs indicating that the material is suitable for retention on site following development. All proper engineering infrastructure will be developed to prevent any discharge to soils.

Soils were also examined during the construction of boreholes and the trial pits opened within each borehole. Trial pits carried out by IGSL 2022. Peat/Topsoil/ Made Ground were noted overlying medium dense to dense clayey sandy gravel grading in places to

sandy gravelly clay. The report also noted that groundwater ingress was noted in BH02 to BH05. BH01 was dry.

Currently, there are no surface water connections from the site to any watercourse or a hydrological link to any European Site. (*the development will be discharging surface water to the coastal bay*) The nature of the proposed residential development will generate a demand for water, but this is for residential use and is not considered significant. Natural sustainable urban drainage systems (SUDS) will be incorporated into the surface water drainage design (6672-JOD-XX-ZZ-DR-C-700-001, Appendix A). The 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 *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.

Biodiversity Net Gain Ireland is experiencing a biodiversity crisis and there are high level objectives to halt and ameliorate biodiversity loss. Mayo County Council will take advantage of the opportunity in this proposed development to showcase how development projects can support biodiversity by planting native trees on site, and to showcase best practice in relation to biodiversity and climate change. Options available for this project include:

- Landscaping is proposed to allow for planting of deciduous native trees of various species
- New native hedgerow: combination of Irish grown; pollinator friendly native shrub species
- New open space trees: combination of Irish grown; pollinator friendly native species
- New ornamental street trees: combination of Irish; grown pollinator friendly native species.
- (All as recommended by the All Ireland Pollinator Plan 2021-2025)

(e) the production of waste

The proposed development of 20 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 development.

IGSL (IGSL, 2022) assessed the potential waste generation from the site and noted that any materials which may be excavated from site may be disposed of either on site or offsite to a suitable licensed landfill facility.

Excess soil and stone resulting from excavation works (the primary purpose of which is not the production of soil and stone) may be declared a by-product if all four by-product conditions outlined below are met:

- a) further use of the soil and stone is certain
- b) the soil and stone can be used directly without any further processing other than normal industrial practice
- c) the soil and stone is produced as an integral part of a production process
- d) further use is lawful in that the soil and stone fulfils all relevant requirements for the specific use and will not lead to overall adverse environmental or human health impacts.

Due to the varying levels of anthropogenic materials encountered in the made ground there are potentially two sets of List of Waste (LoW) codes with “mirror” entries which may be applied to excavated materials to be removed from the site (GII, 2021):

1. 17-05-03* (soil and stone containing dangerous substances, classified as hazardous) or 17-05-04 (soil and stone other than those mentioned in 17-05-03, not hazardous); or
2. 17-09-03* (other construction and demolition wastes (including mixed wastes) containing hazardous substances) or 17-09-04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03).

Where waste is an entry in the LoW, it can be classified via a process of analysis against standard criteria set out in the Waste Framework Directive. The assessment process is described in detail in guidance published by the Irish (EPA Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-Hazardous, June 2015) and UK regulatory authorities (Guidance on the Classification and Assessment of Waste: Technical Guidance WM3, 2015). The assessment involves comparison of the concentration of various parameters against defined threshold values.

Waste Acceptance Criteria (WAC) have been agreed by the EU (Council Decision 2003/33/EC) and are only applicable to material if it is to be disposed of as a waste at a landfill facility.

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

IGSL sent seven samples to EUROFINS environmental laboratory. Six of the seven samples were classed as inert. One sample had a “marginally increased level of Total Organic Carbon...(3.7% as against the permitted Inert level of 3%). This is not expected to adversely affect the classification of the soil on site as Inert in terms of waste classification”.

Asbestos fibres were not detected in samples analysed.

IGSL report states “*No issues arise if material excavated during this development is disposed of within the site boundary and used for non-engineering purposes (landscaping etc.)*”

The Ecological Impact Assessment Report carried out by Moore Group in 2021 identified invasive species onsite. They noted that “*the spread of Giant rhubarb and Rhododendron will be addressed by formulating an Invasive Species Management Plan for the infected area prior to construction works and site development. The management plan will be drawn up by an experienced specialist in a timely fashion in order for treatment to commence prior to development*”.

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, agricultural machinery and motorised vehicles 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 mixture of both a greenfield and brownfield site. Currently, there is street lighting along the northern roadside boundary of the Site. There is also pitch lighting on the adjacent athletic field adjacent to the Site due west.

Proposed lighting will 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).

Mayo County Council will consider the minimisation of artificial light pollution and directional light on boundary trees and hedgerows, as much as possible in the lighting design of this new development.

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 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.

Achill Sound is located within the settlement of Achill Island with a noted population of 238 in 2016; the population in this townland decreased by 37 between 2011 and 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. 40 no. people once complete and fully occupied, offsetting the decrease in population between 2011 and 2016. 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 including

Coláiste Pobail Acla adjacent to the Proposed Development (due east), and other services.

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 Site has a significant infestation of invasive species which has expanded over the years due to lack of use of the site. The Site is considered of low ecological significance (Moore Group, July 2021). There will be no significant impact on the local ecology or surrounding dwellings as a result of this development.

The land on which the site is proposed is 'Mixed-use Zoning'. As such, the use of this material asset is in a manner compatible with the zoning designation, is entirely appropriate. Once constructed, the operation phase will provide an important material asset for the area in terms of 20 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 of low ecological significance in the local landscape. Enhanced tree planting is proposed 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 (Moore Group, 2021) 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, this does not apply.

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

The National Monuments Service Archaeological Survey Database does not indicate any specific designations to this site. No protected structures exist on the site, and the site is not located in a conservation area. Sue Zajac Architects report of 2021 (Archaeological Report on Predevelopment Testing at Pollranny (Sweeny) Townland, Achill Sound, Co. Mayo) notes *a desk-top survey and site visit however concluded that further archaeological mitigation was not required. This was due to ground disturbance having occurred across all areas of the site, the absence of designated archaeological monuments on or near the development site and no new archaeological evidence emerging, following a site visit for this assessment. As such this report concludes that the proposed development for social housing should proceed without further archaeological input.*

The site is not located within an area of archaeological interest and is therefore not expected to have any significant impacts on archaeology, architectural or cultural heritage. The National Monuments Service Archaeological Survey Database showed the nearest archaeological feature is The Holy Trinity Church

(Achill) Reg. No. 31305513 dated between 1845 and 1855. It is located approximately 120 metres northwest of the project site.

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 (1.149 ha) transforms an abandoned area where there is a significant infestation of invasive plant species into a small housing development. The proposed development is for 20 residential units, associated landscaping and associated private individual amenity spaces (Figure 4.1). The houses are 'Semi-detached' style and are limited to an approximate height of approx. 6.5M.

The scale of the proposed development will extend along Pollranny in Achill Sound and will increase the 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 Mayo 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 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 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 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 development will be constructed above the 100 year predicted flood events.

Surface Water Sewer

It is proposed to discharge the storm water generated from the development to the coastal bay along the southern boundary of the site. The storm water generated from the development will discharge under gravity, passing through a petrol interceptor before entering an appropriately sized attenuation tank located within the open space at the southern boundary of the site. Flow control measures will be used to maintain greenfield run off flow rates.

The storm water drainage system has been designed to cater for the proposed dwelling units areas of hardstanding (including roofs, footways, roadways and car parking). The proposed storm network will discharge surface water run-off into the coastal bay along the southern boundary of the site. It is proposed that all storm water generated by the site will discharge by gravity, passing through a Class 1 Klargestor NSBE010 Bypass Separator or equal and similar approved, to an appropriately sized attenuation tank located within the open space at the southern boundary of the site before discharging into the coastal bay, as shown on Drawing No. 6672-JOD-XX-ZZ-DR-C-700-001, Appendix 1

Storm water run-off from the hardstanding, parking bays and footpaths will be collected by precast concrete gullies including lockable cast iron grating and frames connected to a piped system. Surface water run-off from roof areas will be collected via downpipe connections to the main network.

Gullies are located as shown on Drawing No. 6672-JOD-XX-ZZ-DR-C-700-001, Appendix 1. Gullies are positioned in accordance with the 'Recommendations for Site Development Works.' Gullies are provided at a minimum rate of one gully per 200m².

Wastewater Sewer

It is proposed to direct the foul sewer from the development to the existing foul sewer network located running adjacent to the southern and western boundaries of the proposed site. The existing network serves the Achill Sound area. The proposed foul sewer will discharge under gravity to the existing foul network, where it then discharges to the Achill Sound, Old Railway Pumping Station.

The drainage systems including all pipe sizes and gradients have been designed using Flow Drainage Design Software. The pipework to the drainage system has been designed to provide for six times the dry weather flow (DWF) in accordance with the recommendations of the Greater Dublin Strategic Drainage Study (GSDSDS). It is proposed that all pipes will be HDPE twinwall. The maximum pipe diameter is to be 225mm, with a maximum and minimum gradient such that all velocities fall within the limits of 0.75 and 2.5m/sec as set out in the "Code of Practice for Wastewater Infrastructure" by Irish Water.

As noted, the foul drainage for the entire development will be collected throughout the site in the foul pipe network and will then discharge by gravity to the existing foul sewer network located running adjacent to the southern and western boundaries of the proposed site. All of the pipe sizes and gradients are clearly indicated on the associated drawings. Details of the development's foul drainage network are shown on Drawing No. 6672-JOD-XX-ZZ-DR-C-700-001, Appendix 1.

Watermain

The subject site is to be served by an existing watermain which runs approximately parallel to the southern and western site boundary. This watermain is under the authority of Irish Water and permission has been obtained to connect to the scheme. A statement from Irish Water April 2022 (Appendix II) stated 'we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time'.

The water main has been designed in accordance with the Code of Practice for Water Infrastructure. A 110mm OD PE connection is proposed to be made to the existing \emptyset 150mm PVC watermain located in the R319 road at the northern boundary of the proposed site, as shown on Drawing No. 6672-JOD-XX-ZZ-DR-C-700-008 (Appendix 1), included in **Appendix A**. A 50mm PE connection will be made to each dwelling/unit.

Hydrants will be positioned within the site such that:

- The distance from each building is not less than 6m or more than 46m,
- The distance from a hydrant to a vehicle access road or hard-standing area for fire appliances is not more than 30m,

- They are distributed around the perimeter of the buildings, having regard for the provision of access for fire appliances, (as per Building Regulations 2006 Technical Guidance Document B)

The hydrants shall be capable of delivering a minimum of 35 litres per second through any single hydrant as per Water UK – National Guidance Document on the Provision of Water for Fire Fighting.

In accordance with Irish Water standards a Water meter, Logging Device (Larson Type) and sluice valves are proposed at the connection into the proposed site. All water mains are to be commissioned and pressure tested to Irish Water Standards. The typical connection details and meter details are shown in revision 4 of Irish Water standard details.

4.8 Inter relationship with above factors

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 Moore Group Environmental Services AA Screening assessment for this development has objectively concluded by that:

- *The Proposed Development is unlikely to either directly or indirectly significantly affect the Qualifying interests or Conservation Objectives of the European sites considered in this assessment.*
- *The Proposed Development, alone or in combination with other projects, is not likely to have significant effects on the European sites considered in this assessment in view of their conservation objectives.*
- *It is possible to conclude that significant effects can be excluded at the screening stage.*

It can be excluded, on the basis of objective information, that the Proposed Development, individually or in combination with other plans or projects, will have a significant effect on a European site.

An appropriate assessment was not, therefore, required.

5 CONCLUSION

This EIA screening report has been prepared in relation to a Part 8 residential development on land situated at Pollranny, Achill Sound, Co. Mayo 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 a rural 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 community of Pollranny in Achill Sound, Co. Mayo.
- 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

IGSL Report on Site Investigation for a Proposed Housing Development at Achill Sounds for Mayo County Council, Report No. 24167, September 2022

EPA (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. Environmental Protection Agency.

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

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

Biodiversity Maps, <https://maps.biodiversityireland.ie/Map>
Geological Survey Ireland Spatial Resources (GSI),
<https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228>

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

National Monuments Service, Historic Environment Viewer,
<https://maps.archaeology.ie/HistoricEnvironment/>

Sue Zajac, Archaeologist, Mayo County Council, Archaeological Assessment, Pollranny (Sweeny) Achill Sound, 2021

**APPENDIX A
DRAWINGS**

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/EMPLOYERS REPRESENTATIVE, AS APPROPRIATE, TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
 4. THE CONTRACTOR SHALL UNDERTAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES/UTILITIES, ABOVE AND BELOW GROUND, BEFORE ANY WORK COMMENCES.
 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.

LEGEND

- SITE BOUNDARY shown thus ———
- PROPOSED STORM MANHOLE shown thus ●
- PROPOSED STORM WATER NETWORK shown thus - - - - -
- PROPOSED FOUL MANHOLE shown thus ●
- PROPOSED FOUL NETWORK shown thus - - - - -
- PROPOSED SURFACE WATER CONNECTIONS shown thus ———
- PROPOSED FOUL WATER CONNECTIONS shown thus ———
- PROPOSED ROAD GULLIES shown thus R/G
- EXISTING FOUL MANHOLE shown thus ●
- EXISTING FOUL NETWORK shown thus - - - - -

Wastewater Infrastructure Standard Details



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.

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 SEPERATION DISTANCES.WHERE SEPERATION 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 AND FOUL SEWER PIPES UNLESS OTHERWISE SPECIFIED. PIPES ARE TO BE BBA (BRITISH BOARD OF AGREEMENT) 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.

Site Area:-
11,490 m², 2.839 Acres, 1.149 Hectares
ITM Co-Ordinates of site:-
474243, 799827
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OS Sheet No. 1774-B

D.01 Issued for Discussion	AP	MF	24.08.22
rev. modifications	by	chkd	date

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Mayo County Council

project
PROPOSED RESIDENTIAL HOUSING DEVELOPMENT AT ACHILL SOUND, CO. MAYO.

stage
DRAFT

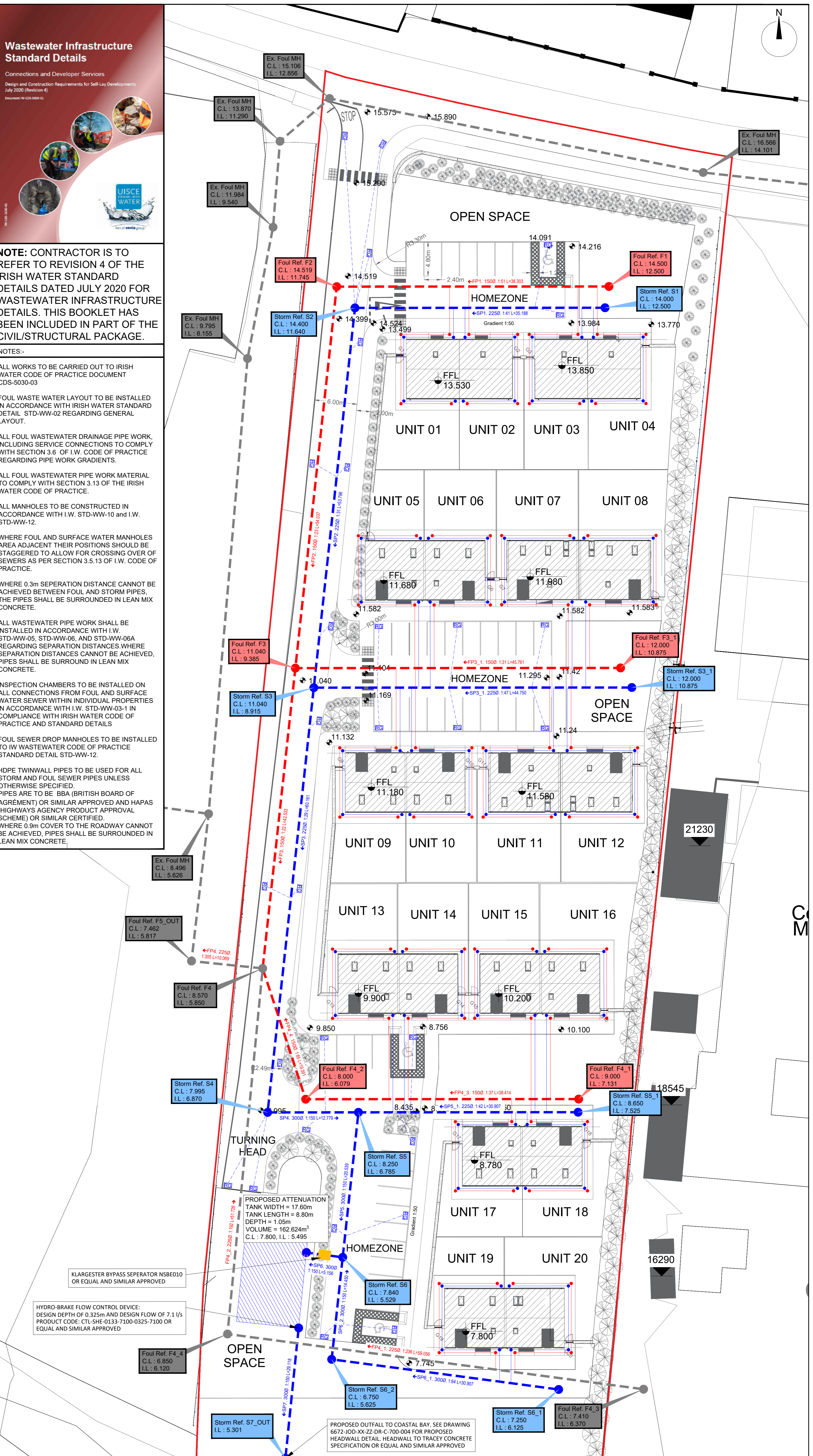
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surveyed	drawn	checked	date
AP	AP	MF	Aug 2022

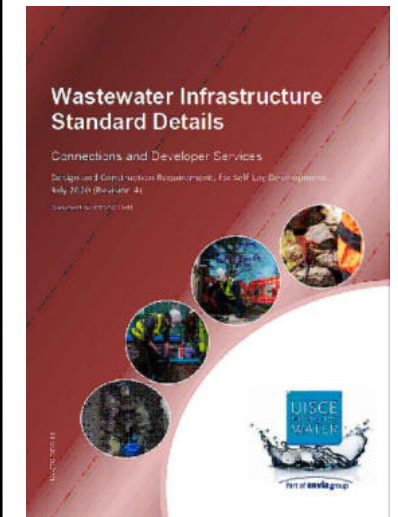
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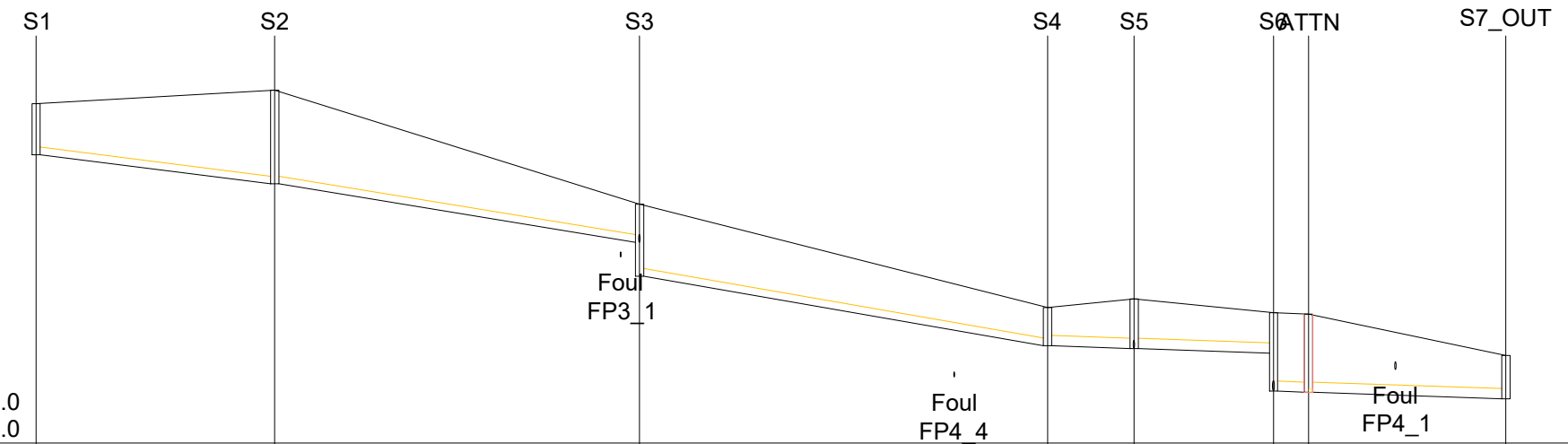


NOTES

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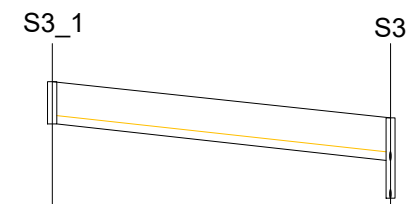


NOTE: CONTRACTOR IS TO REFER TO REVISION 4 OF THE IRISH WATER STANDARD DETAILS DATED JULY 2020 FOR WASTEWATER INFRASTRUCTURE DETAILS.



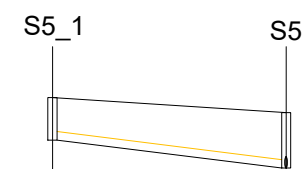
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Slope		1:40.9	1:31.2	1:29.4	1:150.3	1:150.0	1:150.0	1:150.0	
Cover Level		14.000	14.400	11.040	7.995	8.250	7.840	7.800	6.582
Invert Level		12.500	11.640 11.640	9.915 8.915	6.870 6.870	6.785 6.785	6.648 5.495	5.495	5.301
Length		35.188	53.796	60.161	12.779	20.539	5.156	29.118	



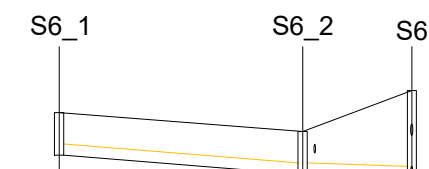
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Invert Level		10.875	9.915
Length		44.750	



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Section Type		225mm	
Slope		1:41.8	
Cover Level		8.650	8.250
Invert Level		7.525	6.785
Length		30.907	



Vert exaggeration = 5.0
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Link Name		SP6_1	SP6_2
Section Type		300mm	300mm
Slope		1:64.4	1:150.5
Cover Level		7.250	7.840
Invert Level		6.125	5.625 5.625 5.529
Length		32.220	14.450

D.01	Issued for Discussion	AP	MF	24.08.22
rev.	modifications	by	chkd	date
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client Comhairle Contae Mhaigh Eo Mayo County Council

project
PROPOSED RESIDENTIAL HOUSING DEVELOPMENT AT ACHILL SOUND, CO. MAYO

stage
DRAFT

title
PROPOSED STORM SEWER SECTIONS

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

surveyed	drawn	checked	date
	AP	MF	Aug 2022

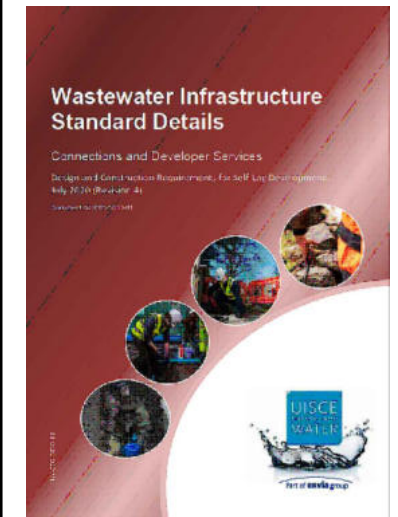
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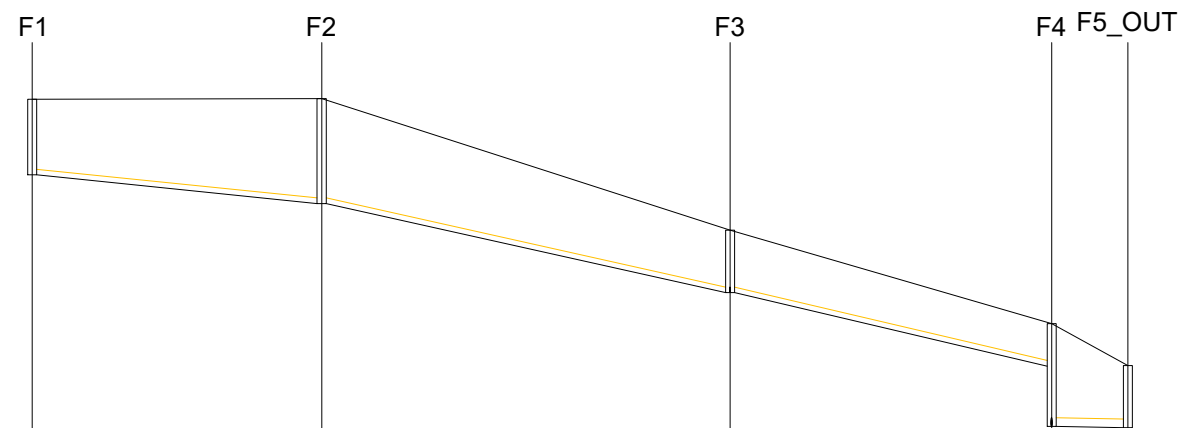
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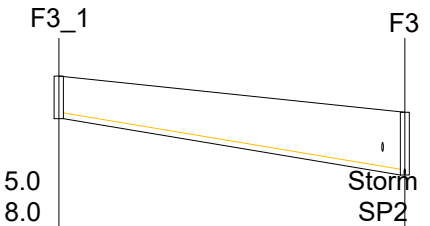


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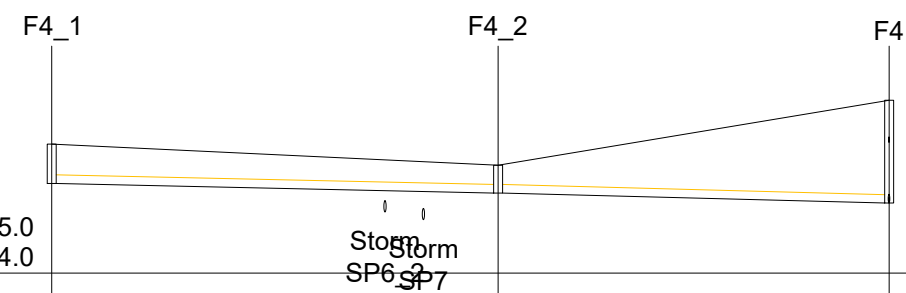
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Cover Level	14.500	14.519	11.040	8.570 / 7.462
Invert Level	12.500	11.745 / 11.745	9.385 / 9.385	7.445 / 5.850 / 5.817
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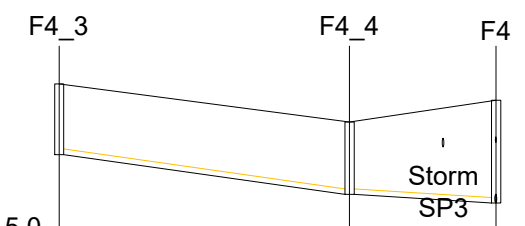
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Length	45.761



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Link Name	FP4_1	FP4_2
Section Type	225mm	225mm
Slope	1:236.2	1:191.6
Cover Level	7.410	6.850
Invert Level	6.370	6.120 / 6.120
Length	59.056	51.726



Vert exaggeration = 5.0
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Section Type	150mm	150mm
Slope	1:36.5	1:84.7
Cover Level	9.000	8.000
Invert Level	7.131	6.079 / 6.079
Length	38.414	19.391

D.01	Issued for Discussion	AP	MF	24.08.22
rev.	modifications	by	chkd	date
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client Comhairle Contae Mhaigh Eo Mayo County Council

project
PROPOSED RESIDENTIAL HOUSING DEVELOPMENT AT ACHILL SOUND, CO. MAYO

stage
DRAFT

title
PROPOSED FOUL SEWER SECTIONS

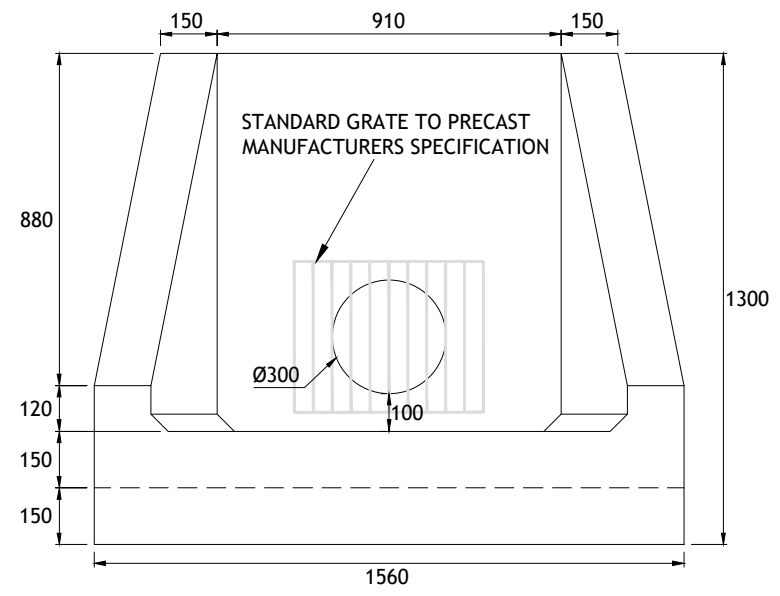
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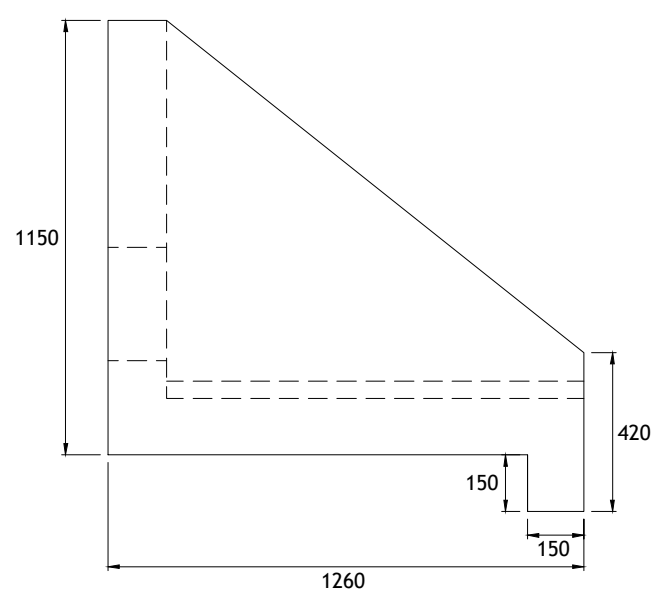
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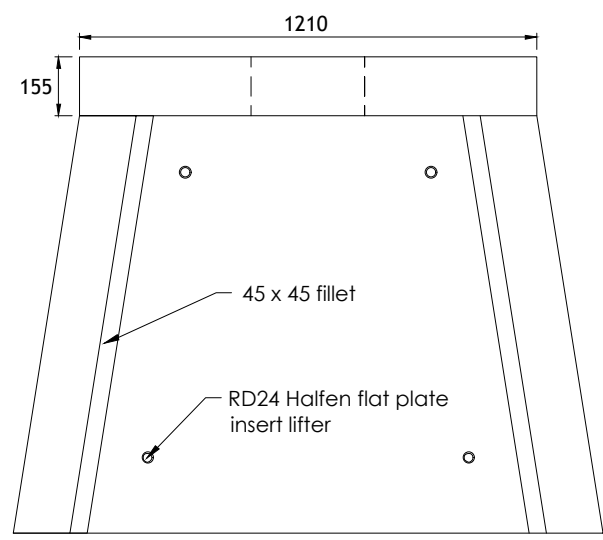
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FRONT VIEW



SIDE ELEVATION VIEW



PLAN VIEW

- Notes:**
- All dimensions are in mm unless otherwise stated
 - Concrete: Grade C40/50 w/c Ratio 0.35, 430kg/m³ Cem1 UNO. Sulphate resisting cement capable of resisting Class 3 sulphate attack Cover: min 35mm, max 45mm all faces Mix Ref: wet cast mix
 - Exposure Class: XF4
 - Handling: 4 no. RD24 Halfen capped end lifteh inserts per unit located in base where indicated. maximum angle 30° to the vertical. Reccomended halfen RD24 lifteh loop(PX)
 - Reinforcement : Grade strength of reinforcing steel to B500B, conforming to BS4449:2005 Scheduling, dimensioning, bending and cutting to BS8666
 - Concrete design to EC2: BS EN 1992-1-1:2004

NOTES

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rev.	modifications	by	chkd	date

Layout Ref.:
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client
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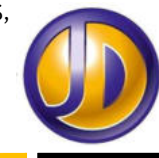
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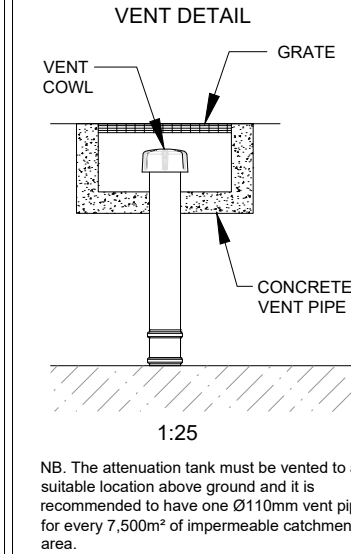
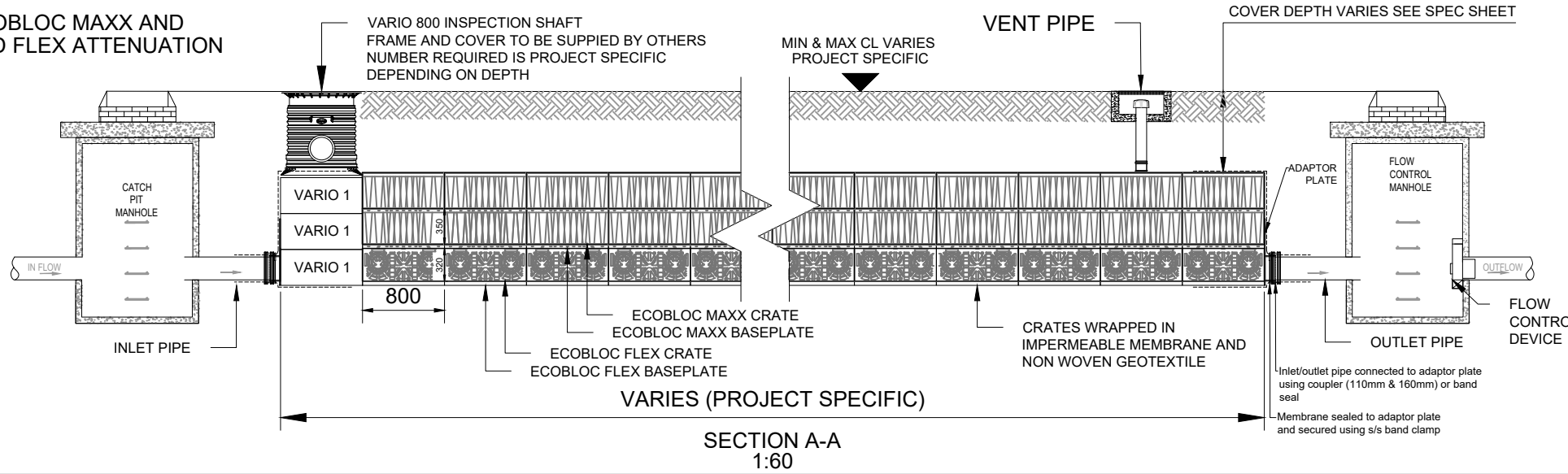
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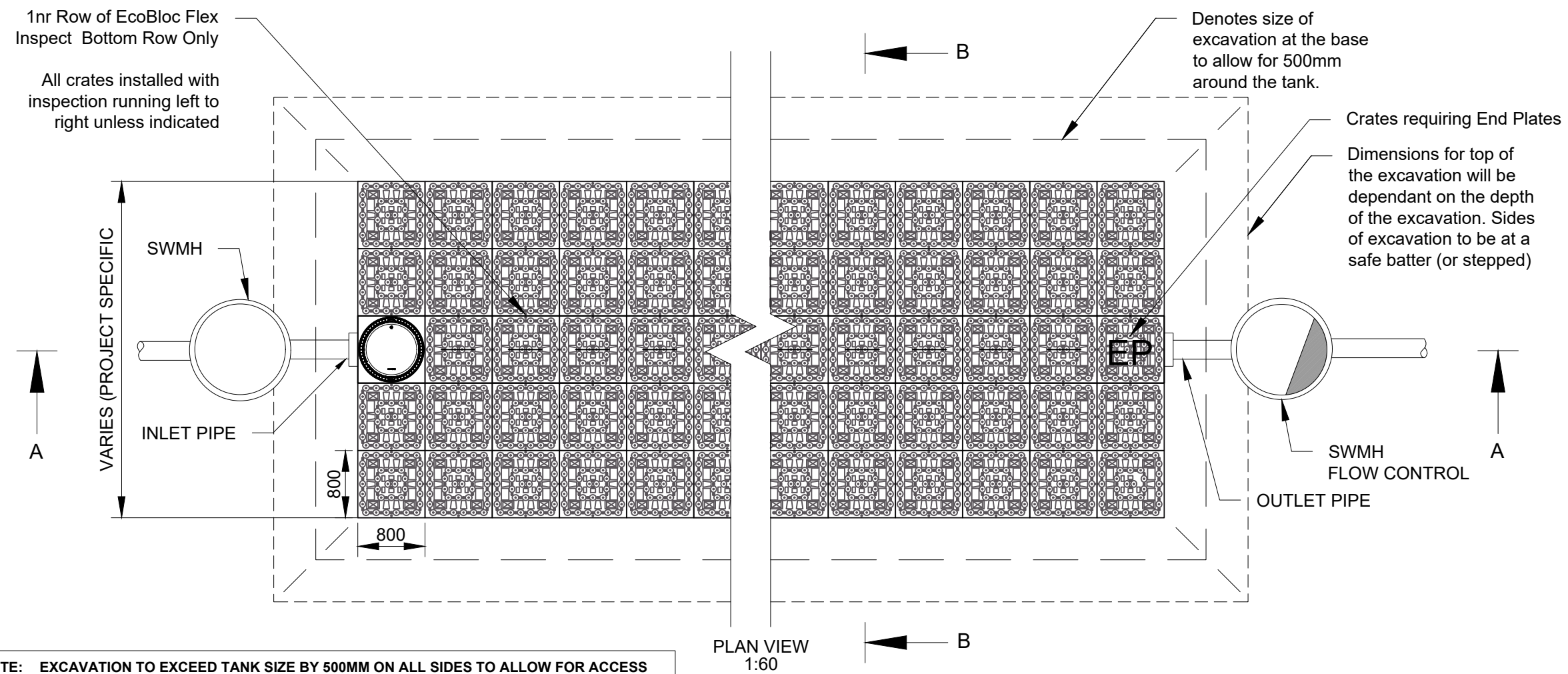
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ECOBLOC MAXX AND FLEX ATTENUATION



DO NOT SCALE - IF IN DOUBT ASK

- NOTES:-
- All dimensions in mm, unless otherwise stated.
 - All dimensions are nominal and may vary within manufacturing tolerances.
 - All site temporary enabling works by others.
 - Graf products to be installed in strict accordance with Graf recommendations.
 - This drawing is intended for guidance only. Confirmation of the suitability for a particular project should be sought from the consulting engineers prior to final design or commencement of any construction works.

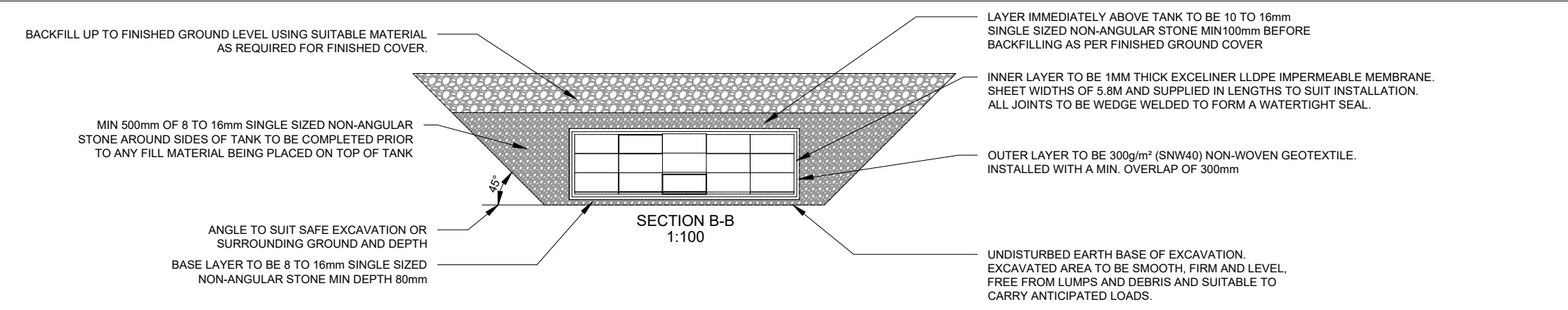


ECOBLOC MAXX

	Crate	Baseplate
Dimensions (mm)	800 x 800 x 350	800 x 800 x 40
Gross Volume (m3)	0.225m ³	0.025m ³
Net Volume (m3)	0.217m ³	0.020m ³
Material	Polypropylene	Polypropylene
Weight	9kg	4kg
Void Ratio	>96% depending on number of layers	
Inspectable	Yes, when combined with EcoBloc Flex	



NOTE: EXCAVATION TO EXCEED TANK SIZE BY 500MM ON ALL SIDES TO ALLOW FOR ACCESS



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project **PROPOSED RESIDENTIAL HOUSING DEVELOPMENT AT ACHILL SOUND, CO. MAYO.**

stage **DRAFT**

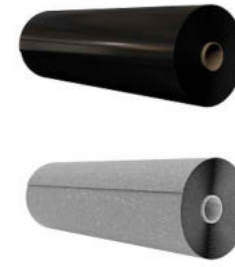
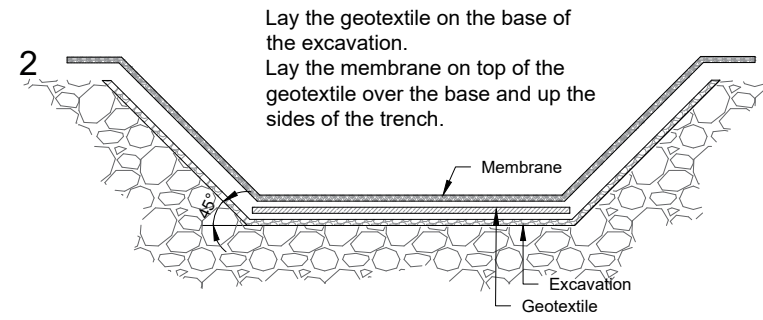
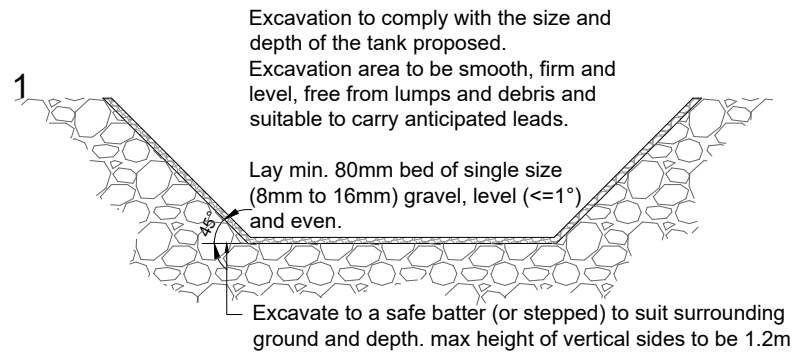
title **ATTENUATION TANK - GRAF ECOBLOC MAXX - SHEET 1**

scale **AS SHOWN @ A3**

surveyed -- drawn AP checked MF date Aug 2022

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drawing no. **6672-JOD-XX-ZZ-DR-C-700-005** revision **D.01**



Geomembrane:
1mm Thick LLDPE Geomembrane with a density of at least 0.939g/m².

Geotextile:
300g/m² Non-woven, needle punched geotextile

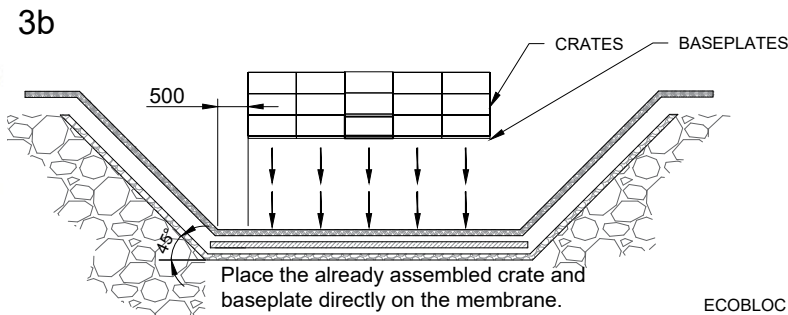
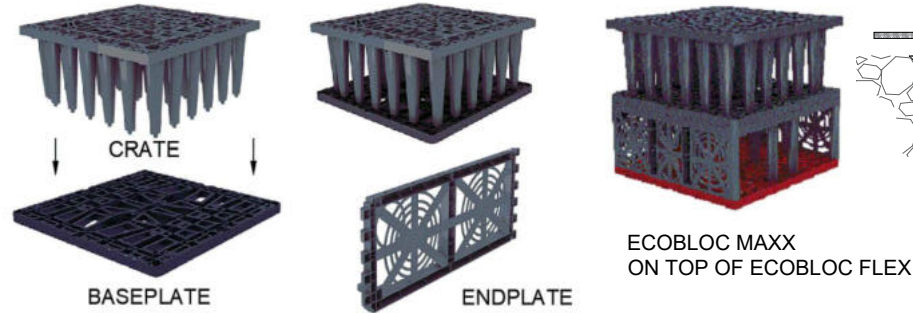
Geomembranes and Geotextiles with characteristics less than those specified are unlikely to be suitable and are therefore not recommended for use with Graf UK systems for this application

DO NOT SCALE - IF IN DOUBT ASK

INSTALLATION METHOD:-

1. a) Excavate the trench with a safe batter (or stepped) ensuring the footprint allows for sufficient space between tank and the sides. (minimum 500mm around all sides of the tank).
b) Mark out the position of the tank including inlets and outlets.
c) Lay min. 80mm of single sized non angular stone (8 to 16mm) as a base for the tank. This can be laid to a maximum fall of 1°.
2. a) Lay the Geotextile over the base the excavation, overlapping any joins by a minimum of 300mm
b) Lay the Membrane on top of the Geotextile over the base and up the sides of the trench.
c) Membrane must be joined by thermal fusion heated wedge welding. It is recommended that the Dual Seam method is used as this generates an unwelded channel which can be pressured with air to check the integrity of the weld.
d) The membrane and geotextile used must meet the specification stated on the drawing.
3. a) Assemble EcoBloc Maxx Crate and Baseplate, position leg ends into corresponding holes in the Baseplate. The crate will only fit in the correct orientation. Push down firmly to ensure Crate is located correctly. Assemble the row of EcoBloc Flex Crate with baseplates where inspection run is required. If a Vario shaft is to be included within the tank make sure the Vario Shaft base is in position located (Vario Shaft bases do not require a crate baseplates).
b) Install already assembled Crates and Baseplates onto the membrane until the first layer is complete. Insert retaining clips into each adjacent Crate.
c) Check and make sure the Row of EcoBloc Flex Crates are in the correct located position where inspection run is required.
d) To install the next layer of Crates remove from the stack and turn 90° and position directly above the Crate below. Push down firmly to ensure Crate is located correctly.
NOTE: You will need to place an additional row of EcoBloc Maxx Baseplates directly on top of the EcoBloc Flex crates **only**. No more base plates are required.
e) Continue until all Crates have been installed, ensuring clips are used to secure each Crate.
f) Fit Endplates to the sides of each Crate by positioning the bottom in place then pushing firmly on the top section to locate into place.
4. a) Fix adaptor plates to the sides of the crates in the required position for the inlet and outlet pipes.
b) Cut a hole in the Membrane and pull over the adaptor plate sealing the membrane around the spigot of the adaptor plate.
c) Pull Membrane up around the sides and fully wrap the crates, securing the lid in place by heated wedge welding to the side panels.
d) Cover top and sides with the Geotextile covering the entire tank to protect the Membrane.
e) Install vent pipe connection into the top of the tank at a suitable location.
f) Backfill around the tank and for 100mm above with non-angular stone. Backfill to finished ground level with suitable material in layers.
g) Connect inlet/outlet pipes using appropriate bandseals.
h) In order to prevent silt from entering the tank it is recommended that silt traps or catchpit manholes are installed upstream of any inlet. These should be regularly maintained to avoid the buildup of any silt.

3a Assemble Baseplate and Ecobloc Maxx crate as shown below.

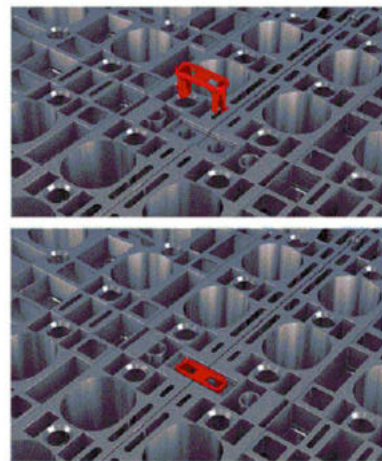


Mixed crates to be constructed as labeled below

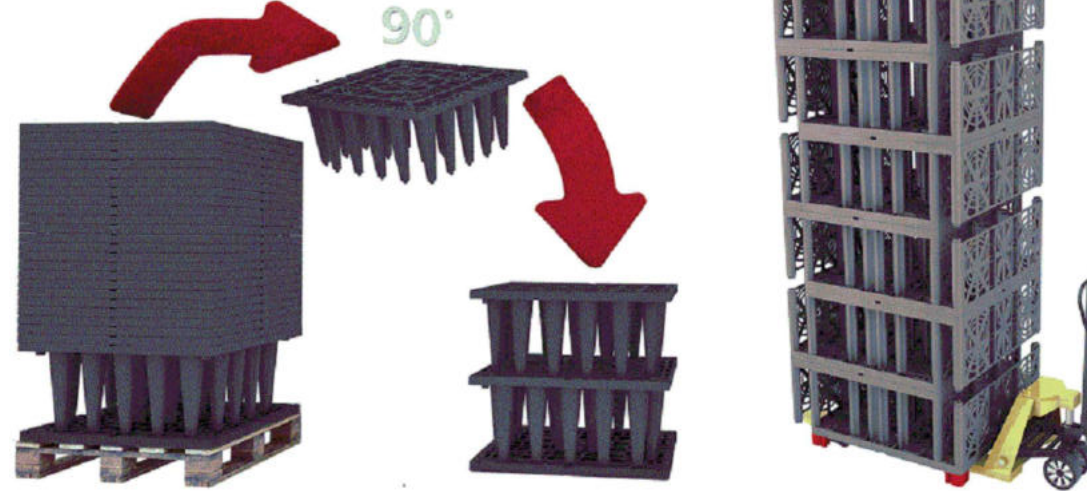
MAXX	MAXX	MAXX	MAXX	MAXX
MAXX	MAXX	MAXX	MAXX	MAXX
MAXX	MAXX	FLEX	MAXX	MAXX

ECOBLOC MAXX CRATE
ECOBLOC MAXX BASEPLATE
ECOBLOC FLEX CRATE
ECOBLOC FLEX BASEPLATE

Remove a crate from the stack, rotate it 90° and place on top of the previously placed crate ensuring the connector clips are clipped locking the crates together.



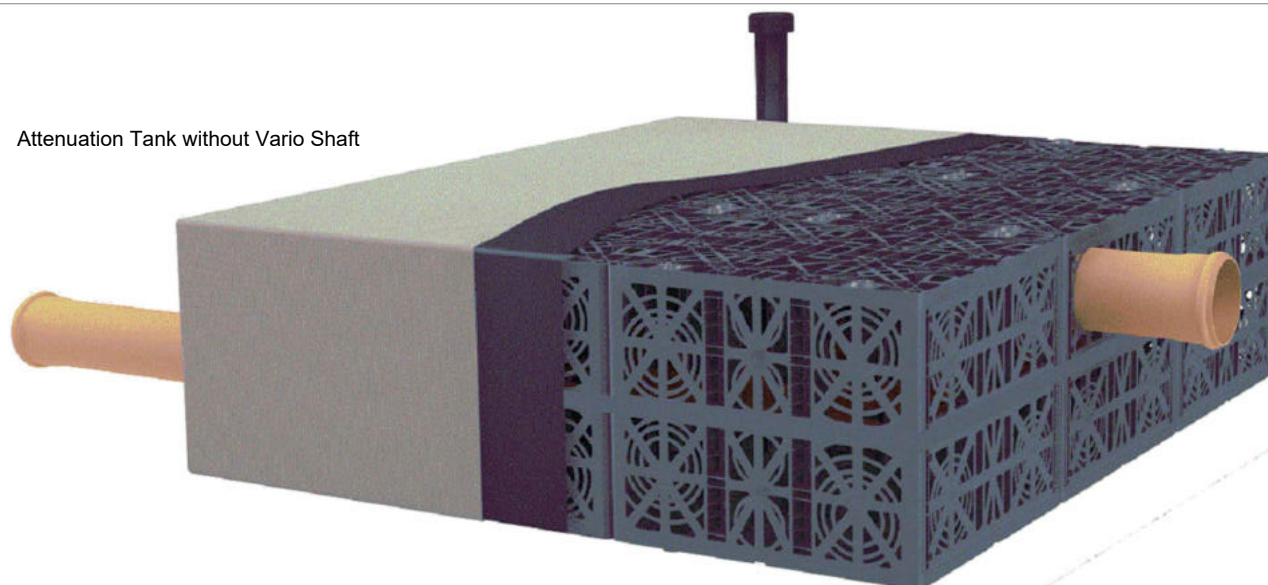
Connector clips are Red for illustration purposes only and are Grey in colour



Attenuation Tank with Vario Shaft

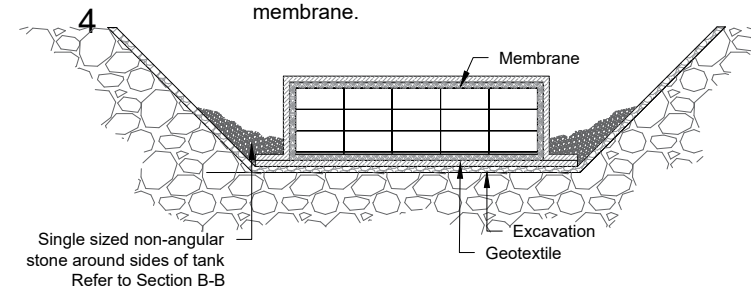


Attenuation Tank without Vario Shaft



Endplates are then clipped to the tank where required.

Wrap the crates with the geomembrane ensuring it is heat welded/sealed then wrap the geotextile to protect the membrane.



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file P:\job-jobs\6672 Achill Sound Hsing\700 Drawings\703 Planning\01 WIP\6672-JOD-XX-ZZ-DR-C-700-005-007 Atten Tank Detail.dwg

client Comhairle Contae Mhaigh Eo Mayo County Council

project PROPOSED RESIDENTIAL HOUSING DEVELOPMENT AT ACHILL SOUND, CO. MAYO.

stage DRAFT

title ATTENUATION TANK - GRAF ECOBLOC MAXX - SHEET 2

scale AS SHOWN @ A3

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drawing no.	revision
6672-JOD-XX-ZZ-DR-C-700-006	D.01

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Notice: This drawing is issued only as a guideline and is an estimate of the materials required to construct the drainage system, it should not be used for construction purposes.
 Graf Ireland Ltd makes no warranty or guarantee in relation to the suitability of any of the layout details shown on this drawing in relation to a particular scheme.

NOTES:-

1. All dimensions in mm, unless otherwise stated.
2. All dimensions are nominal and may vary within manufacturing tolerances.
3. All site temporary enabling works by others.
4. Graf products to be installed in strict accordance with Graf recommendations.
5. This drawing is intended for guidance only. Confirmation of the suitability for a particular project should be sought from the consulting engineers prior to final design or commencement of any construction works.

VARIO 800 TYPE 1

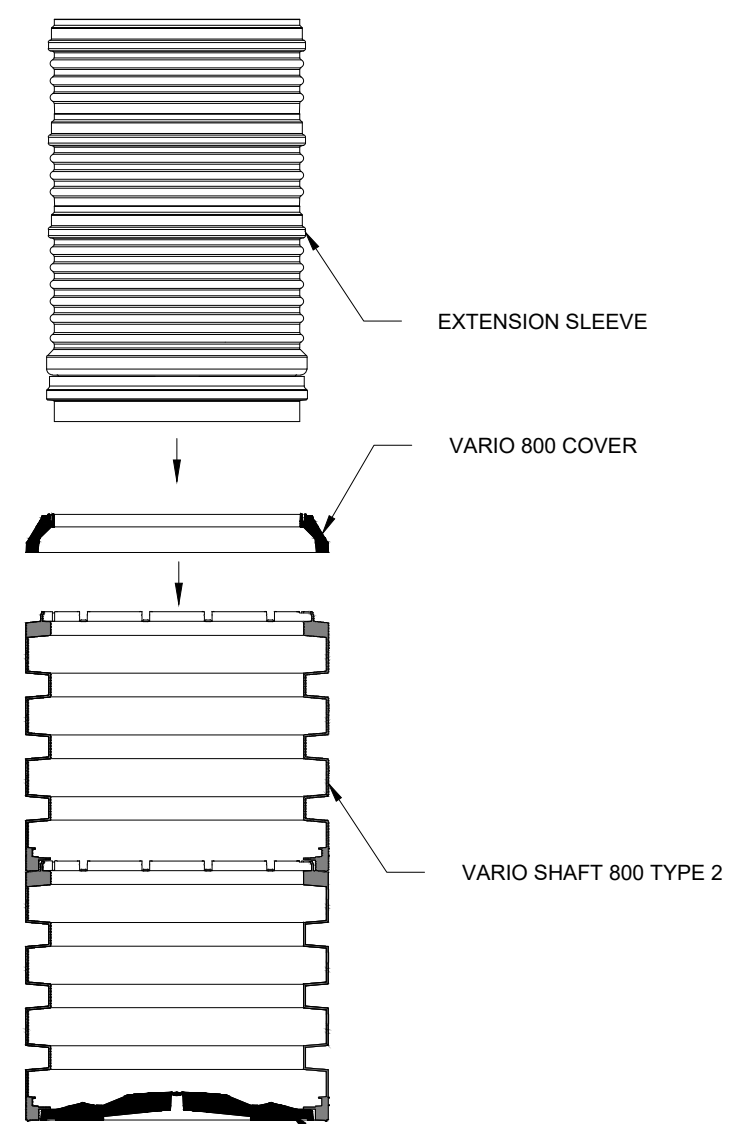
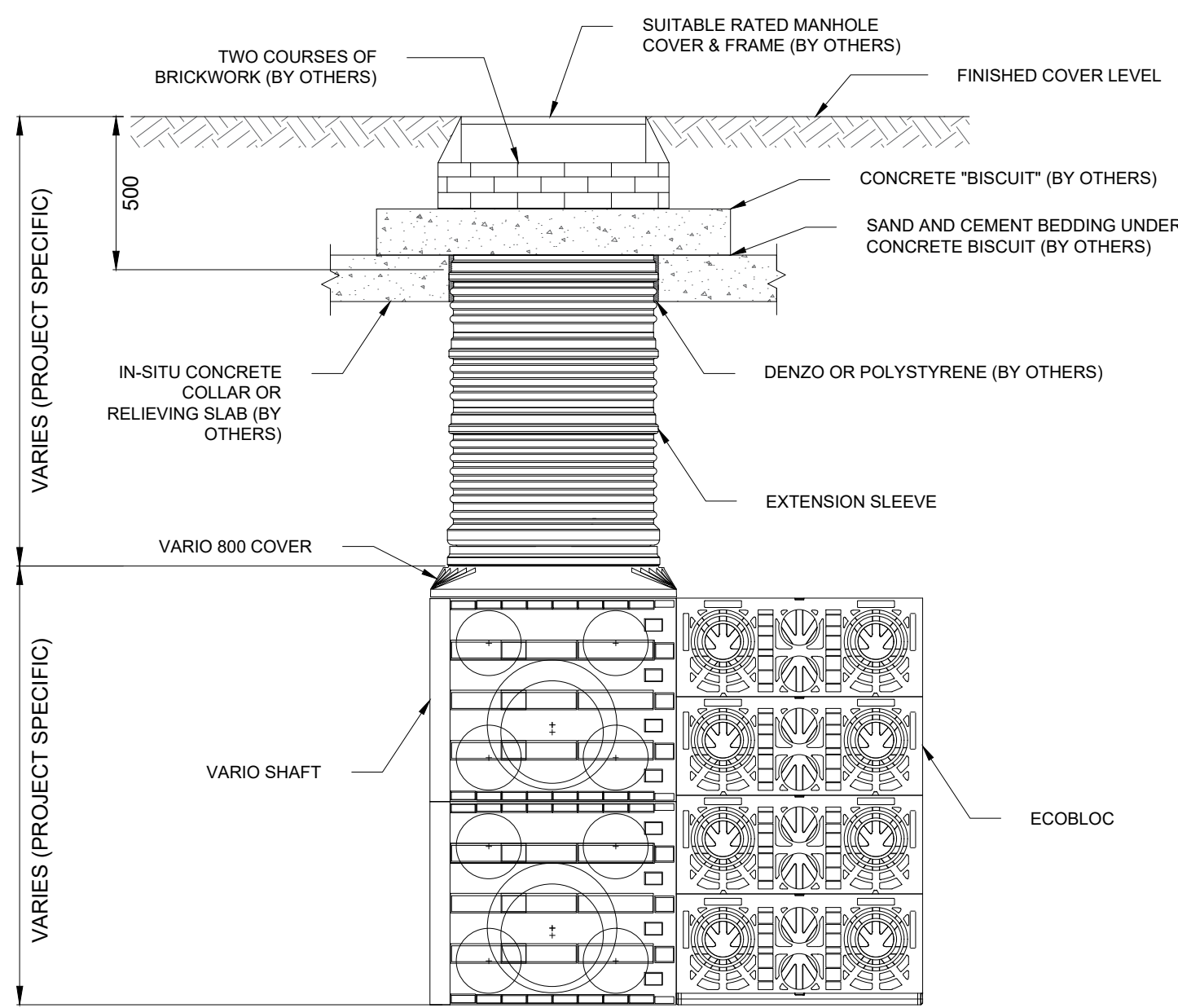
Dimensions (mm) 800 x 800 x 355
 Weight 14kg
 Volume 230 (litres)

VARIO 800 TYPE 2

Dimensions (mm) 800 x 800 x 660
 Weight 24kg
 Volume 420 (litres)

VARIO 800 BASE/COVER SET

Dimensions (mm) 800 x 800 x 100
 Weight 11kg



EXTERNAL VIEW

INTERNAL VIEW

VARIES (PROJECT SPECIFIC)

VARIES (PROJECT SPECIFIC)

Cover

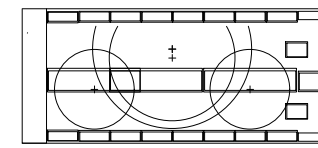
Vario 800 flex, type 1

Base

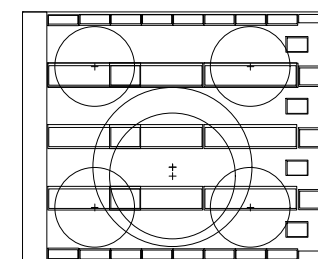
Cover

Vario 800 flex, type 2

Base



Vario 800 flex, type 1



Vario 800 flex, type 2



Vario 800 are modular and are easily assembled in a push fit manner.

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file P:\jod-jbs\6672 Achill Sound Hsng\700 Drawings\703 Planning\01 WIP\6672-JOD-XX-ZZ-DR-C-700-005-007 Atten Tank Detail.dwg

client Comhairle Contae Mhaigh Eo
 Mayo County Council

project PROPOSED RESIDENTIAL HOUSING DEVELOPMENT AT ACHILL SOUND, CO. MAYO.

stage DRAFT

title ATTENUATION TANK - GRAF VARIO SHAFT - SHEET 3

scale AS SHOWN @ A3

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drawing no.	revision
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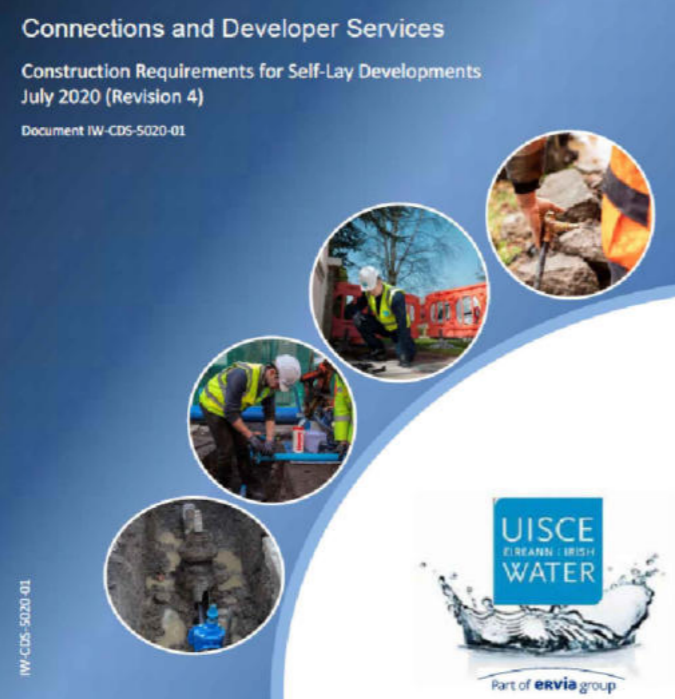
NOTES

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 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.

LEGEND

- SITE BOUNDARY shown thus 
- WATERMAIN SUPPLY Ø 110mm OUTSIDE DIAMETER PE100 JDRI, 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 
- FIRE HYDRANT TO I.W. STD-W-18/19 shown thus (3 No. Hyd) 
- SLUICE VALVE TO I.W. STD-W-15-2 shown thus (10 No. SV's) 
- SCOUR VALVE TO I.W. STD-W-30A-2 shown thus (2 No. Sc.V's) 
- DOUBLE AIR VALVE TO I.W. STD-W-22-2 shown thus (1 No. AV) 
- BULK FLOW METER To Incl. Kiosk TO STD-W-36 AND METER CHAMBER TO STD-W-26 shown thus 
- EXISTING Ø 150mm PVC WATERMAIN 

Water Infrastructure Standard Details




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.

- NOTES:-**
- ALL WATER BOUNDARY BOXES TO BE IN COMPLIANCE WITH IRISH WATER CODE OF PRACTICE AND STANDARD DETAILS
 - WATER MAINS LAYOUT TO BE INSTALLED IN ACCORDANCE WITH IRISH WATER STANDARD DETAIL STD-W-02 REGARDING GENERAL LAYOUT
 - WATER MAINS LAYOUT TO BE INSTALLED IN ACCORDANCE WITH IRISH WATER STANDARD DETAIL STD-W-11, STD-W-12 AND STD-W-12A REGARDING SEPARATION DISTANCES
 - ALL WORKS TO BE CARRIED OUT TO IRISH WATER CODE OF PRACTICE DOCUMENT IW-CDS-5020.03
 - SCOUR VALVES TO COMPLY WITH STD-W-30

ITM Co-ordinates of Site: - 474243, 799827

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OS Sheet No. 1774-B 

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Layout Ref.:		
file	P:\Jod-jobs\6672 Achill Sound Hsing\700 Drawings\703 Planning\01 WIP\6672-JOD-XX-ZZ-DR-C-700-008 Watermain Layout Plan.dwg	

client
 Comhairle Contae Mhaigh Eo Mayo County Council

project
PROPOSED RESIDENTIAL HOUSING DEVELOPMENT AT ACHILL SOUND, CO. MAYO.


stage
DRAFT

title
WATERMAIN LAYOUT PLAN

scale
1:250 @ A1

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All 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.

LEGEND

SITE BOUNDARY

STOP SIGN RUS 027

YIELD SIGN RUS 026

SIGN & POST

PRIORITY CONTROLLED JUNCTION. REFER TO TSM FIG 7.35.

PROPOSED ASPHALT ROADWAY - REFER TO DRAWING 6672-JOD-XX-ZZ-DR-C-4006 FOR ROAD BUILD UP DETAIL

PROPOSED CREABOND STREETCOAT COLOURED ASPHALT ROADWAY - REFER TO DRAWING 6672-JOD-XX-ZZ-DR-C-4006 FOR ROAD BUILD UP DETAIL

PROPOSED C40/N20 CONCRETE FOOTPATH

PROPOSED KERB TO ROAD EDGE AND CAR PARKING PERIMETER AS PER DRAWING 6672-JOD-XX-ZZ-DR-C-4006

PRECAST DROP KERBING

PROPOSED ROAD LEVEL 12.935

PROPOSED ROAD GULLY

UNCONTROLLED CROSSING WITH WITH DROP KERBS AND TACTILE PAVING TO TII-CC-SCD-05030

TABLE 2.2 Capping Layer - Minimum Construction Thicknesses

Lowest Subgrade Minimum capping layer thickness CBR (mm)	(%)
* Less than 2	(See footnote)
2-5	300
more than 15	no capping layer required

* For subgrades with a CBR of less than 2%, a geotextile separator should be used and specialist advice sought regarding minimum thicknesses. Where local weak areas of subgrade strength exist, increased construction thicknesses, as approved, should be provided.

Site Area:-
11,490 m², 2.839 Acres, 1.149 Hectares

ITM Co-Ordinates of site:-
474243, 799827

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client
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Mayo County Council

project
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stage
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title
PROPOSED ROAD LAYOUT PLAN

scale
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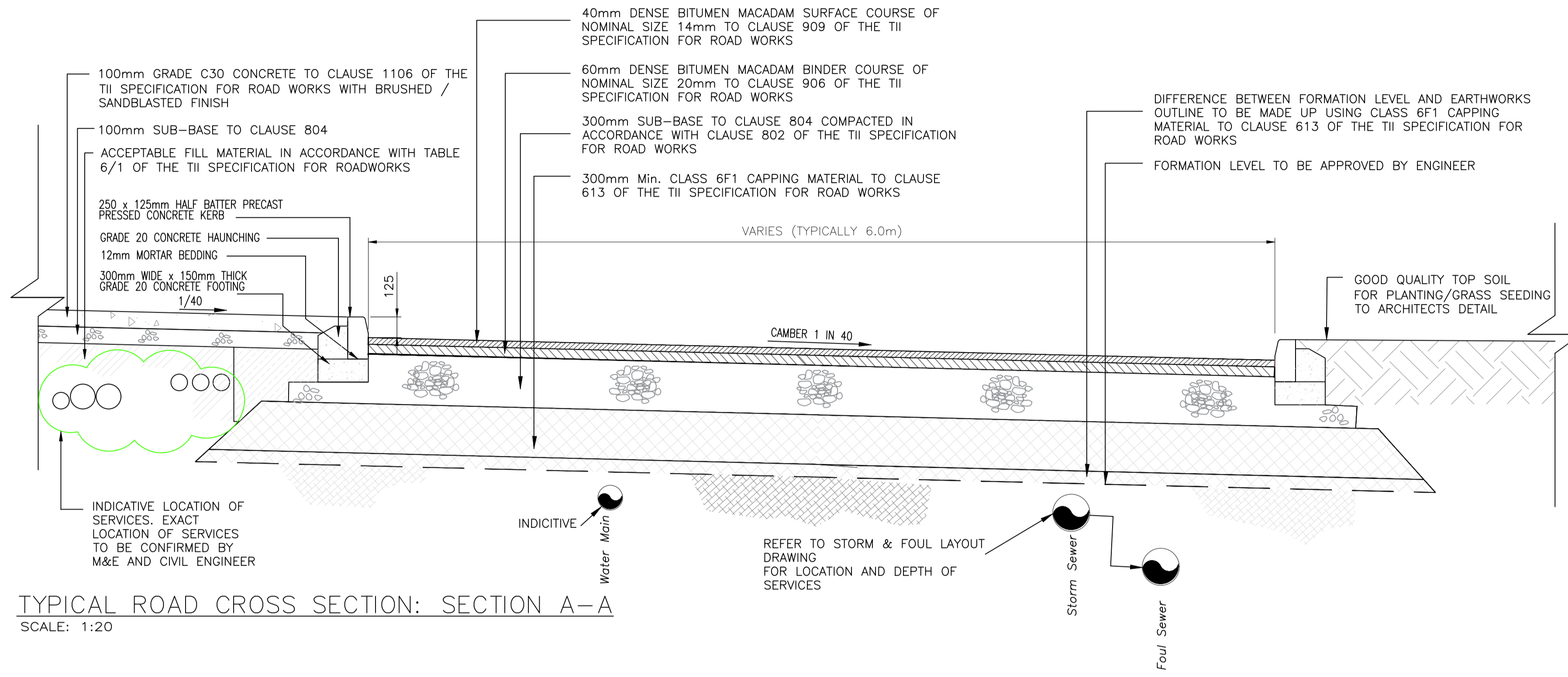
drawing no.	revision
6672-JOD-XX-ZZ-DR-C-4005	D.01



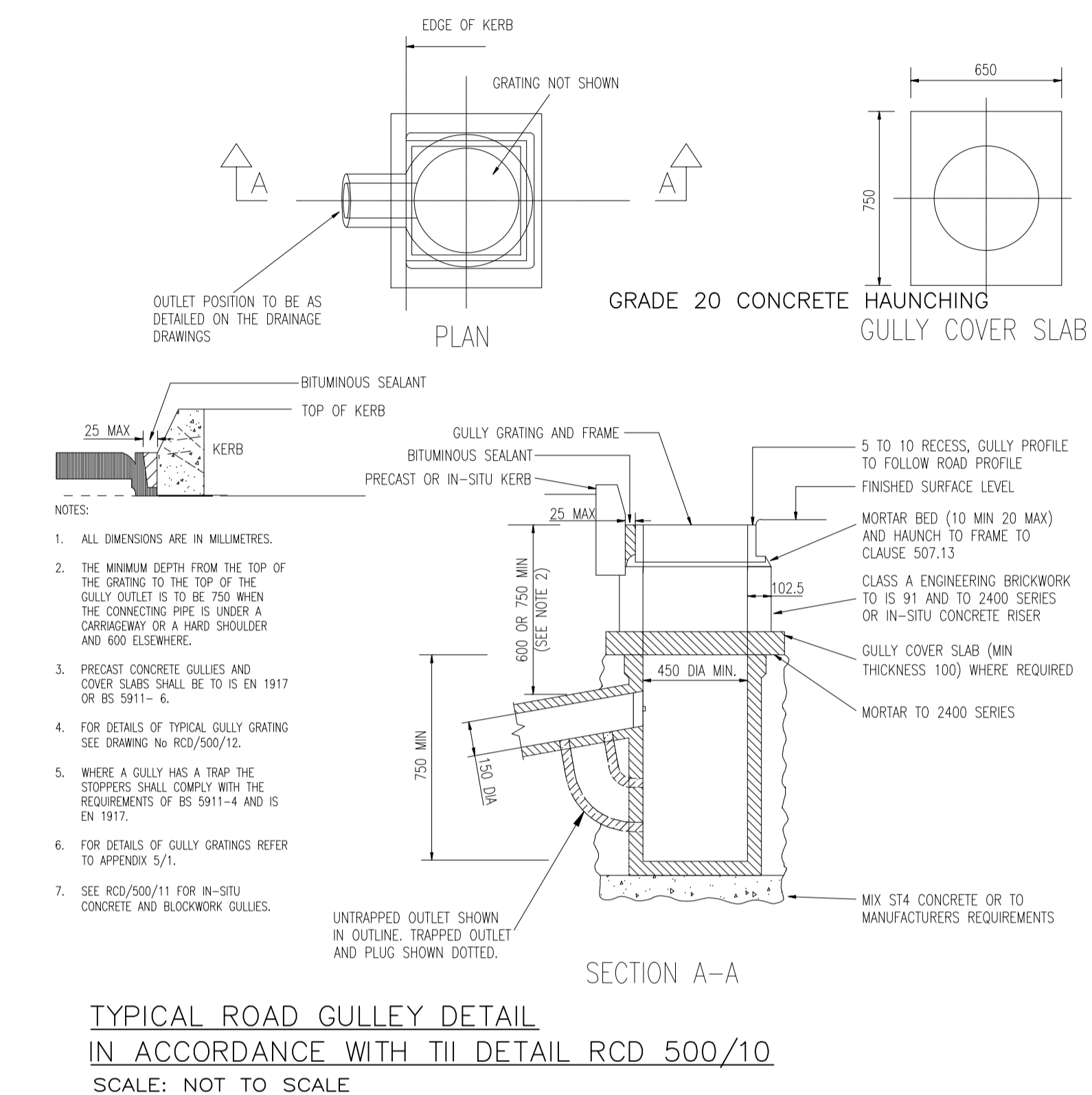
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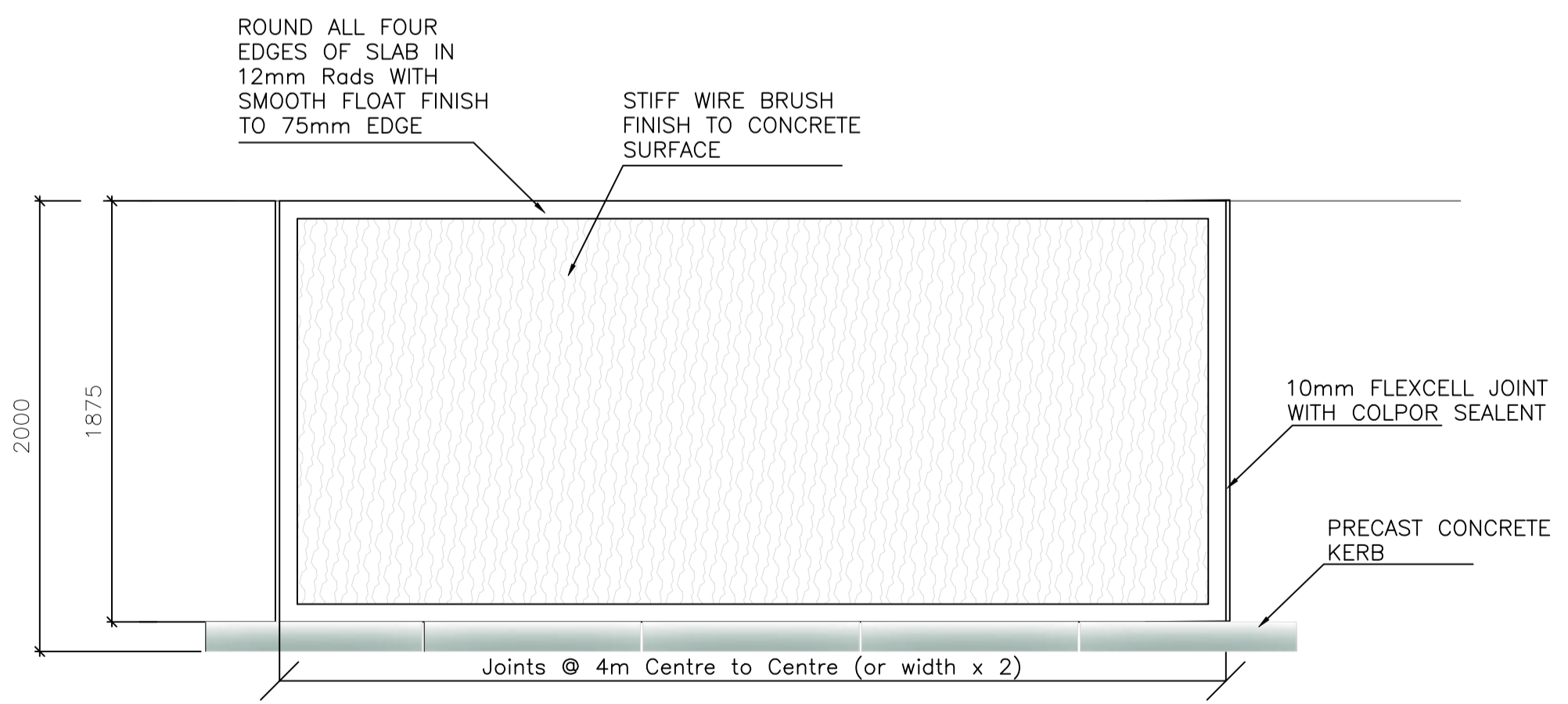
1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
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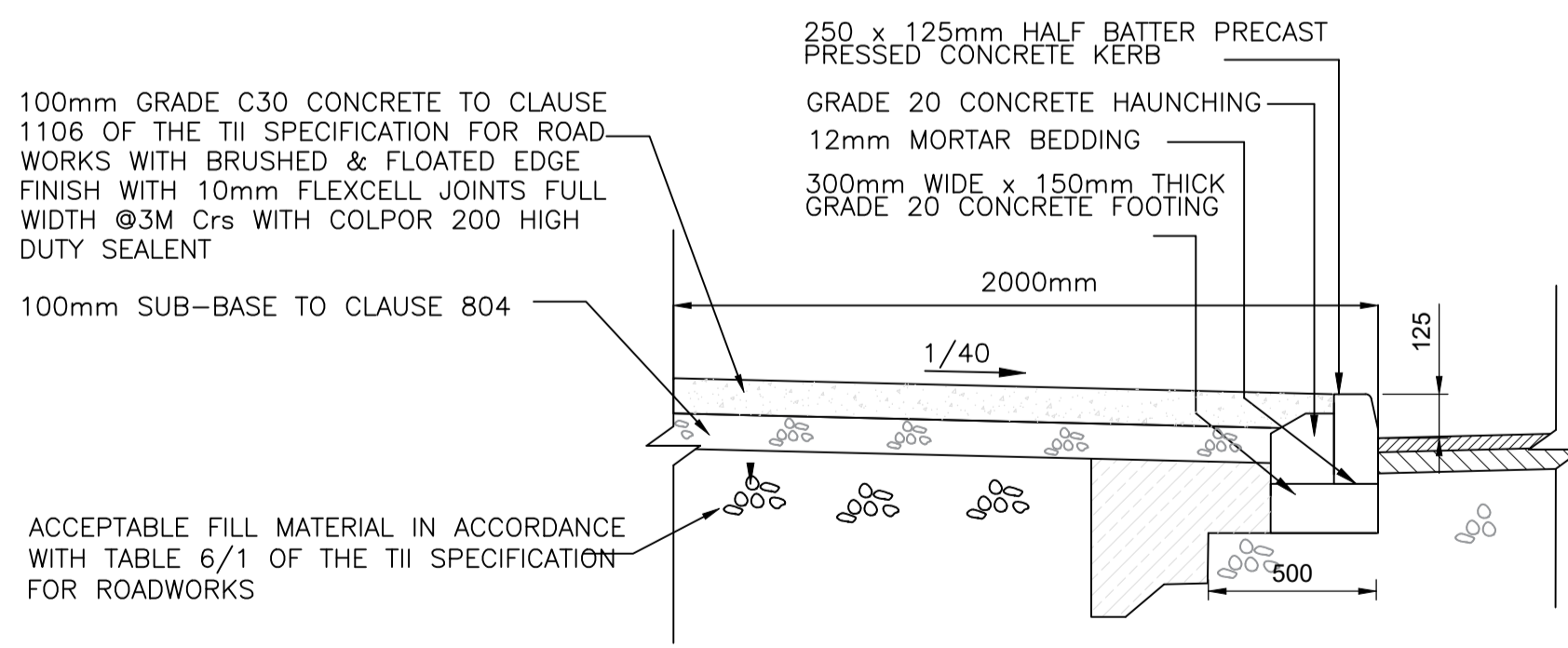
TYPICAL ROAD CROSS SECTION: SECTION A-A
SCALE: 1:20



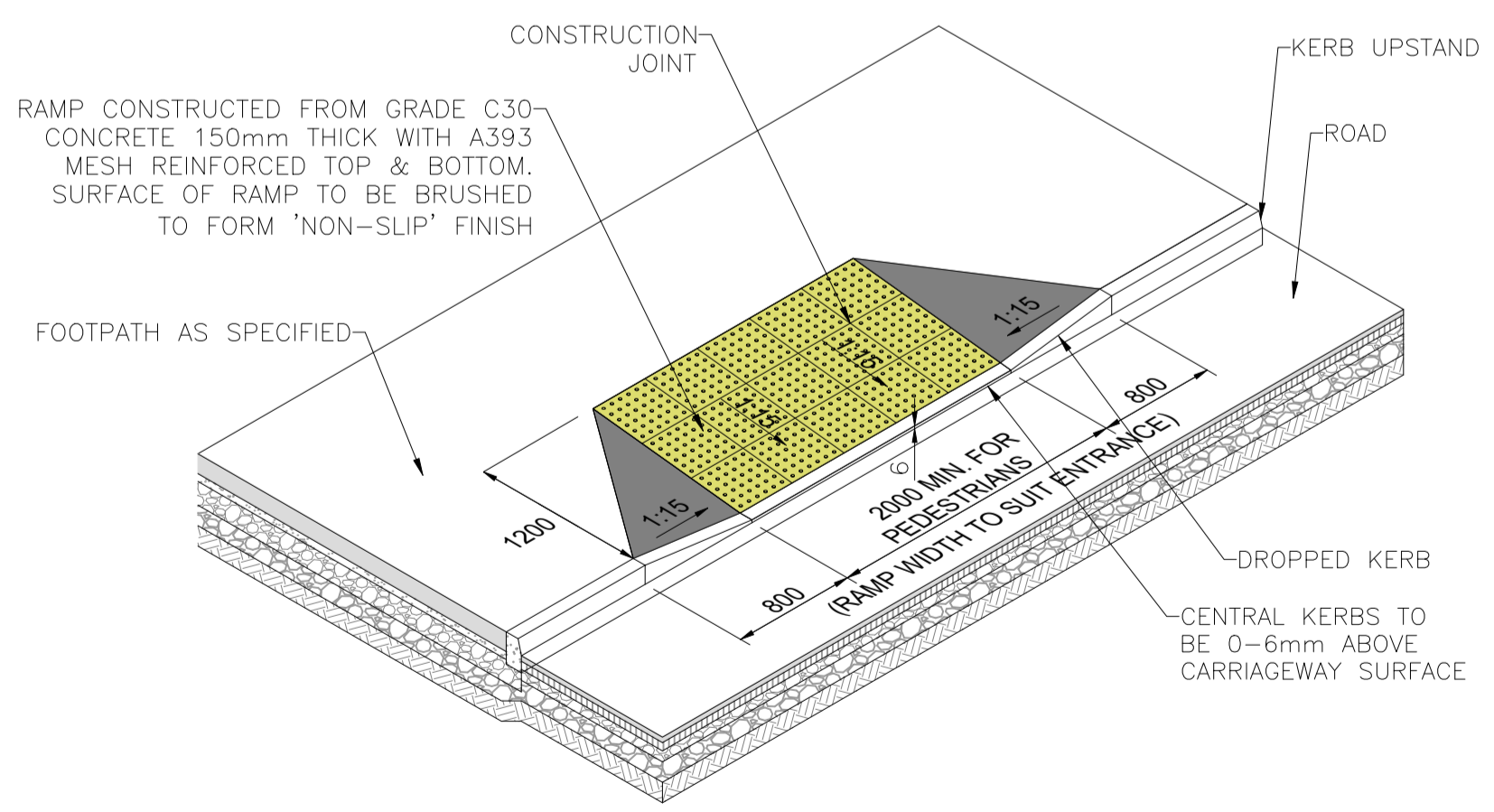
TYPICAL ROAD GULLY DETAIL
IN ACCORDANCE WITH TII DETAIL RCD 500/10
SCALE: NOT TO SCALE



TYPICAL FOOTPATH PLAN CONCRETE
SCALE: 1:25



TYPICAL CONCRETE FOOTPATH CROSS SECTION
SCALE: 1:20



DROP KERB GEOMETRY
SCALE: 1:50

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client

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project
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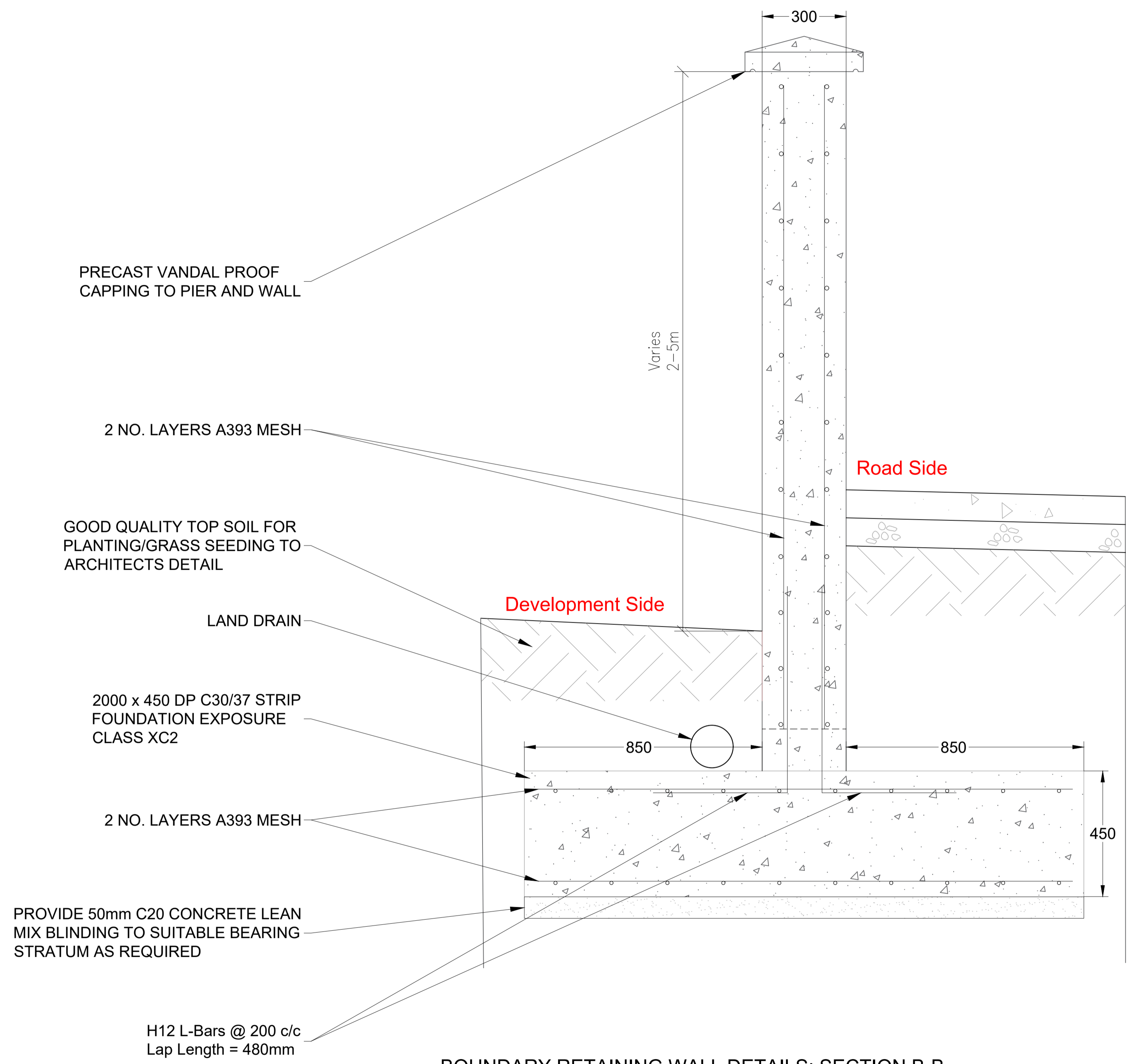
stage
DRAFT

title
ROAD, FOOTPATH AND GULLY CONSTRUCTION DETAILS

scale
A.S @ A1

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PRECAST VANDAL PROOF CAPPING TO PIER AND WALL

2 NO. LAYERS A393 MESH

GOOD QUALITY TOP SOIL FOR PLANTING/GRASS SEEDING TO ARCHITECTS DETAIL

LAND DRAIN

2000 x 450 DP C30/37 STRIP FOUNDATION EXPOSURE CLASS XC2

2 NO. LAYERS A393 MESH

PROVIDE 50mm C20 CONCRETE LEAN MIX BLINDING TO SUITABLE BEARING STRATUM AS REQUIRED

H12 L-Bars @ 200 c/c
Lap Length = 480mm

BOUNDARY RETAINING WALL DETAILS: SECTION B-B
Scale 1:10


- CONCRETE:**
1. CONCRETE TO BE GRADE C30/37 (CHARACTERISTIC STRENGTH - 37N/mm) MAXIMUM SIZE OF AGGREGATE - 20mm) IN ACCORDANCE WITH IS EN 206
 2. ALL CONCRETE THROUGHOUT THE WORKS SHALL HAVE MIN. CEMENT CONTENT OF 320 kg/m³ AND A MAX. WATER / CEMENT RATIO OF 0.55, AND MEET REQUIREMENTS OF IS EN 206
 3. ALL CONCRETE SHALL BE DESIGNED FOR EXPOSURE CLASSES XC2, XC4, XD1, XF3 AND XA1 IN ACCORDANCE WITH IS EN 206 PART 1
 4. CONSTRUCTION JOINTS (LOCATIONS TO BE AGREED WITH THE ENGINEER) AFTER SETTING AND PRIOR TO HARDENING OF CONCRETE, THE SURFACE OF THE JOINT SHALL BE SPRAYED WITH WATER AND BRUSHED TO REMOVE THE OUTER SKIN EXPOSING BUT NOT DISTURBING THE LARGER AGGREGATE
 5. MINIMUM COVER TO REINFORCEMENT TO BE 45mm UNLESS OTHERWISE NOTED.
 6. MINIMUM LAPS TO REINFORCEMENT MESH=400. B10 - 500; B12 - 600; B16 - 800; B20 - 1000; B25 - 1250; B32 - 1600
 7. NOTATION: T. TOP B. BOTTOM N.F. NEAR FACE F.F. FAR FACE A.B.R. ALTERNATE BARS REVERSED stg. STAGGERED E.F. EACH FACE O.F. OUTER FACE I.F. INNER FACE.
 8. RETAINING WALL TO BE POURED IN 6m LONG SECTIONS WITH EXPANSION JOINTS AT 6m c/c.

- NOTES**
- GENERAL NOTES:**
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D.01	Issued for Discussion	BM	MF	24.08.22

Layout Ref.:

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Mayo County Council

project
PROPOSED RESIDENTIAL HOUSING DEVELOPMENT AT ACHILL SOUND, CO. MAYO.


stage
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title
RC RETAINING WALL DETAILS

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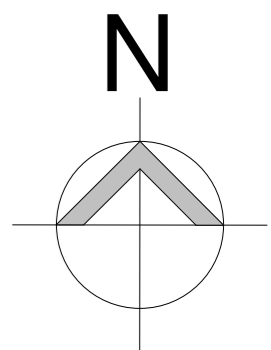


drawing no.	revision
6672-JOD-XX-ZZ-DR-C-4007	D.01

Do not scale this drawing. Use written dimensions only

- Scales as stated are valid on the original drawing only. Written dimensions take precedence. Detail dimensions take precedence over plan dimensions. Notify architect of any dimensional discrepancies. Any modifications or deviation to be brought to the attention of the architect for review and approval.
- All vertical dimensions shall be taken from a "bench mark" or other similar guide established prior to the start of construction. High points, low points, irregularities in floor slab which could affect fabrication / installation, work of other trades or vendors shall be brought to the attention of Mayo County Council Architects immediately.
- All drawings are to be read in conjunction with other consultant's drawings. All dimensions, unless otherwise stated, are given in millimetres and must be confirmed and checked by the Contractor on site.
- Levels are generally given in metres from a specified datum.
- All Levels must be confirmed and checked by the Contractor on site.
- Any discrepancies on this drawing are to be brought to the attention of Mayo County Council Architects immediately.

Rev No.	Date	Comment



PROPOSED BOUNDARY TREATMENT & SURFACE FINISH LEGEND

LANDSCAPING
ALLOW FOR PLANTING OF DECIDUOUS NATIVE TREES VARIOUS SPECIES AND SIZES AS INDICATED. (TO LATER CONFIRMATION BY ARCHITECTS)

SURFACE FINISH S1: GRASS
GRASS SEED ON 300MM IMPORTED TOPSOIL. ALL GARDENS TO BE ROTAVATED, RAKED, CLEANED, GRADED, ROLLED AND SEEDED.

SURFACE FINISH S2: VEHICULAR ROADWAY
TARMACADAM FINISH ON BASE LAYERS TO STRUCTURAL ENGINEERS SPECIFICATION AND DETAILS.

SURFACE FINISH S3: FOOTPATHS
IN-SITU CONCRETE FOOTPATH ON BASE LAYERS TO STRUCTURAL ENGINEERS SPECIFICATION AND DETAILS.

SURFACE FINISH S4: PAVED AREAS
240 X 160 X 60MM SELECTED PAVING LAID IN A HERRINGBONE PATTERN AND 160 X 160 X 60MM SELECTED PAVING TO EDGES WHERE ILLUSTRATED ON BASE LAYERS TO STRUCTURAL ENGINEERS SPECIFICATION AND DETAILS. REFER TO SITEWORKS BOOKLET FOR DETAILS.

SURFACE FINISH : STEPS
STEPPED ACCESS TO ENGINEERS SPECIFICATION AND DETAILS. REFER TO SITEWORKS BOOKLET FOR DETAILS.

GATE
PROPOSED TIMBER PEDESTRIAN ACCESS GATE. REFER TO SITEWORKS BOOKLET FOR DETAILS.

G1 G2

BOUNDARY TYPE B5
PROPOSED 2000MM HIGH SELECTED STONE FACED SCREEN WALL WITH CONCRETE CAPPING ON CONCRETE STRIP FOUNDATION TO ENGINEERS SPECIFICATION AND DETAILS. REFER TO SITEWORKS BOOKLET FOR DETAILS.

BOUNDARY TYPE B8
PROPOSED 2000MM TIMBER PALLISADE FENCE ON CONCRETE PAD FOUNDATIONS TO ENGINEERS SPECIFICATION AND DETAILS. REFER TO SITEWORKS BOOKLET FOR DETAILS.

HOUSE TYPE LEGEND

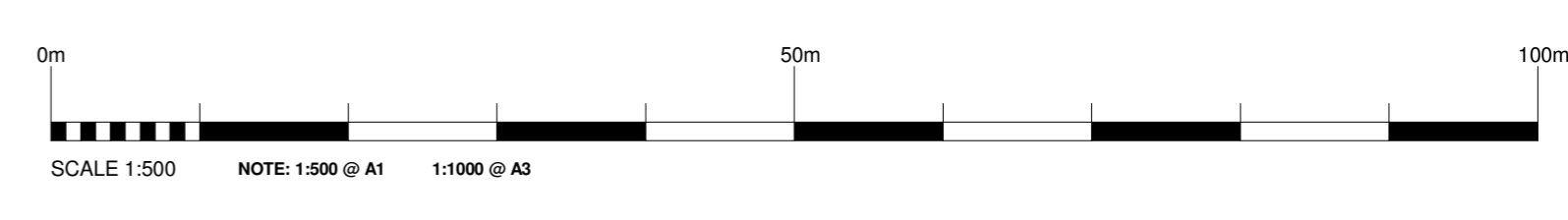
04No.	1 Bedroom 1 Storey
12No.	2 Bedroom 2 Storey
04No.	3 Bedroom 2 Storey
20 No. Total	

PARKING

04No. 1 Bedroom 1 Storey	1 + 1 VISITOR	08 No.
12No. 2 Bedroom 2 Storey	1 + 1 VISITOR	24No.
04No. 3 Bedroom 2 Storey	2 + 1 VISITOR	12No.
Total 44No.		



PROPOSED SITE LAYOUT
SCALE: 1 : 500



STATUS KEY

SHARED / FOR INFORMATION

S0	WORK IN PROGRESS
S1	COORDINATION
S2	INFORMATION
S3	REVIEW / COMMENT
S4	CORRECT APPROVAL
D1	COORDINATOR
D2	TENDER
D3	CONTRACTOR DESIGN

PUBLISHED

A1	PIB / FSD / DAC
A2	CONSTRUCTION
A3	AS BUILT

ARCHITECTS DEPARTMENT
MAYO COUNTY COUNCIL



Purpose of Issue: **FOR INFORMATION**

Project No:	Project Title:	Dwg Type:	Status:
A628	HOUSING DEVELOPMENT AT ACHILL SOUND, CO. MAYO	90	S2
Drawing Title:		Drawing No.:	Revision:
	SITE PLAN OVERVIEW	0201	/
Drawn By:	No. - Orig - Cat - Lvl - Type - Role - No. - Status	Scale:	First Issue:
Checked By:	Author	As indicated	2020.06.10
	Checker	A628 - MCC - 90 - XX - DR - A - 0201 - S2	

MAYO.IE

APPENDIX B
IGSL REPORT

**PROPOSED HOUSING
DEVELOPMENT
ACHILL SOUND
MAYO COUNTY COUNCIL**

**JENNINGS O'DONOVAN
CONSULTING ENGINEERS**

CONTENTS

I	INTRODUCTION
II	FIELDWORK
III	TESTING
III	DISCUSSION

APPENDICES

I	BORING RECORDS
II	TRIAL PIT RECORDS
III	DYNAMIC PROBE RECORDS
IV	CBR BY TRL PROBE
VI	LABORATORY DATA
	a. Geotechnical
	b. Environmental / Chemical
VI	SITE PLANS

FOREWORD

The following Conditions and Notes on Site Investigation Procedures should be read in conjunction with this report.

General

Recommendations made, and opinions expressed in the report are based on the strata observed in the exploratory holes, together with the results of in-situ and laboratory tests. No responsibility can be held for conditions which have not been revealed by exploratory work, or which occur between exploratory hole locations. Whilst the report may suggest the likely configuration of strata, both between exploratory hole locations, or below the maximum depth of the investigation, this is only indicative, and liability cannot be accepted for its accuracy.

Unless specifically stated, no account has been taken of possible subsidence due to mineral extraction below or close to the site.

Standards

The ground investigation works for this project have been carried out by IGSL in accordance with Eurocode 7 - Part 2: Ground Investigation & Testing (EN 1997-2:2007). This has been used together with complementary documents such as BS 5930 (1999), BS 1377 (Parts 1 to 9) and Engineers Ireland Specification & Related Documents for Ground Investigation in Ireland (2006). The following Irish (IS) and European Standards or Norms are referenced:

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

Routine Sampling.

Undisturbed samples of soils, predominantly cohesive in nature are obtained unless otherwise stated by a 104mm diameter open-drive tube sampler or Piston Sampler. In granular soils, and where undisturbed sampling is inappropriate, disturbed samples are collected. Smaller disturbed samples are also recovered at intervals to allow a visual examination of the full strata section.

In-Situ Testing.

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

Groundwater

The depth of entry of any influx of groundwater is recorded during the course of boring operations. However, the normal rate of boring does not usually permit the recording of an equilibrium level for any one water strike. Where possible drilling is suspended for a period of twenty minutes to monitor the subsequent rise in water level. Groundwater conditions observed in the borings or pits are those appertaining to the period of investigation. It should be noted however, that groundwater levels are subject to diurnal, seasonal and climatic variations and can also be affected by drainage conditions, tidal variations etc.

Engineering Logging

Soil and rock identification has been based on the examination of the samples recovered and conforms with IS EN ISO 14688-1:2002 and IS EN ISO 14689-1:2004.

Where peat has been encountered during site works, samples have been logged in accordance with the Von Post Classification (ref. Von Post, L. 1992. Sveriges Geologiska Undersöknings torvirventering och några av dess hittills vunna resultat (SGU peat inventory and some preliminary results) Svenska Mosskulturforeningens Tidskrift, Jonkoping, Swedden, 36, 1-37 & Hobbs N. B. Mire morphology and the properties of some British and foreign peats. QJEG, Vol. 19, 1986).

Retention of Samples.

After satisfactory completion of all the scheduled laboratory tests on any sample, the remaining material is discarded unless a period of retention of samples is agreed, it is our normal practice to discard all soil samples one month after submission of our final report.

Reporting

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

The engineering logs provide ground profiles and configuration of strata relevant to the investigation depths achieved and caution should be taken when extrapolating between exploratory points. No liability is accepted for ground conditions extraneous to the investigation points. Unless specifically stated, no account has been taken of possible subsidence due to mineral extraction, mining works or karstification below or close to the site.

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

**REPORT ON A SITE INVESTIGATION
FOR A PROPOSED HOUSING DEVELOPMENT
AT
ACHILL SOUND**

FOR

MAYO COUNTY COUNCIL

**JENNINGS AND O'DONOVAN
CONSULTING ENGINEERS**

Report No. 24167

September 2022

I Introduction

A new housing development is proposed for a site located in Achill Sound, County Mayo. A total of twenty housing units are to be constructed for Mayo County Council.

An investigation of sub soil conditions in the area of the new development has been carried out by IGSL for Jennings and O'Donovan, Consulting Engineers on behalf of the County Council.

The site investigation included the following elements.

- | | |
|---|-------|
| * Cable Percussion Boreholes | 5 nr. |
| • Trial Pits | 5 nr. |
| • Heavy Duty Dynamic Probes | 7 nr. |
| • In Situ CBR by TRL Probe | 5 nr. |
| • Geotechnical Laboratory Testing | |
| • Environmental and Chemical Laboratory Testing | |

This report includes all factual data available from field and laboratory operations and discusses these findings relative to foundation and infrastructural design for the proposed new development.

II Fieldwork

This new social housing development is to take place on a site located in Achill Sound County Mayo. The site extends from the R319 roadway southwards towards the coast falling in level from the roadway south.

The site and exploratory locations are noted on the drawing enclosed in Appendix VI¹ and were marked out by IGSL on site. All locations were referenced to National Grid and OD levels were established.

The site is heavily overgrown with derelict buildings present. Commencing surface varied from Peat/Topsoil to Made Ground and Tarmacadam indicative of a “brownfield” designation.

The various elements of the investigation are detailed in the following paragraphs. All field works were supervised by an experienced geotechnical engineer who carefully recorded stratification, took photographs as necessary, recovered samples and prepared detailed records.

Close liaison was maintained throughout with Consulting Engineer and Civic Authorities. All appropriate documentation was submitted and approved prior to site commencement. Each location was scanned electronically (CAT) to ensure that existing services were not damaged. A shallow trial pit was also opened by hand at the exploratory borehole locations to confirm this.

Statutory HSE safety precautions relating to COVID 19 were observed, with working areas restricted to IGSL personnel only, to ensure safety of the general public.

*An invasive species **Gunnera Tinctora** was notified to IGSL as present on the site. All equipment was carefully steam cleaned after each exploratory operation to avoid any possibility of spreading the plant.*

Boreholes

Boreholes were 200mm diameter and were constructed using conventional 200mm diameter cable percussion equipment. Holes were referenced BH01 to BH05. A trial pit was opened at each borehole location to 1.00 metre deep to ensure that underground services were not damaged.

Detailed geotechnical records are contained in Appendix I to this report - the records give details of stratification, sampling, in-situ testing and groundwater. Note is also taken of any obstructions to normal boring requiring the use of the heavy chisel for advancement. In general it was not possible to recover undisturbed samples because of the granular nature of the strata encountered and the presence of cobbles and boulders.

The boreholes exhibit a high degree of consistency with variable surface deposits of Peat / Topsoil/ Made ground extending to about 1.20 metres BGL. A stratum of medium dense to dense clayey sandy GRAVEL , grading in places to sandy gravelly CLAY is then noted with boreholes continuing to refusal in this stratum at depths ranging from 3.60 to 8.40 metres.

Chiselling methods were used to advance boreholes through cobble / boulder obstructions and at the base of each borehole. The final borehole refusal depths are not indicative of bedrock horizon. Proof core drilling was not scheduled as part of this particular investigation.

Ground water ingress was noted in BH02 to BH05. BH01 was dry.

The borehole findings are summarised in the following table with measurements in metres BGL.

BH No.	OD	Fill/Topsoil	Gravelly CLAY/Clayey Gravel	Water Level
01	15.67	0 – 0.30	0.30 – 3.60	Dry
02	13.55	0 – 0.80	0.80 – 7.70	5.40
03	13.92	0 - 1.20	1.20 – 8.40	6.50
04	9.65	0 – 1.20	1.20 – 6.80	4.50
05	9.75	0 – 1.50	1.50 – 7.10	3.40

Trial Pits

Trial Pits were scheduled at five locations and referenced TP01 to TP05. One additional trial pit (TP04A) was opened to confirm stratification close to TP04.

A tracked excavator was used under engineering supervision. Detailed records for each location are presented in Appendix II. These records note the soil stratification and record sampling, stability and ground water details. Each location was CAT scanned to ensure that underground services were not damaged and plant was carefully cleaned following each trail pit. Photographs of each excavation are included with the records.

Ground surface varied from topsoil/peat to tarmacadam over FILL and PEAT. In most locations the surface layer was followed by a stratum of gravelly SAND / sandy GRAVEL with some cobbles and occasional boulders. TP02 encountered a more cohesive soil comprising gravelly SILT/CLAY below surface topsoil.

Excavations were taken to depths of about 2.00 metres, with boulders preventing advancement in some instances. Excavation instability in the GRAVEL was noted in TP04 No ground water was encountered during the trial pitting operation.

TRIAL PIT SUMMARY

Ref No.	Surface	Sand / Gravel	Gravelly CLAY	Comment
TP01	0 – 0.35	0.35 – 1.50		Boulders @ 1.50
TP02	0 – 0.40		0.40 – 2.10	
TP03	0 – 0.55	0.55 – 2.10		
TP04	0 – 0.10	0.10 – 1.60		Unstable Dig
TP04A	0 – 0.80	0.80 – 2.40		
TP05	0 – 1.30	1.30 – 2.00		Note PEAT to 1.30

HD Dynamic Probes

Heavy Duty Dynamic Probes were carried out at seven specified locations and referenced DP01 to DP07.

Probing was in accordance with the heavy-duty probe specification of BS 1377: Part 9: 1990. In these tests, the soil resistance is measured in terms of the number of drop-hammer blows required to drive the test probe through each 100 mm increment of penetration. Probing is terminated when the blow count exceeds 25/100mm to avoid damage to the apparatus. Where loose material is present a single blow count may drive the apparatus in excess of 100mm. In this instance blow counts of zero may be recorded. Individual probe records are contained in Appendix III.

A Probe resistance of $N_{100} < 2$ is indicative of soft or weak material, unsuitable as founding medium. A probe resistance of $N_{100} = 5$ is indicative of stiff or compact soils, with an allowable bearing pressure of 125 kPa.

The probe results are summarised in the following table.

Ref No.	Soft $N_{100} < 2$	Depth to Compact Soils $N_{100} > 5$	Final Refusal Depth
DP01	0 – 2.20	2.30	2.60
DP02	0 - 1.60	1.70	2.90
DP03		0.50	2.00
DP04		0.50	2.90
DP05	0 – 0.50	0.60	3.00
DP06	0 – 0.60	0.70	1.90
DP07	0 – 1.40	1.60	4.00

In Situ CBR by TRL Probe

The In-situ CBR value at each trial pit location has been established using the Dynamic Cone Penetrometer (TRL Probe).

Test results are presented in Appendix IV with CBR values indicated at an average depth of about 0.50 metres. Results are summarised as follows;

Location	CBR (%)
TP01	27.00
TP02	18.99
TP03	8.61
TP04	6.27
TP05	4.23

III. Testing

In Situ

Standard penetration tests were carried out at approximate 1.00 metre intervals in the geotechnical Boreholes to measure relative in-situ soil strength. N values are noted in the right hand column of the boring / drilling records, representing the blow count required to drive the standard sampler 300mm into the soil, following initial seating blows. Where full test penetration was not achieved the blow count for a specific penetration is recorded, or refusal is indicated where appropriate. The results of the tests are summarised as follows:

STRATUM	N VALUE RANGE	COMMENT
Sandy GRAVEL		
1.00 m BGL	9 to 27	Loose to Medium Dense
2.00 m BGL	11 to 45	Medium Dense to Dense
3.00 m BGL	21 to 50	Medium to very Dense
4.00 to 7.00 m BGL	25 to 50	Medium to very Dense

Limited penetration of SPT apparatus with refusal was noted in several tests close to the base of the respective boreholes.

Laboratory

A programme of laboratory testing was scheduled following completion of site operations. Geotechnical soil testing was carried out by IGSL in its INAB-Accredited laboratory. Chemical and environmental testing was carried out in the UK by EUROFINS Ltd. The test programme included the following elements:

Liquid and Plastic Limits / Moisture Content	IGSL
PSD Grading by Wet Sieve and Hydrometer	IGSL
Sulphate / Chloride / pH	EUROFINS
RILTA Suite Environmental / Ground Water Suite	EUROFINS

All laboratory data is presented in Appendices Va and Vb and individual tests are discussed briefly as follows:

Index Properties / Moisture Content

Samples from BH02 and TP02 had Index Properties and Natural Moisture Contents established. The results plot in the CL and ML zones of the standard classification chart, indicative of sensitive CLAY or SILT matrix soil.

Natural Moisture Contents in this material range from 12 to 14%.

Grading

Wet Sieve analysis and hydrometer analysis has been carried out on samples from all boreholes and trial pits.

The grading curves are very similar in pattern consistently confirming material smoothly graded from the clay to coarse gravel fraction. The percentage of fines encountered in each sample reflects the soil descriptions varying from clayey sandy GRAVEL to sandy gravelly CLAY or SILT. The soils however are deemed to be of similar origin with similar behavioural characteristics.

Chemical

Four samples were sent for analysis to BRE Chemical Suite parameters. Sulphate concentrations (SO₄ 2:1 extract) of < 0.010 g/l to 0.075g/l were established with pH values of 5.8 to 7.5.. Low Chloride concentrations (< 0.010 g/l to 0.023g/l) were also determined.

No special precautions are necessary to protect foundation concrete from sulphate or chloride aggression. A sulphate design class of DS-1 (ACEC Classification for Concrete) is indicated for concentrations less than 0.5 g/l.

RILTA Environmental Suite

Seven samples of the soils from the site were sent to EUROFINS environmental laboratory and testing was carried out in accordance with RILTA requirements to establish Landfill Waste Acceptance Criteria (WAC).

Six of the seven samples fall into the INERT Category with no elevated levels of contamination recorded. However in one sample from BH05 at 1.00 metre deep a marginally increased level of Total Organic Carbon was noted (3.7% as against the permitted INERT level of 3%). This is not expected to adversely affect the classification of the soils on site as INERT in terms of waste classification.

However consultation with the appropriate licensed landfill facility is recommended prior to commencement of excavation and soil disposal.

No issues arise if material excavated during this development is disposed of within the site boundary and used for non-engineering purposes (landscaping etc.)

No traces of ASBESTOS were noted during routine screening.

IV. Discussion:

A new social housing development is to be carried out on this site in Achill Sound. An investigation of ground conditions has been carried out by IGSL for Jennings and O'Donovan. Consulting Engineers, on behalf of Mayo County Council.

The investigation consisted of conventional Boreholes, Trial Pits and Dynamic Probes with supplementary in-situ CBR tests.

Geotechnical and Environmental laboratory testing has also been carried out to confirm soil parameters.

STRATIFICATION

The investigation has fairly consistently identified a stratum of medium dense clayey sandy GRAVEL grading to firm/stiff sandy gravelly CLAY underlying variable surface deposits of Topsoil / PEAT / FILL extending to a maximum depth of 1.50 metres at DP07.

The soil strength and allowable bearing capacity has been established by Standard Penetration Tests in the boreholes and by Heavy Duty Dynamic Probing taken at seven locations.

The upper FILL and PEAT layers are unsuitable as a founding medium for either structural or floor loads and foundations should be transferred to the underlying clayey GRAVEL / gravelly CLAYstratum.

ALLOWABLE BEARING PRESSURE

The Dynamic Probes have indicated the penetration depths required to achieve an allowable bearing pressure of 125 kN/sq.m using a probe resistance of $N_{100} = 5$

Standard penetration Tests in the boreholes at 1.00 and 2.00 metres deep also give an indication of depth to achieve a similar allowable bearing pressure.

The following table indicates the founding depths in both boreholes and probes to achieve an allowable bearing pressure of 125 kN/sq.m.

Location	Depth of Foundation	Location	Depth of Foundation
BH01	0.70	DP01	2.30
BH02	1.20	DP02	1.60
BH03	1.20	DP03	0.50
BH04	1.20	DP04	1.00
BH05	1.70	DP05	0.70
		DP06	0.70
		DP07	1.60

In general an acceptable level of bearing for conventional housing is available on the gravelly CLAY/ clayey GRAVEL stratum below the upper unsuitable FILL/PEAT.

The variations noted particularly in Probe DP01 should be noted with alternating strata of soft and stiff soils noted from GL to 2.20 metres.

The development and re-grading of this sloping site may alter the final excavation depths.

Very careful inspection of excavated formation is therefore advised to ensure that all unsuitable material is removed and that a consistent founding stratum is established.

SETTLEMENT

Settlement in the mixed cohesive/granular stratum under the recommended loading will be low, of the order of 10mm. Settlement should be uniform and differential settlement is not anticipated.

GROUND WATER

Trial Pit excavations were dry throughout. Water ingress in the boreholes was noted at various levels. Given the depth to water table recorded in the boreholes, significant water ingress to foundation excavations is not expected.

PAVEMENTS / ROADS

CBR values established at the various trial pit locations range from 4.2 to 27%. A low average CBR of 8 % would be suggested for pavement design. All surface organic soils should be removed prior to pavement construction and all imported granular fill should fully comply with current standards.

FOUNDATION CONCRETE

Low Sulphate and Chloride concentrations and near neutral pH values indicate that no special precautions are required to protect foundation below ground concrete from deterioration.

ENVIRONMENTAL

The environmental tests indicate that the soils can be classified as INERT and excavated material may be disposed of either on site or off site to a suitable licensed landfill facility.

INVASIVE SPECIES

The presence of an invasive plant species has been noted and the field investigation has taken note of this and adopted measures to prevent spread of the plant. Comment on this aspect of the site is outside the scope of this report.

IGSL/JC
September 2022

Appendix I Boring Records



GEOTECHNICAL BORING RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development				BOREHOLE NO. BH01	
CO-ORDINATES 474,254.37 E 799,913.57 N		RIG TYPE Dando 2000		SHEET Sheet 1 of 1	
GROUND LEVEL (mOD) 15.67		BOREHOLE DIAMETER (mm) 200		DATE COMMENCED 08/07/2022	
		BOREHOLE DEPTH (m) 3.60		DATE COMPLETED 08/07/2022	
CLIENT Mayo Co.Co		SPT HAMMER REF. NO.		BORED BY P.Thomas	
ENGINEER		ENERGY RATIO (%)		PROCESSED BY F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	Dark brown PEAT	~ ~ ~	15.37	0.30						
1	Medium dense to dense grey fine to coarse sandy GRAVEL with some cobbles				AA170390	B	1.00		N = 23 (3, 3, 5, 5, 5, 8)	
2					AA170391	B	2.00		N = 45 (6, 9, 14, 10, 10, 11)	
3					AA170392	B	3.00		N = 50/225 mm (4, 6, 12, 15, 23)	
4					AA170393	B	3.50		N = 50/75 mm (25, 50)	
4	Obstruction End of Borehole at 3.60 m		12.07	3.60						

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.20	2.50	1							No water strike
3.40	3.60	1.5							

INSTALLATION DETAILS					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					

REMARKS CAT scanned location and hand dug inspection pit was carried out . Rig & gear cleaned at beginning and end due to the presence of invasive species.	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 24167 GPJ IGSL GDT 18/7/22



GEOTECHNICAL BORING RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

BOREHOLE NO. BH02

SHEET Sheet 1 of 1

CO-ORDINATES 474,233.85 E
799,882.34 N
GROUND LEVEL (mOD) 13.55

RIG TYPE Dando 2000
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 7.70

DATE COMMENCED 10/07/2022
DATE COMPLETED 10/07/2022

CLIENT ENGINEER Mayo Co.Co

SPT HAMMER REF. NO.
ENERGY RATIO (%)

BORED BY P.Thomas
PROCESSED BY F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	Grey fine to coarse GRAVEL with some cobbles and occasional		12.75	0.80						
1	Firm grey/brown very sandy slightly gravelly SILT/CLAY with occasional cobbles				AA170394	B	1.00		N = 9 (1, 2, 2, 2, 2, 3)	
2	Stiff grey brown very sandy gravelly SILT/CLAY with some cobbles (Possibly clayey Gravel)		11.35	2.20	AA170395	B	2.00		N = 23 (4, 6, 6, 7, 7, 3)	
3					AA175352	B	3.00		N = 25 (2, 4, 4, 5, 6, 10)	
4	Stiff to very stiff grey/pink sandy gravelly SILT/CLAY with some cobbles and occasional		9.45	4.10	AA175353	B	4.00		N = 26 (5, 8, 9, 4, 5, 8)	
5					AA175354	B	5.00		N = 43 (4, 5, 6, 7, 14, 16)	
6					AA175355	B	6.00		N = 29 (2, 5, 5, 6, 9, 9)	
7					AA175356	B	7.00		N = 24 (4, 7, 7, 8, 8, 1)	
8	Obstruction End of Borehole at 7.70 m		5.85	7.70	AA175357 AA175362	B W	7.50 7.70		N = 50/75 mm (25, 35, 50)	

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
7.40	7.70	2		7.40	7.40	No	5.40	20	Moderate

INSTALLATION DETAILS					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					

REMARKS CAT scanned location and hand dug inspection pit was carried out. Rig & gear cleaned at beginning and end due to the presence of invasive species.

Sample Legend
 D - Small Disturbed (tub)
 B - Bulk Disturbed
 LB - Large Bulk Disturbed
 Env - Environmental Sample (Jar + Vial + Tub)
 UT - Undisturbed 100mm Diameter Sample
 P - Undisturbed Piston Sample
 W - Water Sample

IGSL.BH.LOG 24167.GPJ IGSL.GDT 18/7/22



GEOTECHNICAL BORING RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

BOREHOLE NO. BH03

SHEET Sheet 1 of 1

CO-ORDINATES 474,273.07 E
799,833.64 N
GROUND LEVEL (mOD) 13.92

RIG TYPE Dando 2000
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 8.40

DATE COMMENCED 09/07/2022
DATE COMPLETED 09/07/2022

CLIENT ENGINEER Mayo Co.Co

SPT HAMMER REF. NO.
ENERGY RATIO (%)

BORED BY P.Thomas
PROCESSED BY F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		13.82	0.10						
	Dark brown PEAT		13.22	0.70						
1	Firm brown very sandy gravelly CLAY (Possibly very clayey Gravel)		12.72	1.20	AA170394	B	1.00		N = 18 (2, 2, 3, 4, 4, 7)	
2	Medium dense to dense grey fine to coarse sandy GRAVEL with occasional cobbles		8.42	5.50	AA170395	B	2.00		N = 28 (2, 4, 4, 5, 9, 10)	
3					AA170396	B	3.00		N = 24 (3, 3, 4, 6, 6, 8)	
4					AA170397	B	4.00		N = 30 (2, 3, 5, 7, 8, 10)	
5					AA170398	B	5.00		N = 29 (4, 5, 5, 6, 9, 9)	
6					AA170399	B	6.00		N = 34 (2, 4, 5, 5, 9, 15)	
7					AA170400	B	7.00		N = 24 (3, 3, 5, 5, 5, 9)	
8					AA175351	B	8.00		N = 50/150 mm (15, 10, 10, 40)	
8.40	Obstruction End of Borehole at 8.40 m		5.52	8.40	AA175361	W	8.40			

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
8.10	8.40	2		8.10	8.10	No	6.50	20	Moderate

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS CAT scanned location and hand dug inspection pit was carried out . Rig & gear cleaned at beginning and end due to the presence of invasive species.	Sample Legend D - Small Disturbed (tub) Sample B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
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IGSL.BH LOG 24167.GPJ IGSL.GDT 18/7/22



GEOTECHNICAL BORING RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development		BOREHOLE NO. BH04	
CO-ORDINATES 474,223.02 E 799,797.00 N		RIG TYPE Dando 2000	
GROUND LEVEL (mOD) 9.66		BOREHOLE DIAMETER (mm) 200	
		BOREHOLE DEPTH (m) 6.80	
CLIENT Mayo Co.Co		SPT HAMMER REF. NO.	
ENGINEER		ENERGY RATIO (%)	
		BORED BY P.Thomas	
		PROCESSED BY F.C	
		DATE COMMENCED 07/07/2022	
		DATE COMPLETED 08/07/2022	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (Comprised of slightly clayey gravelly stone fill with some cobbles and boulders)									
1	Medium dense grey very sandy GRAVEL with occasional cobbles		8.46	1.20	AA170383	B	1.00		N = 27 (2, 4, 4, 5, 9, 9)	
2					AA170384	B	2.00		N = 39 (3, 5, 7, 10, 10, 12)	
3	Medium dense to dense light brown/pink very sandy GRAVEL with some cobbles and occasional boulders		6.56	3.10	AA170385	B	3.00		N = 24 (3, 3, 4, 4, 6, 10)	
4					AA170386	B	4.00		N = 27 (2, 4, 6, 6, 7, 8)	
5					AA170387	B	5.00		N = 39 (3, 5, 7, 12, 12, 8)	
6					AA170388	B	6.00		N = 50/225 mm (5, 8, 9, 10, 31)	
6.5			2.86	6.80	AA170389	B	6.50		N = 50/150 mm (25, 35, 15)	
7	Obstruction End of Borehole at 6.80 m				AA175360	W	6.80			

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
6.60	6.80	2		6.50	6.50	No	4.50	20	Moderate

INSTALLATION DETAILS					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					

REMARKS CAT scanned location and hand dug inspection pit was carried out . Rig & gear cleaned at beginning and end due to the presence of invasive species.	Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
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IGSL BH LOG 24167.GPJ IGSL GDT 18/7/22



GEOTECHNICAL BORING RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

BOREHOLE NO. BH05
SHEET Sheet 1 of 1

CO-ORDINATES 474,249.45 E
799,768.45 N
GROUND LEVEL (mOD) 9.75

RIG TYPE Dando 2000
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 7.10

DATE COMMENCED 07/07/2022
DATE COMPLETED 07/07/2022

CLIENT Mayo Co.Co
ENGINEER

SPT HAMMER REF. NO.
ENERGY RATIO (%)

BORED BY P.Thomas
PROCESSED BY F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TARMACADAM		9.65	0.10						
	MADE GROUND (Comprised of brown sandy clayey gravelly stone fill)				AA170376	B	1.00	N = 9 (1, 2, 2, 2, 2, 3)		
1			8.25	1.50						
	Medium dense grey/brown fine to coarse very sandy silty GRAVEL				AA170377	B	2.00	N = 11 (1, 1, 2, 2, 3, 4)		
2					AA170378	B	3.00	N = 21 (1, 2, 3, 4, 6, 8)		
3			6.25	3.50						
	Medium dense to dense grey/pink very sandy silty GRAVEL with cobbles and occasional boulders				AA170379	B	4.00	N = 30 (5, 7, 9, 10, 7, 4)		
4					AA170380	B	5.00	N = 22 (2, 2, 4, 4, 6, 8)		
5					AA170381	B	6.00	N = 27 (2, 4, 5, 5, 8, 9)		
6					AA170382	B	7.00	N = 50/75 mm (25, 50)		
7	Obstruction End of Borehole at 7.10 m		2.65	7.10						
8										
9										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
6.90	7.10	2		7.00	7.00	No	3.40	20	Moderate

INSTALLATION DETAILS					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend
 D - Small Disturbed (tub)
 B - Bulk Disturbed
 LB - Large Bulk Disturbed
 Env - Environmental Sample (Jar + Vial + Tub)
 UT - Undisturbed 100mm Diameter Sample
 P - Undisturbed Piston Sample
 W - Water Sample

IGSL BH LOG 24167.GPJ IGSL.GDT 18/7/22

**Appendix II Trial Pit Records
Photographs**



TRIAL PIT RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

TRIAL PIT NO. TP01
SHEET Sheet 1 of 1

LOGGED BY S.Cunningham

CO-ORDINATES 474,257.50 E
799,917.10 N

DATE STARTED 07/07/2022
DATE COMPLETED 07/07/2022

CLIENT ENGINEER Mayo Co.Co

GROUND LEVEL (m) 16.22

EXCAVATION METHOD 4T Tracked Machine

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL									
	Soft black clayey sandy PEAT.		0.20	16.02						
	Medium dense grey gravelly SAND with a medium cobble content and frequent large boulders (Possibly very sandy Gravel)		0.35	15.87						
							AA135923	B	0.60-0.70	
	OBSTRUCTION - Cobbles / Large Boulders End of Trial Pit at 1.50m		1.48	14.74						
			1.50	14.72			AA135924	B	1.40-1.50	

Groundwater Conditions
Dry

Stability
Stable

General Remarks
Area scanned using CAT prior to excavation. Equipment and excavator cleaned after excavation due to the presence of Gunnera Tinctoria. Hole stopped at 1.5m due to cobbles/boulders.

IGSL TP LOG 24167 GPJ IGSL GDT 18/7/22



TRIAL PIT RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

TRIAL PIT NO. TP02
SHEET Sheet 1 of 1

LOGGED BY S.Cunningham

CO-ORDINATES 474,231.30 E
799,898.60 N

DATE STARTED 07/07/2022
DATE COMPLETED 07/07/2022

CLIENT ENGINEER Mayo Co.Co

GROUND LEVEL (m) 13.87

EXCAVATION METHOD 4T Tracked Machine

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL									
0.40	Medium dense grey/light brown very sandy gravelly SILT/CLAY with a low cobble content and occasional boulders. (Possibly claybound Gravel)		0.40	13.47		AA170145	B	0.60-0.70		
2.10	End of Trial Pit at 2.10m		2.10	11.77		AA170146	B	1.90-2.00		

Groundwater Conditions
Dry

Stability
Stable

General Remarks

Area scanned using CAT prior to excavation. Equipment and excavator cleaned after excavation due to the presence of *Gunnera tinctoria*. Unable to carry out DCP at 2m due to cobbles/boulders.

IGSL TP LOG 24167 GPJ IGSL GDT 18/7/22



TRIAL PIT RECORD

REPORT NUMBER

24167

CONTRACT	Achill Island Housing Development	TRIAL PIT NO.	TP03
LOGGED BY	S.Cunningham	SHEET	Sheet 1 of 1
CLIENT ENGINEER	Mayo Co.Co	CO-ORDINATES	474,231.00 E 799,873.60 N
		GROUND LEVEL (m)	13.12
		DATE STARTED	08/07/2022
		DATE COMPLETED	08/07/2022
		EXCAVATION METHOD	4T Tracked Machine

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TARMACADAM		0.05	13.07						
	MADE GROUND comprised of cream slightly gravelly sandy CLAY with rare plastic fragments.		0.20	12.92						
	Soft to firm dark brown peaty sandy gravelly CLAY with a medium cobble content and occasional boulders.		0.55	12.57		AA170147	B	0.50-0.60		
	Medium dense cream mottled orange silty gravelly SAND with a low cobble content.									
1.0						AA170148	B	1.00-1.10		
2.0	End of Trial Pit at 2.10m		2.10	11.02		AA170149	B	2.00-2.10		

Groundwater Conditions
Dry

Stability
Stable

General Remarks
Area scanned using CAT prior to excavation. Equipment and excavator cleaned after excavation due to the presence of Gunnera Tinctoria. Unable to carry out DCP at 2m due to cobbles/boulders.

IGSL TP LOG 24167.GPJ IGSL.GDT 18/7/22



TRIAL PIT RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

TRIAL PIT NO. TP04
SHEET Sheet 1 of 1

LOGGED BY S.Cunningham

CO-ORDINATES 474,220.90 E
799,813.70 N

DATE STARTED 08/07/2022
DATE COMPLETED 08/07/2022

CLIENT ENGINEER Mayo Co.Co

GROUND LEVEL (m) 10.24

EXCAVATION METHOD 4T Tracked Machine

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TARMACADAM	[Cross-hatch pattern]	0.10	10.14						
	Medium dense grey sandy angular GRAVEL.	[Gravel pattern]				AA175103	B	0.70-0.80		
1.60	End of Trial Pit at 1.60m		1.60	8.64						

Groundwater Conditions
Dry

Stability
Very unstable

General Remarks
Area scanned using CAT prior to excavation. Equipment and excavator cleaned after excavation due to the presence of Gunnera Tinctoria. Excavation stopped due to instability and undercutting.

IGSL TP LOG 24167 GPJ IGSL GDT 18/7/22



TRIAL PIT RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

TRIAL PIT NO. TP04A
SHEET Sheet 1 of 1

LOGGED BY S.Cunningham

CO-ORDINATES 474,224.40 E
799,818.20 N

DATE STARTED 08/07/2022
DATE COMPLETED 08/07/2022

CLIENT ENGINEER Mayo Co.Co

GROUND LEVEL (m) 10.73

EXCAVATION METHOD 4T Tracked Machine

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL Soft dark brown sandy PEAT		0.10	10.63						
	Medium dense brown silty SAND / very sandy SILT		0.60	10.13						
	Medium dense grey silty gravelly SAND with a low cobble content and occasional boulders.		0.80	9.93		AA175104	B	0.80-0.90		
	Medium dense very sandy GRAVEL with some cobbles		1.80	8.93						
	End of Trial Pit at 2.40m		2.40	8.33		AA175105	B	2.30-2.40		

Groundwater Conditions
Dry

Stability
Stable

General Remarks
Area scanned using CAT prior to excavation. Equipment and excavator cleaned after excavation due to the presence of Gunnera Tinctoria. Unable to carry out DCP at 2m due to cobbles/boulders.

IGSL TP LOG 24167.GPJ IGSL.GDT 18/7/22



TRIAL PIT RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

TRIAL PIT NO. TP05
SHEET Sheet 1 of 1

LOGGED BY S.Cunningham

CO-ORDINATES 474,227.40 E
799,774.50 N

DATE STARTED 08/07/2022
DATE COMPLETED 08/07/2022

CLIENT ENGINEER Mayo Co.Co

GROUND LEVEL (m) 9.74

EXCAVATION METHOD 4T Tracked Machine

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TARMACADAM		0.05	9.69						
	MADE GROUND (Comprised of grey/brown fine grained SAND)		0.10	9.64						
	MADE GROUND comprised of grey clayey gravelly SAND.					AA170150	B	0.40-0.50		
	Soft black sandy fibrous PEAT.		0.70	9.04		AA175101	B	0.80-0.90		
1.0										
	Medium dense silty gravelly SAND with a low cobble content.		1.30	8.44						
2.0	End of Trial Pit at 2.00m		2.00	7.74		AA175102	B	1.80-1.90		

Groundwater Conditions
Dry

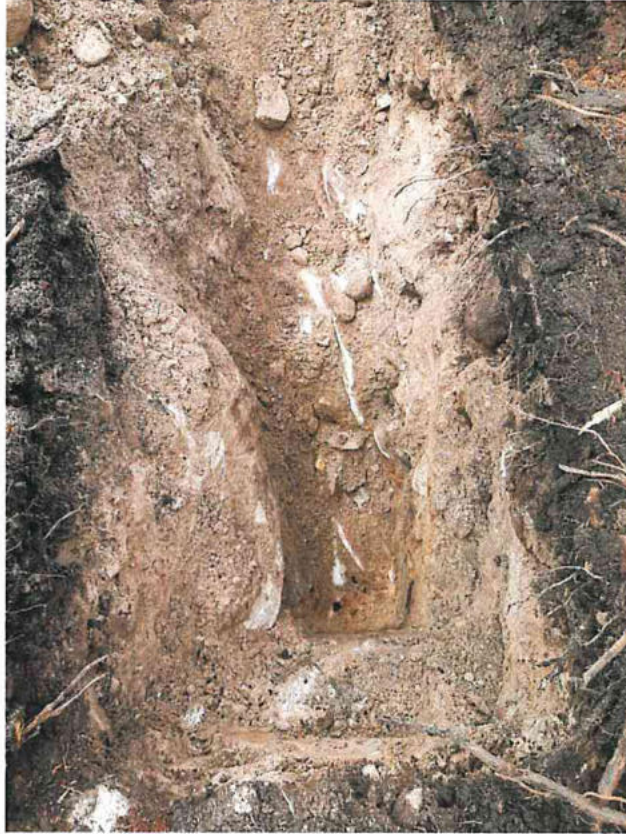
Stability
Stable

General Remarks

Area scanned using CAT prior to excavation. Equipment and excavator cleaned after excavation due to the presence of *Gunnera tinctoria*. Unable to carry out DCP at 2m due to cobbles/boulders.

IGSL TP LOG 24167 GPJ IGSL GDT 18/7/22

TP01 – 1 of 3



TP01 – 2 of 3



TP01 – 3 of 3



TP02 – 1 of 3



TP02 – 2 of 3



TP02 – 3 of 3



TP03 – 1 of 3



TP03 – 2 of 3



TP03 – 3 of 3



TP04 – 1 of 3



TP04 – 2 of 3



TP04 – 3 of 3



TP04A – 1 of 3



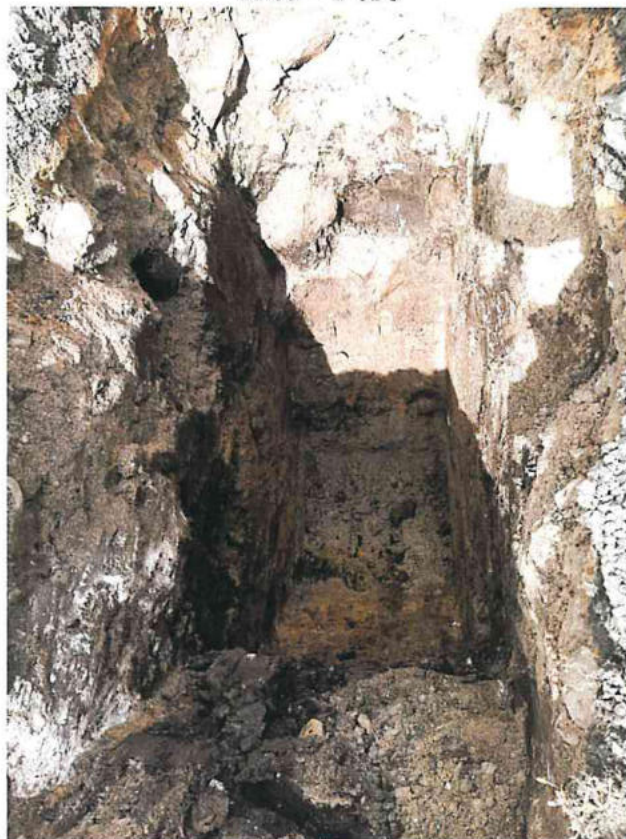
TP04A – 2 of 3



TP04A – 3 of 3



TP05 – 1 of 3



TP05 – 2 of 3



TP05 – 3 of 3



Appendix III Dynamic Probe Records



DYNAMIC PROBE RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

PROBE NO. DP01

SHEET Sheet 1 of 1

CO-ORDINATES

DATE COMMENCED 07/07/2022

DATE COMPLETED 07/07/2022

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50

CLIENT Mayo Co.Co

INCREMENT SIZE (mm) 100

ENGINEER Jennings O'Donovan

FALL HEIGHT (mm) 500

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)	Graphic Probe Record
0.0						0.00	0	
						0.10	0	
						0.20	1	
						0.30	10	
						0.40	13	
						0.50	10	
						0.60	9	
						0.70	9	
						0.80	9	
						0.90	8	
						1.00	3	
						1.10	1	
						1.20	1	
						1.30	3	
						1.40	4	
						1.50	24	
						1.60	20	
						1.70	3	
						1.80	1	
						1.90	3	
						2.00	4	
						2.10	3	
						2.20	2	
						2.30	20	
						2.40	37	
						2.50	25	
	End of Probe at 2.60 m							

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 24167.GPJ IGSL.GDT 14/7/22



DYNAMIC PROBE RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

PROBE NO. DP02
SHEET Sheet 1 of 1

CO-ORDINATES

DATE COMMENCED 07/07/2022
DATE COMPLETED 07/07/2022

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50

CLIENT Mayo Co.Co

INCREMENT SIZE (mm) 100

ENGINEER Jennings O'Donovan

FALL HEIGHT (mm) 500

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)	Graphic Probe Record
0.0						0.00	20	
						0.10	18	
						0.20	17	
						0.30	18	
						0.40	22	
						0.50	19	
						0.60	19	
						0.70	11	
						0.80	14	
						0.90	12	
						1.00	14	
						1.10	13	
						1.20	7	
						1.30	4	
						1.40	5	
						1.50	3	
						1.60	2	
						1.70	5	
						1.80	6	
						1.90	12	
						2.00	19	
						2.10	17	
						2.20	15	
						2.30	14	
						2.40	20	
						2.50	17	
						2.60	20	
						2.70	22	
						2.80	25	
3.0	End of Probe at 2.90 m							

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 24167.GPJ IGSL.GDT 14/7/22



DYNAMIC PROBE RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

PROBE NO. DP03

SHEET Sheet 1 of 1

CO-ORDINATES

DATE COMMENCED 07/07/2022

DATE COMPLETED 07/07/2022

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50

CLIENT Mayo Co.Co

INCREMENT SIZE (mm) 100

ENGINEER Jennings O'Donovan

FALL HEIGHT (mm) 500

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)	Graphic Probe Record																																										
0.0						0.00	4	<table border="1" style="display: none;"> <caption>Graphic Probe Record Data</caption> <thead> <tr> <th>Depth (m)</th> <th>Probe Readings (Blows/Increment)</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>4</td></tr> <tr><td>0.10</td><td>8</td></tr> <tr><td>0.20</td><td>13</td></tr> <tr><td>0.30</td><td>14</td></tr> <tr><td>0.40</td><td>7</td></tr> <tr><td>0.50</td><td>7</td></tr> <tr><td>0.60</td><td>8</td></tr> <tr><td>0.70</td><td>9</td></tr> <tr><td>0.80</td><td>21</td></tr> <tr><td>0.90</td><td>10</td></tr> <tr><td>1.00</td><td>6</td></tr> <tr><td>1.10</td><td>5</td></tr> <tr><td>1.20</td><td>6</td></tr> <tr><td>1.30</td><td>6</td></tr> <tr><td>1.40</td><td>9</td></tr> <tr><td>1.50</td><td>16</td></tr> <tr><td>1.60</td><td>19</td></tr> <tr><td>1.70</td><td>14</td></tr> <tr><td>1.80</td><td>20</td></tr> <tr><td>1.90</td><td>25</td></tr> </tbody> </table>	Depth (m)	Probe Readings (Blows/Increment)	0.00	4	0.10	8	0.20	13	0.30	14	0.40	7	0.50	7	0.60	8	0.70	9	0.80	21	0.90	10	1.00	6	1.10	5	1.20	6	1.30	6	1.40	9	1.50	16	1.60	19	1.70	14	1.80	20	1.90	25
Depth (m)	Probe Readings (Blows/Increment)																																																	
0.00	4																																																	
0.10	8																																																	
0.20	13																																																	
0.30	14																																																	
0.40	7																																																	
0.50	7																																																	
0.60	8																																																	
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1.40	9																																																	
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1.60	19																																																	
1.70	14																																																	
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						1.20	6																																											
						1.30	6																																											
						1.40	9																																											
						1.50	16																																											
						1.60	19																																											
						1.70	14																																											
						1.80	20																																											
						1.90	25																																											
2.0	End of Probe at 2.00 m																																																	
3.0																																																		
4.0																																																		

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 24167.GPJ IGSL_GDT 14/7/22



DYNAMIC PROBE RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

PROBE NO. DP04

SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50

DATE COMMENCED 07/07/2022

DATE COMPLETED 07/07/2022

CLIENT Mayo Co.Co

INCREMENT SIZE (mm) 100

ENGINEER Jennings O'Donovan

FALL HEIGHT (mm) 500

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)	Graphic Probe Record
0.0						0.00	8	
						0.10	11	
						0.20	9	
						0.30	7	
						0.40	10	
						0.50	9	
						0.60	12	
						0.70	8	
						0.80	5	
						0.90	4	
1.0						1.00	4	
						1.10	5	
						1.20	5	
						1.30	7	
						1.40	8	
						1.50	10	
						1.60	7	
						1.70	9	
						1.80	7	
						1.90	7	
2.0						2.00	10	
						2.10	7	
						2.20	4	
						2.30	5	
						2.40	8	
						2.50	17	
						2.60	20	
						2.70	25	
						2.80	25	
3.0	End of Probe at 2.90 m							

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 24167.GPJ IGSL_GDT_14/7/22



DYNAMIC PROBE RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

PROBE NO. DP05

SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50

DATE COMMENCED 07/07/2022

DATE COMPLETED 07/07/2022

CLIENT Mayo Co.Co

INCREMENT SIZE (mm) 100

ENGINEER Jennings O'Donovan

FALL HEIGHT (mm) 500

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)	Graphic Probe Record
0.0						0.00	0	
						0.10	2	
						0.20	3	
						0.30	2	
						0.40	0	
						0.50	1	
						0.60	3	
						0.70	11	
						0.80	20	
						0.90	19	
						1.00	16	
						1.10	12	
						1.20	9	
						1.30	7	
						1.40	6	
						1.50	5	
						1.60	5	
						1.70	8	
						1.80	9	
						1.90	6	
						2.00	9	
						2.10	6	
						2.20	6	
						2.30	10	
						2.40	9	
						2.50	9	
						2.60	14	
						2.70	20	
						2.80	25	
						2.90	25	
3.0	End of Probe at 3.00 m							
4.0								

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 24167.GPJ IGSL.GDT 14/7/22



DYNAMIC PROBE RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

PROBE NO. DP06

CO-ORDINATES

SHEET Sheet 1 of 1

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50

DATE COMMENCED 07/07/2022

CLIENT Mayo Co.Co

INCREMENT SIZE (mm) 100

DATE COMPLETED 07/07/2022

ENGINEER Jennings O'Donovan

FALL HEIGHT (mm) 500

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)	Graphic Probe Record		
0.0	End of Probe at 1.90 m					0.00	23			
									0.10	20
									0.20	18
									0.30	15
									0.40	11
									0.50	4
									0.60	2
									0.70	14
									0.80	15
									0.90	16
									1.00	16
									1.10	11
									1.20	14
									1.30	9
									1.40	9
									1.50	12
									1.60	17
						1.70	28			
						1.80	25			

GROUNDWATER OBSERVATIONS

REMARKS



DYNAMIC PROBE RECORD

REPORT NUMBER

24167

CONTRACT Achill Island Housing Development

PROBE NO. **DP07**

SHEET Sheet 1 of 1

CO-ORDINATES

GROUND LEVEL (mOD)

HAMMER MASS (kg) 50

DATE COMMENCED 07/07/2022

DATE COMPLETED 07/07/2022

CLIENT Mayo Co.Co

INCREMENT SIZE (mm) 100

ENGINEER Jennings O'Donovan

FALL HEIGHT (mm) 500

PROBE TYPE DPH

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)	Graphic Probe Record
0.0						0.00	0	
						0.10	0	
						0.20	0	
						0.30	0	
						0.40	0	
						0.50	0	
						0.60	0	
						0.70	0	
						0.80	0	
						0.90	0	
1.0						1.00	0	
						1.10	0	
						1.20	0	
						1.30	0	
						1.40	0	
						1.50	3	
						1.60	7	
						1.70	9	
						1.80	9	
						1.90	10	
2.0						2.00	9	
						2.10	7	
						2.20	8	
						2.30	14	
						2.40	11	
						2.50	6	
						2.60	10	
						2.70	10	
						2.80	10	
						2.90	10	
3.0						3.00	10	
						3.10	8	
						3.20	15	
						3.30	17	
						3.40	23	
						3.50	16	
						3.60	16	
						3.70	15	
						3.80	21	
4.0	End of Probe at 4.00 m					3.90	25	

GROUNDWATER OBSERVATIONS

REMARKS

IGSL DP LOG 100MM INCREMENTS 24167.GPJ IGSL.GDT 14/7/22

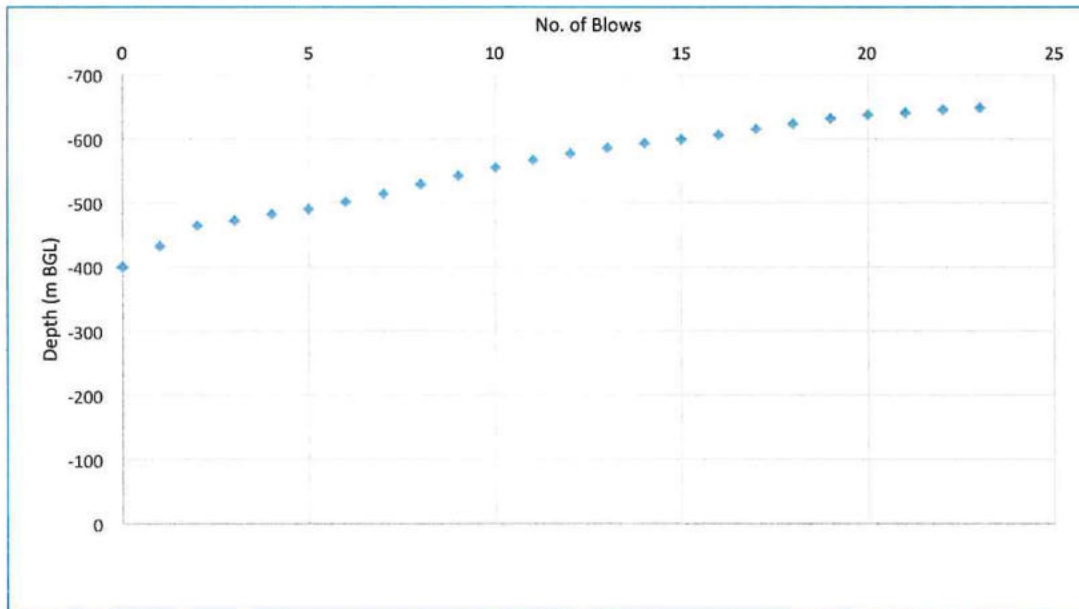
Appendix IV CBR by TRL Probe

Dynamic Cone Penetrometer



Contract Ref No. Client	Achill Island Housing Development 24167 Mayo County Council	Date:	07/07/2022	Test No.	DCP01
		DCP Zero Reading	161	mm	
Location	TP01	Start of Test at:	0.4	m BGL	
Direction		Approximate Chainage			
Soil Description	See Trial Pit Log				

No of Blows	Total Blows	Reading mm	No of Blows	Total Blows	Reading mm	No of Blows	Total Blows	Reading mm
0	0	161	1	21	401			
1	1	193	1	22	406			
1	2	225	1	23	409			
1	3	233						
1	4	243						
1	5	251						
1	6	263						
1	7	275						
1	8	290						
1	9	303						
1	10	316						
1	11	328						
1	12	338						
1	13	347						
1	14	354						
1	15	360						
1	16	367						
1	17	376						
1	18	384						
1	19	393						
1	20	398						



Depth range (mm)	From 432	to 648	Penetration	216	mm / blow	9.82
Blows	1	23		22		

TRRL RN8: $\text{Log}_{10}(\text{CBR}) = 2.48 - 1.057 * \text{Log}_{10}(\text{mm/blow})$

$\text{Log}_{10}(\text{CBR}) = 1.431$

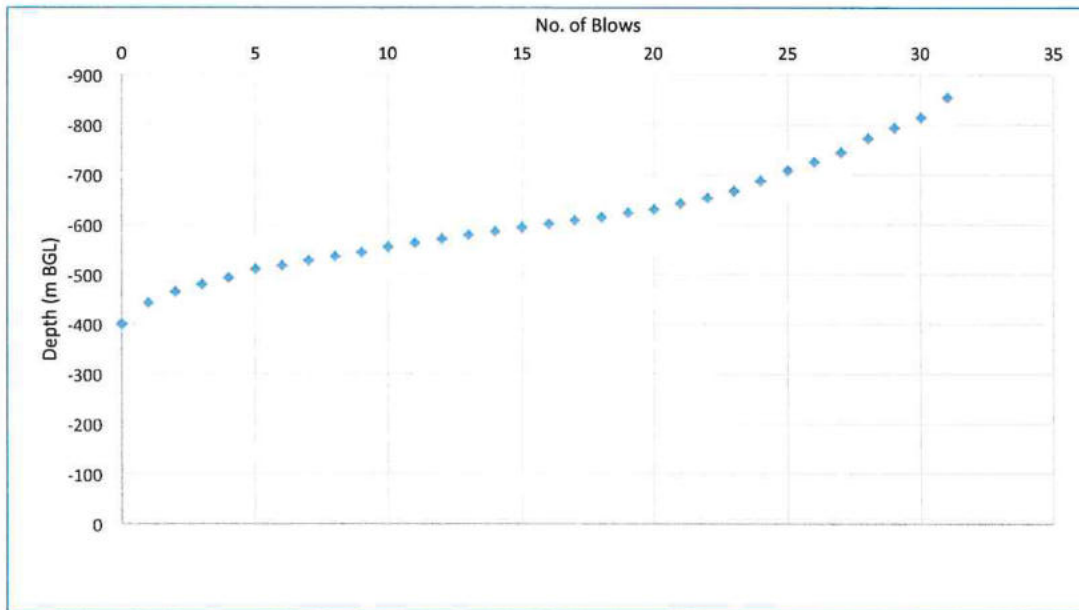
CBR = 27.004



Dynamic Cone Penetrometer



Contract Achill Island Housing Development Ref No. 24167 Client Mayo County Council			Date: 08/07/2022 Test No. DCP02					
Location TP02 Direction Soil Description See Trial Pit Log			DCP Zero Reading 70 mm Start of Test at: 0.4 m BGL Approximate Chainage					
No of Blows	Total Blows	Reading mm	No of Blows	Total Blows	Reading mm	No of Blows	Total Blows	Reading mm
0	0	70	1	21	312			
1	1	113	1	22	323			
1	2	135	1	23	337			
1	3	150	1	24	357			
1	4	163	1	25	378			
1	5	181	1	26	395			
1	6	188	1	27	414			
1	7	198	1	28	442			
1	8	206	1	29	463			
1	9	214	1	30	484			
1	10	225	1	31	524			
1	11	233						
1	12	241						
1	13	249						
1	14	256						
1	15	264						
1	16	271						
1	17	278						
1	18	284						
1	19	293						
1	20	300						



Depth range (mm)	From 443	to 854	Penetration	mm / blow
Blows	1	31	30	13.70

TRRL RN8: $\text{Log}_{10}(\text{CBR}) = 2.48 - 1.057 * \text{Log}_{10}(\text{mm/blow})$

$\text{Log}_{10}(\text{CBR}) = 1.278$

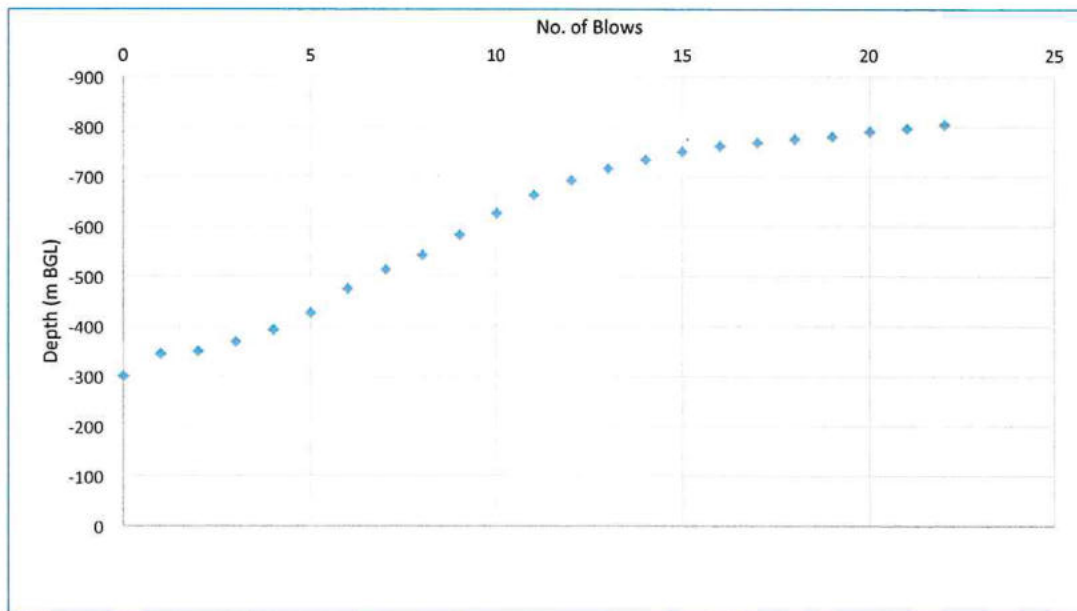
CBR = 18.988



Dynamic Cone Penetrometer



Contract Achill Island Housing Development			Date: 08/07/2022			Test No. DCP03		
Ref No. 24167								
Client Mayo County Council			DCP Zero Reading 118 mm					
Location TP03			Start of Test at: 0.3 m BGL					
Direction			Approximate Chainage					
Soil Description See Trial Pit Log								
No of Blows	Total Blows	Reading mm	No of Blows	Total Blows	Reading mm	No of Blows	Total Blows	Reading mm
0	0	118	1	21	614			
1	1	163	1	22	622			
1	2	168						
1	3	187						
1	4	211						
1	5	245						
1	6	293						
1	7	331						
1	8	360						
1	9	401						
1	10	444						
1	11	481						
1	12	510						
1	13	534						
1	14	552						
1	15	568						
1	16	579						
1	17	586						
1	18	593						
1	19	598						
1	20	608						



Depth range (mm)	From 345	to 750	Penetration	405	mm / blow
Blows	1	15		14	28.93

TRRL RN8: $\text{Log}_{10}(\text{CBR}) = 2.48 - 1.057 * \text{Log}_{10}(\text{mm/blow})$

$\text{Log}_{10}(\text{CBR}) = 0.935$

CBR = 8.617

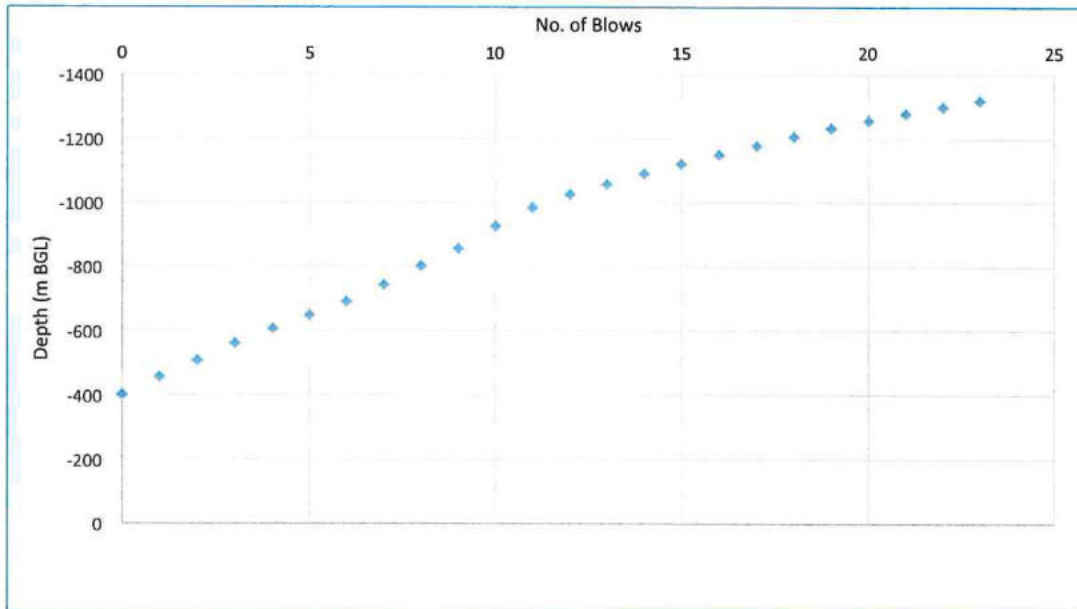


Dynamic Cone Penetrometer



Contract	Achill Island Housing Development	Date:	08/07/2022	Test No.	DCP04
Ref No.	24167				
Client	Mayo County Council				
Location		DCP Zero Reading	64	mm	
Direction		Start of Test at:			
Soil Description		Approximate Chainage			
See Trial Pit Log		0.4 m BGL			

No of Blows	Total Blows	Reading mm	No of Blows	Total Blows	Reading mm	No of Blows	Total Blows	Reading mm
0	0	64	1	21	941			
1	1	121	1	22	961			
1	2	172	1	23	981			
1	3	225						
1	4	271						
1	5	313						
1	6	355						
1	7	407						
1	8	467						
1	9	521						
1	10	591						
1	11	648						
1	12	690						
1	13	722						
1	14	755						
1	15	785						
1	16	813						
1	17	842						
1	18	870						
1	19	896						
1	20	920						



Depth range (mm)	From	to	Penetration	mm / blow
Blows	457	1317	860	39.09
	1	23	22	

TRRL RN8: $\text{Log}_{10}(\text{CBR}) = 2.48 - 1.057 * \text{Log}_{10}(\text{mm/blow})$

$\text{Log}_{10}(\text{CBR}) = 0.797$

CBR = 6.269

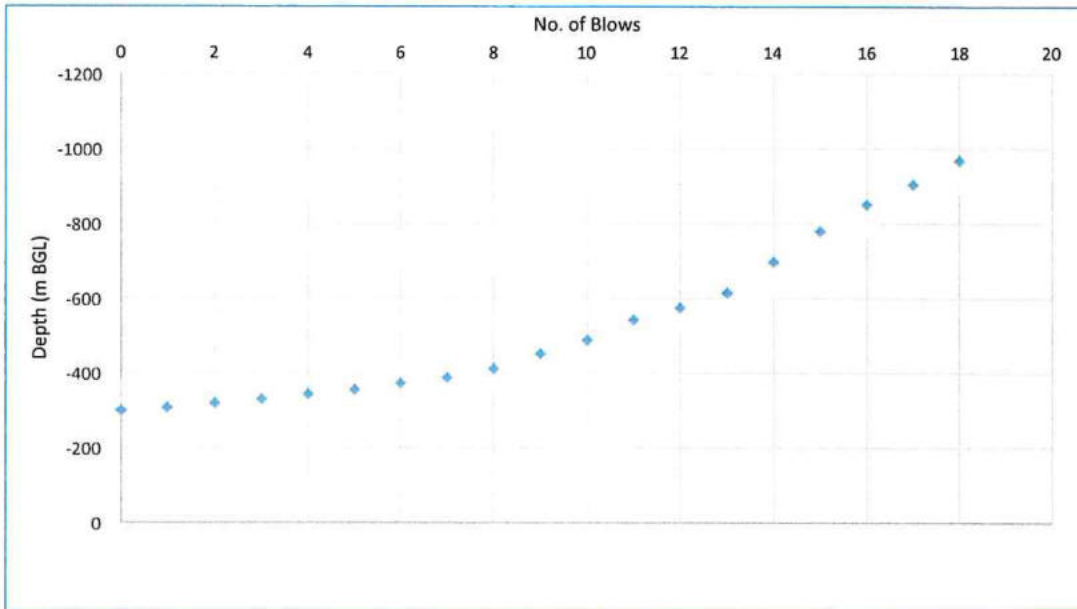


Dynamic Cone Penetrometer



Contract	Achill Island Housing Development	Date:	08/07/2022	Test No.	DCP05
Ref No.	24167				
Client	Mayo County Council				
Location	TP05	DCP Zero Reading	103	mm	
Direction		Start of Test at:	0.3	m BGL	
Soil Description	See Trial Pit Log	Approximate Chainage			

No of Blows	Total Blows	Reading mm	No of Blows	Total Blows	Reading mm	No of Blows	Total Blows	Reading mm
0	0	103						
1	1	111						
1	2	122						
1	3	133						
1	4	146						
1	5	158						
1	6	176						
1	7	190						
1	8	214						
1	9	255						
1	10	291						
1	11	345						
1	12	377						
1	13	417						
1	14	500						
1	15	583						
1	16	653						
1	17	707						
1	18	771						



Depth range (mm)	From 452	to 962	Penetration	510	mm / blow
Blows	9	18		9	56.67

TRRL RN8: $\text{Log}_{10}(\text{CBR}) = 2.48 - 1.057 * \text{Log}_{10}(\text{mm/blow})$

$\text{Log}_{10}(\text{CBR}) = 0.627$

CBR = 4.234



Appendix V Laboratory Data

a. Geotechnical



TEST REPORT

Determination of Particle Size Distribution

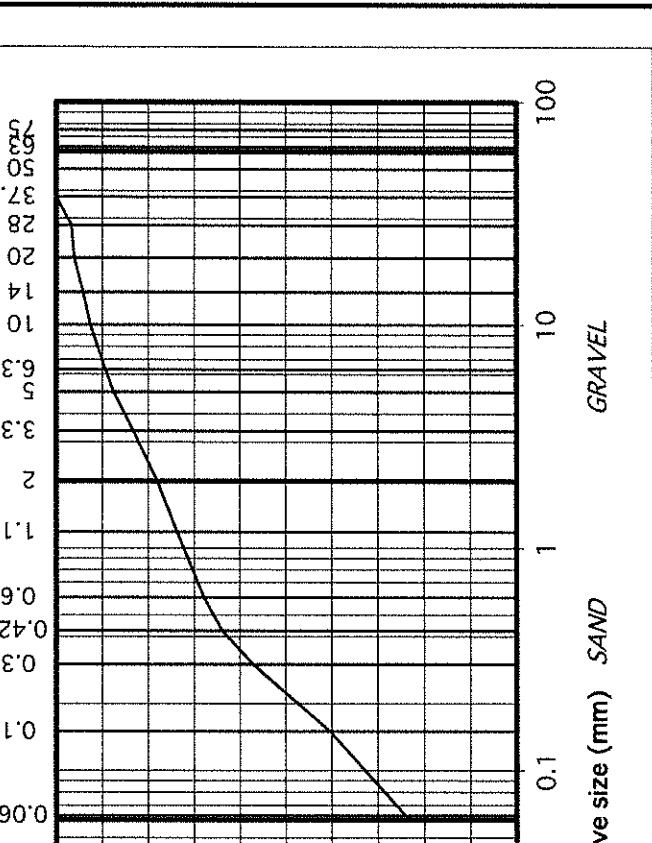
Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)

Contract No. 24167 Report No. R137568
 Contract Name : Achill Sound Housing Project
 BH/TP* : BH01
 Sample No.* AA170390 Lab. Sample No. A22/4494
 Sample Type: B
 Depth* (m) 1.00 Customer: Mayo Co.Co./Jennings O'Donovan
 Date Received 10/08/2022 Date Testing started 10/08/2022
 Description: Brown sandy, slightly gravelly, SILT/CLAY

particle size	% passing
75	100
63	100
50	100
37.5	100
28	97
20	96
14	94
10	93
6.3	89
5	87
3.35	83
2	78
1.18	74
0.6	68
0.425	64
0.3	57
0.15	40
0.063	24

Remarks: **COBBLES**
GRAVEL
SAND
SILT/CLAY

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



TEST REPORT

Determination of Particle Size Distribution

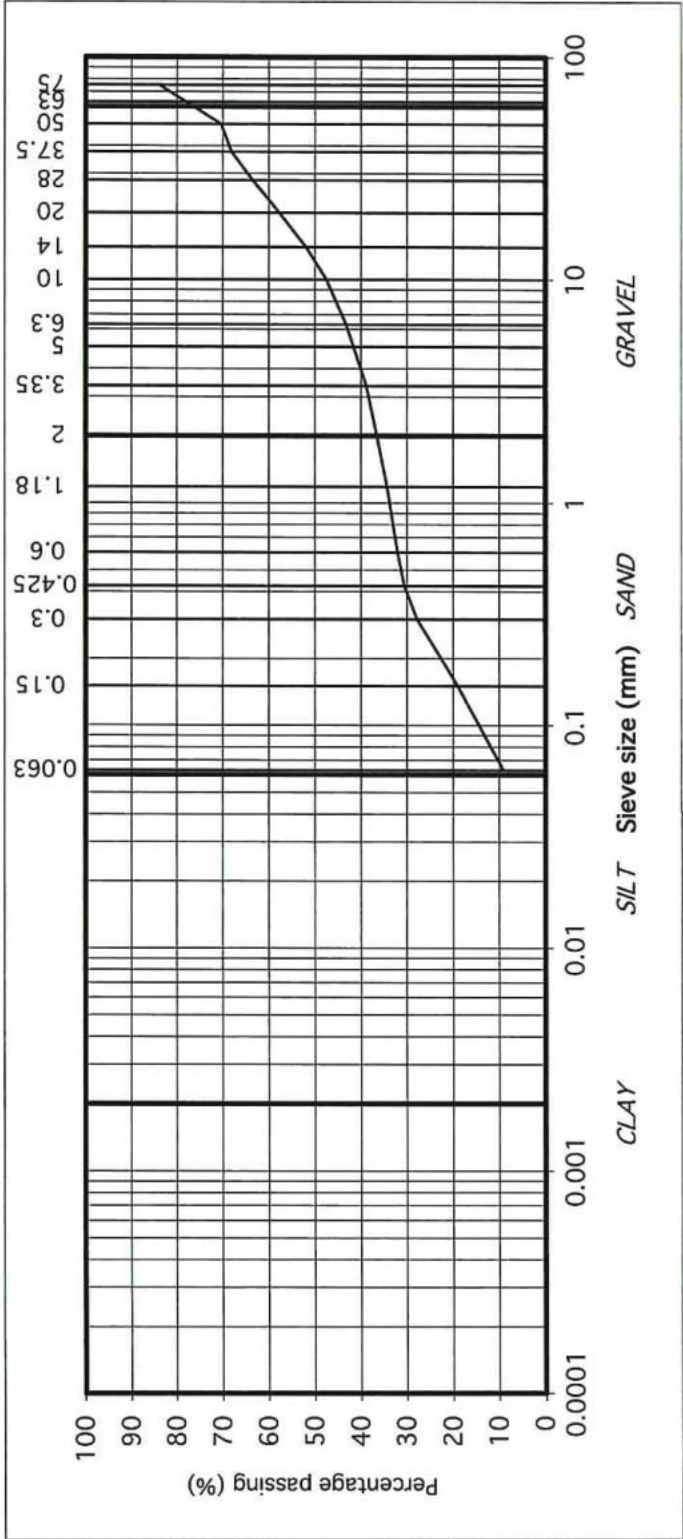
Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)



Contract No.	24167	Report No.	R137569
Contract Name :	Achill Sound Housing Project		
BH/TP* :	BH01		
Sample No.*	AA170392	Lab. Sample No.	A22/4495
Sample Type:	B		
Depth* (m)	3.00	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Brown clayey/silty, very sandy, GRAVEL with many cobbles		

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

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



particle size	% passing
75	84
63	78
50	70
37.5	68
28	63
20	58
14	52
10	47
6.3	43
5	42
3.35	39
2	37
1.18	34
0.6	32
0.425	31
0.3	28
0.15	19
0.063	9

TEST REPORT

Determination of Particle Size Distribution

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

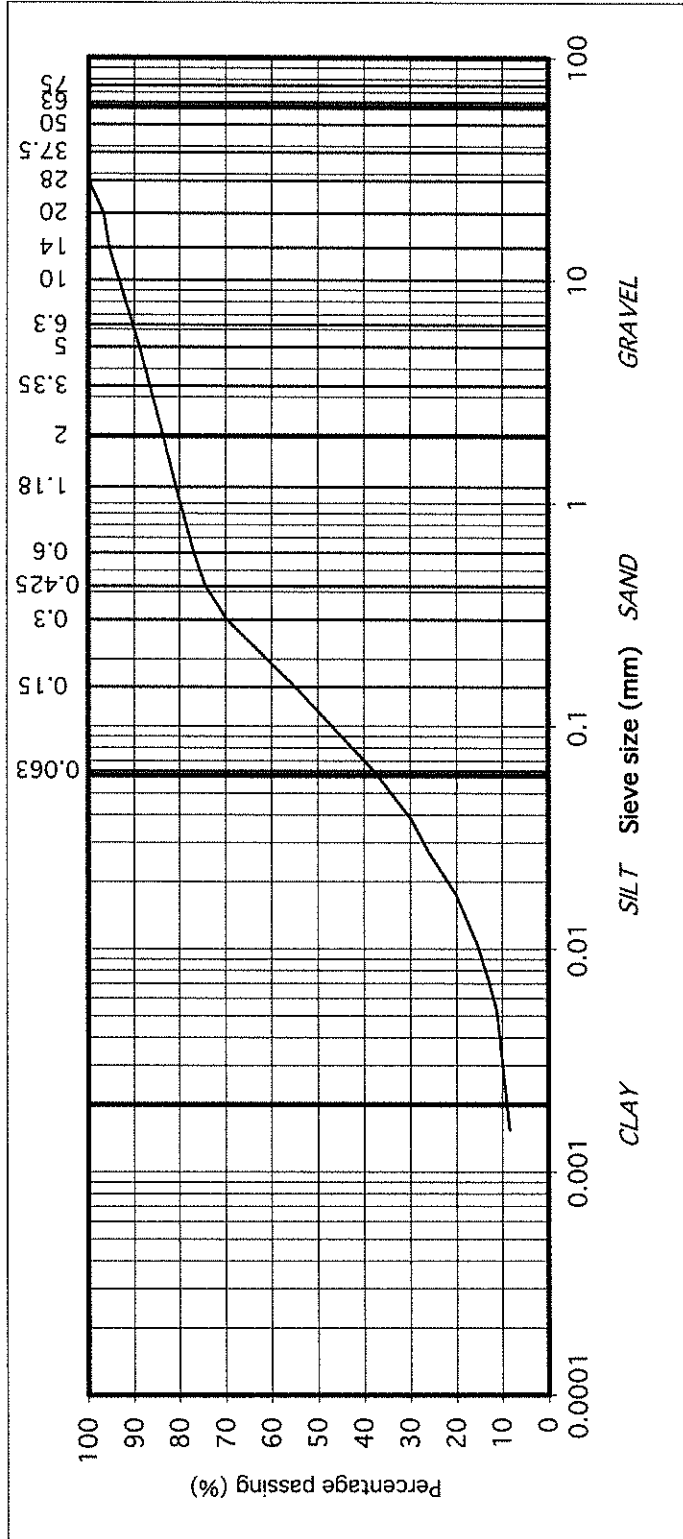


Contract No.	24167	Report No.	R137570
Contract Name :	Achill Sound Housing Project		
BH/TP* :	BH02		
Sample No.*	AA170395	Lab. Sample No.	A22/4496
Sample Type:	B		
Depth* (m)	2.00	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Mottled brown sandy, slightly gravelly, SILT		

Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.
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Remarks

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



particle size	% passing	Classification
75	100	COBBLES
63	100	
50	100	
37.5	100	GRAVEL
28	100	
20	97	SAND
14	95	
10	93	
6.3	90	
5	89	
3.35	87	
2	84	
1.18	81	
0.6	77	
0.425	74	
0.3	70	SILT/CLAY
0.15	55	
0.063	38	
0.038	30	
0.027	26	
0.018	20	
0.010	15	
0.007	13	
0.005	11	
0.002	8	

TEST REPORT

Determination of Particle Size Distribution

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

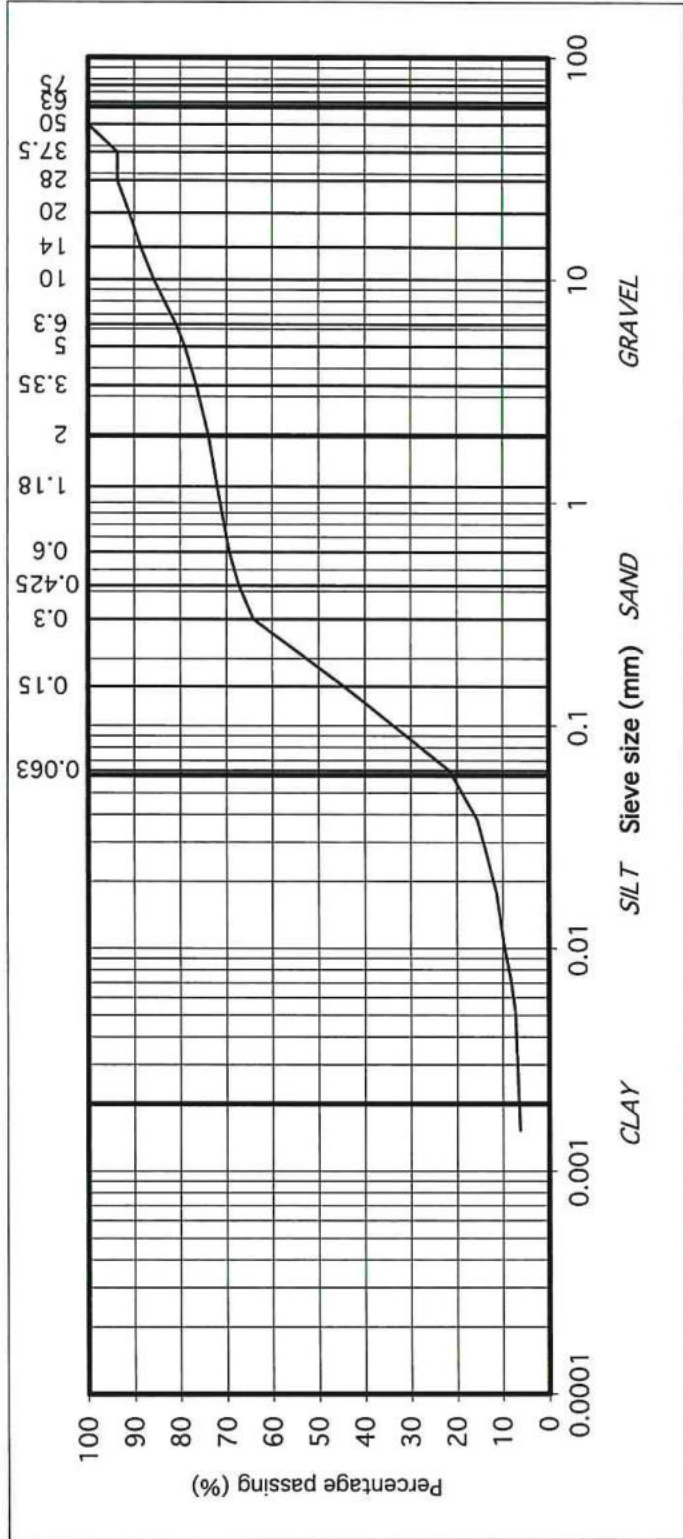


Contract No.	24167	Report No.	R137571
Contract Name :	Achill Sound Housing Project		
BH/TP* :	BH02		
Sample No.*	AA175356	Lab. Sample No.	A22/4499
Sample Type:	B		
Depth* (m)	7.00	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Grey/brown sandy, slightly gravelly, SILT		

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

Remarks

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



particle size	% passing
75	100
63	100
50	100
37.5	94
28	94
20	91
14	89
10	86
6.3	81
5	79
3.35	77
2	74
1.18	72
0.6	69
0.425	67
0.3	64
0.15	44
0.063	22
0.038	16
0.027	14
0.018	11
0.010	10
0.007	8
0.005	7
0.002	6

IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
<i>J Barrett</i>	14/09/22	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)



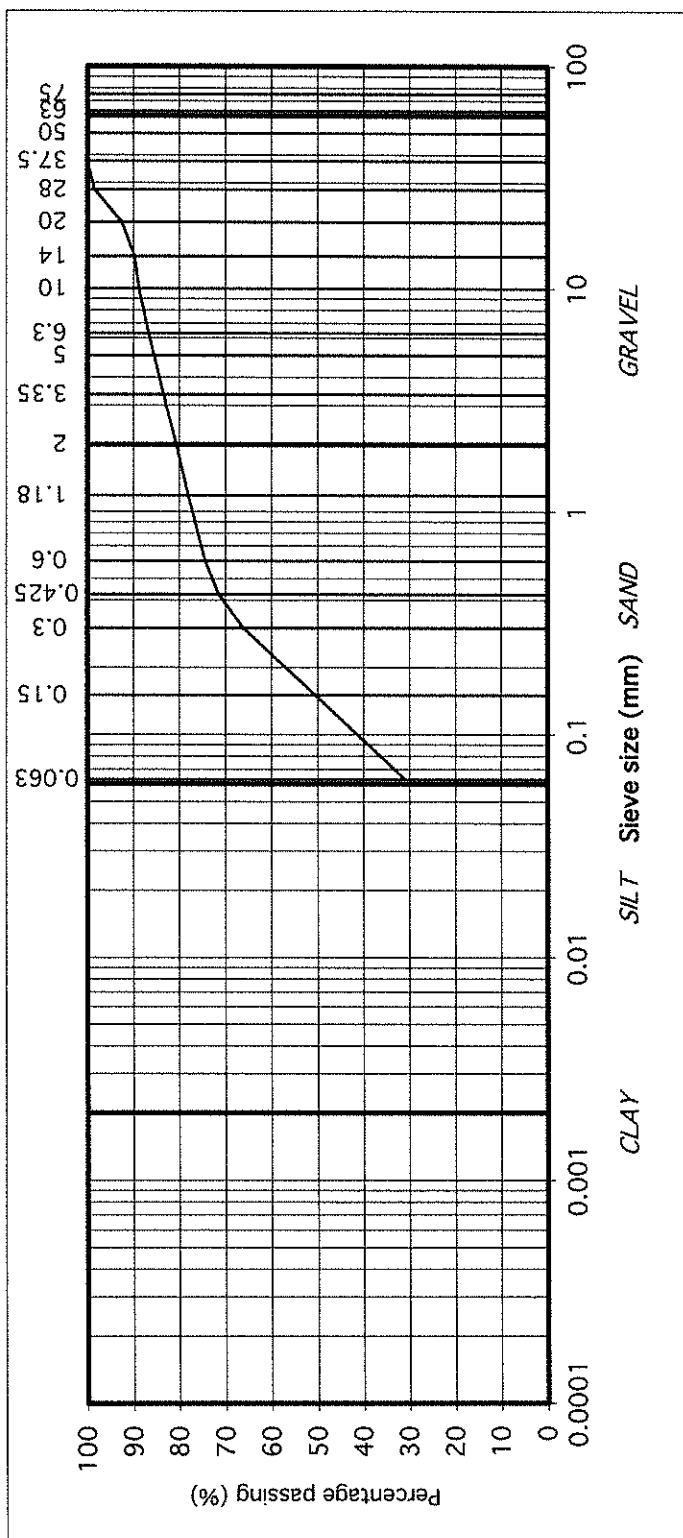
TEST REPORT

Determination of Particle Size Distribution

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

	Contract No.	24167	Report No.	R137573	Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory.
	Contract Name :	Achill Sound Housing Project			
	BH/TP* :	BH03			
	Sample No.*	AA170395	Lab. Sample No.	A22/4500	
	Sample Type:	B			
	Depth* (m)	2.00	Customer:	Mayo Co.Co./Jennings O'Donovan	
	Date Received	10/08/2022	Date Testing started	10/08/2022	
	Description:	Brown sandy, slightly gravelly, SILT/CLAY			

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



particle size	% passing	Classification
75	100	COBBLES
63	100	
50	100	
37.5	100	GRAVEL
28	98	
20	92	
14	90	
10	89	
6.3	87	SAND
5	86	
3.35	83	
2	81	
1.18	78	
0.6	74	
0.425	71	
0.3	66	
0.15	50	
0.063	31	
		SILT/CLAY



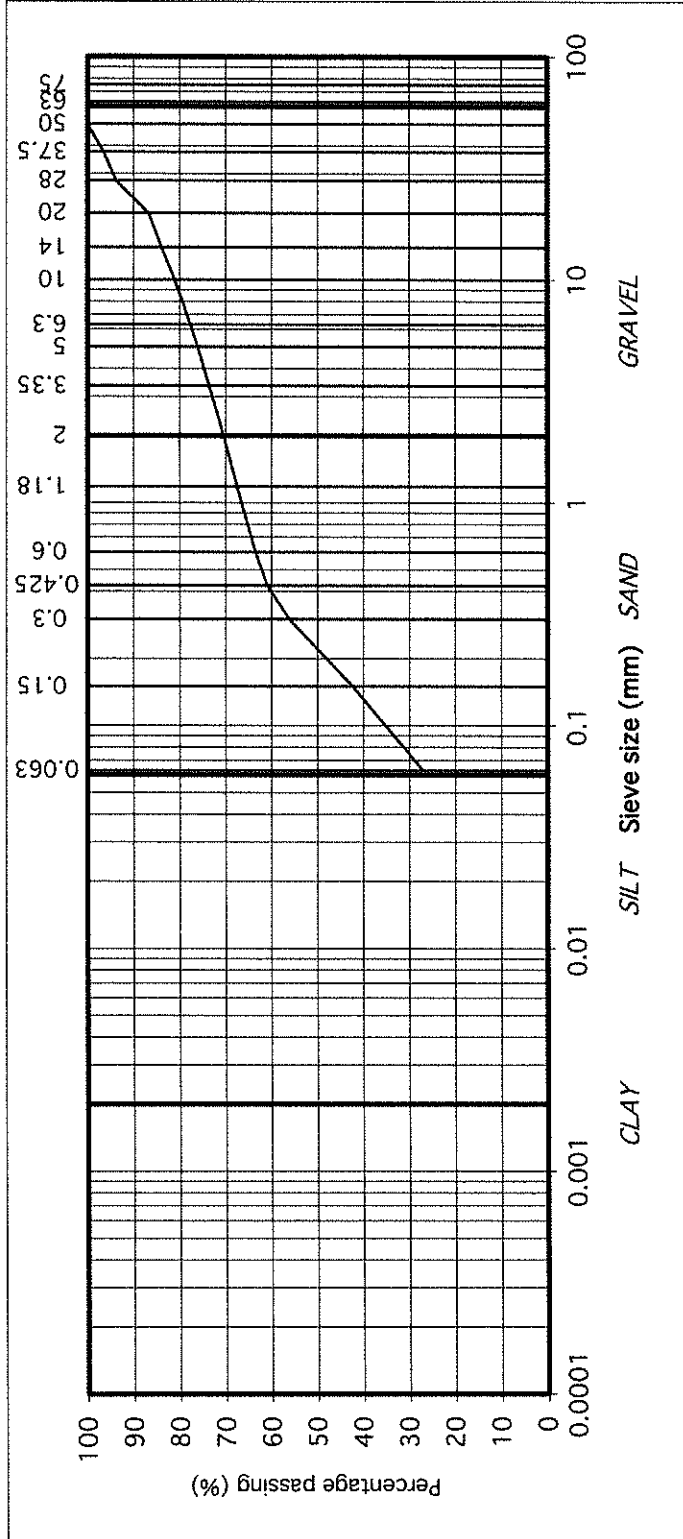
TEST REPORT

Determination of Particle Size Distribution

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

<p>Contract No. 24167 Report No. R137574</p> <p>Contract Name : Achill Sound Housing Project</p> <p>BH/TP* : BH03</p> <p>Sample No.* AA170397 Lab. Sample No. A22/4501</p> <p>Sample Type: B</p> <p>Depth* (m) 4.00 Customer: Mayo Co./Jennings O'Donovan</p> <p>Date Received 10/08/2022 Date Testing started 10/08/2022</p> <p>Description: Brown sandy, slightly gravelly, SILT/CLAY</p>	<p>Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.</p> <p>This report shall not be reproduced except in full without the written approval of the Laboratory.</p>
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Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016.



particle size	% passing
75	100
63	100
50	100
37.5	97
28	94
20	87
14	84
10	81
6.3	78
5	76
3.35	74
2	70
1.18	68
0.6	64
0.425	61
0.3	56
0.15	42
0.063	27



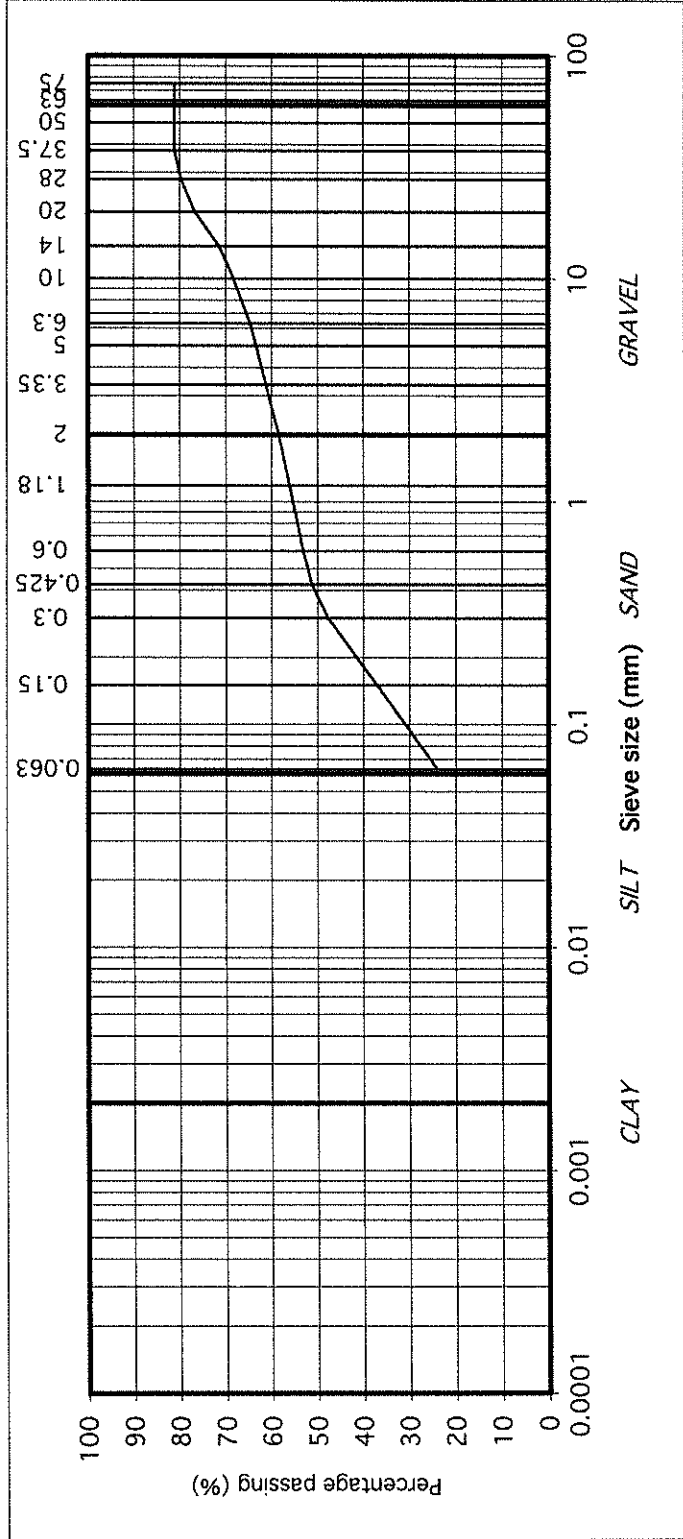
TEST REPORT

Determination of Particle Size Distribution

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

<p>Contract No. 24167 Report No. R137574</p> <p>Contract Name : Achill Sound Housing Project</p> <p>BH/TP* : BH03</p> <p>Sample No.* AA170399 Lab. Sample No. A22/4502</p> <p>Sample Type: B</p> <p>Depth* (m) 6.00 Customer: Mayo Co.Co./Jennings O'Donovan</p> <p>Date Received 10/08/2022 Date Testing started 10/08/2022</p> <p>Description: Brown slightly sandy, slightly gravelly, SILT/CLAY with some cobbles</p>	<p>Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.</p> <p>This report shall not be reproduced except in full without the written approval of the Laboratory.</p>
---	--

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



particle size	% passing
75	81
63	81
50	81
37.5	81
28	80
20	77
14	71
10	68
6.3	65
5	63
3.35	61
2	58
1.18	56
0.6	53
0.425	51
0.3	48
0.15	37
0.063	24



TEST REPORT

Determination of Particle Size Distribution

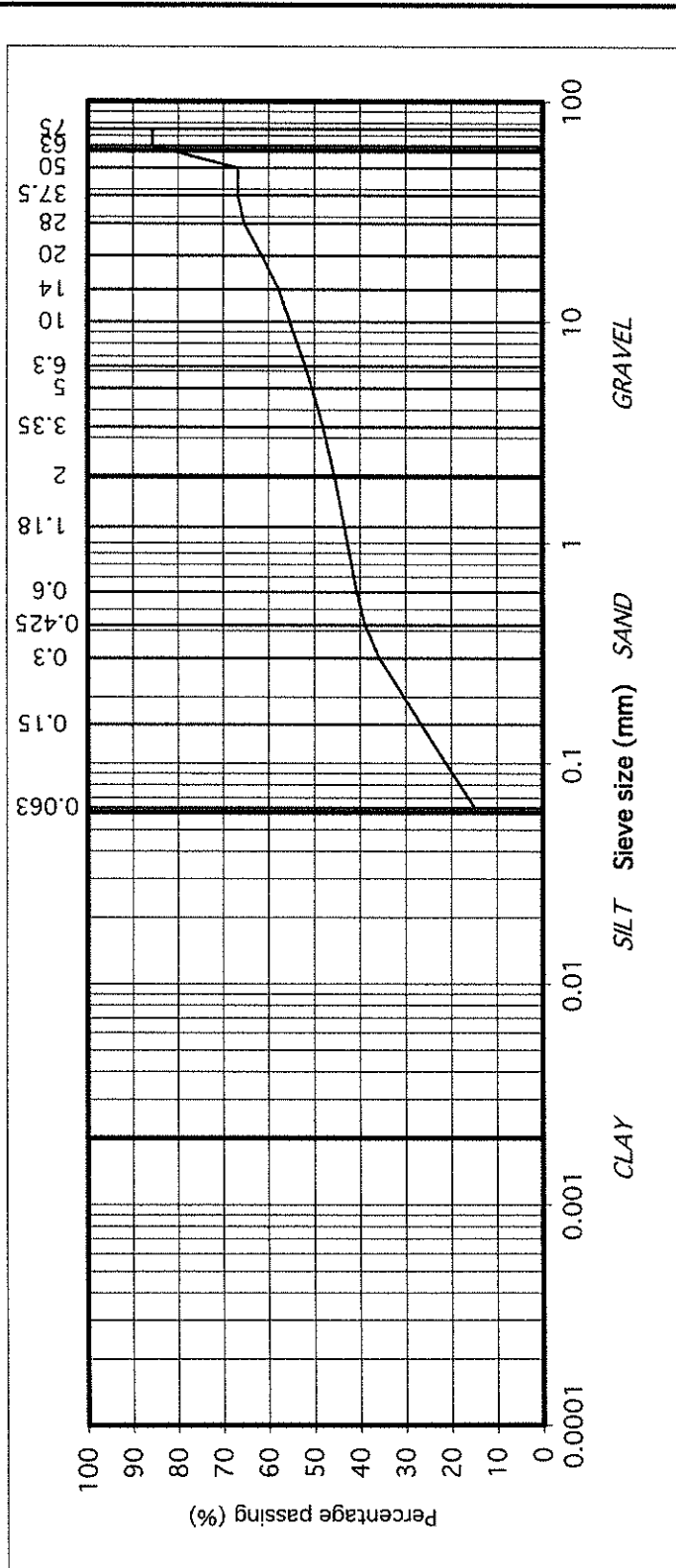
Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)

Contract No. 24167 Report No. R137575
 Contract Name : Achill Sound Housing Project
 BH/TP* : BH03
 Sample No.* AA175351 Lab. Sample No. A22/4503
 Sample Type: B
 Depth* (m) 8.00 Customer: Mayo Co.Co./Jennings O'Donovan
 Date Received 10/08/2022 Date Testing started 10/08/2022
 Description: Brown clayey/silty, very sandy, GRAVEL with some cobbles

particle size	% passing
75	86
63	86
50	67
37.5	67
28	65
20	62
14	58
10	55
6.3	52
5	50
3.35	48
2	46
1.18	43
0.6	41
0.425	39
0.3	36
0.15	27
0.063	15

Remarks: **GRAVEL**

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





TEST REPORT

Determination of Particle Size Distribution

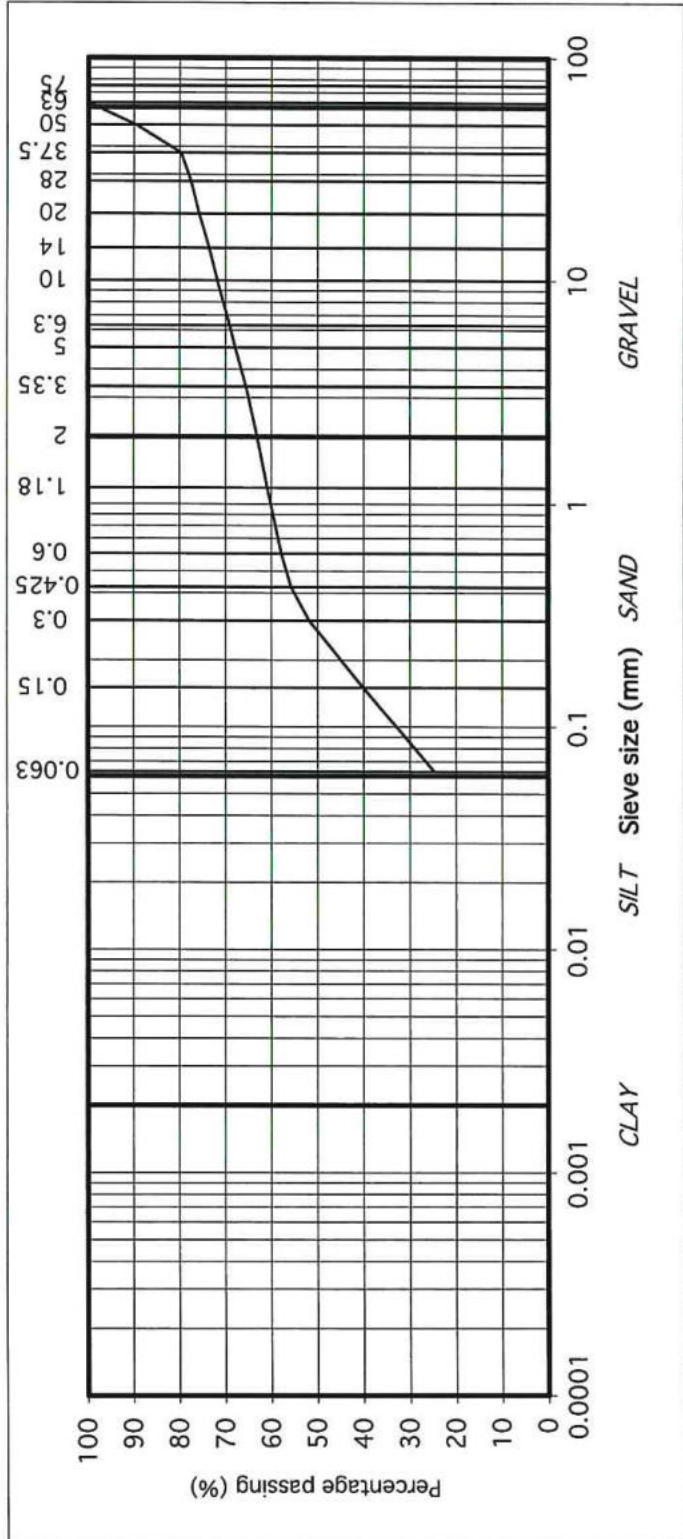
Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)

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

Contract No. 24167 Report No. R137576
 Contract Name : Achill Sound Housing Project
 BH/TP* : BH04
 Sample No.* AA170395 Lab. Sample No. A22/4504
 Sample Type: B
 Depth* (m) 2.00 Customer: Mayo Co.Co./Jennings O'Donovan
 Date Received 10/08/2022 Date Testing started 10/08/2022
 Description: Brown sandy, gravelly, SILT/CLAY

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

particle size	% passing
75	100
63	100
50	90
37.5	80
28	78
20	76
14	74
10	72
6.3	69
5	68
3.35	66
2	63
1.18	61
0.6	58
0.425	56
0.3	52
0.15	40
0.063	25



TEST REPORT

Determination of Particle Size Distribution

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

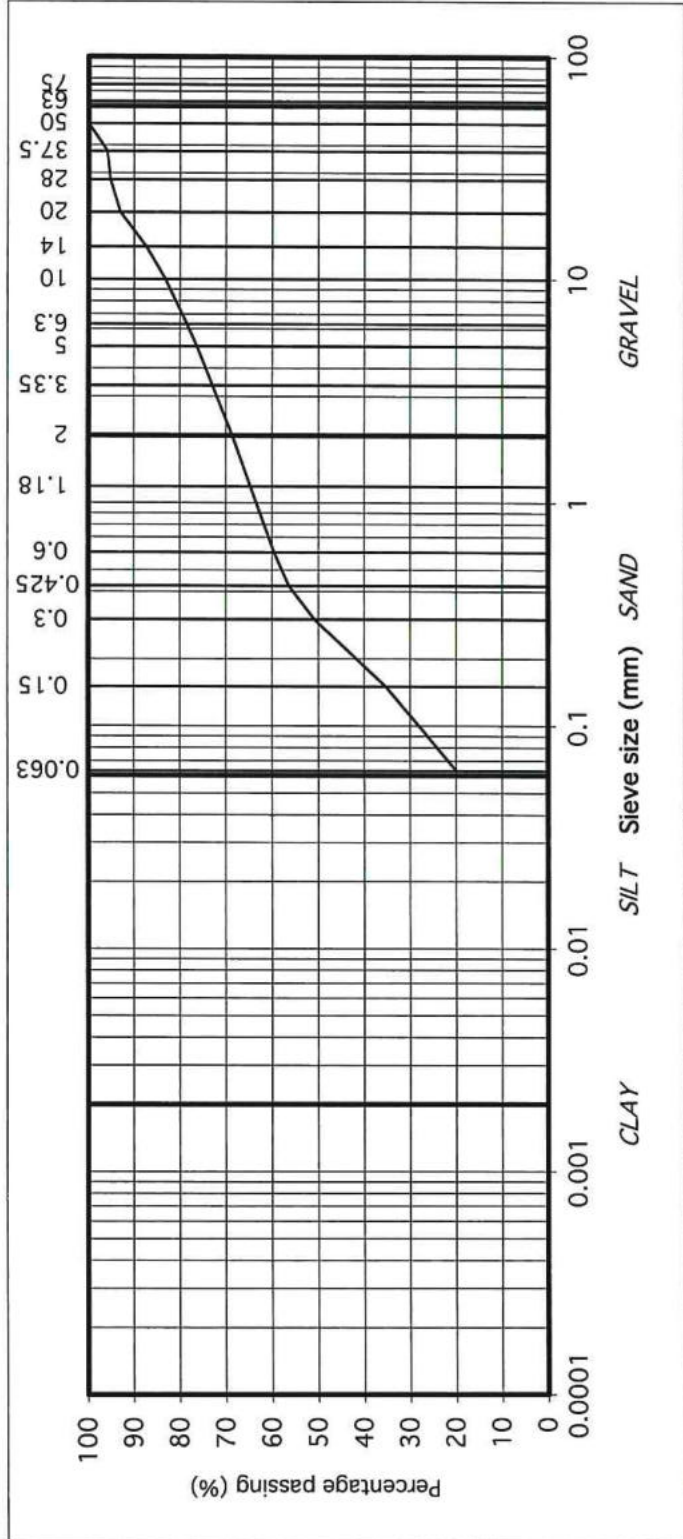


Contract No.	24167	Report No.	R137577
Contract Name :	Achill Sound Housing Project		
BH/TP* :	BH04		
Sample No.*	AA170386	Lab. Sample No.	A22/4505
Sample Type:	B		
Depth* (m)	4.00	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Brown clayey/silty, very gravelly, SAND		

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

Remarks

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



particle size	% passing
75	100
63	100
50	100
37.5	96
28	95
20	93
14	87
10	83
6.3	79
5	76
3.35	73
2	69
1.18	65
0.6	60
0.425	56
0.3	51
0.15	35
0.063	20

IGSL Ltd Materials Laboratory	
Approved by:	Date: 14/09/22
Page no: 1 of 1	

TEST REPORT

Determination of Particle Size Distribution

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

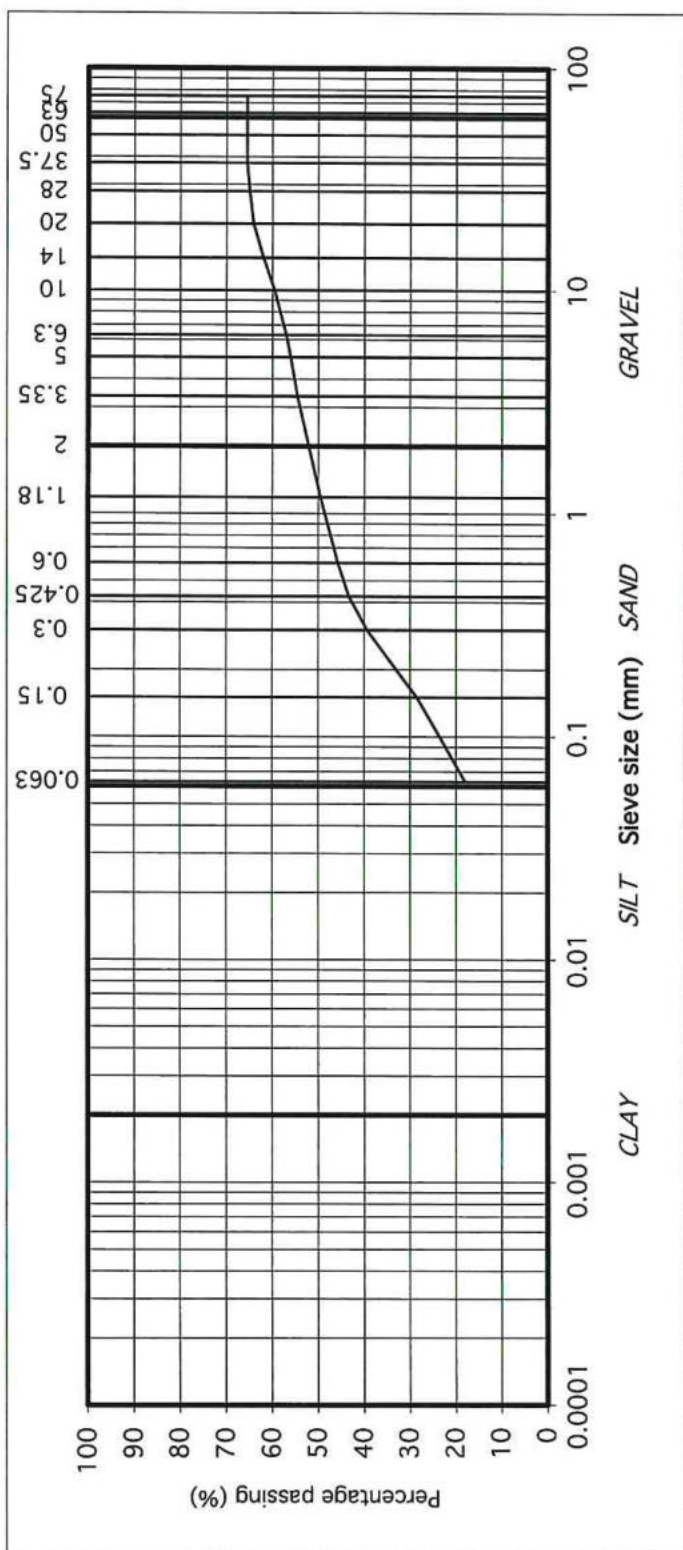


Contract No.	24167	Report No.	R137579
Contract Name :	Achill Sound Housing Project		
BH/TP* :	BH04		
Sample No.*	AA170388	Lab. Sample No.	A22/4506
Sample Type:	B		
Depth* (m)	6.00	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Brown clayey/silty, gravelly, SAND with many cobbles		

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

Remarks

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



particle size	% passing
75	65
63	65
50	65
37.5	65
28	65
20	64
14	62
10	60
6.3	57
5	56
3.35	55
2	52
1.18	49
0.6	46
0.425	43
0.3	39
0.15	29
0.063	18

IGSL Ltd Materials Laboratory	
Approved by:	Date: 14/09/22
Page no: 1 of 1	

TEST REPORT

Determination of Particle Size Distribution

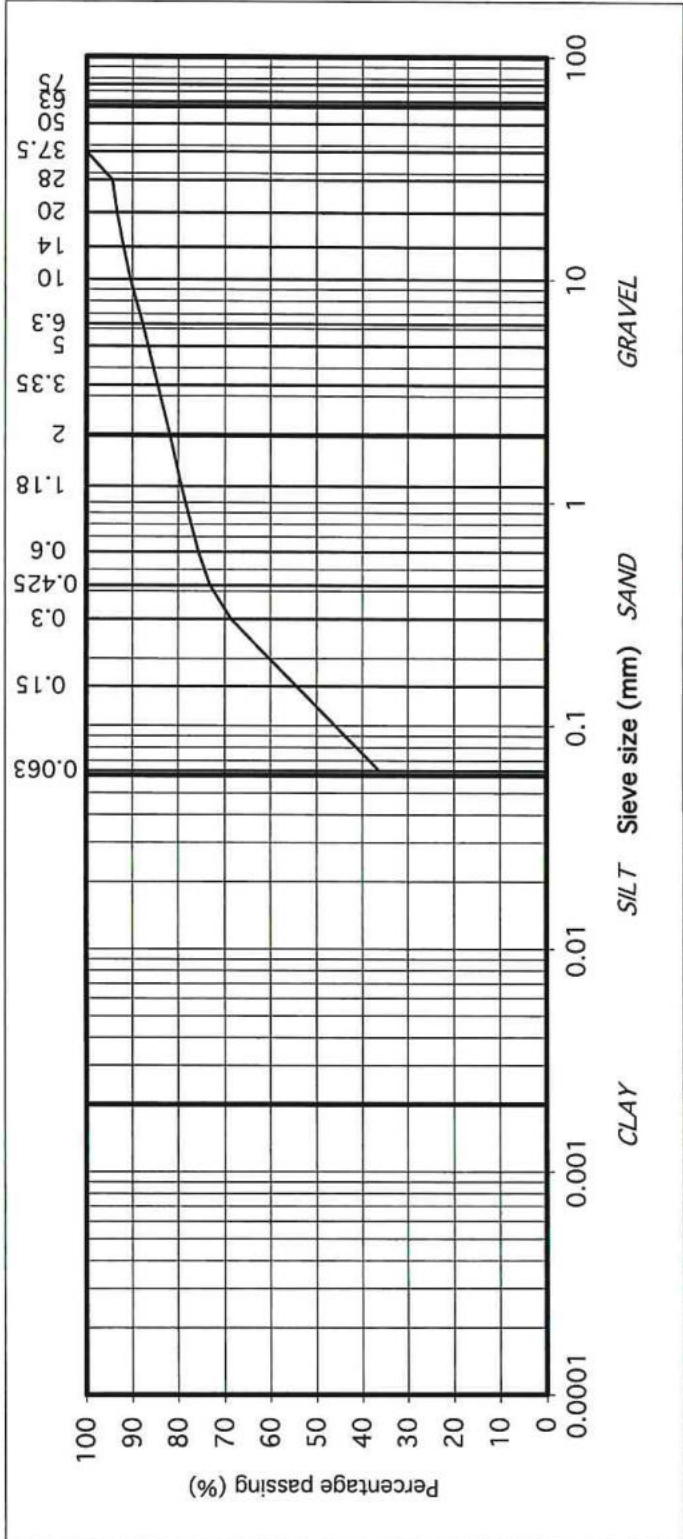
Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)



Contract No.	24167	Report No.	R137578
Contract Name :	Achill Sound Housing Project		
BH/TP* :	BH05		
Sample No.*	AA170377	Lab. Sample No.	A22/4507
Sample Type:	B		
Depth* (m)	2.00	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Brown sandy, slightly gravelly, SILT/CLAY		

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

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



particle size	% passing
75	100
63	100
50	100
37.5	100
28	94
20	93
14	92
10	90
6.3	88
5	87
3.35	85
2	82
1.18	79
0.6	76
0.425	73
0.3	69
0.15	54
0.063	36

TEST REPORT

Determination of Particle Size Distribution

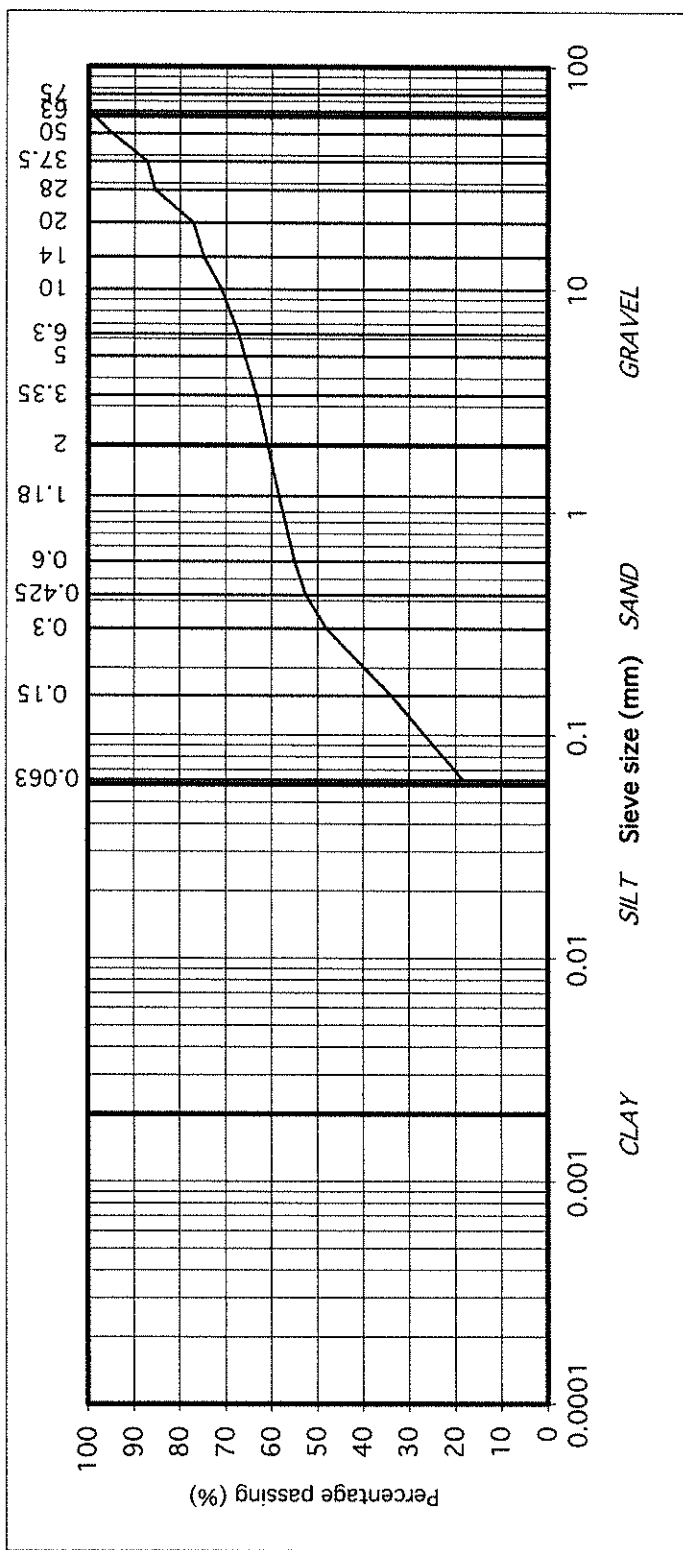
Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)



Contract No.	24167	Report No.	R137606
Contract Name:	Achill Sound Housing Project		
BH/TP*:	BH05		
Sample No.*	AA170380	Lab. Sample No.	A22/4508
Sample Type:	B		
Depth* (m)	5.00	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Brown clayey/silty, very gravelly, SAND		

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

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



particle size	% passing
75	100
63	100
50	95
37.5	87
28	86
20	77
14	75
10	71
6.3	67
5	66
3.35	63
2	61
1.18	58
0.6	55
0.425	53
0.3	48
0.15	34
0.063	18

TEST REPORT

Determination of Particle Size Distribution

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

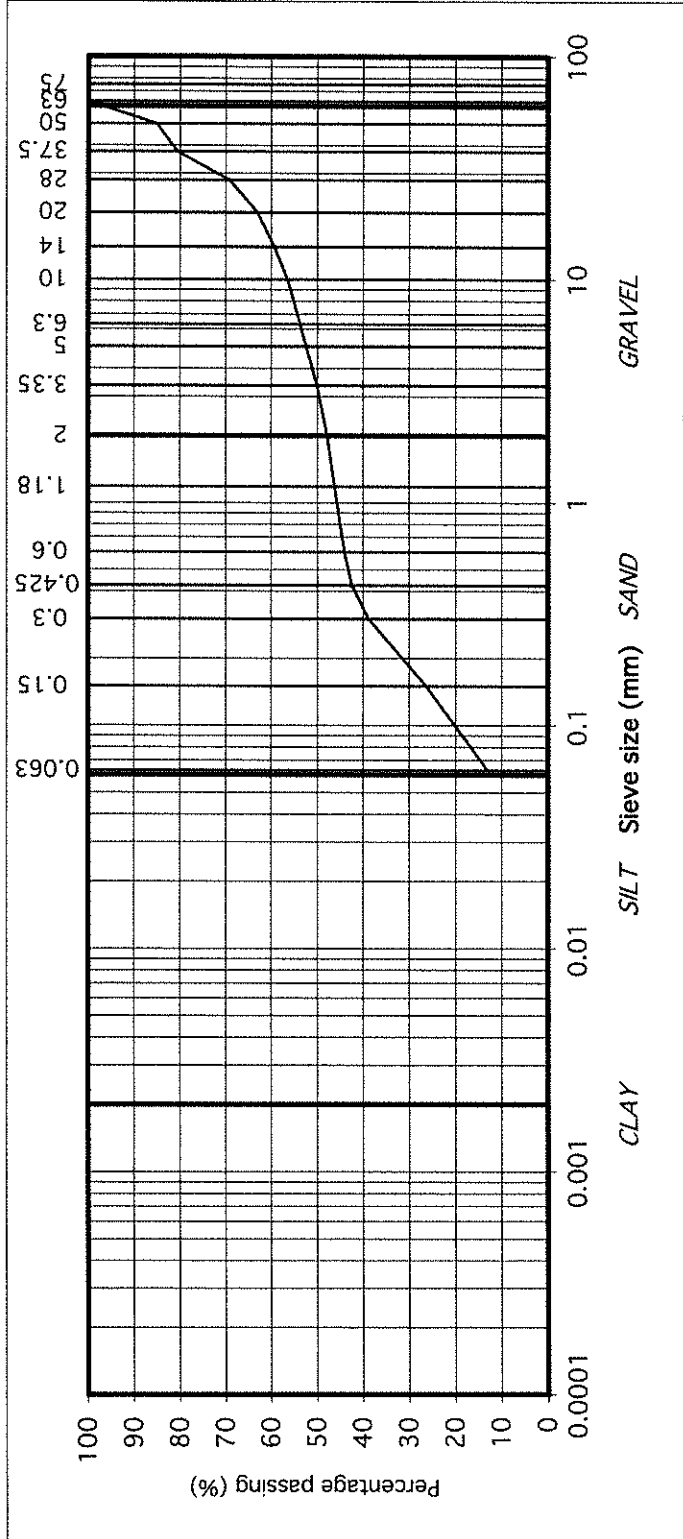


Contract No.	24167	Report No.	R137607
Contract Name :	Achill Sound Housing Project		
BH/TP* :	BH05		
Sample No.*	AA170382	Lab. Sample No.	A22/4509
Sample Type:	B		
Depth* (m)	7.00	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Grey/pink clayey/silty, very sandy, GRAVEL		

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

Remarks

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



particle size	% passing
75	100
63	100
50	85
37.5	81
28	69
20	63
14	59
10	56
6.3	54
5	52
3.35	50
2	48
1.18	46
0.6	44
0.425	42
0.3	39
0.15	26
0.063	13

TEST REPORT

Determination of Particle Size Distribution

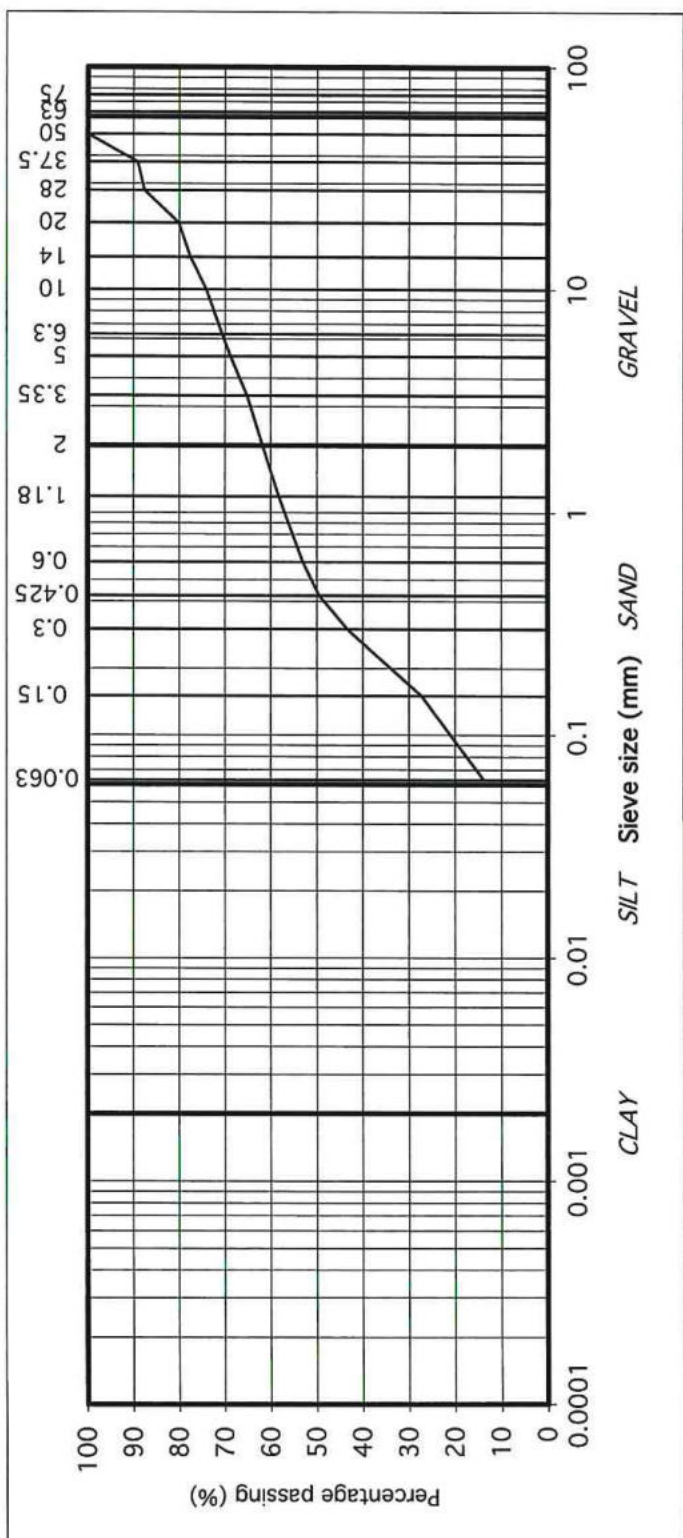
Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)



Contract No.	24167	Report No.	R137563
Contract Name :	Achill Sound Housing Project		
BH/TP* :	TP01		
Sample No.*	AA135924	Lab. Sample No.	A22/4510
Sample Type:	B		
Depth* (m)	1.40	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Dark brown clayey/silty, very gravelly, SAND		

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

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



particle size	% passing
75	100
63	100
50	100
37.5	89
28	88
20	80
14	78
10	74
6.3	71
5	69
3.35	65
2	62
1.18	58
0.6	53
0.425	49
0.3	43
0.15	27
0.063	14

TEST REPORT

Determination of Particle Size Distribution

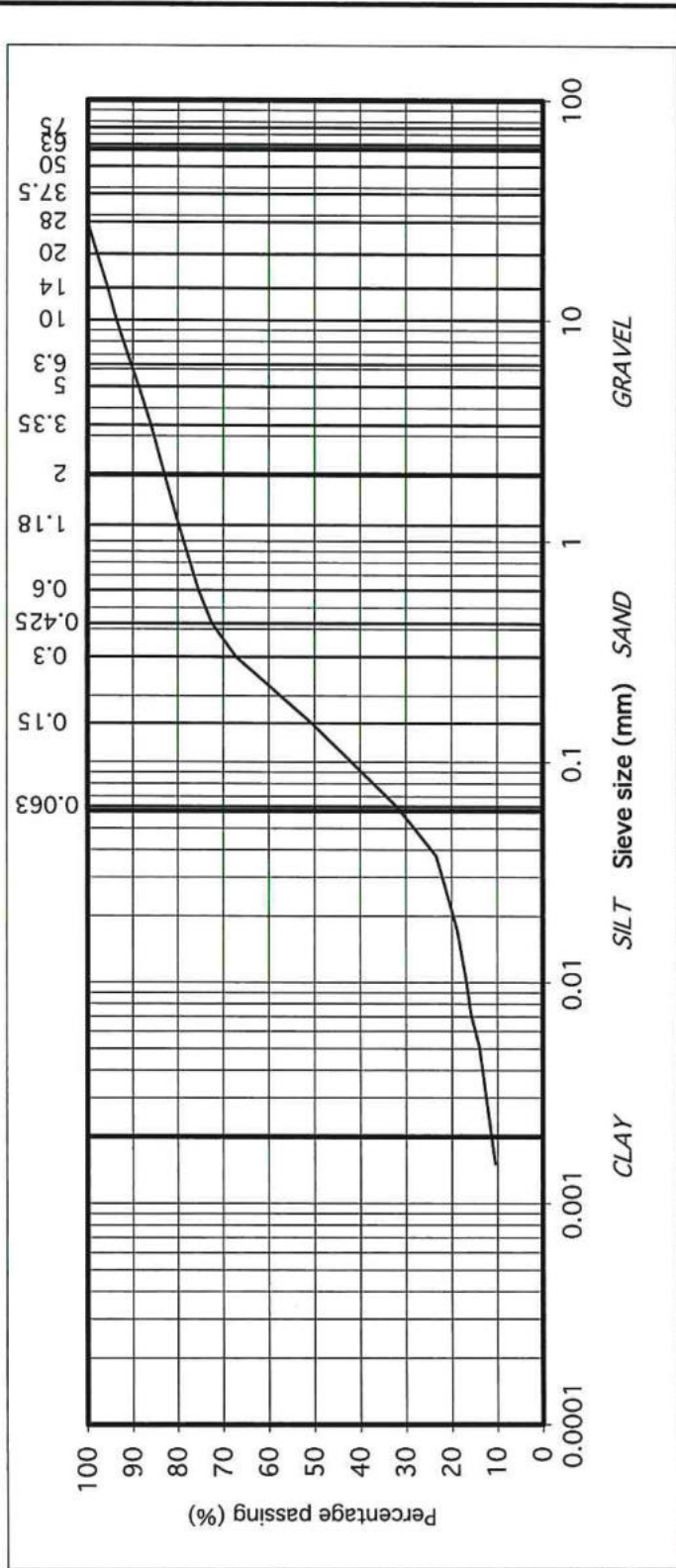
Tested in accordance with: BS1377:Part2:1990, clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)



Contract No.	24167	Report No.	R137563
Contract Name :	Achill Sound Housing Project		
BH/TP* :	TP02		
Sample No.*	AA170146	Lab. Sample No.	A22/4511
Sample Type:	B		
Depth* (m)	1.90	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Mottled brown sandy, slightly gravelly, CLAY		

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

Remarks



particle size	% passing	Classification
75	100	COBBLES
63	100	
50	100	
37.5	100	GRAVEL
28	100	
20	98	SAND
14	96	
10	94	
6.3	90	
5	89	
3.35	86	
2	83	
1.18	80	
0.6	75	
0.425	72	
0.3	67	SILT/CLAY
0.15	51	
0.063	32	
0.037	23	
0.027	21	
0.017	19	
0.010	17	
0.007	16	
0.005	14	
0.002	11	

IGSL Ltd Materials Laboratory

Approved by: *[Signature]* Date: 14/09/22 Page no: 1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

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

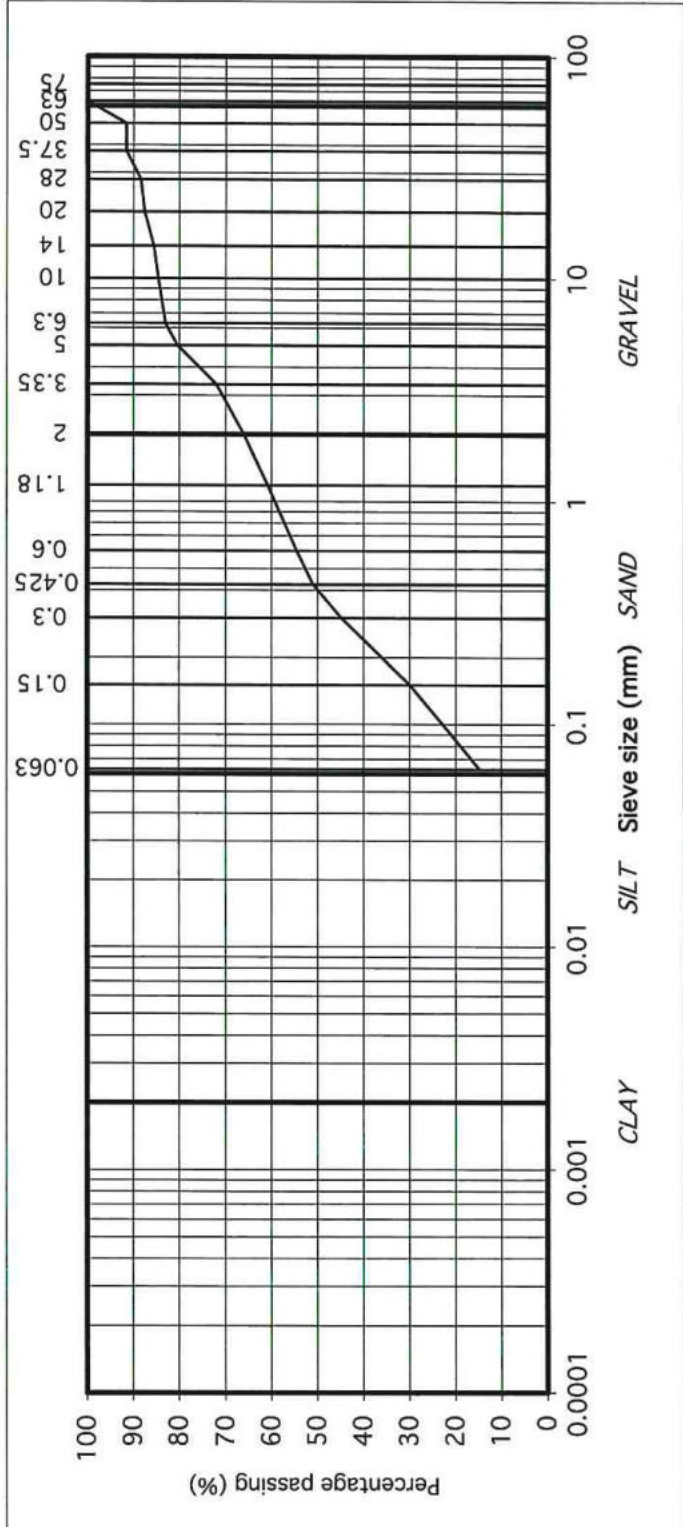


Contract No.	24167	Report No.	R137654
Contract Name:	Achill Sound Housing Project		
BH/TP*:	TP03		
Sample No.*	AA170148	Lab. Sample No.	A22/4512
Sample Type:	B		
Depth* (m)	1.00	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Brown clayey/silty, very gravelly, SAND		

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

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

particle size	% passing	Classification
75	100	COBBLES
63	100	
50	92	GRAVEL
37.5	92	
28	88	GRAVEL
20	88	
14	86	GRAVEL
10	85	
6.3	83	GRAVEL
5	80	
3.35	72	GRAVEL
2	66	
1.18	61	GRAVEL
0.6	54	
0.425	51	SAND
0.3	45	
0.15	30	SAND
0.063	15	
		SILT/CLAY



TEST REPORT

Determination of Particle Size Distribution

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

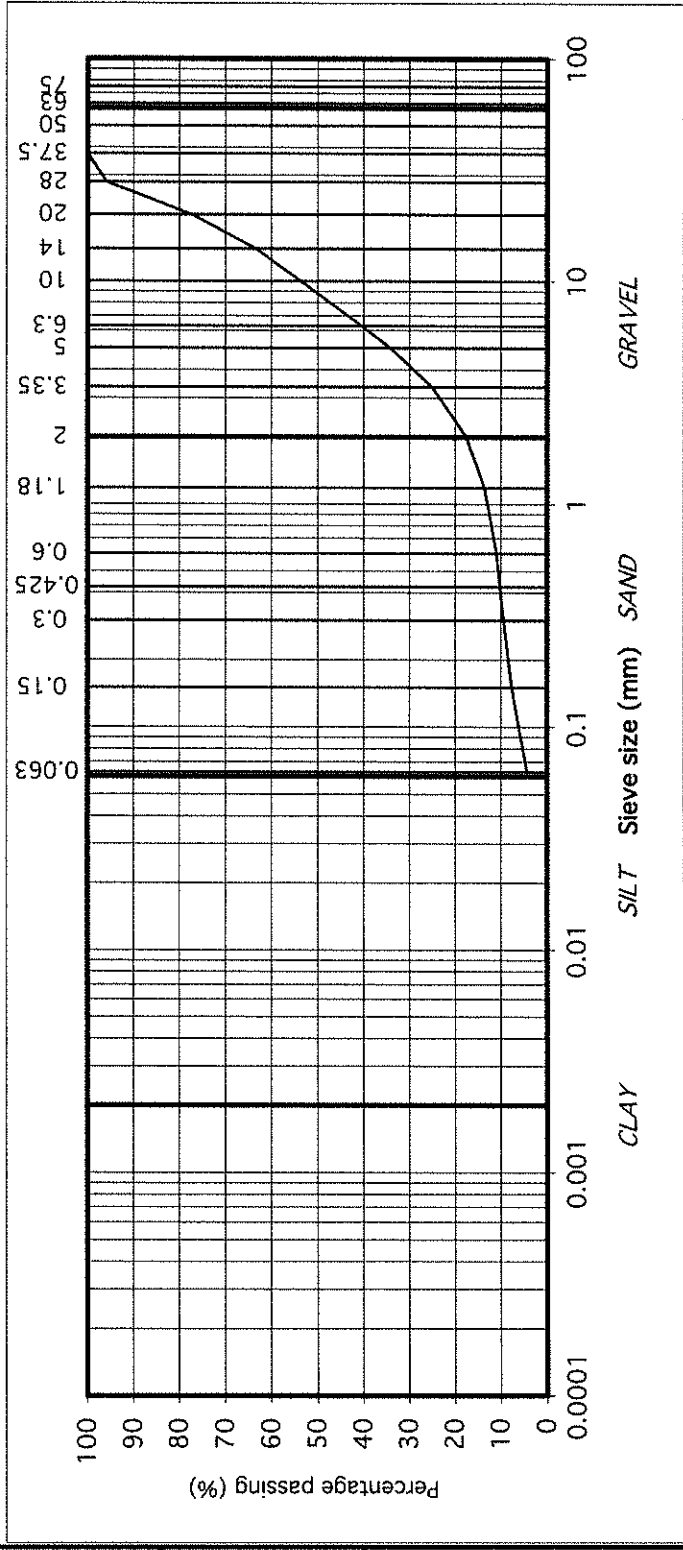


Contract No.	24167	Report No.	R137655
Contract Name :	Achill Sound Housing Project		
BH/TP* :	TP04		
Sample No.*	AA175103	Lab. Sample No.	A22/4513
Sample Type:	B		
Depth* (m)	0.70	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Brown slightly clayey/silty, sandy, GRAVEL		

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

Remarks

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



particle size	% passing
75	100
63	100
50	100
37.5	100
28	96
20	77
14	63
10	54
6.3	40
5	34
3.35	25
2	18
1.18	14
0.6	11
0.425	10
0.3	9
0.15	8
0.063	4

IGSL Ltd Materials Laboratory		Approved by:	Date:	Page no:
		<i>[Signature]</i>	14/09/22	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

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

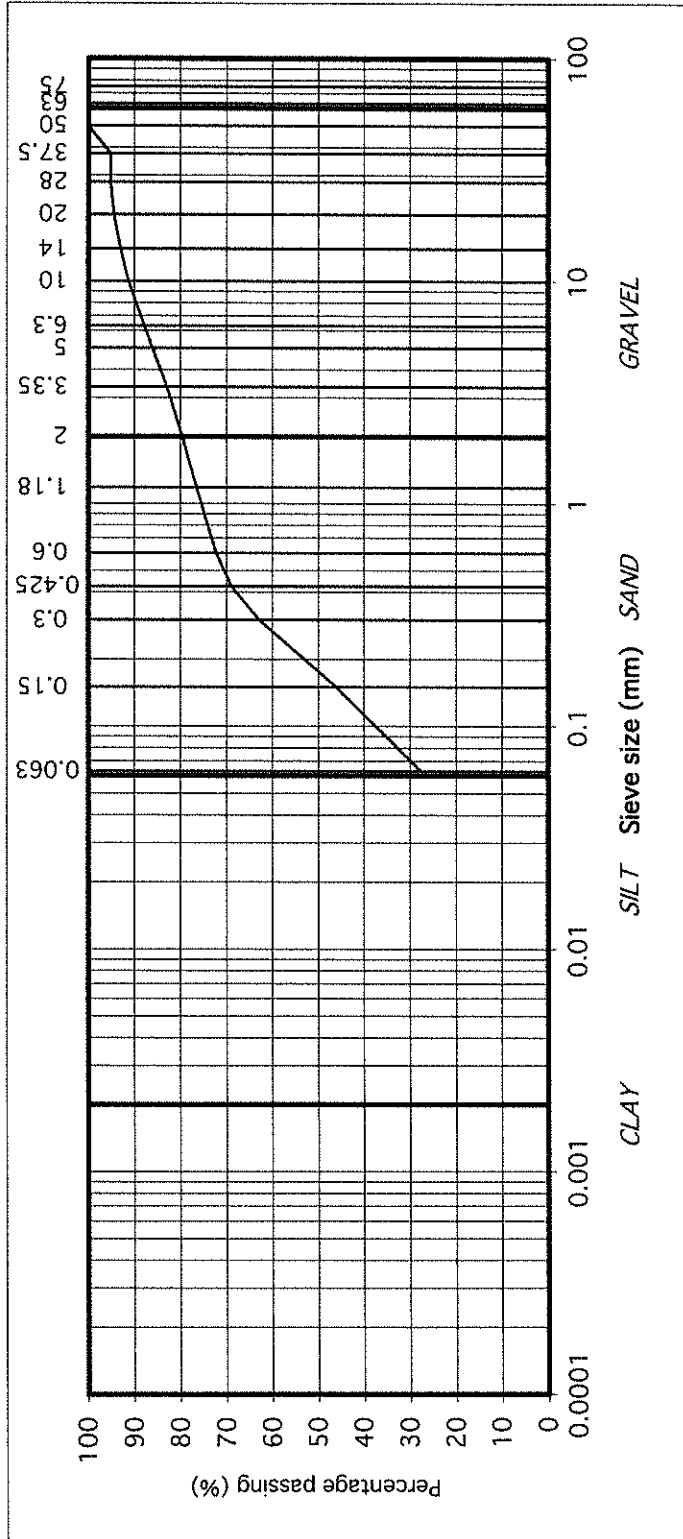


Contract No.	24167	Report No.	R137566
Contract Name :	Achill Sound Housing Project		
BH/TP* :	TP04A		
Sample No.*	AA175105	Lab. Sample No.	A22/4514
Sample Type:	B		
Depth* (m)	2.30	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Brown sandy, slightly gravelly, SILT/CLAY		

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

Remarks

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



particle size	% passing
75	100
63	100
50	100
37.5	95
28	95
20	94
14	93
10	91
6.3	88
5	86
3.35	83
2	80
1.18	77
0.6	72
0.425	69
0.3	63
0.15	46
0.063	28

IGSL Ltd Materials Laboratory		Approved by:	Date:	Page no:
			14/09/22	1 of 1
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)				

TEST REPORT

Determination of Particle Size Distribution

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

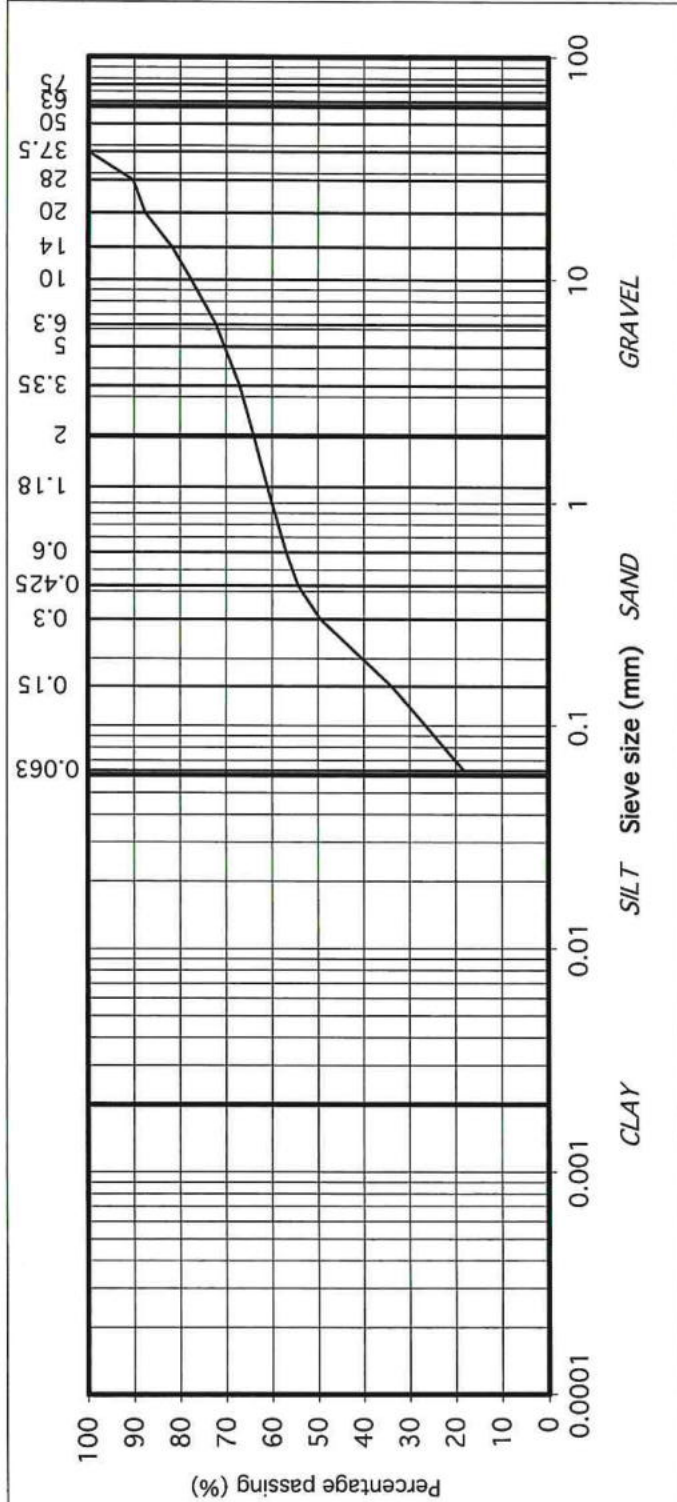


Contract No.	24167	Report No.	R137567
Contract Name:	Achill Sound Housing Project		
BH/TP*:	TP05		
Sample No.*	AA175102	Lab. Sample No.	A22/4515
Sample Type:	B		
Depth* (m)	1.80	Customer:	Mayo Co.Co./Jennings O'Donovan
Date Received	10/08/2022	Date Testing started	10/08/2022
Description:	Brown clayey/silty, very gravelly, SAND		

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

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

particle size	% passing	
75	100	COBBLES
63	100	
50	100	
37.5	100	
28	90	
20	88	
14	82	
10	78	GRAVEL
6.3	72	
5	70	
3.35	67	
2	64	
1.18	61	
0.6	57	
0.425	54	SAND
0.3	50	
0.15	34	
0.063	18	SILT/CLAY




Appendix V Laboratory Data

b. Environmental and Chemical



Final Report

Report No.: 22-30244-1
Initial Date of Issue: 18-Aug-2022
Client: IGSL
Client Address: M7 Business Park
Naas
County Kildare
Ireland
Contact(s): Darren Keogh
Project: 24167 Achill Sound Housing Project
(Jennings O'Donovan)
Quotation No.: Q20-19951
Date Received: 10-Aug-2022
Order No.:
Date Instructed: 10-Aug-2022
No. of Samples: 12
Turnaround (Wkdays): 7
Results Due: 18-Aug-2022
Date Approved: 18-Aug-2022
Approved By:

Details: Stuart Henderson, Technical
Manager

Results - Leachate

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Client: IGSL	Chemtest Job No.:											
Quotation No.: Q20-19951	Chemtest Sample ID.:											
Order No.:	Client Sample Ref.:											
	Sample Location:											
	Sample Type:											
	Top Depth (m):											
Determinand	Accred.	SOP	Type	Units	LOD							
pH	U	1010	10:1		N/A	8.3	7.7	7.7	7.8	6.7	7.2	7.4
Ammonium	U	1220	10:1	mg/l	0.050	0.058	0.064	0.065	< 0.050	0.058	0.073	0.082
Ammonium	N	1220	10:1	mg/kg	0.10	0.65	0.66	0.67	0.43	0.58	0.74	0.83
Boron (Dissolved)	U	1455	10:1	mg/kg	0.01	< 0.01	< 0.01	< 0.01	0.33	0.20	< 0.01	< 0.01
Benzo[<i>a</i>]fluoranthene	N	1800	10:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Client: IGSL	Chemtest Job No.:		22-30244	22-30244	22-30244	22-30244	22-30244	22-30244	22-30244	22-30244	22-30244	22-30244
Quotation No.: Q20-19951	Chemtest Sample ID.:		1484339	1484340	1484341	1484342	1484343	1484344	1484345	1484346	1484347	1484347
Order No.:	Client Sample Ref.:		AA170391	AA170394	AA170395	AA170394	AA170383	AA170384	AA170376	AA170145	AA170146	AA170146
	Sample Location:		BH01	BH02	BH02	BH03	BH04	BH04	BH05	TP02	TP02	TP02
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):		2.00	1.00	2.00	1.00	1.00	2.00	1.00	0.60	1.90	1.90
	Asbestos Lab:			DURHAM		DURHAM	DURHAM		DURHAM	DURHAM		
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A		-		-		-		-
Asbestos Identification	U	2192		N/A		No Asbestos Detected		No Asbestos Detected		No Asbestos Detected		No Asbestos Detected
Moisture	N	2030	%	0.020	8.3	15	8.7	16	13	8.0	22	11
pH (2.5:1)	N	2010		4.0	[A] 7.1		[A] 7.5			[A] 7.4		[A] 6.6
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40		[A] 0.41		[A] < 0.40	[A] < 0.40		[A] 0.90	[A] < 0.40
Magnesium (Water Soluble)	N	2120	g/l	0.010	[A] < 0.010		[A] 0.011			[A] < 0.010		[A] < 0.010
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	[A] 0.016		[A] 0.074			[A] < 0.010		[A] < 0.010
Total Sulphur	U	2175	%	0.010	[A] < 0.010		[A] 0.021			[A] 0.017		[A] 0.018
Sulphur (Elemental)	U	2180	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] 1.6		[A] 41	[A] < 1.0
Chloride (Water Soluble)	U	2220	g/l	0.010	[A] < 0.010		[A] 0.017			[A] < 0.010		[A] < 0.010
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010		< 0.010			< 0.010		< 0.010
Cyanide (Total)	U	2300	mg/kg	0.50		[A] < 0.50		[A] < 0.50	[A] < 0.50		[A] < 0.50	[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		[A] 2.0		[A] 3.3	[A] 3.5		[A] 6.0	[A] 2.3
Ammonium (Water Soluble)	U	2220	g/l	0.01	< 0.01		< 0.01			< 0.01		< 0.01
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] < 0.010	[A] 0.012	[A] 0.013	[A] < 0.010	[A] 0.015	[A] < 0.010	[A] 0.067	[A] < 0.010
Arsenic	U	2455	mg/kg	0.5		0.6		< 0.5	< 0.5		0.7	2.5
Barium	U	2455	mg/kg	0		6		6	6		15	12
Cadmium	U	2455	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10	< 0.10
Chromium	U	2455	mg/kg	0.5		0.9		0.8	1.2		1.9	2.4
Molybdenum	U	2455	mg/kg	0.5		< 0.5		< 0.5	< 0.5		< 0.5	< 0.5
Antimony	N	2455	mg/kg	2.0		< 2.0		< 2.0	< 2.0		< 2.0	< 2.0
Copper	U	2455	mg/kg	0.50		< 0.50		0.73	1.5		3.0	5.4
Mercury	U	2455	mg/kg	0.05		< 0.05		< 0.05	< 0.05		< 0.05	< 0.05
Nickel	U	2455	mg/kg	0.50		0.53		0.62	1.2		1.8	1.8
Lead	U	2455	mg/kg	0.50		1.6		1.7	1.9		3.7	6.2
Selenium	U	2455	mg/kg	0.25		< 0.25		< 0.25	< 0.25		< 0.25	< 0.25
Zinc	U	2455	mg/kg	0.50		2.6		3.0	3.9		10	6.3
Chromium (Trivalent)	N	2490	mg/kg	1.0		< 1.0		< 1.0	1.2		1.9	2.4
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50		< 0.50	< 0.50		< 0.50	< 0.50
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10		< 10		< 10	< 10		< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0	[A] < 1.0

Results - Soil

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Client: IGSL	Chemtest Job No.:		22-30244	22-30244	22-30244	22-30244	22-30244	22-30244	22-30244	22-30244	22-30244
Quotation No.: Q20-19951	Chemtest Sample ID.:		1484339	1484340	1484341	1484342	1484343	1484344	1484345	1484346	1484347
Order No.:	Client Sample Ref.:		AA170391	AA170394	AA170395	AA170394	AA170383	AA170384	AA170376	AA170145	AA170146
Sample Location:			BH01	BH02	BH02	BH03	BH04	BH04	BH05	TP02	TP02
Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Top Depth (m):			2.00	1.00	2.00	1.00	1.00	2.00	1.00	0.60	1.90
Asbestos Lab:				DURHAM		DURHAM	DURHAM		DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD							
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0		[A] < 5.0		[A] < 5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0		[A] < 5.0		[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		[A] < 10		[A] < 10		[A] < 10	[A] < 10
Benzene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Toluene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
o-Xylene	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0		[A] < 1.0		[A] < 1.0		[A] < 1.0	[A] < 1.0
Naphthalene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Acenaphthylene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Acenaphthene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Fluorene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Phenanthrene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Anthracene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Fluoranthene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Pyrene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Benzo[a]anthracene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Chrysene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Coronene	N	2800	mg/kg	0.010		[A] < 0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010
Total Of 17 PAH's	N	2800	mg/kg	0.20		[A] < 0.20		[A] < 0.20		[A] < 0.20	[A] < 0.20
PCB 28	N	2815	mg/kg	0.0010		[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	[A] < 0.0010
PCB 52	N	2815	mg/kg	0.0010		[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	[A] < 0.0010

Results - Soil

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Client: IGSL	Chemtest Job No.:									
Quotation No.: Q20-19951	Chemtest Sample ID.:									
Order No.:	Client Sample Ref.:									
	Sample Location:									
	Sample Type:									
	Top Depth (m):									
	Asbestos Lab:									
Determinand	Accred.	SOP	Units	LOD						
PCB 90+101	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 118	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 153	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 138	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 180	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Total PCBs (7 congeners)	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Client: IGSL		Chemtest Job No.:		22-30244	22-30244	22-30244
Quotation No.: Q20-19951		Chemtest Sample ID.:		1484348	1484349	1484350
Order No.:		Client Sample Ref.:		AA170147	AA170150	AA170151
		Sample Location:		TP03	TP05	TP05
		Sample Type:		SOIL	SOIL	SOIL
		Top Depth (m):		0.50	0.40	0.80
		Asbestos Lab:		DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	13	7.4
pH (2.5:1)	N	2010		4.0		[A] 5.8
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	[A] < 0.40	[A] < 0.40
Magnesium (Water Soluble)	N	2120	g/l	0.010		[A] < 0.010
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010		[A] < 0.010
Total Sulphur	U	2175	%	0.010		[A] 0.30
Sulphur (Elemental)	U	2180	mg/kg	1.0	[A] < 1.0	[A] 1.2
Chloride (Water Soluble)	U	2220	g/l	0.010		[A] 0.023
Nitrate (Water Soluble)	N	2220	g/l	0.010		< 0.010
Cyanide (Total)	U	2300	mg/kg	0.50	[A] < 0.50	[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 2.6	[A] 4.6
Ammonium (Water Soluble)	U	2220	g/l	0.01		< 0.01
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.012	[A] 0.010
Arsenic	U	2455	mg/kg	0.5	0.6	0.8
Barium	U	2455	mg/kg	0	5	8
Cadmium	U	2455	mg/kg	0.10	< 0.10	< 0.10
Chromium	U	2455	mg/kg	0.5	0.7	1.7
Molybdenum	U	2455	mg/kg	0.5	< 0.5	< 0.5
Antimony	N	2455	mg/kg	2.0	< 2.0	< 2.0
Copper	U	2455	mg/kg	0.50	1.4	3.1
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05
Nickel	U	2455	mg/kg	0.50	0.96	2.7
Lead	U	2455	mg/kg	0.50	1.6	2.8
Selenium	U	2455	mg/kg	0.25	< 0.25	< 0.25
Zinc	U	2455	mg/kg	0.50	2.5	8.3
Chromium (Trivalent)	N	2490	mg/kg	1.0	< 1.0	1.7
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10	< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0

Results - Soil

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Client: IGSL		Chemtest Job No.:		22-30244	22-30244	22-30244
Quotation No.: Q20-19951		Chemtest Sample ID.:		1484348	1484349	1484350
Order No.:		Client Sample Ref.:		AA170147	AA170150	AA170151
		Sample Location:		TP03	TP05	TP05
		Sample Type:		SOIL	SOIL	SOIL
		Top Depth (m):		0.50	0.40	0.80
		Asbestos Lab:		DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10	[A] < 10
Benzene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0
Toluene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0
o-Xylene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0
Naphthalene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Acenaphthylene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Acenaphthene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Fluorene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Phenanthrene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Anthracene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Fluoranthene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Pyrene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Benzo[a]anthracene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Chrysene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Coronene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010
Total Of 17 PAH's	N	2800	mg/kg	0.20	[A] < 0.20	[A] < 0.20
PCB 28	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010
PCB 52	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010

Results - Soil

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Client: IGSL		Chemtest Job No.:		22-30244	22-30244	22-30244
Quotation No.: Q20-19951		Chemtest Sample ID.:		1484348	1484349	1484350
Order No.:		Client Sample Ref.:		AA170147	AA170150	AA170151
		Sample Location:		TP03	TP05	TP05
		Sample Type:		SOIL	SOIL	SOIL
		Top Depth (m):		0.50	0.40	0.80
		Asbestos Lab:		DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD		
PCB 90+101	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010
PCB 118	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010
PCB 153	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010
PCB 138	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010
PCB 180	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010
Total PCBs (7 congeners)	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10

Results - Single Stage WAC

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Chemtest Job No: 22-30244 Chemtest Sample ID: 1484340 Sample Ref: AA170394 Sample ID: Sample Location: BH02 Top Depth(m): 1.00 Bottom Depth(m): Sampling Date:				Landfill Waste Acceptance Criteria Limits			
				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	[A] 1.9	3	5	6
Loss On Ignition	2610	U	%	4.4	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		6.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0090	--	To evaluate	To evaluate
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455	U	0.0003	0.0028	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0050	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0008	0.0080	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	0.003	0.028	4	50	200
Chloride	1220	U	1.0	10	800	15000	25000
Fluoride	1220	U	0.082	< 1.0	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	18	180	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	31	310	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	15

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Chemtest Job No: 22-30244 Chemtest Sample ID: 1484342 Sample Ref: AA170394 Sample ID: Sample Location: BH03 Top Depth(m): 1.00 Bottom Depth(m): Sampling Date:				Landfill Waste Acceptance Criteria Limits			
				Inert Waste Landfill	Stable, Non-reactive waste in non-hazardous Landfill	Hazardous Waste Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	[A] 1.9	3	5	6
Loss On Ignition	2610	U	%	7.4	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		6.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0020	--	To evaluate	To evaluate
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455	U	0.0003	0.0032	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0050	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0006	0.0058	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	0.003	0.030	4	50	200
Chloride	1220	U	1.9	19	800	15000	25000
Fluoride	1220	U	0.082	< 1.0	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	16	160	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	39	390	500	800	1000

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

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Chemtest Job No: 22-30244 Chemtest Sample ID: 1484343 Sample Ref: AA170383 Sample ID: Sample Location: BH04 Top Depth(m): 1.00 Bottom Depth(m): Sampling Date:				Landfill Waste Acceptance Criteria Limits			
				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Determinand	SOP	Accred.	Units		3	5	6
Total Organic Carbon	2625	U	%	[A] 1.2			
Loss On Ignition	2610	U	%	2.9	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		7.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0020	--	To evaluate	To evaluate
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455	U	0.0019	0.019	0.5	2	25
Barium	1455	U	0.005	0.052	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0050	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0017	0.017	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	0.0006	0.0060	0.06	0.7	5
Selenium	1455	U	0.0006	0.0056	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.025	4	50	200
Chloride	1220	U	2.1	21	800	15000	25000
Fluoride	1220	U	0.15	1.5	10	150	500
Sulphate	1220	U	16	160	1000	20000	50000
Total Dissolved Solids	1020	N	110	1100	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	30	300	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	13

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Chemtest Job No: 22-30244 Chemtest Sample ID: 1484345 Sample Ref: AA170376 Sample ID: Sample Location: BH05 Top Depth(m): 1.00 Bottom Depth(m): Sampling Date:				Landfill Waste Acceptance Criteria Limits			
				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	[A] 3.7	3	5	6
Loss On Ignition	2610	U	%	7.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		7.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0020	--	To evaluate	To evaluate
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455	U	0.0016	0.016	0.5	2	25
Barium	1455	U	0.015	0.15	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0050	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0018	0.018	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.025	4	50	200
Chloride	1220	U	1.6	16	800	15000	25000
Fluoride	1220	U	0.19	1.9	10	150	500
Sulphate	1220	U	59	590	1000	20000	50000
Total Dissolved Solids	1020	N	160	1600	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	17	170	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	22

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Chemtest Job No: 22-30244 Chemtest Sample ID: 1484346 Sample Ref: AA170145 Sample ID: Sample Location: TP02 Top Depth(m): 0.60 Bottom Depth(m): Sampling Date:				Landfill Waste Acceptance Criteria Limits			
				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	[A] 0.74	3	5	6
Loss On Ignition	2610	U	%	2.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		6.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0020	--	To evaluate	To evaluate
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455	U	0.0035	0.035	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	0.0011	0.011	0.5	10	70
Copper	1455	U	0.0042	0.042	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	< 0.0002	< 0.0020	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455	U	0.0036	0.036	0.5	10	50
Antimony	1455	U	0.0040	0.041	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	0.007	0.068	4	50	200
Chloride	1220	U	3.0	30	800	15000	25000
Fluoride	1220	U	0.075	< 1.0	10	150	500
Sulphate	1220	U	7.3	73	1000	20000	50000
Total Dissolved Solids	1020	N	28	280	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	43	430	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	11

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Chemtest Job No: 22-30244 Chemtest Sample ID: 1484348 Sample Ref: AA170147 Sample ID: Sample Location: TP03 Top Depth(m): 0.50 Bottom Depth(m): Sampling Date:				Landfill Waste Acceptance Criteria Limits			
				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	[A] 1.2	3	5	6
Loss On Ignition	2610	U	%	3.3	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		7.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0020	--	To evaluate	To evaluate
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455	U	0.0009	0.0086	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0050	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0009	0.0089	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.025	4	50	200
Chloride	1220	U	1.9	19	800	15000	25000
Fluoride	1220	U	0.11	1.1	10	150	500
Sulphate	1220	U	5.9	59	1000	20000	50000
Total Dissolved Solids	1020	N	120	1200	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	19	190	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	13

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 24167 Achill Sound Housing Project (Jennings O'Donovan)

Chemtest Job No: 22-30244 Chemtest Sample ID: 1484349 Sample Ref: AA170150 Sample ID: Sample Location: TP05 Top Depth(m): 0.40 Bottom Depth(m): Sampling Date:					Landfill Waste Acceptance Criteria Limits		
					Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	[A] 1.5	3	5	6
Loss On Ignition	2610	U	%	1.3	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0030	--	To evaluate	To evaluate
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455	U	0.0011	0.011	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0050	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0011	0.011	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455	U	0.0006	0.0061	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.025	4	50	200
Chloride	1220	U	1.2	12	800	15000	25000
Fluoride	1220	U	0.22	2.2	10	150	500
Sulphate	1220	U	4.7	47	1000	20000	50000
Total Dissolved Solids	1020	N	74	740	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	12	120	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	7.4

Waste Acceptance Criteria

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

Deviations

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

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1484339	AA170391		BH01		A	Amber Glass 250ml
1484339	AA170391		BH01		A	Plastic Tub 500g
1484340	AA170394		BH02		A	Amber Glass 250ml
1484340	AA170394		BH02		A	Plastic Tub 500g
1484341	AA170395		BH02		A	Amber Glass 250ml
1484341	AA170395		BH02		A	Plastic Tub 500g
1484342	AA170394		BH03		A	Amber Glass 250ml
1484342	AA170394		BH03		A	Plastic Tub 500g
1484343	AA170383		BH04		A	Amber Glass 250ml
1484343	AA170383		BH04		A	Plastic Tub 500g
1484344	AA170384		BH04		A	Amber Glass 250ml
1484344	AA170384		BH04		A	Plastic Tub 500g
1484345	AA170376		BH05		A	Amber Glass 250ml
1484345	AA170376		BH05		A	Plastic Tub 500g
1484346	AA170145		TP02		A	Amber Glass 250ml
1484346	AA170145		TP02		A	Plastic Tub 500g
1484347	AA170146		TP02		A	Amber Glass 250ml
1484347	AA170146		TP02		A	Plastic Tub 500g
1484348	AA170147		TP03		A	Amber Glass 250ml
1484348	AA170147		TP03		A	Plastic Tub 500g
1484349	AA170150		TP05		A	Amber Glass 250ml
1484349	AA170150		TP05		A	Plastic Tub 500g

Deviations

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

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1484350	AA170151		TP05		A	Amber Glass 250ml
1484350	AA170151		TP05		A	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurement by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.

Test Methods

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

Report Information

Key

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

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

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

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

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

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

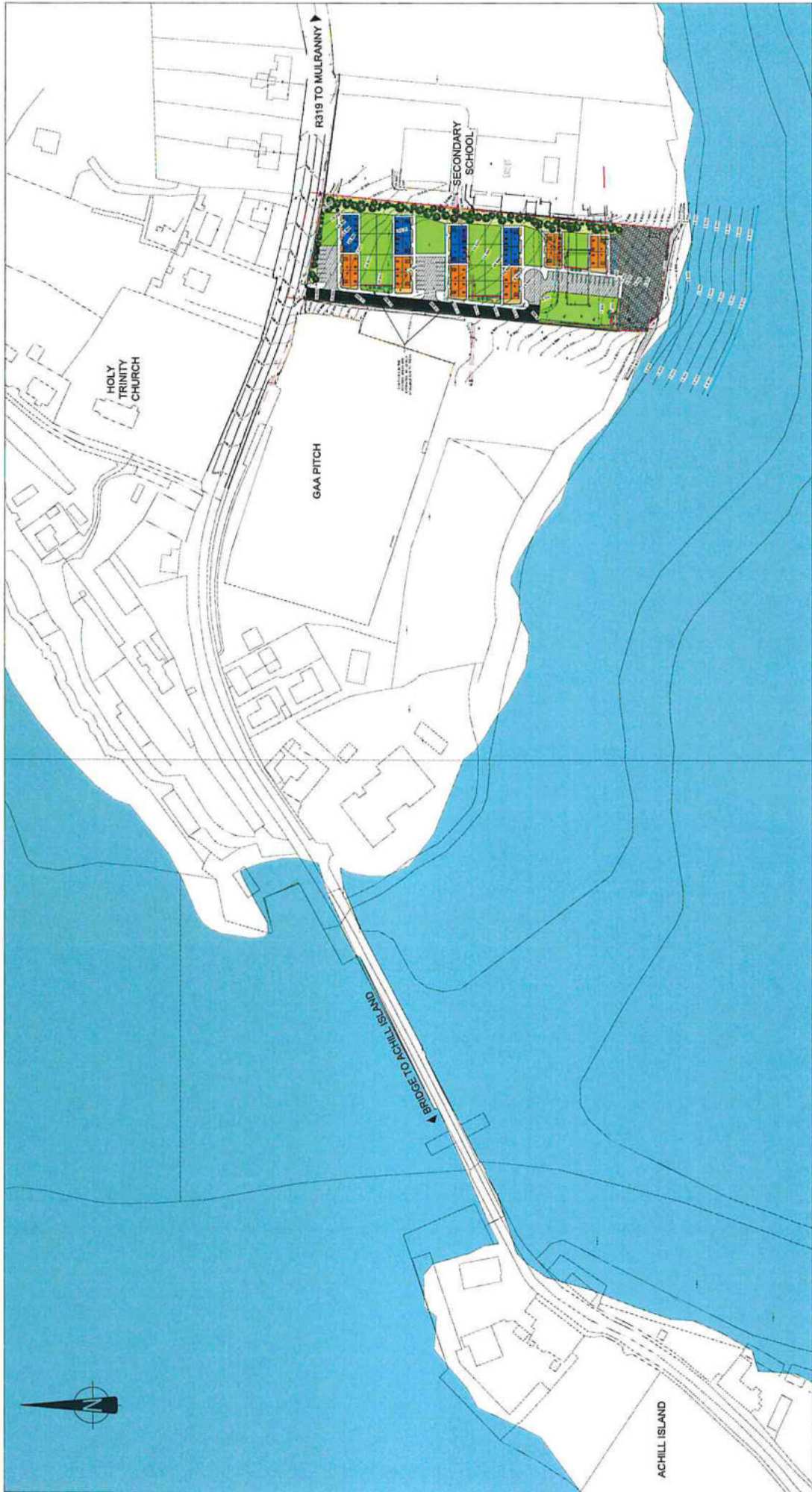
All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

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

Appendix VI Site Plans

County Mayo, the planning authority, is not responsible for the accuracy of the information provided in this document. It may not be used for any purpose other than that for which it was prepared. It may not be used to support any claim for compensation or damages in respect of any loss or damage suffered by any person as a result of reliance on the information provided in this document. It may not be used to support any claim for compensation or damages in respect of any loss or damage suffered by any person as a result of reliance on the information provided in this document. It may not be used to support any claim for compensation or damages in respect of any loss or damage suffered by any person as a result of reliance on the information provided in this document.





RIAI
ARCHITECTS DEPARTMENT
MAYO COUNTY COUNCIL



MAYO.IE

Project No:	A628	Site Name:	PROPOSED HOUSING AT POLBANNY (SWEEM), ACHILL SOUND, CO MAYO
Drawing No:	0102	Scale:	1:1000 @ A1
Drawn By:	PP	Checked By:	DK
Drawn Date:	10/12/2021	Checked Date:	10/12/2021

Achill Sound



Legend

- Cable Percussive Borehole
- Dynamic Probe
- Trial Pit



BH01	474254.365	799913.571	15.674
TP01	474257.52	799917.055	16.223
DP01	474239.962	799921.05	15.748
DP02	474228.789	799902.365	14.023
TP02	474231.255	799898.643	13.874
DP03	474263.816	799885.899	13.992
BH03	474273.071	799833.643	13.924
DP04	474249.739	799871.405	13.582
BH02	474233.847	799882.335	13.549
TP03	474231.041	799873.624	13.12
DP05	474224.463	799831.238	11.101
TP04A	474224.359	799818.157	10.727
TP04	474220.929	799813.661	10.244
BH04	474223.016	799797	9.656
DP06	474222.954	799791.158	9.768
BH05	474249.449	799768.454	9.75
TP05	474227.434	799774.526	9.735
DP07	474223.296	799767.983	9.308
RTCM-Ref 00	515299.345	789798.04	53.106