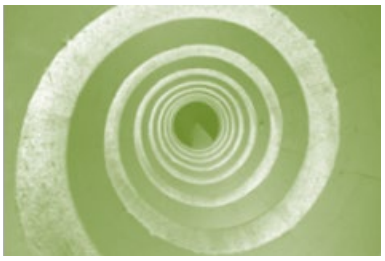
Mr. Eoin McCaffrey
Environmental Licensing Programme
Office of Environmental Sustainability
Environmental Protection Agency
Johnstown Castle
Co. Wexford
Y35 W821



JSPE

J Sheils Planning & Environmental Ltd

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Date: 21st October 2019
Our Ref: JSPE_255_L04
Reg. Ref: W0299-01

Dear Mr. McCaffrey,

Re: Response to Request for Further Information for development which consists of restoration of part (c. 6.7 ha) of existing quarry (QR19 06/11798 & PL04.225332) by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06). The proposed soil recovery facility will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works. Access to the site will be from the permitted main entrance on the N22 National Primary Road. A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A hard-stand with drainage to oil interceptor will also be provided as a designated refuelling area. The total application area including the site infrastructure covers 7.9 ha of lands. The development will be subject to the requirements of the waste management licence. An Environmental Impact Assessment Report (EIAR) will be submitted to the Planning Authority with the application. At: Garryhesta Pit, Knockanemore, Ovens, Co. Cork.

Please find attached our response to your request for further information in connection with notice issued under Article 14(2)(b)(ii) of the Waste Management (Licensing) Regulations, Reg. Ref. W0299-01, dated 24/09/2019. The numbered response refers to the numbering system given in the request for further information.

Article 12 Compliance Requirements

In relation to storm water discharges from the facility:

1a.	Provide a drainage map for the eastern part of the facility showing the entrance road soakaways, stormwater run-off from roofs including discharge point(s), car park and hard-standing areas, silt trap(s) and hydrocarbon interceptor(s) and areas draining to these.

Site drainage for the eastern part of the facility including entrance road, stormwater run-off from roofs, car park and hard-standing areas, silt trap(s) and hydrocarbon interceptor(s) is shown on the attached Revised Site Layout Infrastructure Plan Drawing D13 Rev 01.

As stated in EIAR Section 3.3.3.4.6.5 *"The site access road between the proposed wheelwash and the exit gate has been provided with a concrete surface. The haul roads on site are composed of quarry aggregate"*.

As stated in EIAR Section 4.4.3.5 *"Due to the fact that the proposed site is a sand and gravel pit (underlain by high permeability deposits) it is expected that the majority of the rainfall landing on the site will percolate into the underlying sand and gravel deposits".*

As stated in EIAR Section 4.4.3.11 *''There is no requirement for surface water management at the existing Garyhesta Quarry site as all rainfall percolates into the underlying sand and gravels".*

However, in compliance with Condition No. 9. of planning permission P. Reg. No. 18/05155 *"A drainage grating, along with a discharge pipe to a soakaway located within the site, shall be installed at the entrance to the site to the satisfaction of the Planning Authority".* Details with respect to same have been provided on the Revised Site Layout Infrastructure Plan Drawing D13 Rev 01. As shown a drainage channel (minimum 300 mm Ø, fall of 1:150 open channel width of JCB bucket) with steel grate is to be provided. This drainage channel will link with a roadside drain (including gulley's at c.20m intervals) along the access road and storm gulley's provided to take stormwater runoff from roofs. These drains shall be directed towards a silt trap and full retention interceptor with final discharge of storm water run-off to a soakaway via a wetland/retention pond. (Refer to Site Layout Infrastructure Plan Drawing D13 Rev 01 and response prepared by Hydrogeological consultants HES (Attachment I).

As stated in EIAR Section 4.11.5 *"The parking requirements for the Proposed Recovery facility operation mainly relate to the facility employees and visitors. Provision of sufficient spaces within the proposed facility for employees and visitors will be allocated. If the maximum number of employees will be 4. Therefore, a car park provision of 4 + 25% for visitors (say 5 spaces) will be provided".* The location of the Car Park is shown on the attached Revised Site Layout Infrastructure Plan Drawing D13 Rev 01. As shown a drainage channel (minimum 300 mm Ø, fall of 1:150 open channel width of JCB bucket) with steel grate is to be provided. The outfall will be directed to a Silt trap with discharge to ground via a Class 1 Full Retention Interceptor and wetland/retention pond. This silt trap/interceptor will also take run off from the concrete hard stand refueling area.

1b.	Include in the above or a separate drawing, the stormwater monitoring and discharge point(s) (including six-digit Irish National Grid Reference co-ordinates) for the hydrocarbon interceptor(s).

Refer to Revised Site Layout Infrastructure Plan Drawing D13 Rev 01.

As per Condition No. 15 of planning permission P. Reg. No. 18/05155 "*Surface water drainage contaminated with hydrocarbons (including storm water from bunded areas and car park areas) shall be discharged via a grit trap and a hydrocarbon interceptor".* "

"An inspection chamber with sump to be provided between hydrocarbon interceptor and the discharge area. The sump shall be of a minimum size of 500mm square and 400mm deep and shall be of watertight construction. The interceptor and sump shall be installed and operated to the satisfaction of the Planning Authority".

This inspection chamber will act as the discharge monitoring point (DL1) for the hydrocarbon interceptor.

Refer to copy of attached Table 1 which give six-digit coordinates for the discharge monitoring point (DL1) monitoring points both Irish Transverse Mercator (ITM) and Irish National Grid (Refer to Attachment II).

1c.	Specify the type of hydrocarbon interceptor (Class I or II or full retention or bypass) and silt traps proposed to be used.

As stated in EIAR Sections 3.2.2.1, 3.3.1, 3.3.1.2, 3.3.3.2.1 "*A hard-stand with drainage to oil interceptor will also be provided as a designated refueling area*".

A Class 1 Full Retention Interceptor with silt trap is proposed. A detail specification Drawing D08 was submitted with the planning application (P. Reg. No. 18/05155). A copy is included in Appendix IV of Attachment I. Refer also to Revised Site Layout Infrastructure Plan Drawing D13 Rev 01.

1d.	Provide clarification as to how discharges from hydrocarbon interceptor(s) will be managed.

Discharge to ground. Refer to response 1(b). above and 1(e) below.

1e.	If proposal is to discharge to ground from the hydrocarbon interceptor, this is considered an indirect discharge to groundwater and therefore requires a technical assessment to be carried out in accordance with the *'Guidance on the Authorisation of Discharges to Groundwater*', (EPA, 2011).

Hydro-Environmental Services (HES) were commissioned to complete the technical assessment with respect to discharge to groundwater. HES are a specialist hydrological, hydrogeological and environmental practice, which delivers a range of water and environmental management consultancy services to the private and public sectors. A copy of their report is included as Attachment I.

1f.	Provide six-digit Irish National Grid Reference for current groundwater monitoring well points (MW1, MW2, MW3, MW4, and Farm Well).

Refer to copy of attached Table 1 which give six-digit coordinates for the current groundwater monitoring wells in both Irish Transverse Mercator (ITM) and Irish National Grid.

1g.	Provide six-digit Irish National Grid Reference co-ordinates for surface water monitoring locations SW1 and SW2. Provide clarification as to whether there will be any discharges from the facility to the surface water lagoon where monitoring point SW2 is located.

Refer to copy of attached Table 1 which give six-digit coordinates for the surface monitoring locations SW1 and SW2 in both Irish Transverse Mercator (ITM) and Irish National Grid.

There will be no discharges from the facility to the surface water lagoon where monitoring point SW2 is located.

As stated in EIAR Section 4.4.3.6 *"There are no pathways for runoff from the application site towards the stream or* ***pond*** *as there is an embankment present along the southern and western boundaries of the application site. The embankment separates the application site from the stream and pond. As stated above the pit itself is up to 31m in depth and any rainfall that falls in the pit just percolates through the floor into the underlying sand and gravels*".

2a.	Provide six-digit Irish National Grid Reference for current dust monitoring points (D1, D2, D3, and D4).

Refer to copy of attached Table 1 which give six-digit coordinates for the current dust monitoring points both Irish Transverse Mercator (ITM) and Irish National Grid.

3.	In Section 4.3 'Waste Activities' of Waste Licence Application dated 20/12/2018, the capacity for 'R13 storage of waste' details 100 tonnes as the capacity. Clarify the time-frame 100 tonnes will apply to.

As stated in Section 4.3.1.3 of Waste Licence Application Attachment 4-3-1 Calculation of Recovery Capacity.

"A nominal capacity value of 100 tonnes has been assigned to Class R13 based on Roadstones experience of operating similar facilities.

Waste produced from the development will be minimal. The principal waste arisings at the proposed waste facility will be those materials moved to/stored in the Waste Quarantine skips or area (e.g., wood, plastics, metals, etc.). The Waste Quarantine skips will be provided by and removed by an authorised Waste Collection Permit Holder, for disposal or recovery to an authorised waste facility for segregation and recycling, where possible.

Waste oils, batteries, scrap metal, disused plant and machinery, etc., will be removed from the site for recycling by approved contractors. A licensed waste collection contractor will remove any domestic waste requiring disposal to a licensed waste management facility.

Material not suitable for recovery at the facility will be rejected either at the pre-approval stage, the onsite verification stage, or before recovery stage at the customers expense. If reloading cannot occur immediately, it will be separated and moved to the quarantine area.

Any non-natural materials in the consignment will be manually removed where possible and transferred to the appropriate waste skip for disposal at an appropriate facility.

Similarly, topsoil/subsoil may be stored in temporary storage mounds awaiting placement as part of the restoration scheme".

Waste Licence Application Attachment 8.1 - *Waste Generated and Animal By-Products Generated* provides a breakdown of proposed waste generated at the facility per annum. These wastes will be stored in appropriate receptacles and/or skips and removed by licenced waste hauliers to approved facilities on a regular basis as required i.e**. weekly, biweekly, monthly**.

As stated above "*Material not suitable for recovery at the facility will be rejected either at the pre-approval stage, the onsite verification stage, or before recovery stage at the customers expense. If reloading cannot occur immediately, it will be separated and moved to the quarantine area".* It is expected that in a worst-case scenario only a load or two (i.e. 2 x 20 tonnes) of contaminated soil and stone would be placed in quarantine on a weekly basis and this material would be removed from site by licenced waste hauliers to approved facilities within a **week's notice**.

4.	Where relevant, provide a full list of previous environmental complaints received relating to the Garryhesta pit since 2016, including details of the complaint, relevant authorities (where involved) and outcome.

There have been no environmental complaints received relating to the Garryhesta pit since 2016.

5.	Section 3.3.3.3.2 of EIAR states that no plant or machinery will be serviced on site but that 'routine maintenance and running repairs' will be carried out on site. Clarify the nature of 'routine maintenance and running repairs'. If fluids or oils are required provide details of type, quantity, and storage location and all appropriate measures put in place to ensure spillage of these fluids does not pose an environmental risk.

Section 3.3.3.3.2 of EIAR states that "*there will be **no major servicing** of plant and machinery carried out on site apart from routine maintenance and running repairs*".

As stated in EIAR Section 3.3.3.2.8:

No fuel or oil will be stored on site. A double skinned fuel bowser will be mobilised to site as required. A hard-stand with drainage to oil interceptor will also be provided as a designated refueling area. The following measures will also be implemented with respect to refueling.

- Supervision of all fuel refilling works by the Manager or other authorised member of staff;
- The placement of a clean drum/bucket under the refueling point, during refueling operation, to collect any spillages that may occur;
- The storage of 'Spill Kits' close to the refueling point to soak up any spillages which may occur immediately.
- All plant/machinery will be inspected regularly to ensure that there are no leakages of fuel or hydraulic fluid and all plant/machinery will be serviced regularly.

Spill kits and materials used for treating hydrocarbon spills are available onsite. These materials are stored in the facility shed/workshop.

The operator has put in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation. (Refer to EIAR Appendix 5.3.5).

As stated in EIAR Section 4.4.6.1.1

To minimise any impact on the underlying subsurface strata from oil and fuel spillages, the following mitigation measures are proposed:

- A hard-stand with drainage to oil interceptor will be provided as a designated refueling area.
- **All plant and machinery will be serviced before being mobilised to site**, and regular leak inspections will be completed during the backfilling works;
- **No plant maintenance will be completed on site, any broken-down plant will be removed from site to be fixed**; and,
- An emergency spill kit with oil boom, absorbers etc. will be kept on site for use in the event of an accidental spill.

Daily check on plant and machinery for leaks with greasing of bearings only carried out as necessary. A simple grease gun is all that is required and these are normally stored on the plant and machinery. This will be carried out on the hardstand area used for refueling and parking up of plant and machinery.

6.	Provide a copy of the planning inspectors report and final decision (including schedule of conditions) for planning ref 18/05155 granted by Cork County Council.

A copy of the planning inspectors report(s) and final decision (including schedule of conditions) for planning ref 18/05155 granted by Cork County Council is provided (Refer to Attachment III).

7.	Provide details of where plant and machinery will be stored when not in use. Storage areas should take into account potential leaks from machinery when not in use.

As stated in the EIAR Section 3.3.3.4.3 "*a hard-stand with drainage to oil interceptor will be provided as a designated refueling area*".

All plant and machinery will be stored at this location when not in use. Refer also to response to Item 1(c) above.

8.	Provide details of the waste arising and disposed of from the neighbouring quarry activities in the Garryhesta Quarry.

Waste produced from the neighbouring quarry activities in the Garryhesta Quarry is minimal. Almost all products and by-products arising from processing of sand and gravel have commercial value. Any excess material produced as part of the extraction process (e.g. topsoil / overburden) will be utilised in the quarry restoration process.

As stated in EIAR Section 3.3.3.2.8 *"Waste oils, batteries, scrap metal, etc., will be removed from site for recycling by approved licensed contractors. A licensed waste collection contractor will remove any domestic waste generated on site and requiring disposal to a licensed waste management facility".* These same measures will relate to waste arising from the quarry workings.

Agency determined that an Appropriate Assessment of the proposed activity is required. Submit a Natura Impact Statement, as defined in Regulation 2(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 as amended.

A copy of a Natura Impact Statement is attached as a separate document (Refer to Attachment IV).

Provide an updated non-technical summary (Application Form, and EIS where applicable) to reflect the information provided in your reply, insofar as that information impinges on the non-technical summary.

It is considered that the responses to the above Notice were not of a significance to require revision to the non-technical summary (Application Form and EIAR) submitted with the waste licence application.

We trust that our response to the above matters is to the satisfaction of the Agency. Please contact us if further clarification is required with respect to the above.

Yours Sincerely

John Sheils MSCS MRICS

Enc.

Attachment I *Hydrogeological Assessment Report*
Attachment II *Table 1 – Environmental Monitoring Locations*
Attachment III *Planning Permission P.Ref 18/05155*
Attachment IV *Natura Impact Statement*

RFI Schedule of Plans, Drawings & Maps

Attachment I

Report Prepared by HES

Hydrogeological Assessment Report for the Proposed Discharge of Stormwater Runoff to Ground

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GARRYHESTA PIT, OVENS, CO. CORK

Hydrogeological Assessment Report for the Proposed Discharge of Stormwater Runoff to Ground

FINAL REPORT

Prepared for:

ROADSTONE LTD

Prepared by:
HYDRO-ENVIRONMENTAL SERVICES

DOCUMENT INFORMATION

DOCUMENT TITLE:	**GARRYHESTA PIT, OVENS, CO. CORK** **HYDROGEOLOGICAL ASSESSMENT REPORT FOR THE PROPOSED DISCHARGE OF STORMWATER RUNOFF TO GROUND**
ISSUE DATE:	**20TH OCTOBER 2019**
PROJECT NUMBER:	**P1380-3**
PROJECT REPORTING HISTORY:	**NONE**
CURRENT REVISION NO:	**FINAL REPORT – REV F0**
AUTHORS:	**DAVID BRODERICK** **MICHAEL GILL**
SIGNED:	Michael Gill **MICHAEL GILL B.A., B.A.I., M.SC. DIP. GEOL, MIEI, MCIWEM** **MANAGING DIRECTOR – HYDRO-ENVIRONMENTAL SERVICES**

Disclaimer:
This report has been prepared by HES with all reasonable skill, care and diligence within the terms of the contract with the client, incorporating our terms and conditions and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.

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APPENDICES

1. INTRODUCTION

1.1 OVERVIEW

Hydro-Environmental Services (HES) were commissioned by Roadstone Ltd to prepare a hydrogeological assessment in relation to a further information request issued by the EPA regarding a waste management licence application (EPA Reg No. W0299-01) for a proposed facility located at Garryhesta Pit, Knockanemore, Ovens, Co. Cork.

This hydrogeological assessment relates to the proposed indirect discharge of treated stormwater runoff to ground via a full retention oil interceptor.

1.2 PROJECT BACKGROUND

The proposed development consists of restoration of part (c. 6.7 ha) of existing quarry (QR19 06/11798 & PL04.225332) by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06). The proposed soil recovery facility will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works. A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop shed will be utilised as a quarantine area.

A new hardstand area (124m^2) with drainage outfall to a full retention oil interceptor will be provided as a designated refuelling area. The development will be subject to the requirements of the EPA waste management licence. The EPA registration number for the waste licence application is W0299-01. The proposed site layout is shown as **Figure 1** attached at the end of this report.

This hydrogeological assessment is prepared in response to Item 1(e) of the further information request which was issued from the EPA by letter on 24th September 2019. Item 1(e) is written as follows:

> *"If proposal is to discharge to ground from the hydrocarbon interceptor, this is considered an indirect discharge to groundwater and therefore requires a technical assessment to be carried out in accordance with the 'Guidance on the Authorisation of Discharges to Groundwater', (EPA, 2011)".*

In order to comply with the above, a Tier 2 risk assessment as per EPA *Guidance on the Authorisation of Discharges to Groundwater* (2011) has been prepared.

1.3 LEGISLATION & IMPACT ASSESSMENT CRITERIA

The control of discharges to waters (aquifer in this case) is governed by S.I. No. 42 of 1999: Local Government (Water Pollution) (Amendment) Regulations, 1999.

Article 40 (2) of S.I. 42 of 1999 details the requirements of the required Hydrogeological Assessment as follows:

40 (2) The prior investigation referred to in sub-article (1) shall include —

(a) an assessment of the environmental impact of alternative methods of disposal of the harmful substance, and

(b) an examination of the aquifer to which the licence application relates in respect of the following—

(i) the extent and estimated volume of water therein,
(ii) the quality of water therein,
(iii) the estimated rate of recharge,
(iv) the identification of any existing or proposed uses of the water therein,
(v) the hydrogeological conditions of the area in which the aquifer is located,
(vi) the nature and depth of overlying soil and subsoil and its effectiveness in preventing or reducing the entry of the harmful substance to water in the aquifer,
(vii) the risk of deterioration in the quality of the water therein due to the entry of the harmful substance,
(viii) the risk of the water therein being affected by the harmful substance so as to endanger human health or water supplies, harm living resources and the aquatic ecosystem or interfere with the use of the water for agricultural, commercial, domestic, fisheries, industrial or recreational purposes, and
(ix) such other matters as the local authority may reasonably require for the purpose of establishing whether the discharge of the harmful substance to the aquifer is a satisfactory method of disposal having regard to its environmental impact and the results of the assessment referred to in paragraph (a).

A "harmful substance" means substances and groups of substances specified in the First Schedule or in the Second Schedule, except where otherwise provided (S.I. No. 271/1992: Local Government (Water Pollution) Regulations, 1992). It is noted that some of the constituents (i.e. hydrocarbons) of the treated stormwater proposed for discharge at Garyhesta Pit to groundwater may constitute definition as potential "harmful substances" under the schedules of the Local Government (Water Pollution) Regulations (1992). Therefore, this report details the alternative strategies considered and the results of the 'examination of the aquifer'.

The discharge must also be considered in the context of the Groundwater Regulations (2010), which do not specify groundwater limit concentrations but rather require no upward (improving) trend in groundwater concentrations.

EPA Guidance on the Authorisation of Discharges to Groundwater (December, 2011)[1] requires that the proposed discharge is assessed according to the risk posed, which is assigned according to the magnitude of hydraulic loading proposed and the nature of the receiving environment. The chemical/hydraulic loading and impact assessment is presented

[1] *Environmental Protection Agency (EPA) Guidance on the Authorisation of Discharges to Groundwater (2011);*

in
Section 5 of this report.

1.4 REPORT STRUCTURE

In summary, the technical assessment is aimed at examining the following:

- Demonstrating that a site has sufficient infiltration capacity to physically —accept the effluent (i.e. treated stormwater runoff), thereby avoiding surface ponding and effluent runoff;
- Demonstrating that a site has adequate attenuation potential to limit the loading of substances to groundwater;
- In certain cases, predicting an impact on groundwater quality; and,
- Where necessary, verifying predicted impacts by checking compliance with relevant groundwater quality objectives and standards.

More specifically, a Tier 2 – Environmental Risk Assessment includes the following requirements:

- Desk study/environmental setting;
- Walkover survey;
- Infiltration capacity assessment;
- Assessment of chemical composition of input;
- Calculation of minimum separation distances;
- Groundwater flow direction inferred from site specific measurement and monitoring;
- Assessment of subsoil type, texture thickness and permeability;
- Assessment of aquifer type and hydraulic properties;
- Assessment of background groundwater quality;
- Identification of relevant receptors and associated water quality standards;
- ZOCs of downgradient abstraction points/schemes where these have not yet been delineated;
- Quantification of interaction between groundwater and surface water or GWDTE where appropriate and relevant;
- Conceptual model, backed up where necessary using using basic calculation procedures; and
- Conclusions and recommendations.

2. DESK STUDY - ENVIRONMENTAL SETTING

2.1 SITE DESCRIPTION & PROPOSED DEVELOPMENT

The proposed soil recovery facility, which is an existing sand and gravel pit, is located at ITM E552400, N569850. It is situated ~2km west of Ovens in Co. Cork where it is located immediately south of the N22.

The surrounding landscape consists of gently undulating to hummocky valley floor, in which the Bride River meanders, within the regional River Lee Catchment.

The topography in the area of the site is gently undulating with an elevation range of between approximately 45 – 65m OD (Ordnance Datum). Current pit floor levels at the application site vary between approximately 23m and 26m OD with the overall slope to the south. The ground elevation at the proposed oil interceptor and soakaway is 50.7m OD. The location of the proposed oil interceptor and soakaway is shown in **Figure 1** attached below.

Natural ground levels in the fields immediately to the west and south of the site are at approximately 54 and 52m OD respectively. The ground to the north of the site rises steadily to an elevation of over 120m OD.

Land use in the surrounding area is largely agricultural and quarrying with scattered rural pattern of residential dwellings along the N22 which runs immediately to the north of the site and along other local roads to the south and east of the site.

The proposed development will utilise the permitted pit infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works. A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A new hardstand with drainage outfall to an oil interceptor will also be provided as a designated refuelling area.

A site location map is shown as **Figure A**.

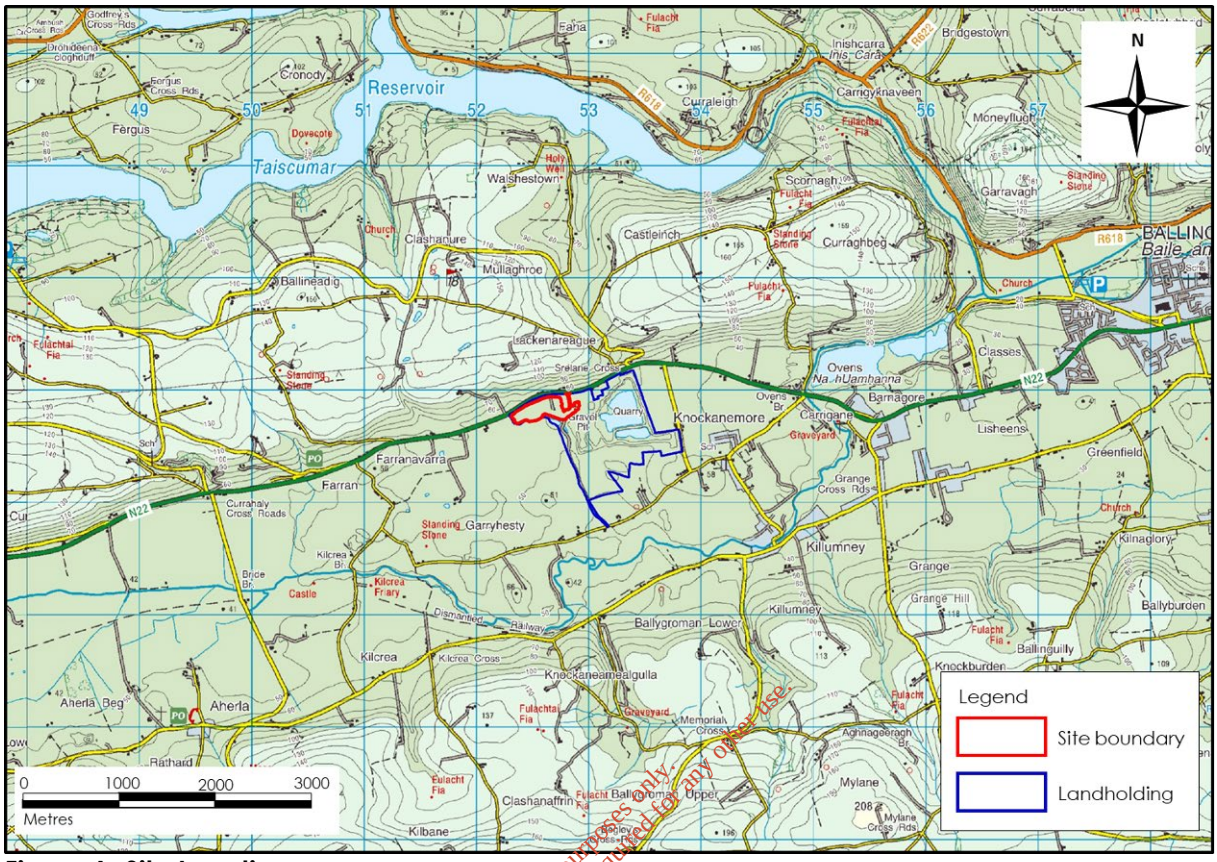


Figure A: Site Location

2.2 HYDROLOGY

2.2.1 Regional and Local Hydrology

The site is located in the catchment of the River Bride which is a sub-catchment of the River Lee within Hydrometric Area 19 (South Western River Basin District). The River Bride flows in an easterly direction approximately 1.5km to the south of the site. The River Bride then flows into the River Lee approximately 3km to the east of the site.

The local hydrology map is shown as **Figure B.**

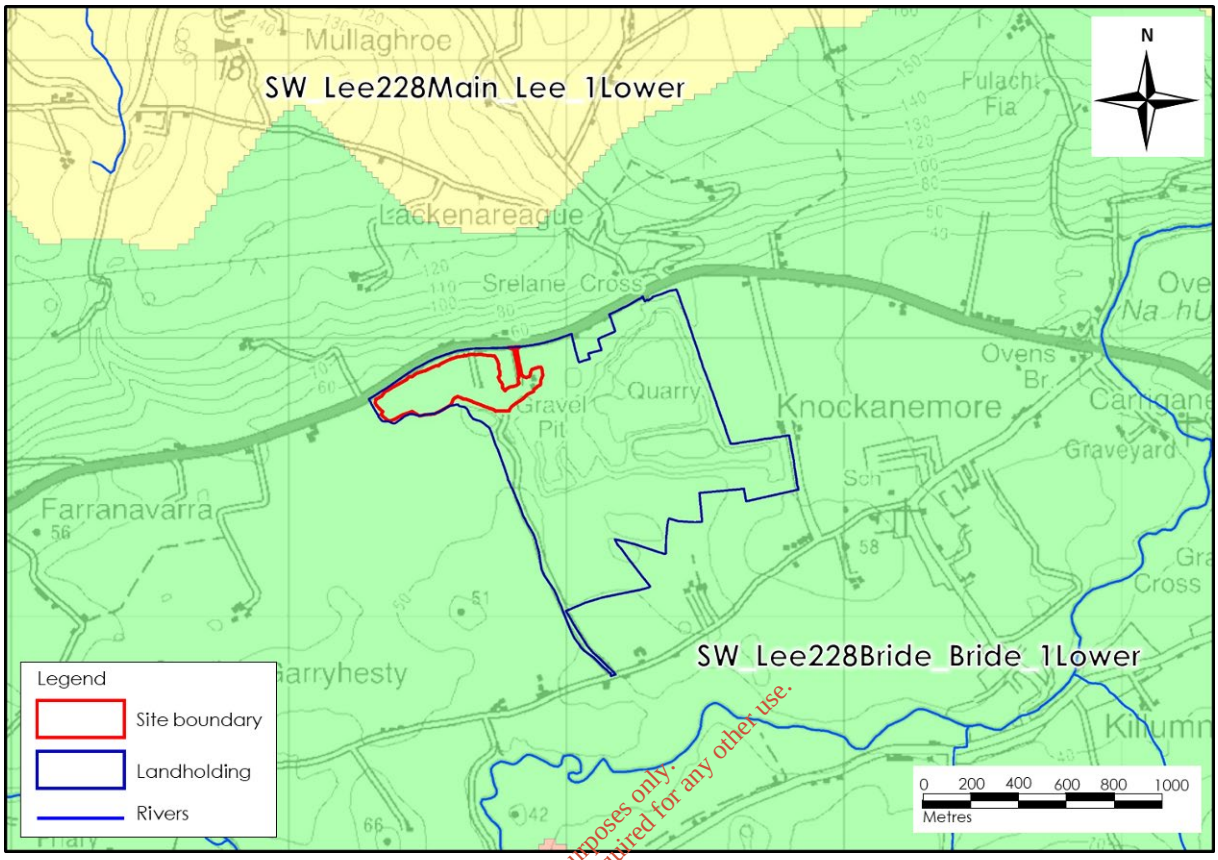


Figure B: Local Hydrology

2.2.2 Existing Site Drainage

Surface water features in the vicinity of the site include a stream and small man-made pond. The stream rises on high ground to the northwest of the site and then flows along the western and southern boundary of the application site (i.e. proposed infill area) prior to flowing into a small man-made pond which exists immediately to the southeast of the application site. A local drainage map is shown as **Figure C** below.

There is no visible surface water outfall from the pond and therefore all inflows to the pond via the stream appear to percolate down through the base of the pond into the underlying sand and gravels. The stream and pond appear to be perched on a layer of low permeability overburden (silts/clays) which overlies the sand and gravel deposits in this area. There are no pathways for runoff from the application site towards the stream or pond as there is an embankment present along the southern and western boundaries of the application site.

There is no existing stormwater drainage network at the site. Runoff from the existing roads, roofing and hardstanding areas percolates to ground nearby. The site has good natural drainage characteristic due to the area being underlain by sand and gravel.

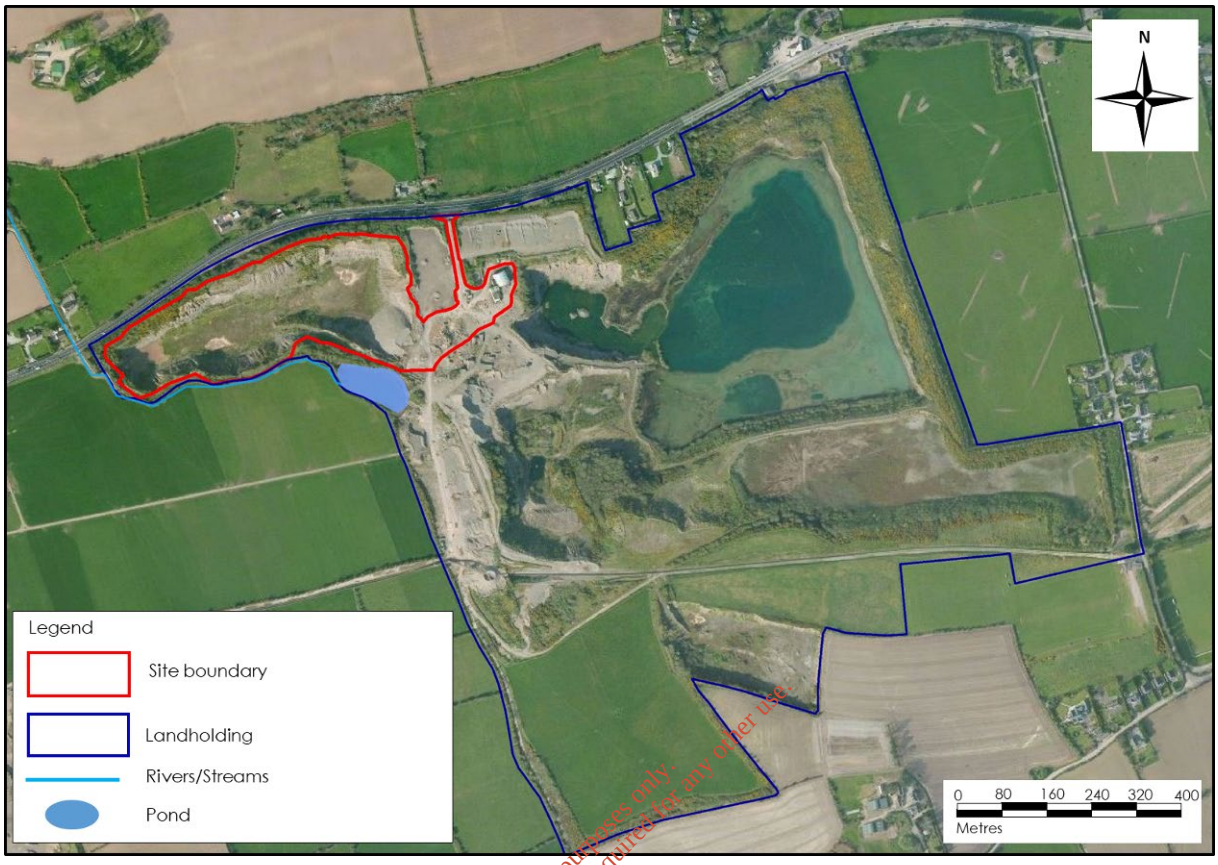


Figure C: Site Drainage Map

2.2.3 Rainfall

The SAAR (Standard Average Annual Rainfall) recorded at Inishcarra (Gen. stn), the closest rainfall station to the site (~12.5km to the northeast) with long term SAAR data, is 1,123mm (www.met.ie).

2.3 WFD SURFACE WATER BODY & STATUS

Local Surface water Body status and risk result are available from (www.catchments.ie).

The site is located, as classified by the water frame work directive, as being within the Bride (Lee)_050 surface water body, this SWB has been assigned (2010 – 2015) an overall status result of 'High Status', with an overall risk result of "Not At Risk".

2.4 LOCAL GEOLOGY

A brief review of the local geology is provided in this section in order to put the description of the local hydrogeological regime into perspective. Please refer to **Section 3** below for a detailed review of the site geology.

The published soils map (www.epa.ie) for the area shows that shallow well drained soils (AminSW) are mapped in the area of the site. The majority of soils within the site and the overall landholding have been removed to facilitate sand and gravel extraction.

The GSI subsoils map (www.gsi.ie) for the area shows that sands and gravels (Devonian) are mapped at the site and over much of the surrounding area.

Up to 30m depth of silty sand and gravels are exposed in the pit faces. The profile is dominated by alternating units of cross-bedded sands and rounded to sub-rounded, pebble to cobble sized gravels. Sand beds are up to 0.35m thick, and some silt beds of up to 80mm thick are also present.

Based on the GSI bedrock map of the area the application site is underlain by two separate bedrock formations. The southern half of the site is mapped to be underlain by Dinantian mudstones and sandstones while the northern half is mapped to be underlain by Devonian Old Red Sandstones (ORS). The remaining area of the overall landholding to the south of the site is mapped to be underlain by Dinantian pure unbedded limestones.

The GSI subsoil mapping and bedrock mapping is shown as **Figure D** and **Figure E** below.

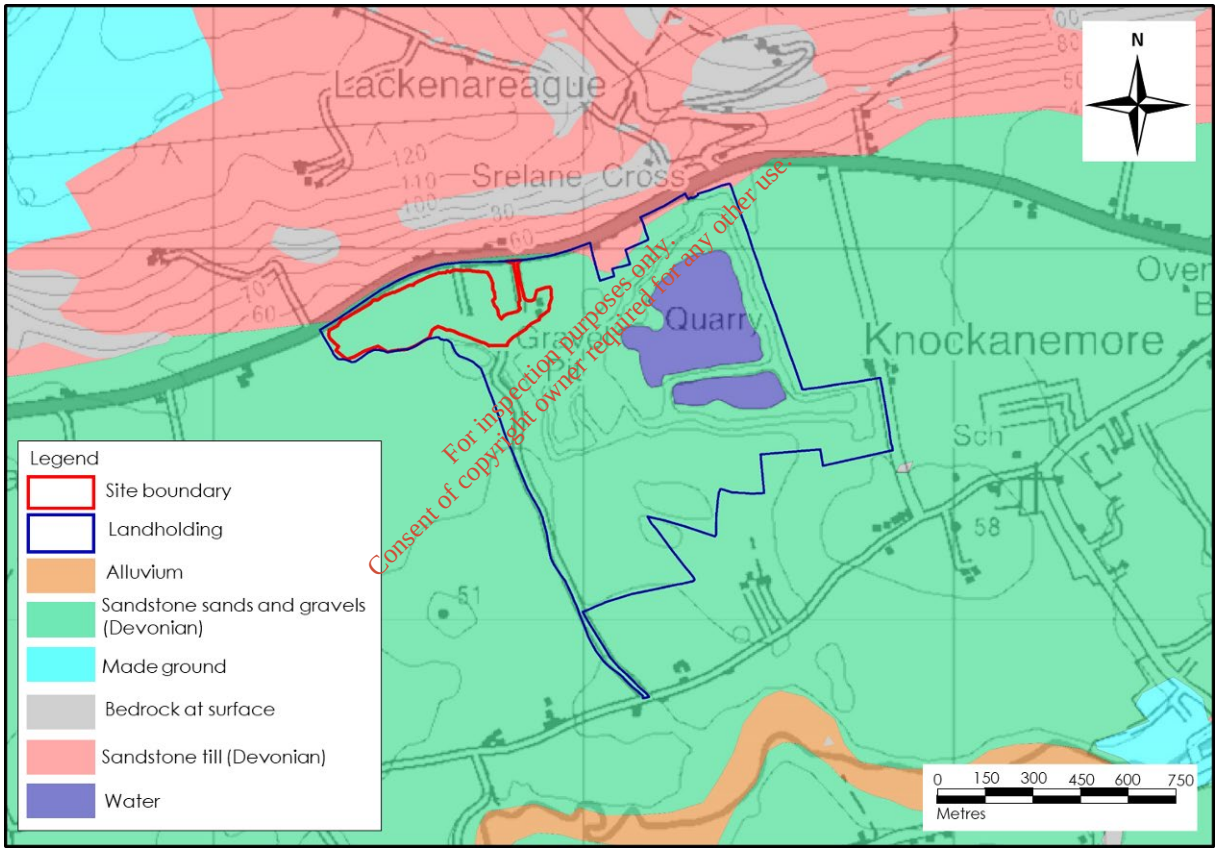


Figure D: GSI Mapped Subsoils

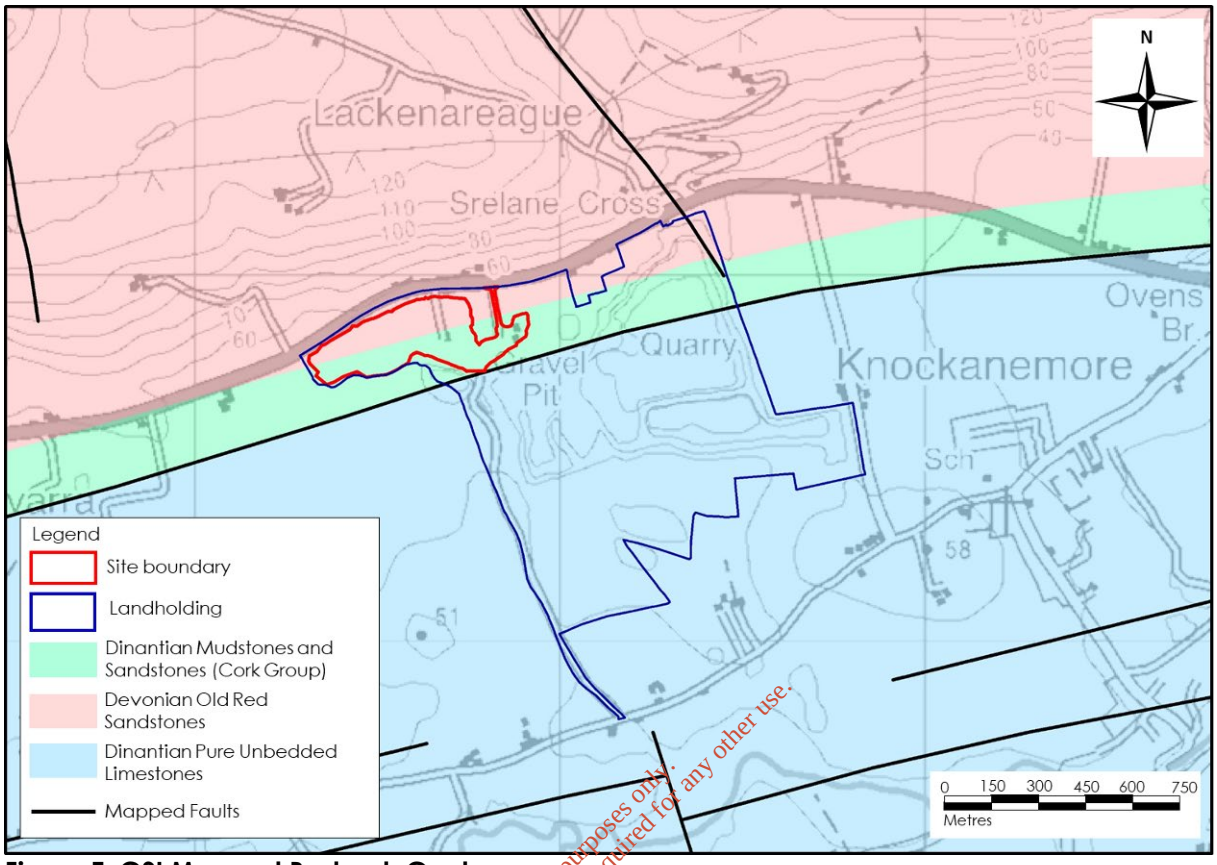


Figure E: GSI Mapped Bedrock Geology

2.5 LOCAL HYDROGEOLOGY

The Groundwater Body (GWB) in which the site is located is called the Ballincollig GWB. In the vicinity of the site the GWB comprises the following bedrock aquifer types:

- The Geological Survey of Ireland (GSI) has classified the pure unbedded limestones which are mapped to the south of the site, as a Regionally Important Karstified Aquifer (RKd). Faults and joints were enlarged by karstification as groundwater moved through the limestones (GSI, 2004); and,
- The mudstones and sandstones and Devonian Old Red Sandstones, which are mapped to underlie the application site itself, are mapped as a Locally Important Aquifer - Ll (bedrock which is moderately productive only in local zones).

The sand and gravel deposits which overlie the bedrock in this area are classified by the GSI as a Locally Important Gravel Aquifer (Lg). The total area of the gravel aquifer is a mapped at approximately ~10.3km^2. The gravel aquifer extends approximately 11km to the west of Ballincollig and has a width of up to 2km.

The GSI Ballincollig initial groundwater body characterisation report states that the permeability of the sand and gravel aquifer is in the order of 50m/day.

The sand and gravel aquifer is the main groundwater body receptor with respect this assessment and this aquifer is shown in **Figure F** below.

Site specific hydrogeological details are outlined in **Section 3** below.

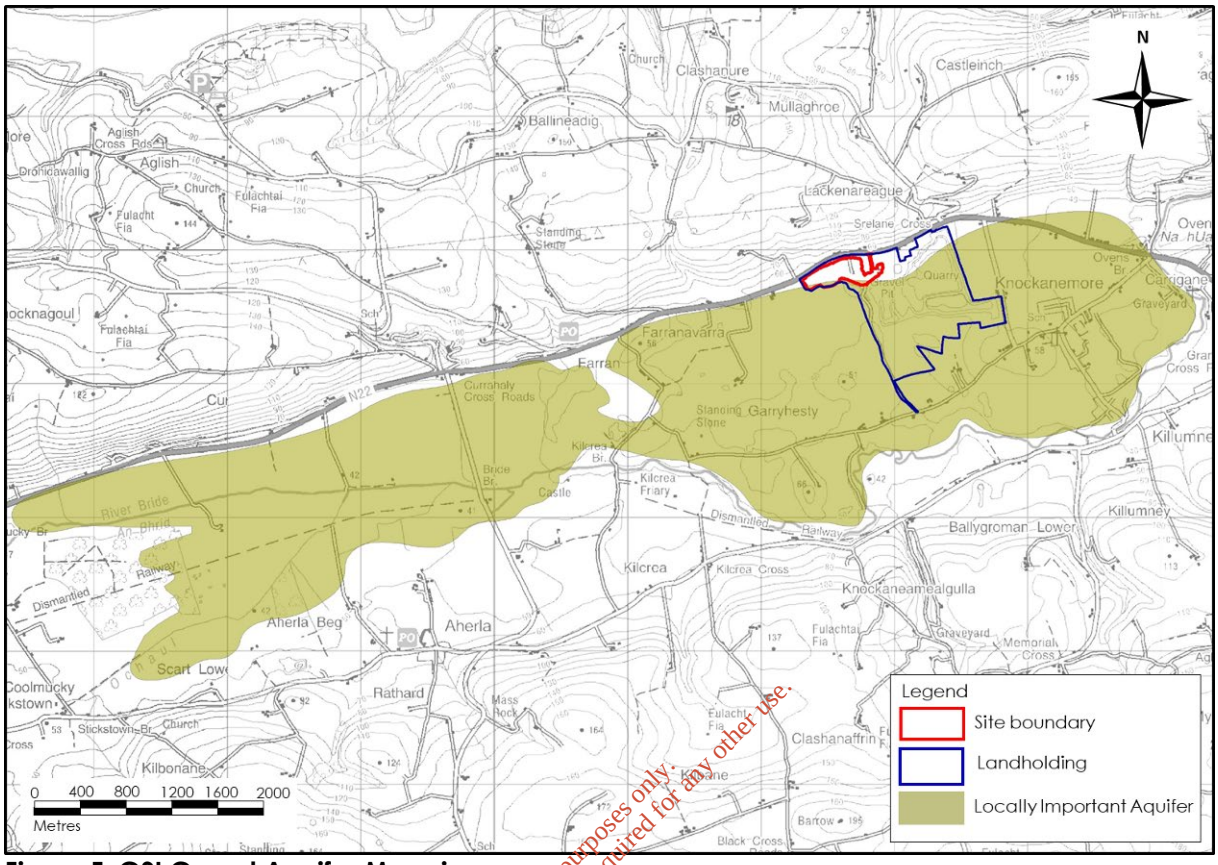


Figure F: GSI Gravel Aquifer Mapping

2.6 GROUNDWATER VULNERABILITY

Based on the GSI mapping, the site has a "High" groundwater vulnerability rating (see GSI hydrogeological conditions in **Figure G** below). The vulnerability rating for the site has not changed with the previous extraction (of sand and gravel) that has been completed, as there is still >3m of unsaturated material above the groundwater table.

The type and depth of unsaturated material above the groundwater table at the proposed discharge location is discussed in **Section 3** below.

Vulnerability Rating	Hydrogeological Conditions				
	Subsoil Permeability (Type) and Thickness			Unsaturated Zone	Karst Features
	High permeability (sand/gravel)	Moderate permeability (e.g. Sandy subsoil)	Low permeability (e.g. Clayey subsoil, clay, peat)	(Sand/gravel aquifers only)	(<30 m radius)
Extreme (E)	0 - 3.0m	0 - 3.0m	0 - 3.0m	0 - 3.0m	-
High (H)	>3.0m	3.0 - 10.0m	3.0 - 5.0m	>3.0m	N/A
Moderate (M)	N/A	>10.0m	5.0 - 10.0m	N/A	N/A
Low (L)	N/A	N/A	>10.0m	N/A	N/A

Notes: (1) N/A = not applicable.
(2) Precise permeability values cannot be given at present.
(3) Release point of contaminants is assumed to be 1-2 m below ground surface.

Figure G: GSI Groundwater Vulnerability Rating

2.7 GROUNDWATER RECHARGE

The GSI estimate the average groundwater recharge to be 654mm/year. This is for a hydrogeological setting of sand & gravels aquifer, overlain by well drained soil.

2.8 WFD GROUNDWATER BODY & STATUS

Local Groundwater Body status and risk result are available from (www.catchments.ie).

In terms of groundwater bodies (GWB), the proposed site is located within the Ballincollig GWB and this groundwater body has been assigned a Good Status. This groundwater body is reported to be "Not at Risk".

2.9 WATER RESOURCES

Based on the GSI mapping there are no groundwater protection zones for existing public water or group water schemes mapped within 7km of the proposed development site. The closest public supply to the site is the Coachford PWS (Public Water Supply) which exists approximately 7.5km to the northwest (up-gradient) of the site. The site is not located within the Zone of Contribution (ZOC) of this source. The Farran GWS (group water scheme) is located approximately 4.1km west-northwest of Garryhesta Quarry which is also up-gradient of the site.

According to the GSI private well database there is only 1 no. registered well within 500m of the proposed site and this well is located to the northeast (upgradient) of the site. GSI mapped wells with an accuracy of <50m are shown on **Figure H** below. This well is located on the valley side and therefore its groundwater catchment is likely to be elevated ground to the north of the well. There is likely to be no groundwater flow from the proposed side or proposed soakaway towards this source.

As the GSI well database is not exhaustive in terms of the locations of all wells in the area (as the database relies on the submission of data by drillers and the public, etc) a door to door well survey of dwellings in close proximity (300m of site boundary) was carried out on 27th January 2017. Only 1 no. private well was identified during the well survey and this is a farm which is located approximately 280m to the west (up-gradient) of the site.

The groundwater gradient (discussed below) is to the east. There are no private dwelling houses within 1.3km of the proposed soakaway to the east. Due to the fact that the lands to the east (as far as the N22) are used/or proposed for sand and gravel no future dwelling or wells are likely either.

Therefore, for the purposes of impact assessment (**Section 5** below) it is assumed that the closet private well is 1.3km downstream of the site. This location is used as a downstream Assessment Point (AP2) with respect the proposed discharge. This is discussed in **Section 5** below.

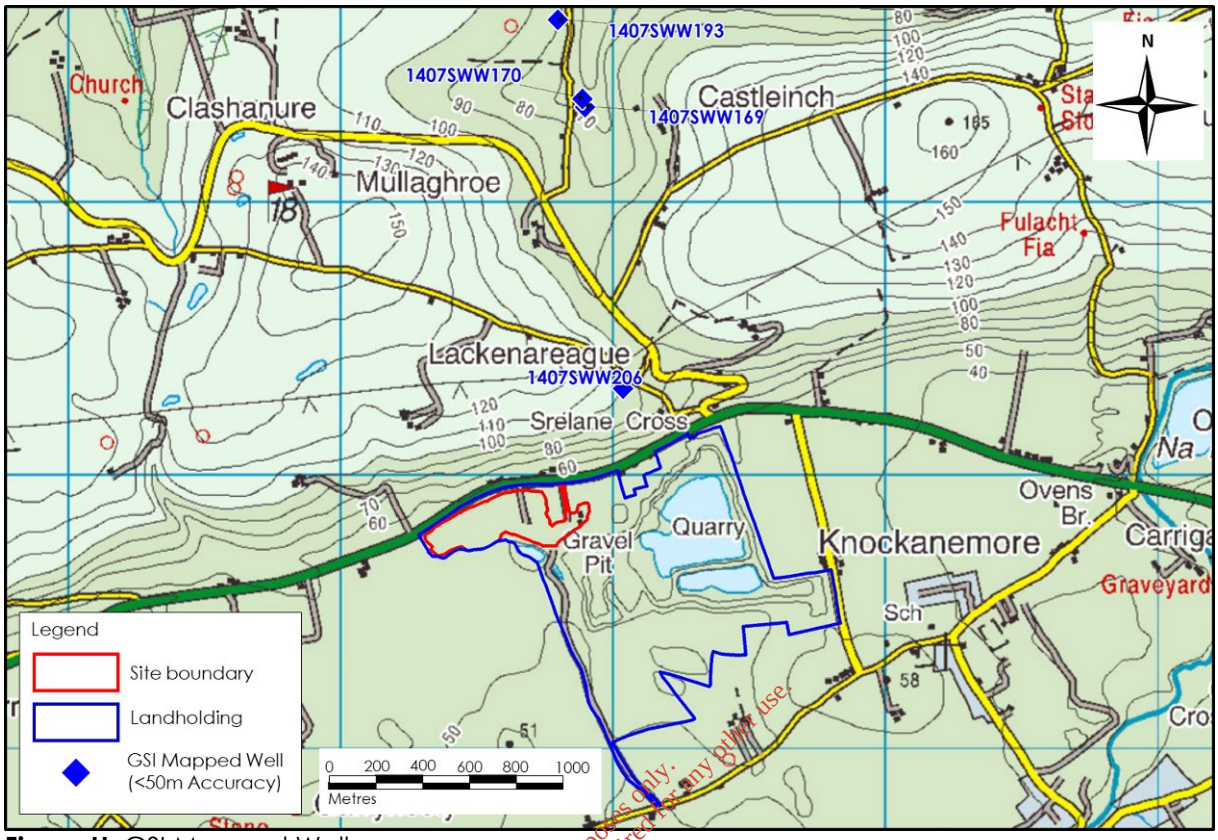


Figure H: GSI Mapped Wells

2.10 DESIGNATED SITES & GROUNDWATER DEPENDANT ECOSYSTEMS

Within the Republic of Ireland designated sites include National Heritage Areas (NHAs), Proposed National Heritage Areas (pNHAs), Special Areas of Conservation, candidate Special Areas of Conservation (cSAC) and Special Protection Areas (SPAs).

The proposed development site is not located within any designated site (*i.e.* SAC, NHA, SPA etc). Cork Harbour SPA is located approximately 20km to the east of the proposed development site.

However, as there are no surface water outlets from the site, the indirect pathway is firstly via groundwater to the River Bride, and then via surface water to the downstream designated site.

There are no Groundwater Dependent Terrestrial Ecosystems (GWDTE) in the area of the proposed development.

3. FIELD DATA COLLECTION AND INTERPRETATION

3.1 WALKOVER SURVEY

Site walkover surveys were completed by David Broderick of Hydro-Environmental Services in January 2017 and in October 2019.

This involved a water features survey, geological mapping of exposures of subsoils, including inspection and mapping of all relevant hydrological features, such as existing drainage ditches and streams. As discussed above a private well survey was also completed.

3.2 TRIAL PITS

A total of 2 no. trial pits were excavated at the area of the proposed stormwater soakaway on 11th October 2019 to assess ground conditions.

A summary of the trial pit logs are shown in **Table A** below. The locations of the trial pits are shown in **Figure I** below.

Both trial pits intercepted firm, brown, sandy, very gravelly SILT/CLAY down to the maximum depth of the trial hole which was approximately 2.4m. No topsoil layer was encountered as it would have been removed during previous extraction workings. Both trial pits were dry with no evidence of water logging or mottling and the subsoil type would suggest good drainage.

Table A: Summary of Trial Pit Logs

Location	Total Depth (mbgl)*	Easting	Northing	Summary Subsoil Description
TP01	2.4	152910	69865	Sandy, very gravelly SILT/CLAY
TP02	2.4	152905	69843	Sandy, very gravelly SILT/CLAY

***mbgl – metres below ground level**

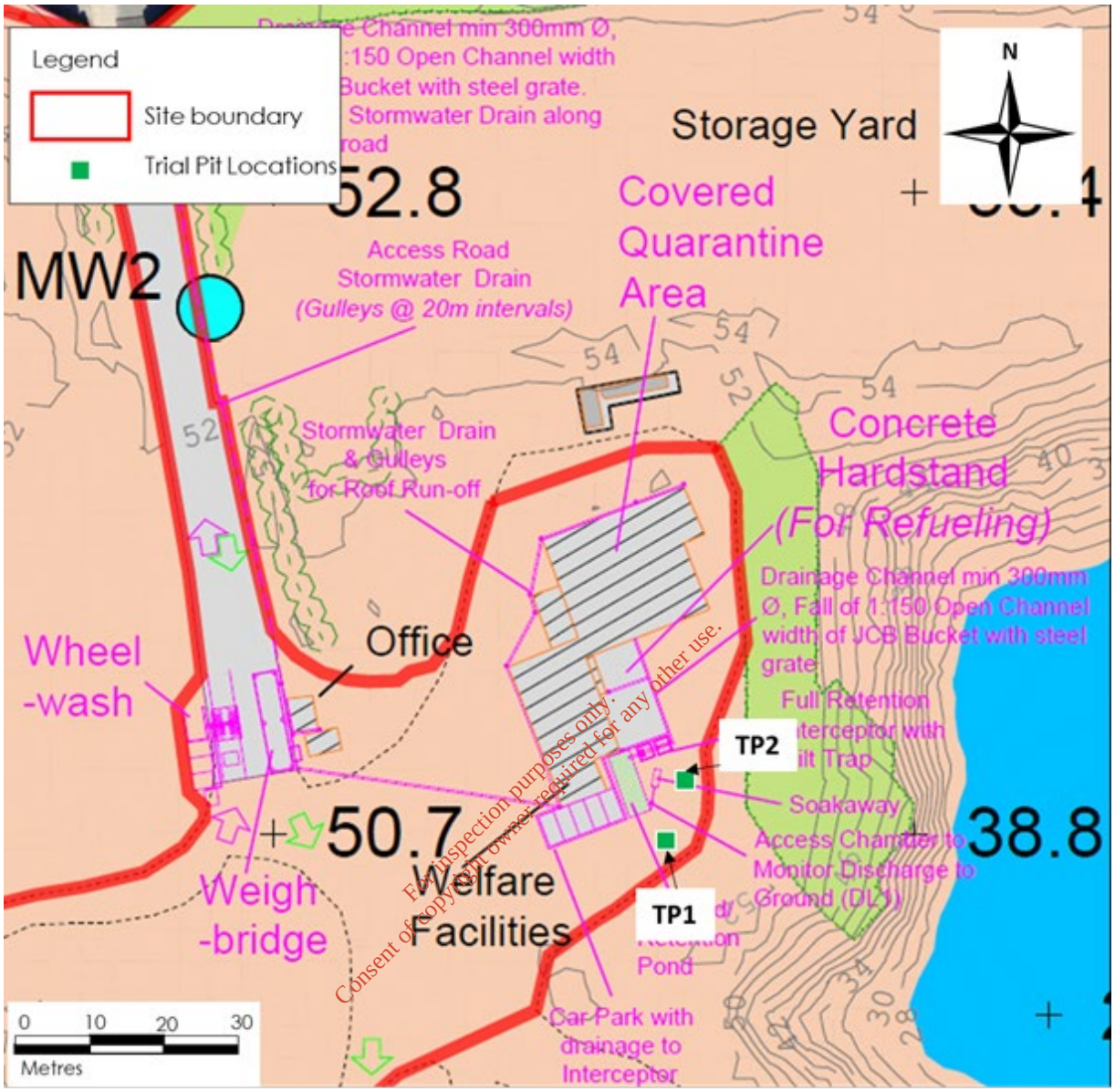


Figure I: Trial Pit Locations (in relation to proposed site layout)

3.3 INFILTRATION TEST

In order to demonstrate that the proposed discharge area has sufficient infiltration capacity to physically accept the treated stormwater and also to design the soakaway size, an Infiltration test, which carried out in accordance with BRE Digest 365, was undertaken on TP01. The infiltration test on TP02 was stopped as the hole collapsed during filing with water. However, the subsoil lithology in both trial holes was the same and a similar infiltration rate would be expected for each hole.

TP01 was filled to the required effective depth (water level) with clean water using a tanker. Water level monitoring was undertaken both manually (dip tape) and with the use of a datalogger which was installed in the trial hole for the duration of the infiltration test.

An infiltration test water level plot for TP01 is shown as **Figure J** below and infiltration calculation sheets are shown in **Appendix I.**

An infiltration rate of 3.9 x 10^{-4}m/s was calculated for TP01 which would be typical of the subsoil type (moderate permeability).

The proposed design of the soakaway based on the infiltration rate is detailed in **Section 4** below.

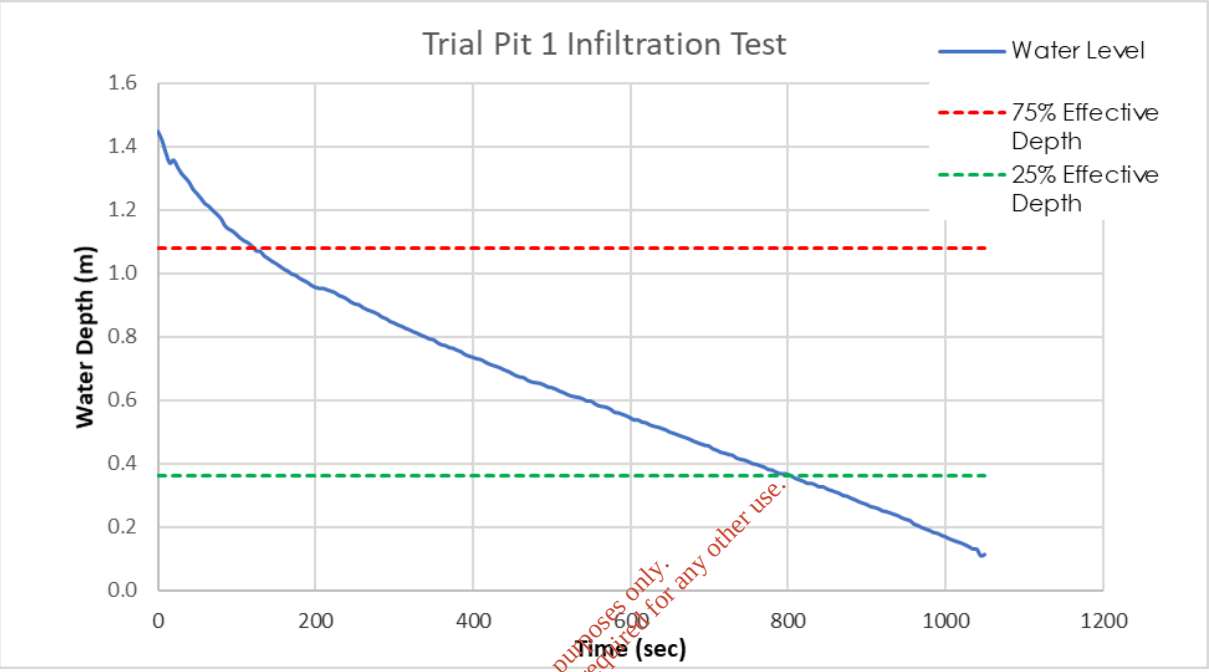


Figure J: Infiltration Test Plot

3.4 MONITORING WELL DRILLING

As part of the 2018 planning application/EIAR, monitoring well drilling at the site was completed by Southern Pumps Drilling between 11th and 25th October 2017 when 4 no. monitoring wells were installed at the site (MW1 – MW4). MW01 and MW02 are closest to the proposed soakaway area and are discussed below as they are expected to reflect the geology below the discharge area. The locations of the wells are shown in **Figure K** below. Monitoring well drilling logs are attached below as **Appendix II**.

MW01 is located approximately 250m to the southwest of the proposed soakaway area and MW02 is located approximately 100m to the northwest.

An upper layer of gravelly till (similar to that encountered at TP01 and TP02) comprising dark brown, gravelly, sandy SILT/CLAY was found to overlie the sands and gravels in the area of MW1 and MW2. The depth of the till was approximately 16m at MW01 and 7m at MW02. Given the slope of the ground to the south and the approximate location of the soakaway between the two wells, the total depth of the tills below the proposed soakaway area is likely to be somewhere between 10 and 12m.

The sand and gravel encountered below the tills could typically be described as brown, dense, silty, sandy GRAVEL. The gravel was fine to medium in size while the sand was mainly course. The sand and gravel was typically found to be a mixture of coarse sands and gravels/cobles of mainly sandstone and siltstone.

No bedrock was encountered in either MW01 or MW02 which were drilled to a maximum depth of 40.25 and 38.4 metres below ground level (mbgl) respectively. This is then taken as an accurate indication of the minimum depth of overburden (38-40m) below the proposed soakaway. Groundwater levels are discussed below.

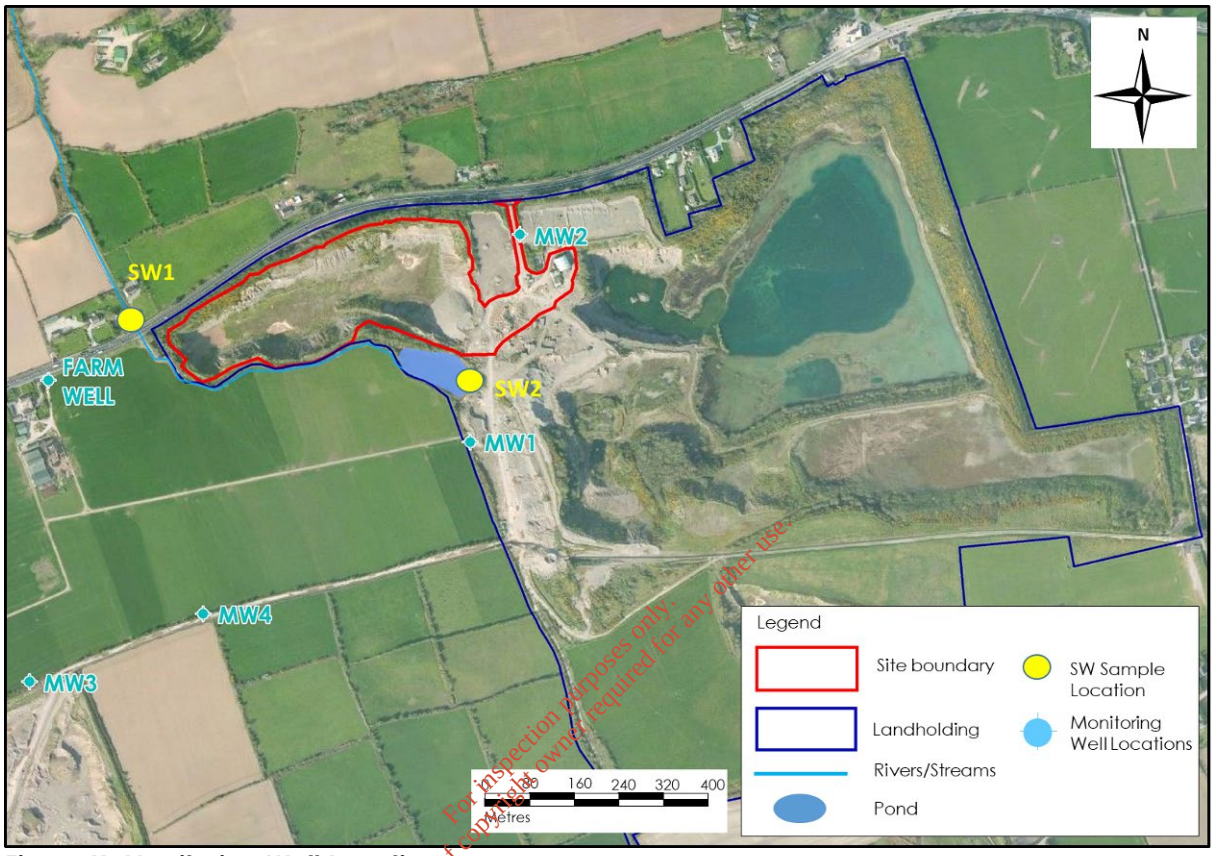


Figure K: Monitoring Well Locations

3.5 GROUNDWATER LEVELS & GRADIENTS

Groundwater level monitoring data for the on-site monitoring wells measured on 27th October 2017 and 11th October 2019 are shown in **Table B** below.

Groundwater levels at the site on 11th October 2019 varied between 27.802mbgl (23.824m OD) and 31.381mbgl (21.066m OD).

Based on the groundwater level elevations (mOD), the groundwater flow direction is down the valley in an easterly direction towards the River Bride as shown in **Figure L** below. The groundwater gradient at the site is calculated to be approximately 0.003.

Based on the measured groundwater levels and the gradient, the groundwater level below the proposed soakaway area is expected to be approximately 30mbgl which is a significant depth of unsaturated material above the groundwater table.

Table B: Monitoring well water levels

Location	27/10/2017		11/10/2019	
	Water Level (mbgl)	Water Level (m OD)	Water Level (mbgl)	Water Level (m OD)
MW01	28.372	22.709	28.572	22.509
MW02	31.161	21.286	31.381	21.066
MW03	27.622	24.004	27.802	23.824
MW04	28.505	23.587	28.685	23.407

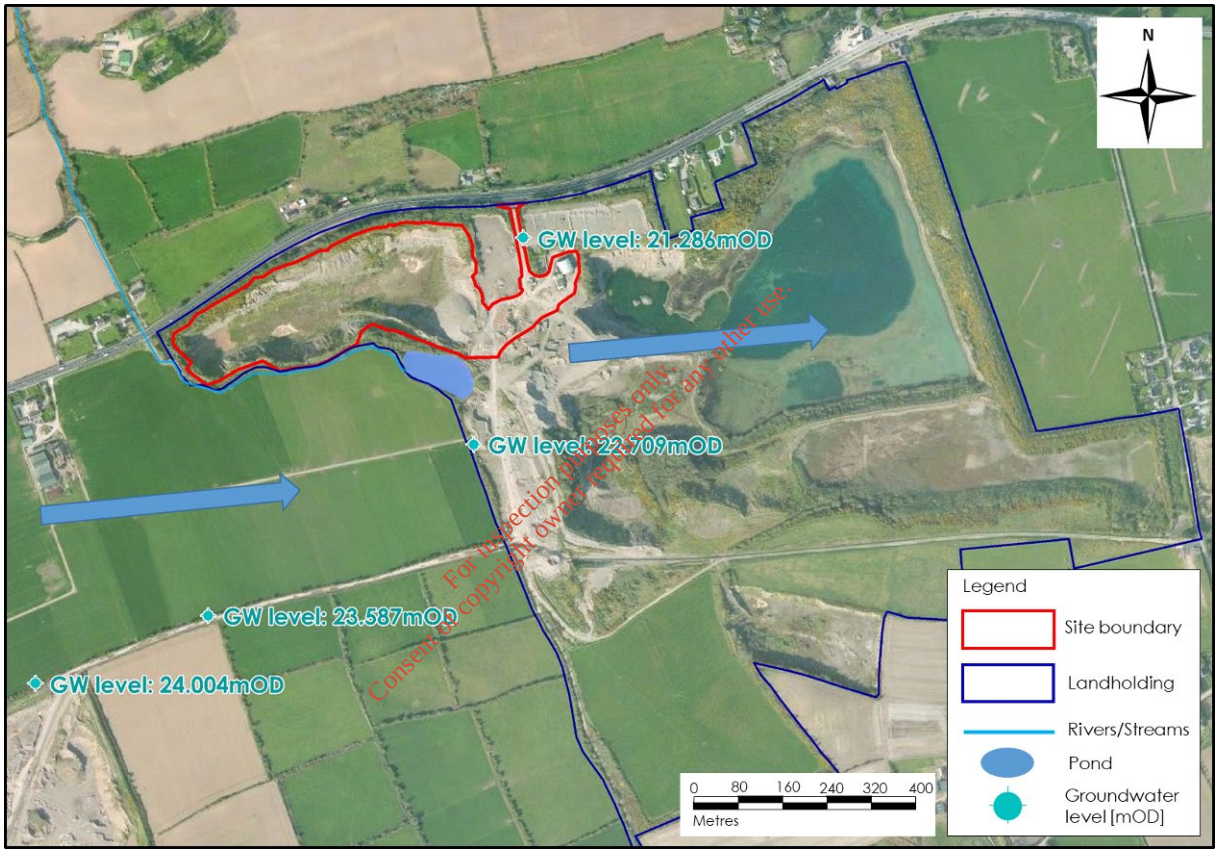


Figure L: Groundwater Levels and Flow Direction

3.6 GROUNDWATER QUALITY MONITORING

Groundwater quality monitoring was completed at the on-site monitoring wells (MW1-MW2) on 27th October 2017 for the purpose of the planning application and EIAR.

Original laboratory reports are attached as **Appendix III**.

The samples were tested for a full suite of parameters, most of which are not relevant to this assessment as the proposed discharge is stormwater runoff (rainfall). The parameter of relevance to this assessment is hydrocarbons. All results are discussed below regardless.

All metals (dissolved) were below the relevant groundwater threshold values with the exception of manganese in MW2 and this likely due to a variation in local geology or

groundwater flow from the bedrock on the valley side to the north of the well location. Manganese is a naturally occurring groundwater mineral and dissolves readily in groundwater where DO levels are low.

Nitrate is relatively elevated in MW2 and this is likely due agricultural practices such as fertiliser / slurry spreading on the lands surrounding the site. Ammonia is also slightly elevated in MW2 compared to the other wells and the only obvious local source is possibly private septic tanks / wastewater treatment units at houses to the north of the site (upslope).

All water samples recorded a BOD of less than 1mg/L which indicates an acceptable level of water quality.

There was no detection of hydrocarbons in MW01 or MW02 which are the wells closet to the proposed percolation area.

4. STORMWATER SYSTEM LAYOUT & DESIGN

4.1 OIL INTERCEPTOR DESIGN

The refuelling yard that will be contributing runoff to the full retention oil interceptor has an area of 124m^2. Using a design 100 -year 24-hour rainfall depth of 95.8mm, the peak flow will be in the order of 11.9m^3/day (0.14L/s).

The proposed full retention oil interceptor model is a FR-NS-40-CC (Molloy Precast) which has a hydraulic capacity of 40L/s which is well in excess of the actual runoff requirement. The oil interceptor design detail is attached as **Appendix IV.**

The interceptor is required to achieve a maximum concentration of 5 mg/L of total hydrocarbons in the final discharge as per the EN858-2002 standard (separator system for light liquids). This hydrocarbon concentration will be the assumed chemical loading value (see **Section 5** below).

The oil interceptor will be discharged to ground via a soakaway pit which is detailed below. The proposed location of the oil interceptor is shown on the site layout drawing (**Figure 1** attached).

4.2 SOAKAWAY DESIGN

The soakaway is sized to accommodate runoff from the refuelling yard (discussed above), the site entrance road (1,172m^2) and the roofing of the covered quarantine area (683m^2) which is a total hardstand area of 1,979m^2. Using a 100 -year 24-hour rainfall depth, the peak flow will be approximately 189.5m^3/day (2.2L/s).

Based on a measured subsoil infiltration capacity of 3.9 x 10^{-4}m/s, the total hardstand area of 1,979m^2 and the 100-year 24-hour rainfall depth (95.8mm), a soakaway of the following dimension, 1m(W) x 1.5m (Effective Depth) x 2.7m (L) would be sufficient from a hydraulic design perspective. However, the proposed soakaway that will be installed at the discharge location will be oversized to 4m in length for conservative purposes.

The proposed location of the soakaway is shown on the site layout drawing (**Figure 1** attached).

The soakaway design calculations are shown in **Appendix V.**

5. HYDROGEOLOGICAL IMPACT ASSESSMENT

This section follows the general principles of a Tier 2 risk assessment which are rooted in the source-pathway receptor model of environmental risk assessment, as per EPA guidance (2011) and which result in a determination of risk and compliance of a discharge activity against relevant water quality standards and objectives.

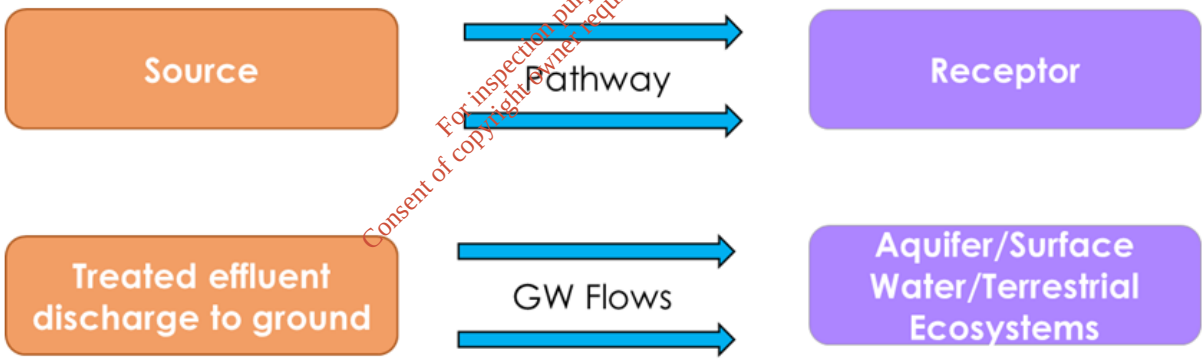
5.1 SOURCE – PATHWAY – RECEPTOR

The conventional source-pathway-target model (see below) for groundwater / surface water protection was applied to assess impacts on the groundwater body and downstream sensitive receptors such as potential wells and GWDTEs.

In the case of the subject site the primary source of impact is from discharge of treated stormwater from the soakaway whereby the primary potential hazard is leaching of residue levels of hydrocarbons to the local groundwater body causing a potential deterioration in groundwater quality.

The pathway in terms of groundwater flow paths is via the saturated sand and gravels which exists at depth below the soakaway.

The primary targets of concern is the underlying gravel aquifer, the River Bride and potential local wells (there are no GWDTEs present locally).



A Conceptual Site Model – hydrogeological schematic of the proposed discharge and associated risks, as discussed above, is attached as **Figure 2.**

Based on the identified groundwater flow paths, a detailed Tier 2 hydrogeological assessment was developed and carried out at the site.

Based on this site specific hydrogeological information, various assessments, as required under the regulations (Refer to **Section 1.4**), are completed below.

5.2 COMPLIANCE WITH EPA GUIDANCE ON DISCHARGE ASSESSMENT

EPA (2011) Guidance on the Authorisation of Discharges to Groundwater outlines the risk based approach and required level of field investigation required in the evaluation of a site's potential to accept a discharge of treated stormwater: This approach has been applied by HES in this case.

EPA (2011) Guidance on the Authorisation of Discharges to Groundwater States that "A technical assessment of a proposed discharge to groundwater activity has to address these basic questions (our responses are provided in bullet point format after each question):

1. ***What are the primary Source Pathway Risk factors associated with the site and discharge activity?***

    - **Source:** stormwater soakaway with hydrocarbon residues likely to be present in the final discharge.
    - **Pathway:** The pathway is vertical percolation down through approximately 30m of unsaturated overburden followed by lateral groundwater movement (to the east) via saturated sand and gravel deposits.
    - **Receptor:** Receptors within the site include the underlying sand and gravel aquifer with potential downstream receptors including local wells (the closet downstream dwelling is 1.3km and it is assumed a well is present) and the River Bride (approximately 2.2km downstream).

2. ***What is the probable risk and predicted impact to groundwater quality and associated receptors?***

    - Given the relative small surface area of the refuelling yard (and small loading volume), the appliance of best standard practice in terms of a full retention oil interceptor, the groundwater protection afforded by the large depth of unsaturation overburden (30m), the permeable nature of the deeper gravels from a dilution perspective and the large downstream distance to off-site receptors such as wells (1.3km) and the River Bride (2.2km), the probably risk and impact is Low. Impacts are addressed in **Section 5.4.**

3. ***What level of technical assessment is required to adequately define and verify risk factors?***

    - A 'Tier 2' level of assessment was carried for this site even though the EPA (2011) guidance states that "Tier 2 assessments generally cover moderate risk activities. A Tier 2 site assessment must demonstrate sufficient infiltration capacity and adequate attenuation potential. Tier 2 assessments also involve the prediction of an impact on groundwater quality using basic calculation procedures. A Tier 2 assessment also requires subsoil characterisation, and besides lithological information and establishing depths to bedrock, the subsoil characterisation should provide estimates of subsoil permeability which can subsequently be used to estimate (calculate) infiltration capacity. All of the above have been completed in this report.

4. ***Is the site hydraulically suitable for effluent disposal?***

    - As assessed in **Section 3.3** and **Section 4.2** above, the presence of moderate permeability subsoils at the proposed discharge means a more than adequately sized soakaway can be installed to accommodate discharge from the oil interceptor and the other hardstand areas.

5. ***Does the site provide for adequate attenuation of pollutants?***

    - The site provides ample opportunity for attenuation of pollutants. The attenuation of pollutants is assessed in **Section 5.4** below.

6. ***What hydraulic and chemical loading may be acceptable such that groundwater quality objectives are not contravened, and harmful effects to human health or the status of aquatic or terrestrial ecosystems are avoided?***

    - The loadings and concentrations of the proposed discharge are presented in **Sections 5.3** below.

7. ***How should a source and groundwater monitoring system be designed and implemented to verify that the impact to groundwater quality and receptors is either negligible or acceptable?***

    - Regular monitoring of the performance of the oil interceptor will be sufficient to ensure groundwater quality effects are negligible.

The required impact assessments are presented below.

5.3 STORMWATER AND ENVIRONMENTAL LOADINGS

The total volumetric loading to the groundwater system is based on a combination of output from the oil interceptor (i.e. refuelling yard runoff) and also "clean" surface water runoff from roofing and the site entrance road (it's assumed no hydrocarbons will be present in this runoff water). The initial chemical loading (i.e. hydrocarbons residues) is based on discharge from the oil interceptor only (i.e. 5mg/L).

The mixing of the "clean" surface water runoff with the treated water from the oil interceptor means any potential hydrocarbons residues in the oil interceptor discharge will be diluted down prior to being released to ground via the soakaway.

For environmental impact assessment purposes (i.e. groundwater quality), the volumetric loading is based on long term rainfall averages for the wettest month rather than a once off 100-year rainfall event. Based on the 30-year averages for Inishcarra, the wettest month is October where the monthly average is 129mm which works out as a daily average of 4.2mm/day. Based on the hardstand area of the refuelling yard (124m^2), the average daily discharge to the soakaway is calculated to be 0.52m^3/day during the wettest month.

Based on a road hardstand/roofed area of 1,855m^2, the "clean" surface water runoff component being released to the soakaway is 7.8m^3/day during the wettest month.

Therefore, this is a dilution factor of approximately 15 fold when the discharge from the oil interceptor is mixed with the "clean" surface water runoff.

Based on maximum hydrocarbon concentration 5 mg/L in the oil interceptor discharge, the final concentration of the hydrocarbons in the water being released would be approximately 0.3mg/L after mixing with the "clean" surface water runoff. The total volume being released (clean + oil interceptor water) would be 8.3m^3/day.

Prior to release into the soakaway it is then proposed to pass the discharge through a constructed wetland/retention pond for further treatment (hydrocarbon removal) where concentrations can be reduced by between 50 and 85% (EPA 2006)[2]. Using the more conservative value of 50%, the above hydrocarbon concentration from the proposed interceptor (0.3mg/L) will be reduced to 0.15mg/L when discharged to the soakaway. The

[2] *Impact Assessment of Highway Drainage on Surface Water Quality – 2000-MS-13-M2 – Main Report ERTD 149 (EPA, 2006)*

proposed location of the constructed wetland is shown on the site layout drawing (**Figure 1** attached).

After release into the soakaway, the effluent must percolate down through some 30m of unsaturated overburden which will treat the effluent and reduce further the hydrocarbons concentrations.

EPA (2006) states that for a 3m depth of unsaturated overburden, hydrocarbons reductions of between 70 and 90% can be achieved. There by applying the more conservative reduction of 70% to the post wetland/retention pond effluent hydrocarbon concentration (i.e. 0.15mg/L), a hydrocarbon concentration of at least 0.045mg/L will be achieved before it reaches the groundwater table below the site. This value can be taken as very conservative, as some 30m of unsaturated overburden exists below the soakaway location rather than just 3m.

5.4 RESULTANT GROUNDWATER CONCENTRATIONS

The risk of deterioration in the quality of groundwater from hydrocarbon residues was assessed by calculation based on adopting EPA (2011) Guidance on the Authorisation of Discharges to Groundwater. Effluent flow rate, groundwater flow rate, background groundwater concentrations and the concentrations in the final effluent are simulation inputs.

$$Cgw = [(Cin \times Qin) + (Cgwu \times Qgw)]/(Qin + Qgw)$$

Where,

Cgw = resulting concentration in downstream groundwater after mixing (mg/L)
Cin = concentration in the effluent water (0.045mg/L)
Qin = volumetric rate of effluent water (8.3m^3/day)
Qgwu = concentration in the aquifer from upgradient areas (Zero mg/L)
Qgw = groundwater flow rate through the sand and aquifer (30m^3/day – see below)

The groundwater flow rate through the sand and gravel aquifer is estimated using the GSI reported permeability of the aquifer which is 50m/day (5.79 x 10^{-4}m/s), the measured groundwater gradient of 0.003 and an estimated groundwater mixing zone width and depth of 20m and 10m respectively downstream of the proposed discharge location. This results in a groundwater flow/flux of 30m^3/day below the soakaway discharge point.

Therefore, based on the above criteria and equation the resultant hydrocarbon concentration immediately downstream of the proposed soakaway discharge point after mixing is calculated to be ~0.01mg/L.

To estimate the hydrocarbon concentration at a further downstream Assessment Point – AP1 (we have taken this to be the eastern boundary of the quarry landholding which is 580m downstream of the soakaway location, refer to **Figure 2**), the groundwater mixing zone width (20m) is extended to the eastern boundary which is a plan area of 11,600m^2 (20m x 580m). Further dilution of residual hydrocarbons will occur at this point due recharge of rainfall (reduction in hydrocarbon concentrations will also occur due to groundwater mixing itself, but due to the mathematical complexity of this mixing and the lack of data downstream of the site this has not being allowed for, therefore the below estimated hydrocarbon concentration at eastern boundary will be very conservative indeed).

The rainfall recharge (654mm/yr) occurring within the mixing zone footprint area (upstream of eastern boundary) is calculated to be 0.654m/year/365=0.0018m/day x 11,600m= 20.8m^3/day.

Therefore, when mixing of the groundwater flow/flux of 30m^3/day (with a conservative hydrocarbon concentration of 0.01mg/L) and the recharge rainfall, the resultant conservative concentration at the downstream eastern boundary (AP1) is calculated (using the above equation) to be 0.006mg/L.

A further downstream Assessment Point (AP2) is assessed at the closest downstream private dwelling which is located on the N22 approximately 1.3km downstream of the soakaway (refer to **Figure 2**). For assessment purposes it is assumed that a groundwater well is located at this dwelling (but not confirmed).

As stated above, there are no private dwelling houses within 1.3km of the proposed soakaway to the east. Due to the fact that the lands to the east (as far as the N22) are used/or proposed for sand and gravel no future dwelling or wells are likely either.

By extending the mixing zone to this point (AP2) the footprint area available for recharge increases to 26,000m^2 (20m x 1300m). The total recharge volume amounts to 46.6m^3/day. Therefore, when mixing of the groundwater flow/flux of 30m^3/day (with a conservative hydrocarbon concentration of 0.006mg/L in the groundwater) and the recharge rainfall, the resultant concentration is 0.002mg/L. Again, no groundwater mixing is allowed for, therefore the actual value is likely to be significantly lower.

5.5 COMPLIANCE WITH GROUNDWATER QUALITY STANDARDS

The key legislative standards with respect groundwater quality are the Groundwater Regulations (S.I. No. 2010) and the Drinking Water Regulations (S.I. No. 122 of 2014). However, there is no threshold value provided for total hydrocarbons in these standards. The EPA Interim Guideline Value (IGV) is 0.01mg/L.

The conservative calculations carried out above for the three groundwater assessment points, Discharge Point, AP1 and AP2, shown that concentrations of hydrocarbons in the groundwater downstream of the discharge point will comply with the IGV.

5.6 CULMULATIVE IMPACTS

With respect to the requirement to consider Cumulative Impacts (Section 3.7, EPA, 2011), there are no other significant stormwater discharges in the area. As such cumulative impacts are considered to be negligible.

5.7 IMPACT ON SURFACE WATER QUALITY

The closet downstream surface water body is the River Bride which exists 2.2km downstream of the site. As demonstrated above, negligible groundwater quality effects are expected downstream of the discharge point.

5.8 REQUIRED SEPARATION DISTANCES

The closet potential downstream well is 1.3km or greater. Therefore, all required separation distances are adhered to.

5.9 MONITORING

Due to the very conservative nature of this assessment and the very low level of expected impacts, regular monitoring of the performance of the oil interceptor will be sufficient to ensure groundwater quality effects are negligible.

6. CONCLUSIONS

- The hydrogeological assessment relates to the proposed indirect discharge of treated stormwater runoff to ground via a full retention oil interceptor;
- A Tier 2 Hydrogeological Assessment is presented in this report and demonstrates the site geology and hydraulic capacity of local subsoils to receive the proposed discharge. An assessment of likely resulting groundwater quality is completed also;
- From a design and site suitability assessment perspective (discharge acceptance), the peak loading will be approximately 189.5m^3/day (100 -year 24-hour storm event);
- Infiltration tests and the follow on soakaway design demonstrate that the site is capable of hydraulically accepting the proposed discharge;
- For environmental impact assessment purposes, the volumetric loading is based on long term rainfall averages for the wettest month rather than a once off 100-year rainfall event. An average volumetric loading of 8.3m^3/day is taken to reflect the wettest month;
- A very conservative assessment with respect groundwater quality impacts was carried out and this indicates that negligible groundwater quality effects downstream of the proposed discharge point will occur, with all values being compliant with the EPA IGV for hydrocarbons; and,
- Due to the very conservative nature of this assessment, the relatively low loading rate and the very low level of expected impacts, regular monitoring of the performance of the oil interceptor will be sufficient to ensure groundwater quality effects are negligible.

****

7. REFERENCES

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Local Government (Water Pollution) Regulations, 1978.

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EPA (2011) Guidance on the Authorisation of Discharges to Groundwater. December 2011.

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FIGURES

SITE NOTICE LOCATION

Drainage Channel min 300mm Ø, Fall of 1:150 Open Channel width of JCB Bucket with steel grate. Drain to Stormwater Drain along access road

+ 57.5

+ 52.8

MW2

Access Road Stormwater Drain *(Gulleys @ 20m intervals)*

Storage Yard

Covered Quarantine Area

+ 53.4

Stormwater Drain & Gulleys for Roof Run-off

Concrete Hardstand *(For Refueling)*

Drainage Channel min 300mm Ø, Fall of 1:150 Open Channel width of JCB Bucket with steel grate

Temporary 4m x 8m sump to allow recharge of rainwater to ground. Relocate as necessary.

Wheel -wash

Office

Full Retention Interceptor with Silt Trap

Soakaway

Access Chamber to Monitor Discharge to Ground (DL1)

.0

+ 40.0

+ 50.7

+ 38.8

Weigh -bridge

Welfare Facilities

Wetland/ Retention Pond

Car Park with drainage to Interceptor

Skips for removal of deleterious material associated with Backfilling. Relocate as necessary.

Quarry Processing Area

Legend

- Applicants Ownership
- Application Area (c. 7.9 ha)
- Pit Area
- Scrubland
- Agricultural Land
- Rough Pasture
- Restored Silt Beds
- Final Profile of lands to be restored using imported inert Soil & Stones.
- Concrete Surface
- Track
- Quarry Stockpiles
- Ponds
- Recolonisation of Shallow Ponds
- Residential Property *(within 250m)*
- Buildings/Structures
- Backfill Phasing
- Contours *(mAOD)*
- 40.0 Spot Levels *(mAOD)*
- Irish Transverse Mercator (ITM) geographic coordinates
- 5m Buffer Strip to Surface Water Course
- Direct Surface Water Runoff to Temporary Sump
- Traffic In
- Traffic Out
- Hedgerow
- Fence
- Gate
- D1 Dust Monitoring Points
- N1 Noise Monitoring Points
- MW1 Groundwater Monitoring Points
- SW1 Surface Water Monitoring Points
- + 21.7 Water Level *(mAOD)* on 27/01/2017

Monitoring Point	ITM		Irish National Grid	
	Easting	Northing	Easting	Northing
Discharge to Ground				
DL1	552859	569905	152899	69842

Map Series:
==========
1:5000

6424
REVISION DATE = 27-Mar-2015
SURVEY DATE = 31-Jul-2000

6379
REVISION DATE = 27-Mar-2015
SURVEY DATE = 31-Jul-2000

Projection:
==========
ITM

Figure 1

Scale 1:1,000

0m 20m 40m

NOTES:

1. All Dimensions in metres (m)
2. Elevation Levels - metres Above Ordnance Datum (mAOD)
3. For Planning Purposes Only. Do not scale for setting out.
4. Survey derived from point-cloud survey (03/2016)
5. Waste Management Infrastructure to be provided shown in purple

JSPE
31 Athlumney Castle, Navan, Co Meath
Phone: 046 9073997
Email: johnsheils@jspe.ie
Web: jspe.ie
J SHEILS PLANNING & ENVIRONMENTAL LTD

CLIENT	Roadstone Ltd
DRAWING	Site Layout - Infrastructure
LOCATION	Garryhesta Pit, Knockenamore, Ovens, Co. Cork

Drawn by	John Sheils	Scale	1: 1,000
Checked by	John Sheils	Job No.	JSPE 255
Date	15/10/19	Figure No.	D13
		Rev.	01

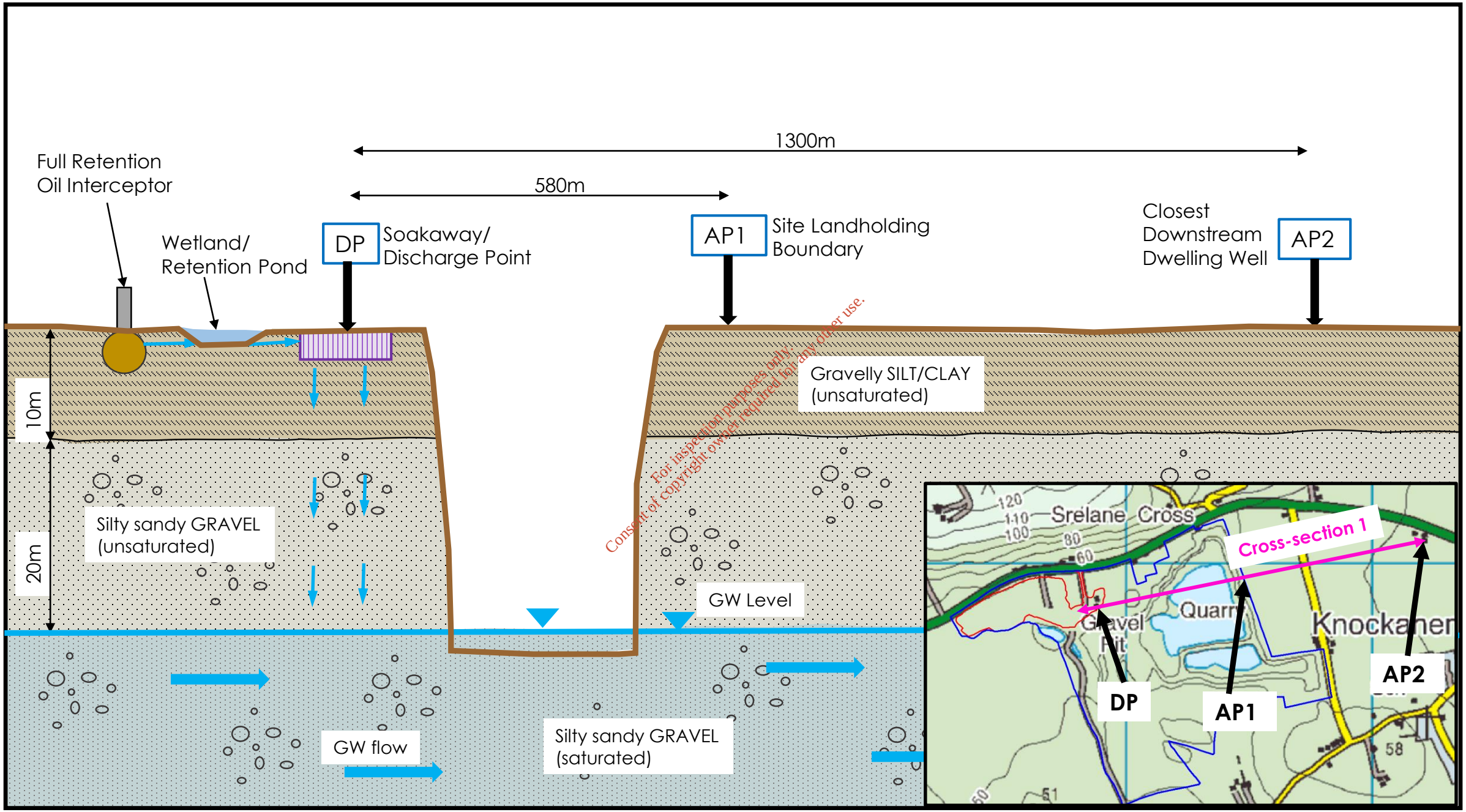


Figure 2: Hydrogeological CSM of Garyhesta

APPENDIX I: BRE365 INFILTRATION CALCULATION SHEET

Project: Roadstone, Garyhesta, Co. Cork
Appendix I: BRE365 Infiltration Test Sheet

q = soil infiltration rate

$q = V_{p75\text{-}25}/a_{p50} \times t_{p75\text{-}25}$

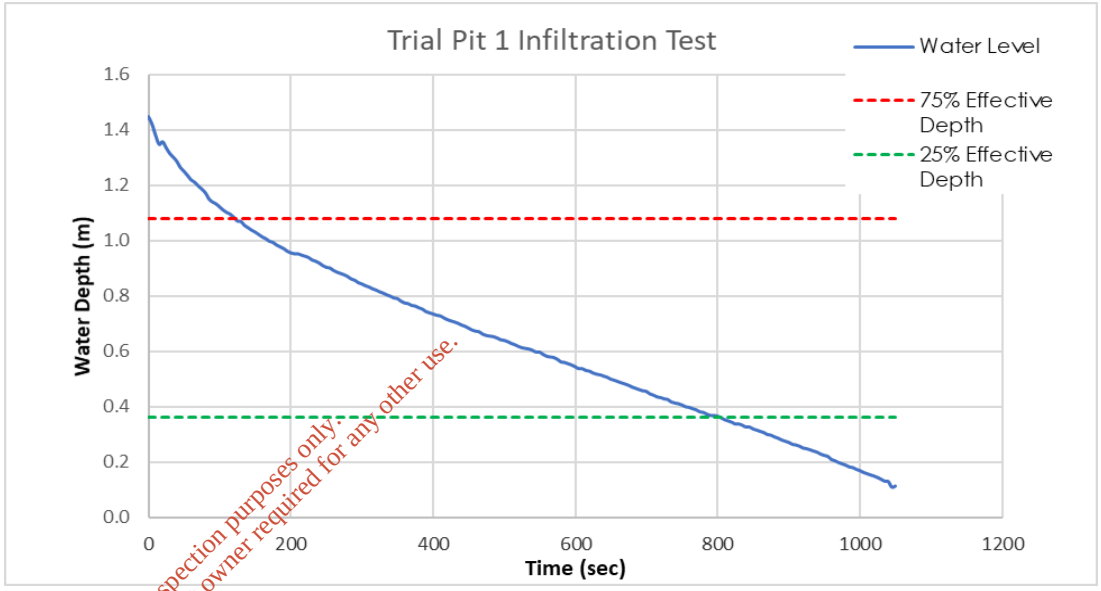
Test Pit Dimensions

Test Hole		Length	Width	Max Eff Depth
TP01		2.8	1.2	1.45

Formula	**Data**		
$t_{p75\text{-}25}$	11.5	mins	*(From graph)*
$V_{p75\text{-}25}$	2.436	m^3	*(From above)*
a_{p50}	9.16	m^2	*(From above)*

Final Result

q	3.9E-04	m/s



APPENDIX II: MONITORING WELL DRILLING LOGS

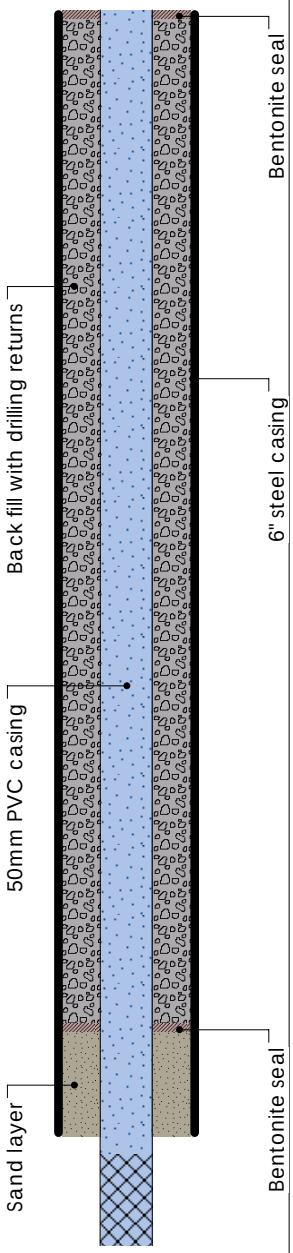
MONITORING WELL DRILLING LOG

WELL NUMBER: MW1

PROJECT NUMBER: P1380-1
SITE: Garryhesta Quarry, Co. Cork
CLIENT: Roadstone Ltd.
DRILLING CONTRACTOR: Southern Pumps Ltd.

DATE STARTED: 10/10/2017
DATE FINISHED: 11/10/2017
LOGGED BY: Brian Coffey (HES)
FLUSH: Air Rotary

EASTING: 552717
NORTHING: 569673
ELEVATION: 51.081mOD



Flush Colour	H2O Inject.	Water Strikes	Fractures	Airlift Q (gal/hr)	Comments	Elevation	Meters Below Ground Surface	Lithology	Formation Description
						51.08	0		Ground Surface
									Dark brown, slightly gravelly, sandy SILT/CLAY
							5		
							10		
							15		
						35.08			Brown, dense, silty sandy GRAVEL (notes:fine to medium gravel, coarse sand, sub-rounded to sub-angular gravel comprising mainly sandstone and siltstone)
							20		
							25		
							30		
							35		
						10.83	40		E.O.H. 40.25mbgl
						9.08			

REMARKS:

Casing (datum) elevation = 51.789mOD
Groundwater level on 27/10/17 - 22.709mOD

PAGE 1 of 1

SCALE As shown

HYDRO-ENVIRONMENTAL SERVICES 22 Lower Main Street Dungarvan Co. Waterford Tel: 058-44122 Fax: 058-44244 Email: info@hydroenvironmental.ie

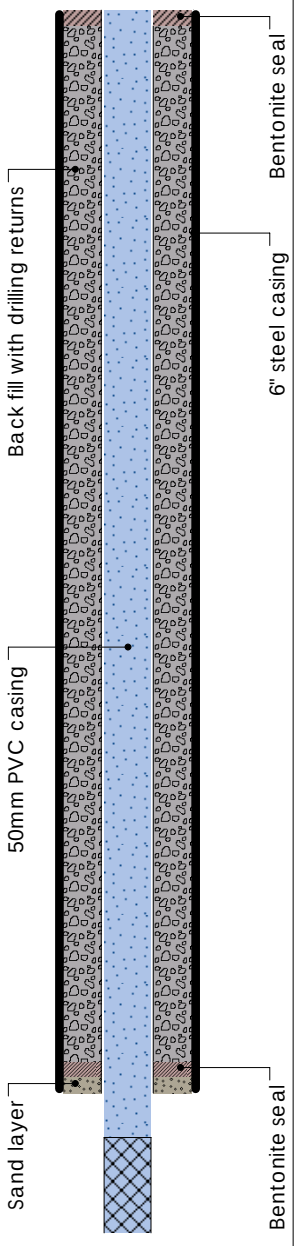
MONITORING WELL DRILLING

WELL NUMBER: MW2

PROJECT NUMBER: P1380-1
SITE: Garryhesta Quarry, Co. Cork
CLIENT: Roadstone Ltd.
DRILLING CONTRACTOR: Southern Pumps Ltd.

DATE STARTED: 11/10/2017
DATE FINISHED: 12/10/2017
LOGGED BY: Brian Coffey (HES)
FLUSH: Air rotary

EASTING: 552790
NORTHING: 569982
ELEVATION: 52.447mOD



Flush Colour	H2O Inject.	Water Strikes	Fractures	Airlift Q (gal/hr)	Comments	Elevation	Meters Below Ground Surface	Lithology	Formation Description
						52.45	0		Ground Surface
									Dark brown, slightly gravelly, sandy SILT/CLAY
						45.45	5		
							10		Brown, dense, silty sandy GRAVEL (notes: Fine to coarse gravel, coarse sand, sub-rounded to sub-angular gravel comprising mainly sandstone and siltstone)
							15		
							20		
							25		
						22.45	30		Brown, very dense, silty, sandy GRAVEL (notes: sub-description as above).
							35		
						14.05			E.O.H. 38.4mbgl
						11.95	40		

REMARKS:

Casing (datum) elevation = 53.286mOD
Groundwater level on 27/10/17 - 21.286mOD

PAGE 1 of 1

SCALE As shown

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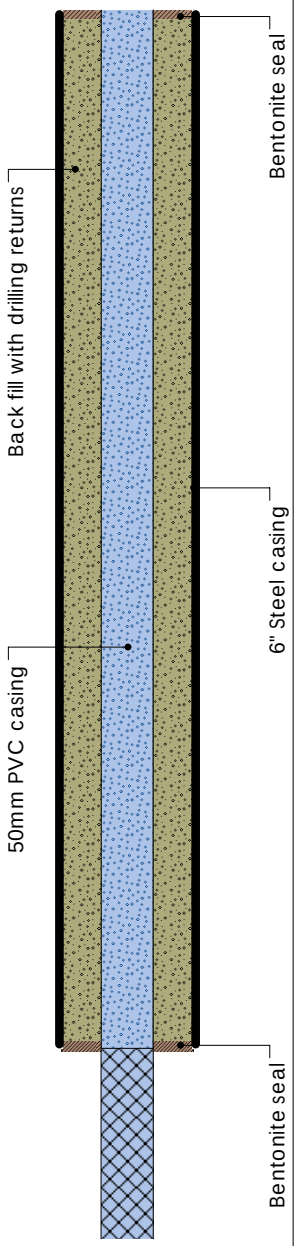
MONITORING WELL DRILLING LOG

WELL NUMBER: MW3

PROJECT NUMBER: P1380-1
SITE: Garryhesta Quarry, Co. Cork
CLIENT: Roadstone Ltd.
DRILLING CONTRACTOR: Southern Pumps Ltd.

DATE STARTED: 12/10/2017
DATE FINISHED: 13/10/2017
LOGGED BY: Brian Coffey (HES)
FLUSH: Air Rotary

EASTING: 552069
NORTHING: 569322
ELEVATION: 51.626mOD



Flush Colour	H2O Inject.	Water Strikes	Fractures	Airlift Q (gal/hr)	Comments	Elevation	Meters Below Ground Surface	Lithology	Formation Description
						51.63	0		Ground Surface
									Brown, dense, silty, sandy GRAVEL (notes: fine to medium gravel, coarse sand, sub-rounded to angular gravel comprising mainly sanstone and siltstone)
							5		
							10		
							15		
							20		
						27.63	25		Brown, very dense, silty sandy GRAVEL (notes: fine to medium gravel, coarse sand, sub-rounded to angular gravel comprising mainly sanstone and siltstone)
							30		
						16.63	35		Bedrock (notes: slightly weathered with thin layer of silt on top. No bedrock returns)
						13.03			
						11.13	40		E.O.H. 38.6mbgl

REMARKS:

Casing (datum) elevation = 52.294mOD
Groundwater level on 27/10/17 - 24.004mOD

PAGE 1 of 1

SCALE As shown

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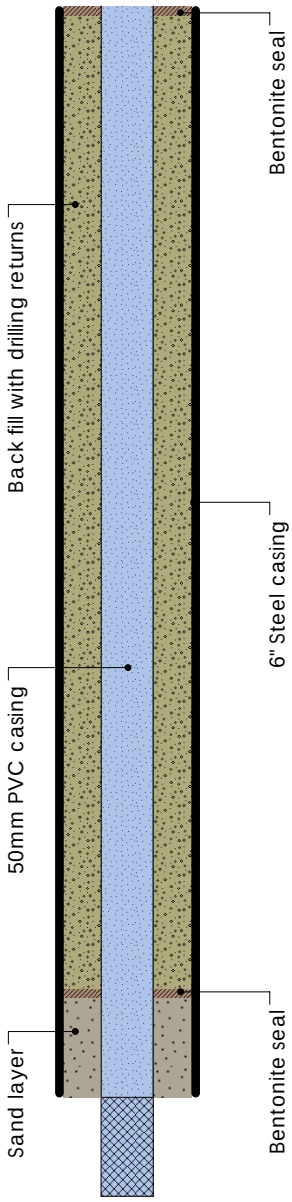
MONITORING WELL DRILLING LOG

WELL NUMBER: MW4

PROJECT NUMBER: P1380-1
SITE: Garryhesta Quarry, Co. Cork
CLIENT: Roadstone Ltd.
DRILLING CONTRACTOR: Southern Pumps Ltd.

DATE STARTED: 16/10/2017
DATE FINISHED: 17/10/2017
LOGGED BY: Brian Coffey (HES)
FLUSH: Air rotary

EASTING: 552325
NORTHING: 569421
ELEVATION: 52.092mOD



Elevation	Meters Below Ground Surface	Lithology	Formation Description
52.09	0		Ground Surface
			Brown, dense, silty sandy GRAVEL (notes: fine to medium gravel, coarse sand, sub-rounded to angular gravel comprising mainly sanstone and siltstone)
44.09	5		
42.09	10		Brown, silty SAND (fine)
			Brown, dense, silty sandy GRAVEL (notes: fine to medium gravel, coarse sand, sub-rounded to angular gravel comprising mainly sanstone and siltstone)
	15		
	20		
	25		
	30		
16.09	35		E.O.H. 36.0mbgl
13.09			

REMARKS:

Casing (datum) elevation = 52.787mOD
Groundwater level on 27/10/17 - 23.587mOD

PAGE 1 of 1

SCALE As shown

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APPENDIX III: ORIGINAL LABORATORY REPORTS

ENVIRONMENTAL LABORATORY SERVICES
EXCELLENCE THROUGH ACCREDITATION

ENVIRONMENTAL LABORATORY SERVICES
Acorn Business Campus
Mahon Industrial Park,
Blackrock,
Cork
Ireland
Tel: +353 21 453 6141
Fax: +353 21 453 6149
Web: www.elsltd.com
email:info@elsltd.com

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 111T

Contact Name	David Broderick	**Report Number**	**119040 - 1**
Address	Hydro-Environmental Services 22 Lower Main Street, Dungarvan,	**Sample Number**	119040/003
		Date of Receipt	27/10/2017
		Date Started	27/10/2017
Tel No	058 44122	**Received or Collected**	Hand
Customer PO	Per Batch	**Date of Report**	06/11/2017
Quotation No	QN007097	**Sample Type**	Ground Waters
Customer Ref	Garyhesta MW 1		

CERTIFICATE OF ANALYSIS

TEST	ANALYTE	SUB	METHOD	LOQ	SPEC	RESULT	UNITS	ACCRED.	OOS
BOD									
	BOD		EW001	1.0		<1.0	mg/L	INAB	
Coliforms									
	Total Coliforms		MIC133	0		21	MPN/100ml	INAB	
Gallery Plus-Suite A									
	Ammonia as N		EW175	0.005		<0.005	mg/l N	INAB	
	Total Oxidised Nitrogen (TON) as N		EW175	0.15		4.7	mg/l N	INAB	
	Nitrate as N		EW175	0.15		4.7	mg/l N	INAB	
	Phosphate (Ortho/MRP) as P		EW175	0.005		0.006	mg/l P	INAB	
GCFID TPH Split									
	TPH >C10 - C20 (DRO)		EO063	10		<10	ug/L		
	TPH >C6 - C10 (PRO)		EO063	10		<10	ug/L		
	TPH >C6-C40 (TPH)		EO063	10		<10	ug/L		
Metals-Dissolved									
	Iron-Dissolved		EW188	20		<20	ug/L	INAB	
	Manganese-Dissolved		EW188	1.0		1.2	ug/L	INAB	
	Cadmium-Dissolved		EW188	0.1		<0.1	ug/L	INAB	
	Copper-Dissolved		EW188	0.003		<0.003	mg/L	INAB	
	Lead-Dissolved		EW188	0.3		<0.3	ug/L	INAB	
	Magnesium-Dissolved		EW188	0.3		10.2	mg/L	INAB	
	Nickel-Dissolved		EW188	0.5		0.8	ug/L	INAB	
	Zinc-Dissolved		EW188	1.0		8.0	ug/L	INAB	
Titralab									
	pH		EW153	0.0		7.6	pH Units	INAB	
Total Dissolved Solids (TDS)									
	Total Dissolved Solids (TDS)		EW046	15		254	mg/L	INAB	
Total Kjeldahl Nitrogen-TKN (CalcGallery)									
	Total Kjeldahl Nitrogen-TKN (CalcGallery)		EW010	1.0		<1.0	mg/l N		
Total Nitrogen									
	Total Nitrogen		EW140	1.0		4.6	mg/L	INAB	

Signed : _____ 06/11/2017

Domenico Giliberti-Technical Manager

NOTES
1.This Report shall not be Reproduced except in full, without the permission of the laboratory and only relates to the items tested.
2.SPEC= Allowable limit or parametric value
3.OOS=Result which is outside specification highlighted as OOS-A
4.LOQ=Limit of Quantification or lowest value that can be reported
5.ACCRED=Indicates matrix accreditation for the test,a blank field indicates not accredited
6."*" Indicates sub-contract test

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Fax: +353 21 453 6149
Web: www.elsltd.com
email:info@elsltd.com

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 111T

Contact Name	David Broderick	**Report Number**	**119040 - 1**
Address	Hydro-Environmental Services 22 Lower Main Street, Dungarvan,	**Sample Number**	119040/002
		Date of Receipt	27/10/2017
		Date Started	27/10/2017
Tel No	058 44122	**Received or Collected**	Hand
Customer PO	Per Batch	**Date of Report**	06/11/2017
Quotation No	QN007097	**Sample Type**	Ground Waters
Customer Ref	Garyhesta MW 2		

CERTIFICATE OF ANALYSIS

TEST	ANALYTE	SUB	METHOD	LOQ	SPEC	RESULT	UNITS	ACCRED.	OOS
BOD									
	BOD		EW001	1.0		<1.0	mg/L	INAB	
Coliforms									
	Total Coliforms		MIC133	0		240	MPN/100ml	INAB	
Gallery Plus-Suite A									
	Ammonia as N		EW175	0.005		0.097	mg/l N	INAB	
	Total Oxidised Nitrogen (TON) as N		EW175	0.15		7.3	mg/l N	INAB	
	Nitrate as N		EW175	0.15		7.3	mg/l N	INAB	
	Phosphate (Ortho/MRP) as P		EW175	0.005		<0.005	mg/l P	INAB	
GCFID TPH Split									
	TPH >C10 - C20 (DRO)		EO063	10		<10	ug/L		
	TPH >C6 - C10 (PRO)		EO063	10		<10	ug/L		
	TPH >C6-C40 (TPH)		EO063	10		<10	ug/L		
Metals-Dissolved									
	Iron-Dissolved		EW188	20		140	ug/L	INAB	
	Manganese-Dissolved		EW188	1.0		180	ug/L		
	Cadmium-Dissolved		EW188	0.1		<0.1	ug/L	INAB	
	Copper-Dissolved		EW188	0.003		<0.003	mg/L	INAB	
	Lead-Dissolved		EW188	0.3		<0.3	ug/L	INAB	
	Magnesium-Dissolved		EW188	0.3		12.5	mg/L	INAB	
	Nickel-Dissolved		EW188	0.5		3.4	ug/L	INAB	
	Zinc-Dissolved		EW188	1.0		11	ug/L	INAB	
Titralab									
	pH		EW153	0.0		6.9	pH Units	INAB	
Total Dissolved Solids (TDS)									
	Total Dissolved Solids (TDS)		EW046	15		201	mg/L	INAB	
Total Kjeldahl Nitrogen-TKN (CalcGallery)									
	Total Kjeldahl Nitrogen-TKN (CalcGallery)		EW010	1.0		<1.0	mg/l N		
Total Nitrogen									
	Total Nitrogen		EW140	1.0		8.1	mg/L	INAB	

Signed : _____ 06/11/2017

Domenico Giliberti-Technical Manager

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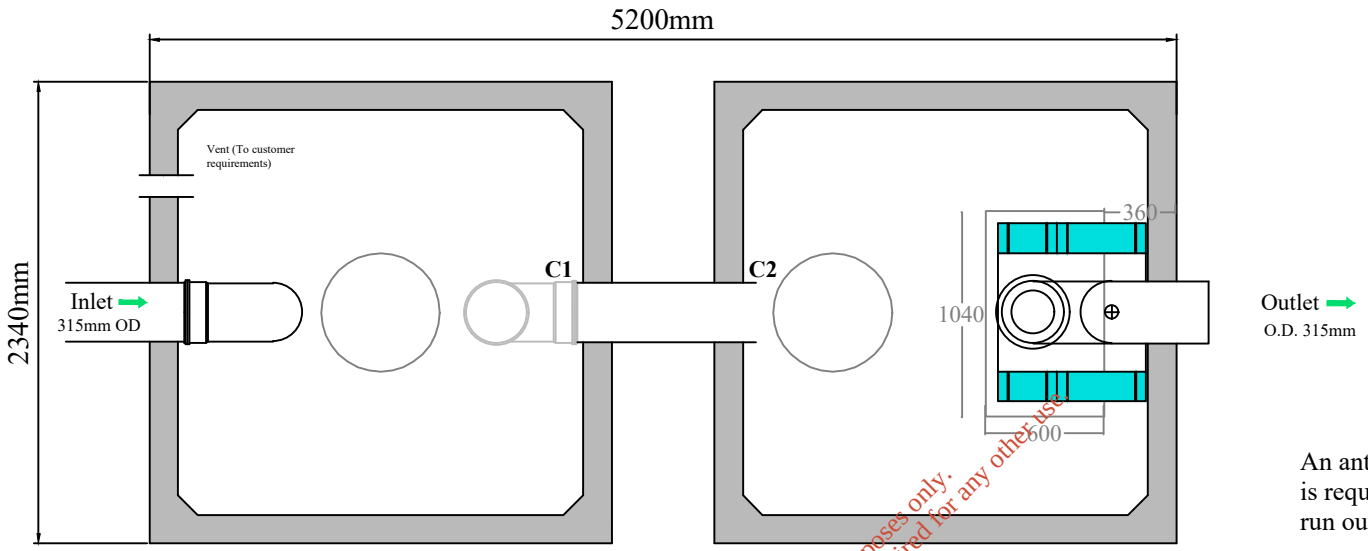
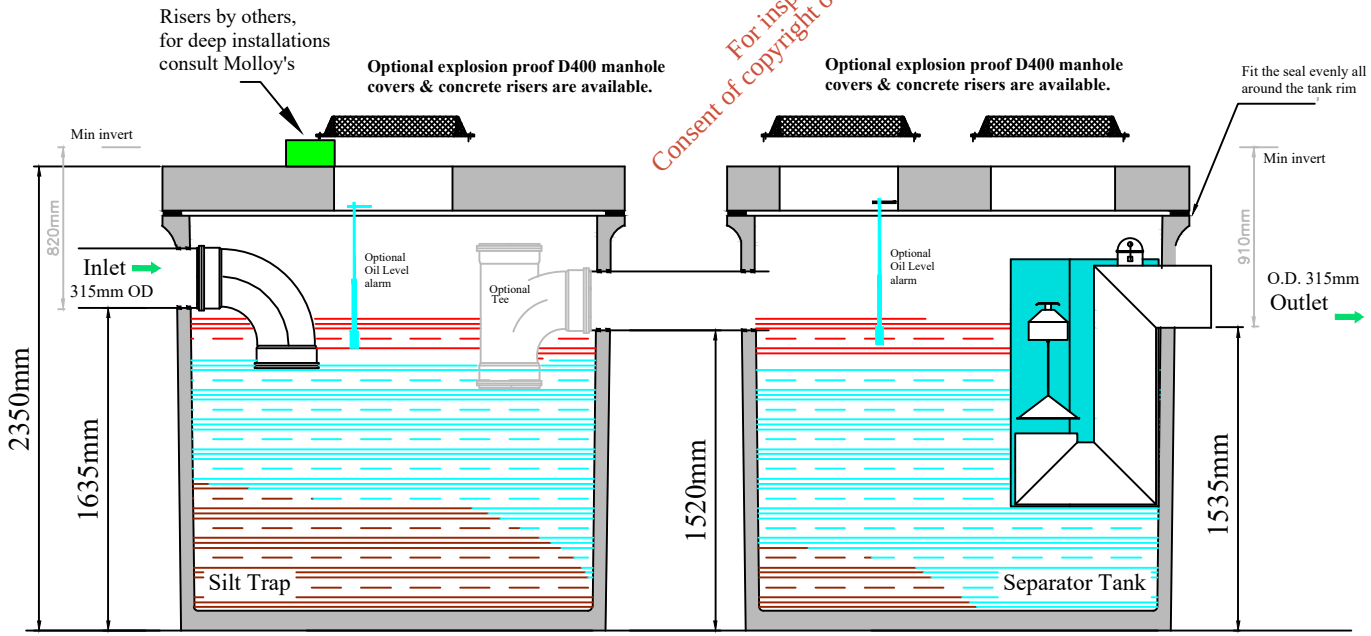
2.SPEC= Allowable limit or parametric value
3.OOS=Result which is outside specification highlighted as OOS-A
4.LOQ=Limit of Quantification or lowest value that can be reported
5.ACCRED=Indicates matrix accreditation for the test,a blank field indicates not accredited
6."*" Indicates sub-contract test

APPENDIX IV: OIL INTERCEPTOR DESIGN

Full Retention Class 1 EN 858 Ortner FR-NS-40-CC Volume 16,000 lit



An anti-syphon vent is required for long run outflows



A good firm, rock free, perfectly level base is required. Soil conditions must be checked by the site engineer. See installation recommendations for guidance.

Notes:

Note: Observe all safety regulations in regard to excavation and lifting requirements. Never leave opening uncovered or unattended at any time.

Note: Specify any specific requirements prior to ordering. All civil works by customer.

Note: Do not scale from this drawing. Only for illustration purposes.

Tank Type: 2CFull Retention Interceptor

Tank Size: 4900mm x 2340mm

Height: 2350mm

Volume: 16000 liters

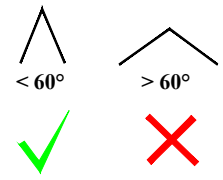
Weight: 4500kg (Each, Ex. Lid)

(**Tank Dim:** ± 20mm. **Weight:** ± 30Kg.)

40 l/s nominal flow @ 65mm/hr rain intensity
2,222m sq. coverage
5,000 lit. silt capacity
2,000 oil capacity
4,000 lit. emergency oil retention.

Accidental damage caused by incorrect lifting is the responsibility of the client.

Lifting limitations:
Max Chain Angle < 60°



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Aswa MOLLOY PRECAST Environmental Solutions
Clara Road, Tullamore, Co. Offaly, Ireland
Tel: 057 9326000 info@molloyprecast.com
Fax: 057 9326060 www.molloyprecast.com

Title: FR-NS-40-CC
Full Retention Interceptor

Date: Mar 2014

Drg. No.: D08 (NTS)

Drawn By: MC

ortner

APPENDIX V: SOAKAWAY DESIGN CALCULATION SHEET

Project Roadstone Ltd, Garyhesta Pit, Co. Cork
Appendix I BRE365 Soakaway Design

Site specific info: Green
Storm specific info: Orange
Required input in Red
Result in Blue

A50=	5.6		**Site Area** =	1979	m*2
V =	1.2	m*3	**f=**	3.90E-04	m/s
O =	188.53	m*3	**Storm Duration =**	86400	s
I =	189.6	m*3	**Rainfall** =	95.8	mm
S = I - O =	1.1	m*3			
S = V	0.2				
T50 =	0.0782	hours			

%FREE V= 0.3
Effective Depth = 1.5 m
Width = 1 m
L = 2.73 m

For a valid design the time for the soakway to half empty from fulll should be less than 24hours

DESIGN OK

Attachment II

Table 1 – Environmental Monitoring Locations

Monitoring Point	ITM		Irish National Grid	
	Easting	Northing	Easting	Northing
Dust				
D1	552273	569853	152313	69790
D2	552966	570039	153005	69976
D3	553679	569508	153719	69445
D4	552962	569097	153001	69034
Noise				
N1	552968	570059	153008	69997
N2	553742	569816	153782	69753
N3	553651	570196	153691	70133
N4	552617	570017	152656	69954
N5	552264	569832	152304	69769
N6	552955	569071	152994	69009
Surface Water				
SW1	552224	569853	152264	69790
SW2	552715	569771	152755	69708
Groundwater				
M1	552717	569673	152756	69610
M2	552790	569982	152830	69919
M3	552069	569322	152109	69259
M4	552324	569421	152364	69358
Farm Well	552096	569770	152135	69708
Discharge to Ground				
DL1	552859	569905	152899	69842

Attachment III

Planning Permission P.Ref 18/05155

Planning inspector's reports
(Primary & Further Information Assessment)

Final Grant of Decision (09/01/19) Including Schedule of Conditions

C O R K C O U N T Y C O U N C I L
Planning & Development Acts 2000 – 2010

Roadstone Limited,
C/o J Sheils,
Planning & Environmental Ltd.,
31 Athlumney Castle,
Navan,
Co. Meath.

Planning Register No: 18/05155

Application by: Roadstone Limited

Of: **C/o J Sheils, Planning & Environmental Ltd, 31 Athlumney Castle, Navan, Co. Meath**

On: **08/05/2018, 23/05/2018 and 28/09/2018**

For: **Development consists of restoration of part (c. 6.7 ha) of existing quarry (QR19 06/11798 & PL04.225332) by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06).The proposed soil recovery facility will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works. Access to the site will be from the permitted main entrance on the N22 National Primary Road. A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A hard-stand with drainage to oil interceptor will also be provided as a designated refuelling area. The total application area including the site infrastructure covers 7.9 ha of lands. The development will be subject to the requirements of the waste management licence. An Environmental Impact Assessment Report (EIAR) will be submitted to the Planning Authority with the application.**

At: **Garryhesta Pit, Knocknemore, Ovens, Co. Cork**

Further to Notice dated the 22/11/2018 Cork County Council hereby conveys a grant of **Permission** for the application described above subject to the conditions set out in the schedule attached to the said Notice dated 22/11/2018 of its intention to grant **Permission**

Signed on behalf of Cork County Council

Pio Treacy

Pio Treacy
DATE: 09/01/2019

NOTE FOR GUIDANCE OF DEVELOPERS

A grant of Planning Permission or Permission Consequent on the grant of Outline Permission does NOT of itself empower a person to carry out a development unless that person is otherwise legally entitled to do so. Unless otherwise stated or unless it is revoked a Permission or Permission Consequent on the Grant of Outline Permission is valid for a period of five years.

Any development which takes place prior to the payment of a financial contribution required by any of the conditions attached to a Permission or Permission Consequent on the grant of Outline Permission will be unauthorized until compliance with the

condition or conditions.

Please note that there is an onus on developers to ensure that there is no danger to the public as a result of the proposed development.

Important Notice for Developers – Conditions Precedent

The enclosed grant of permission may not automatically entitle you to commence the authorised development. This is because many permissions contain "Conditions Precedent" i.e. conditions which must be complied with before development commences. (Such conditions usually contain the phrase 'before development commences' and may require further details to be submitted to and agreed with the Planning Authority). If there are such conditions on your permission please read on.

1) **Early Submission Of Details**

   Where compliance proposals are required by condition you should make them as far in advance of your anticipated commencement date as possible. This is to enable adequate time for the Planning Authority to consider and, when satisfactory, agree the details. Such proposals may need to be revised before agreement can be reached or, in the absence of agreement, may need to be referred to An Bord Pleanala. These potential delays to starting a development can be mitigated by early submission of proposals in the first instance.

   These is no statutory timeframe for responding to such compliance proposals and on an ongoing basis the Planning Authority will be dealing with other priorities including current Planning Applications with statutory decision deadlines. **Therefore submit as early as possible and do not commence development until agreement of the Planning Authority has issued in writing.**

2) **Development Commenced In Advance of Compliance Proposals/Agreements**

   Any development commenced in advance of full compliance with such conditions (including conditions requiring financial contributions, bonds, securities) is unauthorised and leaves a developer liable to **enforcement proceeding** and **heavy penalties**. Simply submitting a proposal may not in itself be sufficient compliance if the condition also requires the Agreement/Approval of the Planning Authority. This will also apply where the Planning Authority becomes aware that a development is about to start (e.g. Commencement Notice) and conditions precedent have not been complied with.

3) **Submission Should Be Addressed As Follows:**

   Compliance with Conditions
   Planning Department, County Hall, Carrigrohane Road, Cork.

The above information is intended for your assistance and guidance in avoiding a situation of unauthorised development and the Planning Authority wishes you every success with the development.

Cork County Council, Planning Department 2019

FIRST SCHEDULE

Planning Ref. No. 18/05155

Having regard to the development plan objectives for the area and the pattern of development in this rural area, it is considered that subject to compliance with conditions attached in the Second Schedule, the proposed development would not seriously injure the amenities of the area and would not be prejudicial to public health and, therefore, would be in accordance with the proper planning and sustainable development of the area.

SECOND SCHEDULE

No.	Condition	Reason
1	The proposed development shall be carried out in accordance with plans and particulars lodged with the Planning Authority on 8/5/18, 23/5/18 & 28/09/18 save where amended by the terms and conditions herein.	In the interests of clarity.
2	Sight distance of 120m to the West and 120m to the East shall be provided from centre point of entrance 3m back from public road edge. Sightlines are to be measured to the nearside road edge in both directions of the entrance. No vegetation or structure shall exceed 1m in height within the sight distance triangle.	To provide proper sight distance for emerging traffic in the interests of road safety.
3	Vegetation or any structure shall not exceed 1m in height within the sight distance triangle.	To provide proper sight distance for emerging traffic in the interests of road safety.
4	Any utility poles currently within the roadside boundary set back required by other conditions of this schedule shall be repositioned behind the new boundary, and any surface chambers or manholes within it shall be repositioned in a location or at a level to be agreed with in writing Planning Authority. The applicant shall be responsible for the costs of relocating these facilities, for notifying the relevant statutory undertakers, for obtaining any necessary licenses, and for notifying the Planning Authority of the revised locations of such utilities, prior to commencement of development, or, at the discretion of the Planning Authority, within such further period or periods of time as it may nominate in writing.	To protect existing utility infrastructure.
5	Surface water shall be disposed of within the site by means of soakaways and shall not be allowed to flow onto public road.	To prevent the flooding of the public road.
6	Existing roadside drainage arrangements shall be preserved to the satisfaction of the Planning Authority.	To preserve proper roadside drainage and to prevent the flooding of the public road.
7	Existing road drainage shall not be obstructed and any the new entrance shall be designed and constructed to ensure the	To maintain proper roadside drainage and to prevent the flooding of the public road.

	uninterrupted flow of road surface run-off.	
8	Existing inlets or drains taking surface water from the public road into the site shall be preserved and maintained.	To prevent flooding of the public road.
9	A drainage grating, along with a discharge pipe to a soakaway located within the site, shall be installed at the entrance to the site to the satisfaction of the Planning Authority.	To prevent flooding of the public road.
10	Prior to the commencement of development, detailed biodiversity restoration proposals shall be submitted to the planning authority. These proposals shall include details of habitat creation/ enhancement measures to be implemented at the site, including management of grass margins, conservation of solitary bees, coppicing and planting of native trees and hedgerows and establishment of species rich hay meadow. The plan shall include a map, identifying the areas to be restored/enhanced for biodiversity, shall include details of proposed timing of implementation of the plan, as well as details of management and oversight of implementation by an ecologist. The plan shall be agreed in advance of the commencement of restoration proposals.	In the interests of ensuring appropriate restoration of the site.
11	In order to prevent damage to habitats of biodiversity value on the margins of this site, a temporary line of fencing shall be erected around the immediate footprint of the development site. This shall include for the protection of a minimum of a 5m buffer between the works area and the watercourse to the south of this site. The fence shall be installed before any equipment, machinery or materials are brought on to the site for the purposes of the development, and shall be maintained until all equipment, machinery and surplus materials have been removed from the site. Nothing shall be stored or placed within areas of natural value outside the works site in accordance with this condition, and the ground levels within this area shall not be	To prevent damage to the Special Area of Conservation.

	altered, nor shall any excavations be made.	
12	Ground clearance works within the site shall take place outside the bird breeding season (1 March to 31 August).	To minimise potential for works to cause disturbance to breeding birds.
13	There shall be no interference with bridging, draining or culverting of any watercourse, its banks or bankside vegetation to facilitate this development, without the prior approval of Inland Fisheries Ireland.	To protect natural heritage.
14	The Environmental Management System for the site shall include a complaints record. The applicant shall record all complaints received relating to site operations of the proposed development. The record shall contain the name of the complainant, nature, time and date and a summary of the company's investigation and response including the name of the person who investigated the complaint and their relationship to the developer or operator of the site. All records of complaints shall be made available to the Local Authority on request whether requested in writing or by a member of staff of the Local Authority at the site.	To provide for information on the nature of complaints received and the company's investigation and response.
15	All site surface water shall primarily be disposed of within the site by means outlined in application. Surface water drainage contaminated with hydrocarbons (including storm water from bunded areas and car park areas) shall be discharged via a grit trap and a hydrocarbon interceptor before being discharged to surface water system. An inspection chamber with sump to be provided between hydrocarbon interceptor and the discharge area. The sump shall be of a minimum size of 500mm square and 400mm deep and shall be of watertight construction. The interceptor and sump shall be installed and operated to the satisfaction of the Planning Authority.	
16	The applicant shall inspect the hydrocarbon interceptor(s) monthly and shall maintain on the site, at their own expense, a register for each year, which shall	To prevent water pollution.

	include details of the monthly inspections and maintenance of the interceptor. The register shall be made available for inspection by the Planning Authority at all reasonable times of operation.	
17	The developer / operator of the site shall ensure that all waste leaving the site shall be transported only by permit holders/waste collectors/carriers authorised in accordance with the Waste Management Act, 1996 and Waste Management (Collection Permit) Regulations 2007 as amended or else persons exempted from holding waste collection permits.	To prevent illegal dumping of waste.
18	The applicant / developer / operator of the site shall ensure that soiled water containment measures are put in place during the course of the activity to ensure that soiled water runoff from the site shall not enter into any watercourse.	To safeguard the amenities of the area and prevent water pollution.
19	The developer / operator of the site shall take measures to ensure that the site development activities do not give rise to dust, mud, dirt, litter or debris carried onto or deposited on the public road or footpath, and shall be responsible for the immediate removal from the public road or footpath, of any dust, mud, dirt, litter or debris caused by the construction works. The operator of the site shall ensure that dust deposition arising out of the demolition and construction activities on site shall not exceed 350 mg/m2/day at the site boundary averaged over 30 days. Results shall be submitted to the Planning Authority on a monthly basis from the commencement of activities until work is completed to the satisfaction of the Planning Authority. The applicant / developer / operator of the site shall take adequate steps to prevent dust generation in dry weather periods. The applicant / developer / operator of the site shall spray the current working area with clean water to minimise dust	In the interests of the maintaining the amenities of the area ,traffic safety and prevent air pollution

	generation. The access road to the site shall also be sprayed during dry weather.	
20	The developer / operator shall ensure that all hazardous waste arisings from the proposed development shall be disposed of in a manner agreed by the Planning Authority and shall not be presented for refuse collection or for disposal at any landfill site.	To safeguard the amenities of the area and prevent water pollution.
21	The operator of the site shall ensure that all liquids and hydrocarbons stored on site during demolition and construction phases shall be stored in a waterproof bunded area of sufficient volume to hold 110% of the volume of the largest tank within the bund. All valves on the tanks shall be contained within the bunded area. All operations involving the loading and unloading of hydrocarbon products shall take place in this bunded area in such a manner as to avoid any pollution of waters. The bunded area shall be fitted with a locking valve which shall be opened only to discharge to a sump prior to collection for treatment off site. The operator shall provide and maintain at the facility a spill kit to deal with spillages of oils, fuels and acids.	To prevent water pollution.
22	The operator of the site shall ensure that all site surface water draining from car parking/offloading areas or any site surface water contaminated with hydrocarbons shall discharge via a grit trap and appropriate interceptor before discharging to any surface water body(stream, river or lake). An inspection chamber with a sump shall be constructed between the interceptor and the surface water drain. The sump shall be of a minimum size of 500mm square and 400mm deep. The interceptor and sump shall be installed and operated to the satisfaction of the Planning Authority. The applicant shall undertake an inspection of the interceptor traps monthly and shall maintain a register of the outcome of such inspections. The register shall be made available for inspection by the planning authority at all reasonable times.	To ensure an appropriate contaminated wastewater monitoring regime is in place and prevent pollution of water sources and resources.

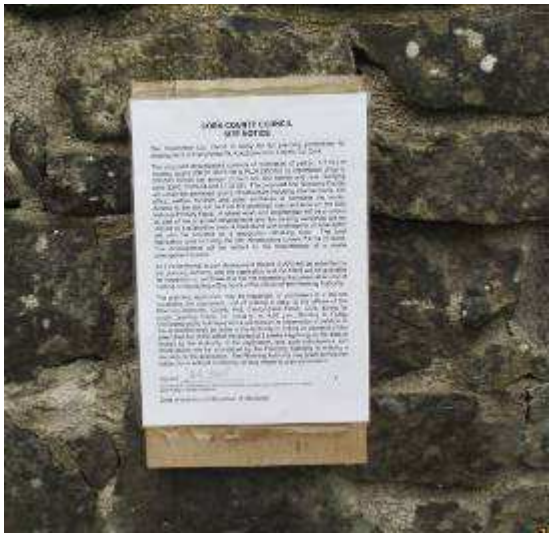
23	The applicant / developer / operator shall provide a buffer zone of 5m between the area of infilling and hedgerows/ mature trees, watercourses unless otherwise agreed in writing with the Local Authority. The applicant / developer / operator shall erect temporary fence(s), for the lifetime of the planning, to ensure that all buffer zone(s) are/is maintained unless otherwise agreed in writing with the Local Authority. No material is to be deposited within this area. The fence(s) shall be erected prior to the commencement of any works on the site.	To safeguard the amenities of the area and control water pollution.
24	Noise levels emanating from the proposed development when measured at the boundary of the nearest noise sensitive locations which require protection from disturbance, shall not exceed 55 dBa (30 minute Leq) between 08.00 hours and 20.00 hours Mondays to Saturdays inclusive and shall not exceed 45 dBa (15 minute Leq) at any other time. Measurements shall be made in accordance with I.S.O. Recommendations R.1996/1 "Acoustics Description and Measurement of Environmental Noise, Part 1: Basic Quantities and Procedures." If the noise contains a discrete, continuous note (whine, hiss, screech, hum, etc.), or if there are distinct impulses in the noise (bangs, clicks, clatters, or thumps), or if the noise is irregular enough in character to attract attention, a penalty of +5 dBA should be applied to the measured noise level and this increased level shall be used in assessing compliance with the specified levels. (Ref. BS 4142 Section 7.2).	To safeguard the amenities of the area and control noise emissions from the development.
25	The applicant / developer / operator of the site shall undertake a noise monitoring survey if so directed by the Local Authority. The survey and the monitoring sites used shall be agreed with the Local Authority in advance. The results of the survey shall be submitted to the Local Authority within one month of	To safeguard the amenities of the area and provide for noise monitoring.

	completion of the survey.	
26	If so requested by the Local Authority, the applicant / developer / operator of the site shall, at their own expense, carry out such further investigations and monitoring of the facility as required by the Local Authority. The scope, detail and programme, including report structure and reporting schedule, for any such investigations and monitoring shall be in accordance with any written instructions issued by the Local Authority. In the event of pollution of waters in the vicinity of the site, or of a leachate discharge onto adjoining lands, input of waste onto the site shall cease, and remedial measures shall be carried out immediately as directed by the Local Authority.	To safeguard the amenities of the area.
27	The applicant / developer / operator of the site shall take adequate steps to control and eliminate the growth and spread of non-native invasive species such as Japanese Knotweed plants. The applicant / developer / operator of the site shall use best available techniques to rid the site of non-native invasive species such as Japanese Knotweed plants should they occur. The applicant / developer / operator of the site shall refer to http://www.invasivespeciesireland.com/ for good practice guidelines regarding this matter.	To safeguard the amenities of the area.

APPLICATION NO.	18/05155
APPLICANT	Roadstone Limited
DESCRIPTION	Development consists of restoration of part (c. 6.7 ha) of existing quarry (QR19 06/11798 & PL04.225332) by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06).The proposed soil recovery facility will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works. Access to the site will be from the permitted main entrance on the N22 National Primary Road. A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A hard-stand with drainage to oil interceptor will also be provided as a designated refuelling area. The total application area including the site infrastructure covers 7.9 ha of lands. The development will be subject to the requirements of the waste management licence. An Environmental Impact Assessment Report (EIAR) will be submitted to the Planning Authority with the application.
LOCATION	Garryhesta Pit Knockanemore Ovens Co. Cork
DECISION DUE DATE	02/07/2018

1. Site Notice and Date of Inspection

Site was inspected on 31/5/18 & 13/6/18 and the site notices were correctly displayed.



Site notice at N22

2. Site description

The subject site is part of the larger Garyhesta Quarry site, which is located in Knockanemore townland, in Ovens. The site is immediately adjacent to and south of the N22 national route and is approx. 1.5km west of Ovens village. The subject site measures 6.7hectares and this is only part of the overall site. The subject site is located at the western end of the overall site. The site is within an area where quarrying is a dominant land-use along with agriculture. The site is owned by Roadstone Ltd. who operate 11 locations in Munster, including quarries, gravel pits, blockyards, readymixed concrete plants, blacktop plants, pipeworks and DIY centres. The site is not visible from the N22 due to the dense tree and hedgerow planting. The site is also located within the valley of the River Bride and is therefore a well screened site overall. There are a number of one off houses to the north of the site, on the opposite side of the N22.

View of existing worked out quarry, proposed for restoration (looking from east to west).

3. Planning History

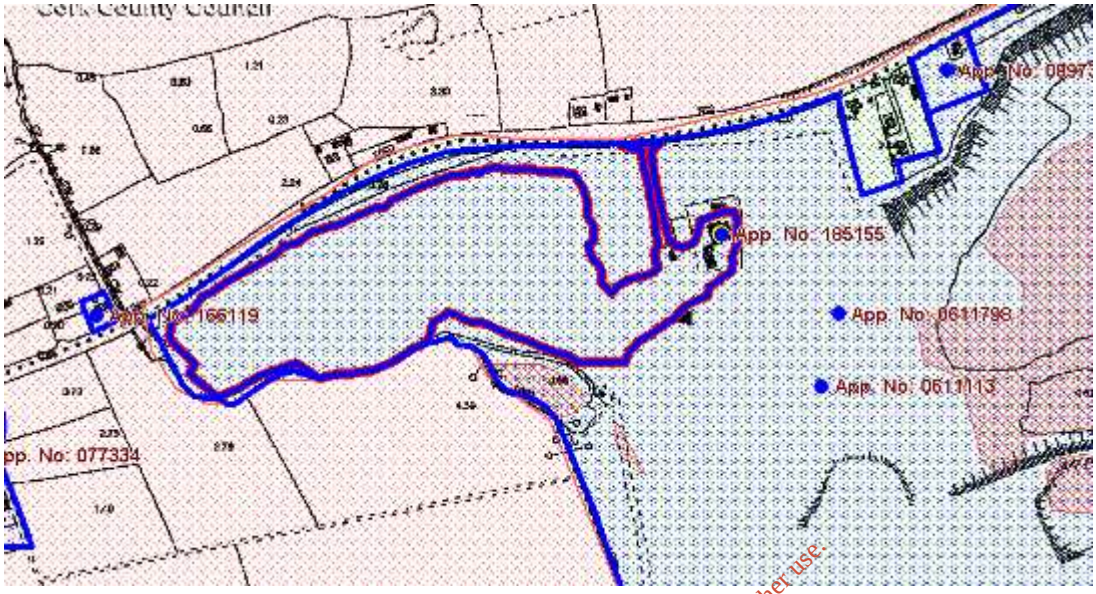
There was a pre 1963 quarry operating on this site. It is noted that the application site is part of a working sand and gravel pit which has been operating since the 1940's.

Section 261 application (QR19) for registration of the quarry was submitted by John A Wood Ltd. This determined that an application for planning permission together with an EIS was required to be submitted to Cork County Council for continued operation of the quarry. Quarry was registered.

06/11798 & PL04.225332

Planning permission was granted for continuation of sand and gravel extraction and processing including extraction beneath water table by mechanical means using conveyor systems feeding the aggregate processing area, power house and control rooms, washing, screening and crushing plant, lagoons and landscaping berms and associated works and restoration for JA Wood Ltd. Application was accompanied by EIA.

A section 261A review was carried out for the site by Cork County Council. It was concluded that the Planning Authority was not required to make a determination under S261 (2) (a) as this quarry had been lawfully assessed and permitted.



Approx. Location of proposed development in red above.

4. Proposed Development (including supporting material)

Planning permission is now sought for a development which will consist of; Restoration of part (c. 6.7 ha) of existing quarry (QR19 06/11798 & PL04.225332) by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06).The proposed soil recovery facility will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works. Access to the site will be from the permitted main entrance on the N22 National Primary Road. A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A hard-stand with

drainage to oil interceptor will also be provided as a designated refuelling area. The total application area including the site infrastructure covers 7.9 ha of lands. The development will be subject to the requirements of the waste management licence. An Environmental Impact Assessment Report (EIAR) will be submitted to the Planning Authority with the application. The site is located at Kockanemore, Ovens.

5. Pre-planning

Yes. Sept. 2017.

6. AA Checklist Option

The site is not within a Natura site screening zone. Requirement for Appropriate Assessment has been screened out for this proposed development having regard to the lack of ecological or hydrological connection between the development site and any European Site.

7. Policy Context

Waste Framework Directive 2008 (2008/98/EC)

The WFD provides the overall structure for an effective and safe waste management regime in Europe and was transposed into Irish law in 2011. The Directive describes the basic concepts and definitions related to waste management, such as the definition of waste, recycling and recovery. The Directive requires Members States to adopt waste management plans and waste prevention programmes.

The Southern Region Waste Management Plan (2015-2021)

Is the framework for the prevention and management of wastes in a safe and sustainable manner.

This provides that the Region will implement EU and national waste and environmental policy, legislation, guidance and codes of practice to improve management of material resources and wastes.

The Quarries and Ancillary Activities Guidelines for Planning Authorities (April, 2004).

This offers guidance to Planning Authorities on planning for the extractive industry through the development plan process and determining applications for planning permission for quarrying and ancillary activities. The method of extraction, together with proposed restoration schemes, where properly planned and implemented, can minimise potential adverse impacts.

Section 3.6 refers to Restoration and Landscaping and provides:
All proposed extractive development proposals must be accompanied by detailed restoration and After -care plans

Section 3.9 includes:
Quarries should consider using inert C and D waste arisings, which do not have the potential to displace natural aggregates, for reinstatement and restoration purposes on the quarry site. Production residues may be useful for backfilling pits and quarries.

The site is within the 'Rural Area Under Strong Urban Influence' as set out in the 2014 Cork County Development Plan.

ECON 5-13 Impacts of Mineral Extraction

- *It is an objective to minimise environmental and other impacts of mineral extraction through rigorous application of licensing, development management and enforcement requirements for quarries, mines and other developments.*
- *It is an objective in particular for new quarries and mines and extension to existing quarries and mines to have regard to visual impacts, methods of extraction, noise levels, dust prevention, protection of rivers, lakes European Sites, and other water sources, impacts on residential and other amenities, impacts on the road network (particularly with regard to the making good any damage to roads) road safety, phasing, re-instatement, and landscaping of worked sites.*
- *Restoration of decommissioned quarries and other extraction sites should be appropriately assessed and follow guidelines when prepared by the County Council from time to time and identify alternative safe uses that land could be put to.*

The site itself is not within a flood zone.

The site is not within a Natura 2000 screening zone.

8. Internal Consultants

The Area Engineer recommends deferring a decision for further information with regard to surface water and a plan of proposed routes for HGVs accessing the site.

The Environment Section has considered the proposal and recommends deferring a decision for further information.

The NRDO has no comments on the proposal.

9. External Consultants

HSE – the HSE has commented on the development under the following headings; water quality, air quality, noise and public consultation. It is noted that public consultation was minimal and has not been mentioned within the EIAR and they are under the impression that there is no non-technical summary (there is). It is recommended that public consultation be undertaken and that a complaints record be kept for the site.

EPA – it is noted that the development proposed may require a license, in accordance with the Waste Management Act. It is noted that the agency has not yet received an application for a license.

Inland Fisheries Ireland – suggest a number of conditions which should be attached in the event of a grant of planning permission.

TII (Transport Infrastructure Ireland) – has no observations to make.

10. Public Submissions
None received.

11. Public Representative Submissions
None received.

12. **Assessment and Conclusion**
The subject site forms part of a larger existing quarry site i.e. Garryhesta Quarry, located south of and adjacent to the N22 approx. 2km west of Ovens Bridge.

Proposed Development
This application is seeking planning permission for the restoration of part (c. 6.7 ha) of existing quarry (QR19 06/11798 & PL04.225332) by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06).The proposed soil recovery facility will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works. Access to the site will be from the permitted main entrance on the N22 National Primary Road. A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A hard-stand with drainage to oil interceptor will also be provided as a designated refuelling area. The total application area including the site infrastructure covers 7.9 ha of lands. The development will be subject to the requirements of the waste management licence.

The landowner of the site is Roadstone Ltd.

The application is accompanied by an EIAR, which has been prepared by J. Shiels Planning and Environmental Ltd. A non technical summary of the EIAR is also included.

Assessment
Need for the proposed development
There is no specific justification for this particular proposal but it is stated in general terms that there is a need for soil recovery facilities locally and this site is obviously a suitable site for same.
The Environment Section has recommended that further information be sought in the form of an Agricultural Report for this proposed development i.e. a justification for the proposed development in terms of the benefit to agriculture must be outlined.

Principle of Development
At present there is no national policy for soil recovery facilities. The EPA has prepared a Draft Guidance Document (Dec. 2017) for licensed Soil Recovery facilities which addresses their licence requirement for Waste Acceptance Criteria (WAC). Public submissions were accepted until 16th March 2018. The Draft Guidelines

mainly address waste acceptance criteria for backfill material and the development of soil trigger levels.

The subject site is located within an existing long-established quarry site. It is known that there is a shortage of suitable and/or authorised sites in Cork to take waste soil from existing and future development sites. The proposal represents a beneficial reuse of such material. Given the long established permitted use of the site and the nature of the proposal i.e. restoration of the site it is considered that the development is acceptable in principle subject to normal proper planning considerations.

Description of development
The site in question is a worked out sand and gravel pit located at the western end of the Garryhesta site. There is an existing entrance to the quarry at the eastern end of the subject site which will continue to be used for the development. It is proposed to reclaim the quarry by infilling the large exposed void with inert soil and stones and river dredging spoil. It is intended that the soil recovery facility will utilise the existing quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works, a wheel wash and weighbridge will be provided as part of the proposed development and an existing workshop will be used as a quarantine area. A refuelling area will be constructed with a hard standing surface with drainage to oil interceptor.

The soil recovery facility will involve the importation of less than 300,000 tonnes per annum (i.e. c. 15,000 inbound HGV movements annually or in the region of 52 inbound HGVs per day). A restoration plan has been submitted with the application, detailing the progressive backfilling of the quarry void on a phased basis, with natural inert soil and stone and dredging spoil sourced externally and imported onto the site. Finally topsoil will be seeded and the area will be returned entirely to grassland. It is anticipated that the void space will be filled over a period of 8 to 10years. The imported material will comply with the terms of an EPA waste license.

Access arrangements/Traffic impact/Road Network
The EIAR addresses roads and traffic. It is stated that no works are proposed to the existing entrance. The proposed soil recovery facility has the benefit of being able to use the existing entrance and the existing permitted quarry infrastructure. It is noted that the pit at Garryhesta operates at an extraction rate of 350,000tonnes per year (total output) depending on market demand. The sand and gravel however does not enter onto the public road network as it is delivered by conveyor to the nearby Roadstone facility at Classis. It is noted that traffic impact assessments and road safety audit were previously carried out at this site. It is stated that the traffic volumes which will be generated by the proposed development will be less than what was permitted under 06/11798 i.e. 350,000tonnes per annum (before the conveyor was constructed). It is acknowledged that the significant effect of the facility traffic will be along the N22, with a potential increase of 10vehicles per hour. It is suggested that this will have no significant effect on current capacity as it will be spread throughout the day.

It is recommend that the existing hard shoulder to the east be converted to an auxiliary left turning lane and that the existing hard shoulder to the west of the facility be converted to an acceleration lane as it would increase the capacity of the junction by preventing the interruption of the free flow of mainline traffic.

The Area Engineer notes that the applicant proposes to import 300,000 T per annum and proposes to use an existing site entrance off the N22. Due to the proposed nature of the works the Area Office request that a special levy should apply here. The Area Office would request that 100m on either side of the existing site entrance be resurfaced as part of the application. A levy at €55/m² should apply and this allows for an area of 2,300m² costing €126,500.

Surface Water/Groundwater
It is stated that a hydrological walkover survey was carried out on site. Surface water features on the site include a stream and small man made pond. It is stated that there is no surface water connection between the site and the River Bride. The pit itself is under water to a depth of up to 31m and it is stated that any rainfall that falls percolates through the floor onto the underlying sand and gravel. It is stated that various mitigation measures will be implemented on site to ensure no significant impacts on local surface waters will occur. It is also stated that groundwater and surface water quality monitoring will be completed on a regular basis in accordance with the Waste Management License which will be sought.

The Environment Section are seeking further information with regard to the layout of the site in terms of what area might have a concrete surface (which will affect surface water), they are also seeking details of a surface water drainage system for the site and a water quality monitoring programme for any surface water discharges.

Inland fisheries Ireland are concerned as to how soiled water runoff from the site will be prevented from entering any adjacent watercourse and they are keen to ensure that no filling works will take place within 5m of any watercourse.

The Area Engineer recommends deferring a decision for further information with regard to proposals to dispose of surface water.

Environmental impacts
The environment section has considered the application and recommends that a decision be deferred for a number of items.

It is noted that there will be no significant effect on climate as a result of the development and no mitigation or monitoring is required in this regard.

With regard to air and impacts on air quality it is noted that dust emissions will arise from the development but in comparison to the rest of the site it will be minimal. Dust levels at the quarry currently comply with the recommended dust limit of

350mg/m²/day. Mitigation measures are already in place at the site and included in the existing Environmental Management System. Overall it is anticipated that the effect on the existing air quality from the development will be negligible and no residual impacts are predicted. Mitigation measures will continue to be applied.

In terms of noise and vibration, it is also noted that routine noise monitoring is carried out on site. A number of mitigation measures are already in place which will benefit the proposed development of the SRF. The proposed development is not expected to have any significant effects on noise levels for local residences.

With regard to landscape and visual impacts of the proposed development it is noted that the site is already well screened and not visible from the N22. The proposed development will only have a positive impact on the landscape as eventually the ground will be restored back to usable grassland, which will be easily integrated back into the landscape.

Site Restoration/Aftercare/Landscaping
A phased restoration plan has been submitted which essentially outlines 3 phases of restoration. The restoration plan involves the progressive backfilling of the quarry void on a phase basis with natural inert soil and stone and dredging spoil sourced externally and imported. Topsoil will be seeded and the area returned to grassland. It is proposed that the project will take 8 to 10 years to complete. It is also noted that because the proposed development will be subject to an EPA waste management license a closure and restoration/after care management plan may be required as a condition of the license. All plant will be removed from site and all wastes will be removed at time of closure.

EIAR
The EIAR was prepared by J Sheils Planning and Environmental Ltd. in accordance with the requirements of Schedule 5-7 of the Planning & Development Regulations 2001 (as amended).

The EIAR is comprised, under the following headings;
1. Introduction
2. Consideration of Alternatives
3. Description of the proposed project
4. Environmental Factors
    - Population and Human Health
    - Biodiversity
    - Land, Soils and Geology
    - Water
    - Climate
    - Air
    - Noise and Vibration
    - Landscape

- Cultural Heritage
- Material Assets
- Roads and Traffic
- Interaction of the foregoing.

In accordance with the requirements of Article 3 of the European Directive 85/337/EEC, as amended by Council Directives 97/11/EC and 2003/35/EC and Section 171A of the Planning and Development Act 2000 (as amended), the environmental impact assessment report submitted by the applicant is required to be assessed by the competent authority, at this stage - The Planning Authority. In this assessment the direct and indirect effects of the proposed development need to be identified, described and assessed in an appropriate manner, in accordance with Articles 4 to 11 of the Directive. The following report identifies, describes and assesses the likely significant direct and indirect effects of the project on the environment as well as their interactions. To conclude, a commentary on the adequacy of the EIAR will also be provided.

As per S171A of the Act, the direct and indirect effects of a proposed development must be assessed in relation to the following: human beings, flora and fauna, soil, water, air, climate and the landscape, material assets and the cultural heritage. In addition the interaction between these factors must also be considered.

Identification of the likely significant direct and indirect effects of the project on the environment
Please note that this section has been compiled in accordance with reports received from internal reporting officers.

Population and Human Health
The likely significant direct and indirect impacts of the project on Human Beings are outlined in Section 4.1 of the EIAR. It is stated that there are 10 residences within 250m and 19 within 500m of the proposed SRF site. There are no residences abutting the proposed SRF site itself. The area is predominantly agricultural in character with quarrying already a strong land use in the area. It is considered that because the proposed SRF site is within an existing quarry site that there will be very little impact on the human environment as a result of construction activities. In terms of land use it is considered that the impact of the development will be positive in the long term. The proposed development will not have any great impact on the economy or employment as existing staff will take on the roles required to be filled for the development. In terms of indirect impacts the main one relates to traffic locally. It is thought that the development will have no significant or long term effect in the human environment.

Biodiversity
The likely significant direct and indirect impacts of the project on biodiversity are outlined in Section 4.2. The proposed development will result in a change of habitat

in this part of the site and will initially reduce the level of biodiversity however it is thought that there will not be a significant loss of heritage values in the locality. It is proposed that during reclamation efforts will be directed to conservation of arable grass margins and banks, conservation of solitary bees, coppicing and planting of native trees and hedgerows and species rich hay meadow. Overall it is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of biodiversity.

Land, Soils and Geology

The likely significant direct and indirect impacts of the project on land, soils and geology are outlined in Section 4.3. The proposed development will not impact on virgin soils, sand and gravels, which have already been stripped, disturbed and extracted. It is therefore considered that the backfilling of the quarry will have a permanent significant positive effect. It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of land, soils and geology.

Water

The likely significant direct and indirect impacts of the project on water are outlined in Section 4.4. It is noted that the groundwater vulnerability rating after the fill will be improved as the fill will provide additional aquifer protection at the site. It is noted that during infilling there will be no pathway for surface water to leave the site other than by recharging into groundwater , however certain measures can be taken to ensure no issues with groundwater quality. Various mitigation measures are put forward to protect groundwater quality and for the management of surface water runoff.

Climate

The likely significant direct and indirect impacts of the project on Climate are outlined in Section 4.5. The proposed SRF co-located within the old quarry is not considered to be of sufficient scale to have any direct or indirect impacts on regional or local climatic conditions. It is noted that the development will probably lead to a reduction in the emissions from fossil fuels and dust from the site thereby lessening the impact on the climate.

Air

The likely significant direct and indirect impacts of the project on air and air quality are outlined in Section 4.6. Certain site activities are likely to give rise to potential fugitive dust emissions i.e. internal movement of vehicles and loading and unloading of vehicles. The impacts of any dust deposition will be direct, of short duration and temporary. Mitigation measures will be implemented to minimise any impacts where practical. There may be an indirect impact in the form of an associated visual impact with fugitive dust generation. Again the impacts will be minimised by mitigation. Overall it is envisaged that the effect of the proposed SRF on the existing air quality will be negligible.

Noise and Vibration

The likely significant direct and indirect impacts of the project on Noise &Vibration are outlined in Section 4.7. It is submitted that the proposed development site lies in a primarily agricultural area where there is considerable screening by existing trees and planting. The principle concern is in relation to residential amenity. The main direct impact is the movement of trucks on the haul road, the tipping, placing and grading of material. There are no indirect impacts. It is considered that noise can be kept to an acceptable level by the implementation of good design, effective operation and management and by the adoption of best practises. There will therefore be no significant effects.

Landscape

The likely significant direct and indirect impacts of the project on landscape are outlined in Section 4.8. The site is within Landscape Character Type 6a which is rated as having high value and high sensitivity and county importance, though it is not designated as high value landscape. It is suggested that the proposed SRF is potentially more readily absorbed into the landscape by the pre-existence of and co-location within the quarry. The main impacts on the landscape will be the change to the landform, change of land use, loss of ecological habitats. There are no indirect impacts. It is considered that following restoration and the mitigation measures incorporated in the design that there will be no significant effects in terms of land use.

Cultural Heritage

The likely significant direct and indirect impacts of the project on cultural heritage are outlined in Section 4.9. It is indicated that no known archaeological features are recorded on site/ near site. There are no protected structures on/ near the site. There will be no direct construction or operational impacts on the archaeological, architectural or cultural heritage resource as a result of the development. No mitigation measures are proposed or required.

Material Assets

The likely significant direct and indirect impacts of the project on material assets are outlined in Section 4.10. It is considered that the restoration of the site to beneficial after use will result in a permanent significant positive effect and there will be no significant effects in terms of material assets as a result of the development.

Roads and Traffic

The likely significant direct and indirect impacts of the project on roads and traffic are outlined in Section 4.11. The significant effect of the facility traffic will be along the N22. There will be no impact at construction phase as the proposal does not involve construction. The operation impact of the proposed development will have the effect of increasing the traffic movements on the N22 by 1.8% during peak hour. There will be no impacts during the decommissioning phase.

Interaction of the foregoing.

The effects of the interactions between human health, land, soil and geology, water, climate, air quality, noise and vibration, landscape, cultural heritage, material assets and traffic have been demonstarated on a matrix submitted as part of the EIAR. There are interactions between many of the categories.

Adequacy of the Environment Impact Assessment Report

Article 94 and Schedule 6 of the Planning and Development Regulations 2001, as amended, sets out the information to be contained in an EIAR and the document accompanying the application technically accords with the said details with the subjects to be addressed set out therein.

It is a requirement of an EIAR that alternative sites be considered. This has been addressed.

The EIAR also contains an adequate non-technical summary of the EIAR.

13. Conclusion & recommendation

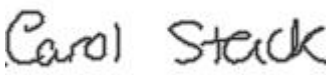
Having regard to the planning reports, the planning history of the site, the demand for facilities such as this and the location of the site within a working quarry, where the infrastructure is in place already it is considered that the proposed development can be accepted subject to a number of items being addressed through a request for further information.

It is therefore recommended that a decision be DEFERRED for the following further information;

1. You are requested to submit an Agricultural Report in terms of the benefit to agriculture of the proposed development. The Agricultural Report for this proposed development should also include details on where the fill will be sourced from.
2. A layout plan should be submitted identifying the main proposed routes for HGV's accessing the existing site.
3. Identify on a detailed site layout map the areas of the site which will be concrete surfaced or impermeable.
4. Identify on a detailed site layout map machinery storage areas and hydrocarbon storage areas and associated infrastructure for any proposed silt traps, hydrocarbon interceptors to be incorporated into the drainage system.
5. Please submit a surface water layout for the site.
6. Submit a detailed site layout map of the proposed surface water drainage system for the site.
7. Submit details proposals for a water quality monitoring programme for any surface water discharges from the permeable and impermeable site areas.
8. Submit details of the measurements, capacities and management of the wheel wash water from the truck and plant wash out areas. Provide details of the expected volumes of wash water to be generated in the plant and truck wash areas.

9. Submit details of the location of the existing bore well to service the proposed development.
10. Submit details of how the applicant intends to deal with the existing concrete infrastructures and disused quarrying equipment within the proposed development site. A demolition and a waste management plan must accompany your proposals.
11. Please submit proposals to ensure that soiled water runoff from the site is prevented from entering adjacent watercourses.
12. Submit proposals to maintain a 5metre buffer strip between any filling works and any watercourse.

Defer Application



Carol Stack
Executive Planner
28/06/2018

APPLICATION NO.	05155/18
APPLICANT	Roadstone Limited
DESCRIPTION	Development consists of restoration of part (c. 6.7 ha) of existing quarry (QR19 06/11798 & PL04.225332) by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06).The proposed soil recovery facility will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works. Access to the site will be from the permitted main entrance on the N22 National Primary Road. A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A hard-stand with drainage to oil interceptor will also be provided as a designated refuelling area. The total application area including the site infrastructure covers 7.9 ha of lands. The development will be subject to the requirements of the waste management licence. An Environmental Impact Assessment Report (EIAR) will be submitted to the Planning Authority with the application.
LOCATION	Garryhesta Pit Knockanemore Ovens Co. Cork
DUE DATE	22/11/2018

Further information was received on 28/9/18.
The applicants have responded to the F.I. request as follows;

1. The applicants have responded by setting out the qualifications of John Shiels who prepared the EIAR and setting out various extracts from the EIAR which address the reasons for seeking the application. It is stated that progressive restoration involving grass seeding of restored areas will be carried out on a staged basis to reduce the effects of soil erosion, windblown dust and to aid ground stabilisation as an effective means of weed control. Once the quarry is reinstated it will be seeded with grasses suitable for pasture. It is proposed that the land will be GLAS approved and it is suggested that Roadstone will engage the services of an approved advisor to prepare a farm nutrient management plan and aftercare scheme. The contents of the EIAR are repeated in terms of sourcing the fill i.e. Cork City, Macroom, Bandon, Kinsale, Carrigaline, Blarney and Ballincollig primarily.
2. The N22 is the main proposed route for HGV's accessing the existing site. The existing entrance will continue to be used. It is predicted that the proposed traffic entering/leaving the soil recovery facility will have a traffic split of 98% via the N22 from the east and 2% from the west.
3. A revised site layout plan has been submitted and the hard standing/concrete areas have been identified. The site access road between the site and the entrance and proposed weighbridge and wheelwash has been provided with a concrete surface. The refuelling area has a concrete surface also.
4. It is stated that no fuel or oil will be stored on site. A wheelwash and weighbridge will be provided as part of the development and the existing workshop will be used as a quarantine area. A hard stand with drainage to oil interceptor will be provided as a designated refuelling area.
5. It is states that there is no requirement for surface water management at the site. All rainfall percolates into the underlying sand and gravels. There

is a holding tank on site which is emptied on a routine basis by a certified waste collection contractor.

6. It is stated that there are no surface water flowpaths from the proposed development site and therefore no direct impacts on nearby water bodies. Management of surface water runoff and mitigation of surface water runoff impacts will be undertaken by a number of measures, there will be an updated Environmental Management System put in place. Reference is made to a drainage map which was included in the EIAR.
7. Surface water quality monitoring of the local stream and pond is carried out as part of the existing environmental monitoring programme. Surface water quality monitoring will be completed on a regular basis in accordance with the EPA waste management license which is being sought.
8. A detailed drawing of the wheelwash was submitted with the application. The wash water will be recycled through a system of settlement chambers. It is estimated that the wheelwash will require a daily top-up supply of 5-10% capacity to cater for losses to the system.
9. The potable water supply for the site office is from the local mains, while the wheelwash will be supplied by surface water from the quarry lagoon system. Water used for dust suppression is also sourced from the lagoon.
10. The requirement to address the decommissioning and removal of disused quarry infrastructure is intended to be addressed through compliance with the ongoing permitted sand and gravel extraction and processing that is ongoing on site. In addition Roadstone will put in place a Demolition and Waste Management Plan with respect to restoration to the quarry as a whole. It has been submitted with the F.I. response as attachment A.
11. Item 11 has been addressed in responses to items 5, 6 and 12.
12. A revised site layout plan has been submitted which shows a 5metre buffer strip to be maintained between and filling works and the adjoining water course on the western and southwestern site boundary. There is an embankment present along the southern and western boundaries of the application site and this will separate the application site from the pond and steam. The operator will fence the embankment before any filling works commence.

The applicants have responded to all items raised in the further information request.

The Area Engineer has considered the response and recommends a grant of permission subject to conditions.

The Ecologist has considered the application and further information response and notes that it states that 'consideration will be given through the land reclamation scheme to conservation of arable grass margins, conservation of solitary bees, coppicing and planting of nature trees and hedgerows, establish of species rich meadow' . These measures are also referenced in section 4.2.5 of the EIAR. It is recommended that it would be a requirement by condition to require the submission of a detailed plan to be agreed prior to the commencement of development.

The Environment Section has considered the response and recommends a grant of permission subject to conditions.

Recommendation
The applicant has addressed the key issues to the satisfaction of the Planning Authority.

With regard to the EIAR, and having regard to the further information response to matters raised and the internal reports herein, it is concluded that the EIAR and the subsequent further information submission adequately identifies the significant effects of this development on the environment.

The Senior Planner has confirmed that he is satisfied that the EIAR and the subsequent further information submission is in accordance with EIAR Regulations.

Having regard to the nature of the proposal within its existing setting, along with the submissions and internal reports, it is considered that the proposed development would not seriously injure the amenities of the area or the environment, would not be prejudicial to public health and would be acceptable in terms of environmental impacts and road safety, subject to compliance with the conditions as set out.

Recommendation
On the basis of the above assessment, it is recommended that Planning Permission be GRANTED subject to the attached conditions.

Conclusion

Grant

Conditions/Reasons

No.	Condition	Reason
1	The proposed development shall be carried out in accordance with plans and particulars lodged with the Planning Authority on 8/5/18, 23/5/18 & 28/09/18 save where amended by the terms and conditions herein.	In the interests of clarity.
2	Sight distance of 120 m to the West and 120m to the East shall be provided from centre point of entrance 3 m back from public road edge. Sightlines are to be measured to the nearside road edge in both directions of the entrance. No vegetation or structure shall exceed 1m in height within the sight distance triangle.	To provide proper sight distance for emerging traffic in the interests of road safety.
3	Vegetation or any structure shall not exceed 1m in height within the sight distance triangle.	To provide proper sight distance for emerging traffic in the interests of road safety.
4	Any utility poles currently within the roadside boundary set back required by other conditions of this schedule shall be repositioned behind the new boundary, and any surface chambers or manholes within it shall be repositioned in a location or at a level to be agreed with in writing Planning Authority. The applicant shall be responsible for the costs of relocating these facilities, for notifying the relevant statutory undertakers, for obtaining any necessary licenses, and for notifying the Planning Authority of the revised locations of such utilities, prior to commencement of development, or, at the discretion of the Planning Authority, within such further period or periods of time as it may nominate in writing.	To protect existing utility infrastructure.

5	Surface water shall be disposed of within the site by means of soakaways and shall not be allowed to flow onto public road.	To prevent the flooding of the public road.
6	Existing roadside drainage arrangements shall be preserved to the satisfaction of the Planning Authority.	To preserve proper roadside drainage and to prevent the flooding of the public road.
7	Existing road drainage shall not be obstructed and any the new entrance shall be designed and constructed to ensure the uninterrupted flow of road surface run-off.	To maintain proper roadside drainage and to prevent the flooding of the public road.
8	Existing inlets or drains taking surface water from the public road into the site shall be preserved and maintained.	To prevent flooding of the public road.
9	A drainage grating, along with a discharge pipe to a soakaway located within the site, shall be installed at the entrance to the site to the satisfaction of the Planning Authority.	To prevent flooding of the public road
10	Prior to the commencement of development,a detailed biodiversity restoration proposals shall be submitted to the planning authority. These shall include details of habitat creation/ enhancement measures to be implemented at the site, including management of grass margins, conservation of solitary bees, coppicing and planting of native trees and hedgerows and establishment of species rich hay meadow. The plan shall include a map, identifying the areas to be restored/enhanced for biodiversity, shall include details of proposed timing of implementation of the plan, as well as details of management and oversight of implementation by an ecologist. The plan shall be agreed in advance of the commencement of restoration proposals.	In the interests of ensuring appropriate restoration of the site.
11	In order to prevent damage to habitats of biodiversity value on the margins of this site, a temporary line of fencing shall be erected around the immediate footprint of	To prevent damage to the Special Area of Conservation.

	the development site. This shall include for the protection of a minimum of a 5m buffer between the works area and the watercourse to the south of this site. The fence shall be installed before any equipment, machinery or materials are brought on to the site for the purposes of the development, and shall be maintained until all equipment, machinery and surplus materials have been removed from the site. Nothing shall be stored or placed within areas of natural value outside the works site in accordance with this condition, and the ground levels within this area shall not be altered, nor shall any excavations be made.	
12	Ground clearance works within the site shall take place outside the bird breeding season (1 March to 31 August).	To minimise potential for works to cause disturbance to breeding birds.
13	There shall be no interference with bridging, draining or culverting of any watercourse, its banks or bankside vegetation to facilitate this development, without the prior approval of Inland Fisheries Ireland.	To protect natural heritage.
14	The Environmental Management System for the site shall include a complaints record. The applicant shall record all complaints received relating to site operations of the proposed development. The record shall contain the name of the complainant, nature, time and date and a summary of the company's investigation and response including the name of the person who investigated the complaint and their relationship to the developer or operator of the site. All records of complaints shall be made available to the Local Authority on request whether requested in writing or by a member of staff of the Local Authority at the site.	To provide for information on the nature of complaints received and the company's investigation and response.
15	All site surface water shall primarily be disposed of within the site by means outlined in application. Surface water drainage	

	contaminated with hydrocarbons (including storm water from bunded areas and car park areas) shall be discharged via a grit trap and a hydrocarbon interceptor before being discharged to surface water system. An inspection chamber with sump to be provided between hydrocarbon interceptor and the discharge area. The sump shall be of a minimum size of 500mm square and 400mm deep and shall be of watertight construction. The interceptor and sump shall be installed and operated to the satisfaction of the Planning Authority.	
16	The applicant shall inspect the hydrocarbon interceptor(s) monthly and shall maintain on the site, at their own expense, a register for each year, which shall include details of the monthly inspections and maintenance of the interceptor. The register shall be made available for inspection by the Planning Authority at all reasonable times of operation.	To prevent water pollution.
17	The developer / operator of the site shall ensure that all waste leaving the site shall be transported only by permit holders/waste collectors/carriers authorised in accordance with the Waste Management Act, 1996 and Waste Management (Collection Permit) Regulations 2007 as amended or else persons exempted from holding waste collection permits.	To prevent illegal dumping of waste
18	The applicant / developer / operator of the site shall ensure that soiled water containment measures are put in place during the course of the activity to ensure that soiled water runoff from the site shall not enter into any watercourse.	To safeguard the amenities of the area and prevent water pollution.
19	The developer / operator of the site shall take measures to ensure that the site development activities do not give rise to dust, mud, dirt, litter or debris carried onto or deposited on the public road or	In the interests of the maintaining the amenities of the area ,traffic safety and prevent air pollution

	footpath, and shall be responsible for the immediate removal from the public road or footpath, of any dust, mud, dirt, litter or debris caused by the construction works. The operator of the site shall ensure that dust deposition arising out of the demolition and construction activities on site shall not exceed 350 mg/m2/day at the site boundary averaged over 30 days. Results shall be submitted to the Planning Authority on a monthly basis from the commencement of activities until work is completed to the satisfaction of the Planning Authority. The applicant / developer / operator of the site shall take adequate steps to prevent dust generation in dry weather periods. The applicant / developer / operator of the site shall spray the current working area with clean water to minimise dust generation. The access road to the site shall also be sprayed during dry weather.	
20	The developer / operator shall ensure that all hazardous waste arisings from the proposed development shall be disposed of in a manner agreed by the Planning Authority and shall not be presented for refuse collection or for disposal at any landfill site.	To safeguard the amenities of the area and prevent water pollution
21	The operator of the site shall ensure that all liquids and hydrocarbons stored on site during demolition and construction phases shall be stored in a waterproof bunded area of sufficient volume to hold 110% of the volume of the largest tank within the bund. All valves on the tanks shall be contained within the bunded area. All operations involving the loading and unloading of hydrocarbon products shall take place in this bunded area in such a manner as to avoid any pollution of waters. The bunded area shall be	To prevent water pollution

	fitted with a locking valve which shall be opened only to discharge to a sump prior to collection for treatment off site. The operator shall provide and maintain at the facility a spill kit to deal with spillages of oils, fuels and acids.	
22	The operator of the site shall ensure that all site surface water draining from car parking/offloading areas or any site surface water contaminated with hydrocarbons shall discharge via a grit trap and appropriate interceptor before discharging to any surface water body(stream, river or lake). An inspection chamber with a sump shall be constructed between the interceptor and the surface water drain. The sump shall be of a minimum size of 500mm square and 400mm deep. The interceptor and sump shall be installed and operated to the satisfaction of the Planning Authority. The applicant shall undertake an inspection of the interceptor traps monthly and shall maintain a register of the outcome of such inspections. The register shall be made available for inspection by the planning authority at all reasonable times.	To ensure an appropriate contaminated wastewater monitoring regime is in place and prevent pollution of water sources and resources.
23	The applicant / developer / operator shall provide a buffer zone of 5m between the area of infilling and hedgerows/ mature trees,watercourses unless otherwise agreed in writing with the Local Authority. The applicant / developer / operator shall erect temporary fence(s), for the lifetime of the planning, to ensure that all buffer zone(s) are/is maintained unless otherwise agreed in writing with the Local Authority. No material is to be deposited within this area. The fence(s) shall be erected prior to the commencement of any works on the site	To safeguard the amenities of the area and control water pollution
24	Noise levels emanating from the	To safeguard the amenities of the

	proposed development when measured at the boundary of the nearest noise sensitive locations which require protection from disturbance, shall not exceed 55 dBa (30 minute Leq) between 08.00 hours and 20.00 hours Mondays to Saturdays inclusive and shall not exceed 45 dBa (15 minute Leq) at any other time. Measurements shall be made in accordance with I.S.O. Recommendations R.1996/1 "Acoustics Description and Measurement of Environmental Noise, Part 1: Basic Quantities and Procedures." If the noise contains a discrete, continuous note (whine, hiss, screech, hum, etc.), or if there are distinct impulses in the noise (bangs, clicks, clatters, or thumps), or if the noise is irregular enough in character to attract attention, a penalty of +5 dBA should be applied to the measured noise level and this increased level shall be used in assessing compliance with the specified levels. (Ref. BS 4142 Section 7.2).	area and control noise emissions from the development.
25	The applicant / developer / operator of the site shall undertake a noise monitoring survey if so directed by the Local Authority. The survey and the monitoring sites used, shall be agreed with the Local Authority in advance. The results of the survey shall be submitted to the Local Authority within one month of completion of the survey.	To safeguard the amenities of the area and provide for noise monitoring
26	If so requested by the Local Authority, the applicant / developer / operator of the site shall, at their own expense, carry out such further investigations and monitoring of the facility as required by the Local Authority. The scope, detail and programme, including report structure and reporting schedule, for any such investigations and monitoring shall be in accordance with any written instructions issued	To safeguard the amenities of the area

	by the Local Authority. In the event of pollution of waters in the vicinity of the site, or of a leachate discharge onto adjoining lands, input of waste onto the site shall cease, and remedial measures shall be carried out immediately as directed by the Local Authority.	
27	The applicant / developer / operator of the site shall take adequate steps to control and eliminate the growth and spread of non-native invasive species such as Japanese Knotweed plants. The applicant / developer / operator of the site shall use best available techniques to rid the site of non-native invasive species such as Japanese Knotweed plants should they occur. The applicant / developer / operator of the site shall refer to http://www.invasivespeciesireland.com/ for good practice guidelines regarding this matter.	To safeguard the amenities of the area.

Carol Stack

Carol Stack
22/11/2018

Attachment IV

Natura Impact Statement

Appropriate Assessment

Proposed Infill of Quarry at Garryhesta, Ovens, Co Cork

Prepared by: Moore Group – Environmental Services

Natura Impact Statement

Appropriate Assessment

Proposed Infill of Quarry at Garryhesta,

Ovens, Co Cork

Prepared by: Moore Group – Environmental Services

18th October 2019

On behalf of Roadstone Ltd.

& the EPA

Project Proponent	Roadstone Ltd.
Project	Proposed Infill of Quarry at Garryhesta, Ovens, Co Cork
Title	Natura Impact Statement Appropriate Assessment of Proposed Infill of Quarry at Garryhesta, Ovens, Co Cork

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Moore Archaeological and Environmental Services Limited				

Abbreviations

AA	Appropriate Assessment
EEC	European Economic Community
EPA	Environmental Protection Agency
EU	European Union
GIS	Geographical Information System
NHA	Natural Heritage Area
NIS	Natura Impact Statement
NPWS	National Parks and Wildlife Service
OSI	Ordnance Survey Ireland
pNHA	proposed Natural Heritage Area
SAC	Special Area of Conservation
SPA	Special Protection Area
SuDS	Sustainable Drainage System

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1. Introduction

1.1. General Introduction

This Natura Impact Statement (NIS) has been prepared by Moore Group – Environmental Services on behalf of Roadstone Ltd. and the EPA. This NIS report contains information to assist the competent authority in carrying out an Appropriate Assessment (AA) on the effects of the proposed infill of Garryhesta Quarry, Ovens, County Cork on European sites, to ascertain whether or not the Project would adversely affect European site integrity.

This NIS informs the Appropriate Assessment process in the determination of the significance of potential impacts on the conservation objectives of European sites. It is necessary that the Project has regard to Article 6 of the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (referred to as the Habitats Directive). This is transposed into Irish Law by Part XAB of the Planning and Development Act 2000 as amended and the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477) (referred to as the Habitats Regulations). The focus of the assessment is on objectively assessing by reference to the evidence as to whether the Project will adversely affect the integrity of the European sites in light of their conservation objectives.

1.2. Legislative Background – The Habitats and Birds Directives

The Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) is the main legislative instrument for the protection and conservation of biodiversity in the EU. Under the Directive Member States are obliged to designate Special Areas of Conservation (SACs) which contain habitats or species considered important for protection and conservation in a European Union context.

The Birds Directive (Council Directive 79/409/EEC and Council Directive 2009/147/EC on the Conservation of Wild Birds), is concerned with the long-term protection and management of all wild bird species and their habitats in the EU. Among other things, the Directive requires that Special Protection Areas (SPAs) be established to protect migratory species and species which are rare, vulnerable, in danger of extinction, or otherwise require special attention.

Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas, designated under the Birds Directive, form a pan-European network of protected sites known as

Natura 2000. The Habitats Directive sets out a unified system for the protection and management of SACs and SPAs.

Articles 6(3) and 6(4) of the Habitats Directive set out the requirement for an assessment of proposed plans and projects likely to affect Natura 2000 sites.

Article 6(3) establishes the requirement to screen all plans and projects and to carry out a further assessment if required (Appropriate Assessment (AA)); Article 6(4) establishes requirements in cases of imperative reasons of overriding public interest:

> Article 6(3): *"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to an appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."*
>
> Article 6(4): *"If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of the Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to human health or public safety, to the beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."*

1.3. Methodology

The Commission's methodological guidance (EC, 2002) promotes a four-stage process to complete the AA and outlines the issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

Stages 1-2 deal with the main requirements for assessment under Article 6(3). Stage 3 may be part of Article 6(3) or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4).

Stage 1 Screening: This stage examines the likely effects of a project either alone or in combination with other projects upon a Natura 2000 site and considers whether it can be objectively concluded that there are not likely to be significant effects on a Natura 2000 site. Mitigation measures (i.e., measures intended to avoid or reduce the harmful effects of the project on the site concerned) cannot be taken into account at this stage.

Stage 2 Appropriate Assessment: In this stage, there is a consideration of the impact of the project with a view to ascertain whether there will be any adverse effect on the integrity of the Natura 2000 site either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are predicted impacts, an assessment of the potential mitigation of those impacts is considered.

Stage 3 Assessment of Alternative Solutions: This stage examines alternative ways of implementing the project that, where possible, avoid any adverse impacts on the integrity of the Natura 2000 site.

Stage 4 Assessment where no alternative solutions exist and where adverse impacts remain: Where imperative reasons of overriding public interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the sites will be necessary.

1.4. Guidance

The NIS has been compiled in accordance with guidance contained in the following documents:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities. (Department of Environment, Heritage and Local Government, 2010 rev.).
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 & PSSP 2/10.
- Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission Environment Directorate-General, 2002); hereafter referred to as the EC Article Guidance Document.
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC (EC Environment Directorate-General, 2000); hereafter referred to as MN2000.

- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC (EC, 2018).

1.5. Data Sources

Sources of information that were used to collect data on the Natura 2000 network of sites, and the environment within which they are located, are listed below:

- The following mapping and Geographical Information Systems (GIS) data sources, as required:
    - National Parks & Wildlife (NPWS) protected site boundary data;
    - Ordnance Survey of Ireland (OSI) mapping and aerial photography;
    - OSI/Environmental Protection Agency (EPA) rivers and streams, and catchments;
    - Open Street Maps;
    - Digital Elevation Model over Europe (EU-DEM);
    - Google Earth and Bing aerial photography 1995-2019;
- Online data available on Natura 2000 sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie including:
    - Natura 2000 - Standard Data Form;
    - Conservation Objectives;
    - Site Synopses;
- National Biodiversity Data Centre records;
    - Online database of rare, threatened and protected species;
    - Publicly accessible biodiversity datasets.
- Status of EU Protected Habitats in Ireland. (National Parks & Wildlife Service, 2019); and
- Relevant Development Plans in neighbouring areas;
    - Cork County Development Plan 2014

1.6. Statement of Authority

This report was compiled by Ger O'Donohoe (B.Sc. Applied Aquatic Sciences (GMIT, 1993) & M.Sc. Environmental Sciences (TCD, 1999)) who has 25 years' experience in environmental impact assessment and has completed numerous reports for Appropriate Assessment Screening and Natura Impact Statements in terrestrial and aquatic habitats.

Engineering and technical data was supplied by Hydro-Environmental Services (HES) and by Mr. John Sheils of J Sheils Planning & Environmental Ltd. for the Project.

1.7. Description of the Project

This report relates to a development of a proposed Soil Recovery Facility (SRF) at the existing Garryhesta Quarry, Ovens, Co. Cork.

The proposed Project consists of restoration of part (c. 6.7 ha) of existing quarry (QR19 06/11798 & PL04.225332) by importation of up to 300,000 tonnes per annum of inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06).

The proposed soil recovery facility will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works. Access to the site will be from the permitted main entrance on the N22 National Primary Road. A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A hard-stand with drainage to oil interceptor will also be provided as a designated refuelling area.

The total application area including the site infrastructure covers 7.9 ha of lands at Garryhesta Pit, Knockanemore, Ovens, Co. Cork and will be subject to the requirements of a waste management licence. Cork County Council made a decision to grant permission for this development (Pl. Ref. 18/05155) on 09/01/2019.

The pit proposed for infilling is approximately 430m in length and 150m in width with a depth of up to c. 31 m below the local natural ground level. The groundwater level can temporarily rise above the level of the pit floor during very wet periods over winter. Infilling will only be completed when the groundwater level is at or below the base of the pit.

Once the quarry is re-instated it will be seeded with a suitable mix of grasses suitable for pasture in order to quickly stabilise the topsoil. Once the grass sward has become established the restored farmland can be kept either as pasture or hay meadow.

Roadstone propose to carry out the reclamation works in accordance with the principles of Tier 3 of the Green, Low Carbon, Agri-environment Scheme (GLAS). Consideration will be given through the land reclamation scheme to conservation of arable grass margins, conservation of solitary bees, coppicing and planting of native trees and hedgerows and the final establishment of traditional hay meadow

Figure 1 shows the proposed Project location and Figure 2 shows a detailed view of the proposed Project boundary on recent aerial photography. Figure 3 shows a plan of the proposed Project.

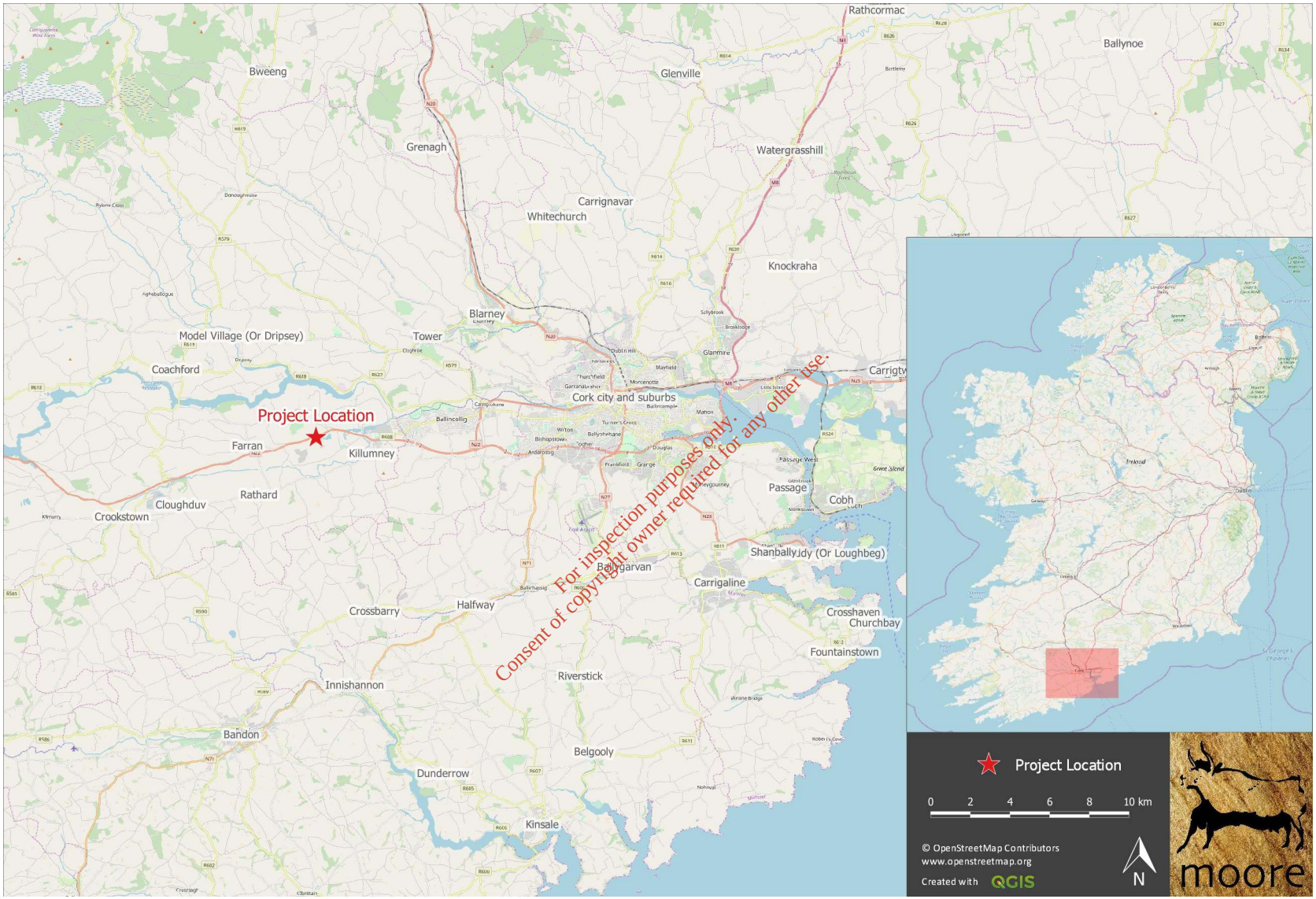

Figure 1. Showing the Project location near Ovens, Co. Cork.

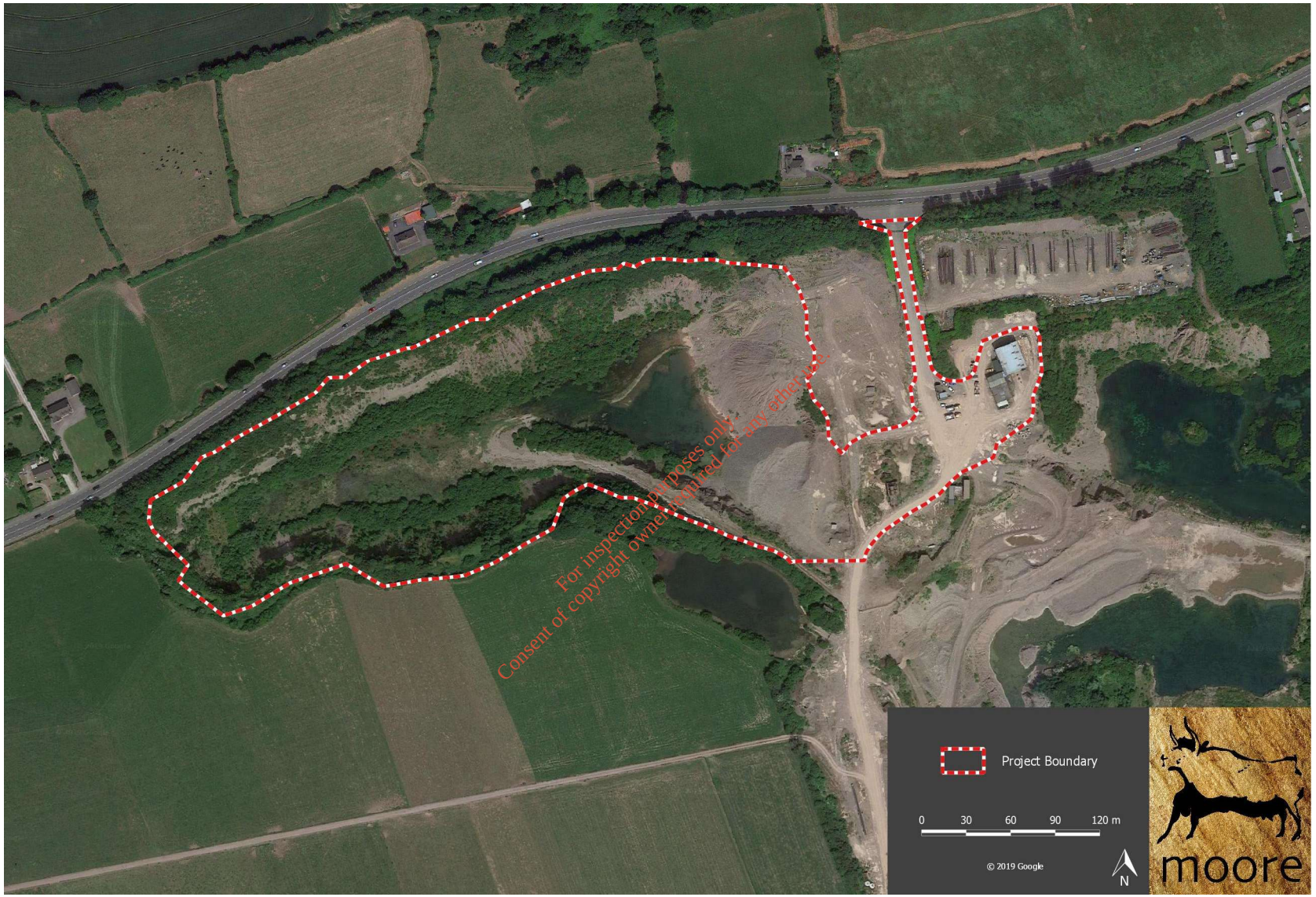

Figure 2. Showing the Project site on aerial photography.

Figure 3. Showing the site plan within the Garryhesta site.

2. Stage 1 – Screening for Appropriate Assessment

Screening determines whether appropriate assessment is necessary by examining:

1) Whether a plan or project can be excluded from AA requirements because it is directly connected with or necessary to the management of the site, and;

2) The potential effects of a project or plan, either alone or in combination with other projects or plans, on a Natura 2000 site in view of its conservation objectives and considering whether these effects will be significant.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process in certain circumstances, becomes overly complicated, then the process must proceed to Stage 2 (AA).

DoEHLG (2009) Guidance on Appropriate Assessment suggests an assessment of European sites within a zone of impact of 15 km. This distance is a guidance only and the zone of impact has been identified taking consideration of the nature and location of the proposed Project to ensure all European sites with connectivity to it are considered in terms of a catchment-based assessment.

The zone of impact may be determined by connectivity to the proposed Project in terms of:

- Nature, scale, timing and duration of works and possible impacts, nature and size of excavations, storage of materials, flat/sloping sites;
- Distance and nature of pathways (dilution and dispersion; intervening 'buffer' lands, roads etc.); and
- Sensitivity and location of ecological features.

The guidance provides that, at the screening stage, it is necessary to identify the sites and compile information on their qualifying interests and conservation objectives. In preparation for this, the potential for source pathway receptor connectivity is firstly identified and detailed information is then provided on sites with connectivity. European sites that are located within 15 km of the Project are listed in Table 1 and presented in Figure 4 below. Spatial boundary data on the Natura 2000 network was extracted from the NPWS website (www.npws.ie) on the 15th October 2019.

Table 1 European Sites located within 15km or the potential zone of impact[1] of the Project.

Site Code	Site name	Distance (km)[2]
001058	Great Island Channel SAC	23.65
004030	Cork Harbour SPA	17.35

The Project site is located approximately 1.2 km from the River Bride which is a tributary of the River Lee which discharges to Cork Harbour.

There is no potential for connectivity to any other European sites.

The Environmental Protection Agency (EPA) made an Appropriate Assessment Screening Determination on the 24th September 2019 as follows:

> *In accordance with Regulation 42(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 as amended, the EPA has undertaken Appropriate Assessment screening to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on European Sites.*
>
> *That the activity is not directly connected with or necessary to the management of any European site and that it cannot be excluded, on the basis of objective information, that the activity, individually or in combination with other plans or projects, will have a significant effect on any European site and accordingly determined that an Appropriate Assessment of the activity is required, and for this reason determined to require the applicant to submit a Natura Impact Statement.*
>
> *This determination has been made based on the following:*
>
> - *There is potential hydrological connectivity from groundwater to surface water via the River Bride, a tributary of the River Lee which flows to the Cork Harbour SPA (004030), and Great Island Channel SAC (001058).*

As such a Stage 2 Appropriate Assessment of this Project is has been prepared as follows.

[1] All European sites potentially hydrologically connected irrespective of the nature or scale of the proposed Project.
[2] Distances indicated are the closest geographical distance between the proposed Project and the European site boundary, as made available by the NPWS. Connectivity along hydrological pathways may be significantly greater.

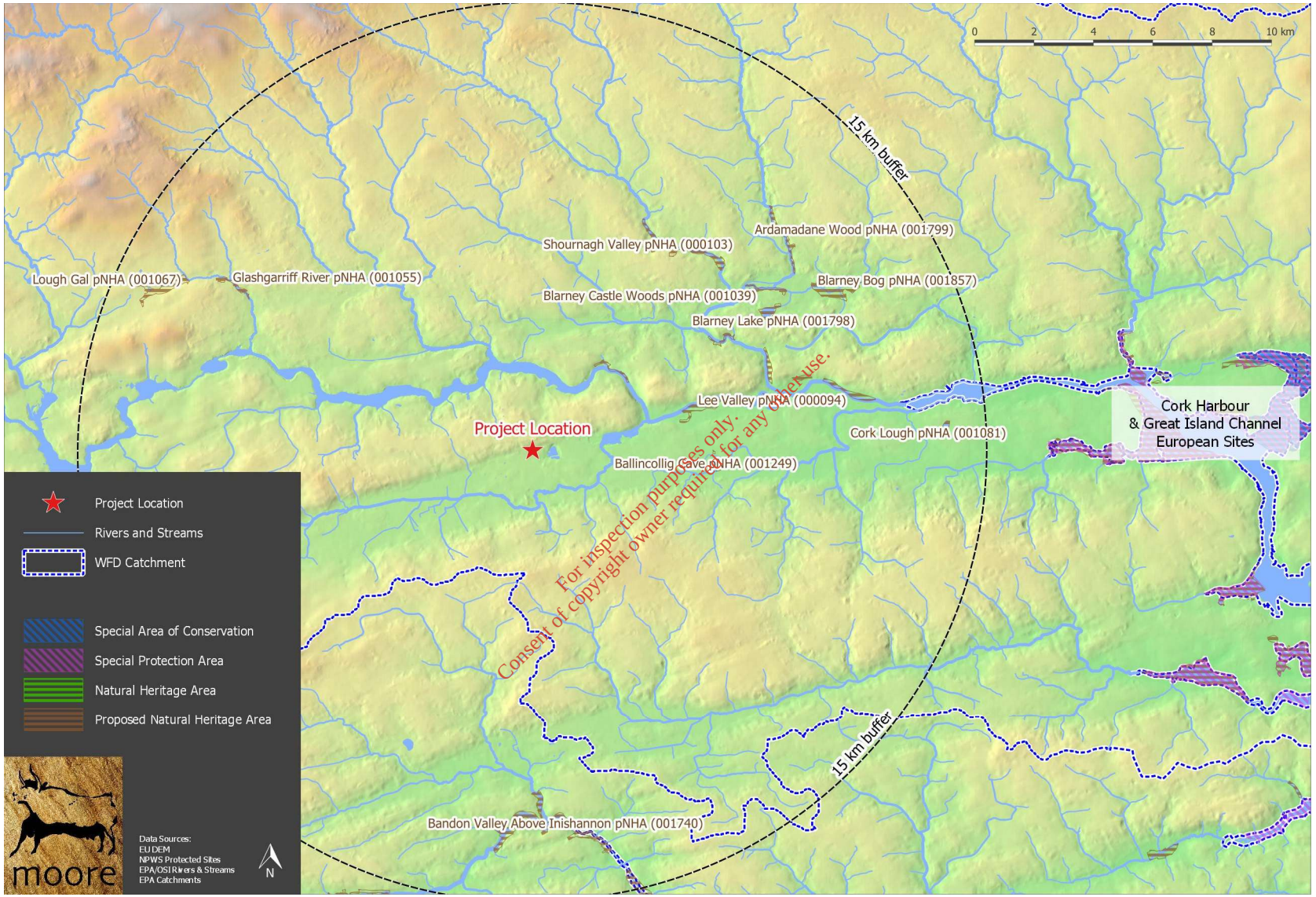

Figure 4. Showing European sites and NHAs/pNHAs within 15 km of the proposed Project.

3. Stage 2 – Appropriate Assessment

This stage considers whether the Project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a European site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects. The Stage 2 Appropriate Assessment comprises a scientific examination of the plan / project and the relevant European site; to identify and characterise any possible implications for the site in view of the site's conservation objectives, structure and function; taking account of in combination effects.

3.1. Description of European Sites Potentially Affected

Potential impacts on the following European site have been identified:

- Great Island Channel SAC (Site code 001058)
- Cork Harbour SPA (Site code 004030)

The Qualifying Interests of the Great Island Channel SAC are set out in Table 2 and the Special Conservation Interests of the Cork Harbour SPA are set out in Table 3 below.

*Table 2 Qualifying Interests of the Great Island Channel SAC (*denotes a priority habitat).*

Site Code	Site Name	Qualifying Interests
001058	Great Island Channel SAC	**Species:** N/A **Habitats:** Mudflats and sandflats not covered by seawater at low tide [1140] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]

Table 3 Special Conservation Interests of the Cork Harbour SPA.

Site Code	Site Name	Special Conservation Interests
004030	Cork Harbour SPA	**Species:** Little Grebe (*Tachybaptus ruficollis*) [A004] Great Crested Grebe (*Podiceps cristatus*) [A005] Cormorant (*Phalacrocorax carbo*) [A017] Grey Heron (*Ardea cinerea*) [A028] Shelduck (*Tadorna tadorna*) [A048] Wigeon (*Anas penelope*) [A050]

Site Code	Site Name	Special Conservation Interests
		Teal (*Anas crecca*) [A052] Pintail (*Anas acuta*) [A054] Shoveler (*Anas clypeata*) [A056] Red-breasted Merganser (*Mergus serrator*) [A069] Oystercatcher (*Haematopus ostralegus*) [A130] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Redshank (*Tringa totanus*) [A162] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Common Gull (*Larus canus*) [A182] Lesser Black-backed Gull (*Larus fuscus*) [A183] Common Tern (*Sterna hirundo*) [A193] **Habitats:** Wetlands [A999]

3.1.1. Great Island Channel SAC [Site code 001058]

The NPWS provides the following Site Synopsis in relation to Great Island Channel SAC (Version date 24.09.2013):

The Great Island Channel stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. It is an integral part of Cork Harbour which contains several other sites of conservation interest. Geologically, Cork Harbour consists of two large areas of open water in a limestone basin, separated from each other and the open sea by ridges of Old Red Sandstone. Within this system, Great Island Channel forms the eastern stretch of the river basin and, compared to the rest of Cork Harbour, is relatively undisturbed. Within the site is the estuary of the Owennacurra and Dungourney Rivers. These rivers, which flow through Midleton, provide the main source of freshwater to the North Channel.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

- Habitats:
    - [1140] Tidal Mudflats and Sandflats
    - [1330] Atlantic Salt Meadows

The main habitats of conservation interest in Great Island Channel SAC are the sheltered tidal sand and mudflats and the Atlantic salt meadows. Owing to the sheltered conditions, the intertidal flats are composed mainly of soft muds. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nepthys hombergi, Nereis diversicolor* and *Corophium volutator*. Green algal species occur on the flats, especially *Ulva lactua* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially at Rossleague and Belvelly.

The saltmarshes are scattered through the site and are all of the estuarine type on mud substrate. Species present include Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Greater Sea-spurrey (*Spergularia media*), Lax-flowered Sea-lavender (*Limonium humile*), Sea Arrowgrass (*Triglochin maritimum*), Sea Mayweed (*Matricaria maritima*) and Red Fescue (*Festuca rubra*).

The site is extremely important for wintering waterfowl and is considered to contain three of the top five areas within Cork Harbour, namely North Channel, Harper's Island and Belvelly-Marino Point. Shelduck is the most frequent duck species with 800-1,000 birds centred on the Fota/Marino Point area. There are also large flocks of Teal and Wigeon, especially at the eastern end. Waders occur in the greatest densitynorth of Rosslare, with Dunlin, Godwit, Curlew and Golden Plover the commonest species. A population of about 80 Grey Plover is a notable feature of the area. All the mudflats support feeding birds; the main roost sites are at Weir Island and Brown Island, and to the north of Fota at Killacloyne and Harper's Island. Ahanesk supports a roost also but is subject to disturbance. The numbers of Grey Plover and Shelduck, as given above, are of national importance.

The site is an integral part of Cork Harbour which is a wetland of international importance for the birds it supports. Overall, Cork Harbour regularly holds over 20,000 waterfowl and contains internationally important numbers of Black-tailed Godwit (1,181) and Redshank (1,896), along with nationally important numbers of nineteen other species. Furthermore, it contains large Dunlin (12,019) and Lapwing (12,528) flocks. All counts are average peaks, 1994/95 – 1996/97. Much of the site falls within Cork Harbour Special Protection Area, an important bird area designated under the E.U. Birds Directive.

While the main land use within the site is aquaculture (oyster farming), the greatest threats to its conservation significance come from road works, infilling, sewage outflows and possible marina developments.

The site is of major importance for the two habitats listed on Annex I of the E.U. Habitats Directive, as well as for its important numbers of wintering waders and wildfowl. It also supports a good invertebrate fauna.

3.1.2. Cork Harbour SPA [Site code 004030]

The NPWS provides the following Site Synopsis in relation to Cork Harbour SPA (Version date 21.01.2015):

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay, Ringabella Creek and the Rostellan and Poulnabibe inlets.

Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nepthys hombergi, Nereis diversicolor* and *Corophium volutator*. Green algae species occur on the flats, especially *Ulva* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Some shallow bay water is included in the site. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Mallard, Pintail, Shoveler, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank, Black-headed Gull, Common Gull, Lesser Black-backed Gull and Common Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl. Of particular note is that the site supports internationally important populations

of Black-tailed Godwit (1,896) and Redshank (2,149) - all figures given are five year mean peaks for the period 1995/96 to 1999/2000. Nationally important populations of the following 19 species occur: Little Grebe (57), Great Crested Grebe (253), Cormorant (521), Grey Heron (80), Shelduck (2,009), Wigeon (1,791), Teal (1,065), Mallard (513), Pintail (57), Shoveler (103), Red-breasted Merganser (121), Oystercatcher (1,809), Golden Plover (3,342), Grey Plover (95), Lapwing (7,569), Dunlin (9,621), Bar-tailed Godwit (233), Curlew (2,237) and Greenshank (46). The Shelduck population is the largest in the country (over 10% of national total). Other species using the site include Mute Swan (38), Whooper Swan (5), Pochard (72), Gadwall (6), Tufted Duck (64), Goldeneye (21), Coot (53), Ringed Plover (73), Knot (26) and Turnstone (113). Cork Harbour is an important site for gulls in winter and autumn, especially Black-headed Gull (3,640), Common Gull (1,562) and Lesser Black-backed Gull (783), all of which occur in numbers of national importance. Little Egret and Mediterranean Gull, two species which have recently colonised Ireland, also occur at this site.

A range of passage waders occurs regularly in autumn, including such species as Ruff (5-10), Spotted Redshank (1-5) and Green Sandpiper (1-5). Numbers vary between years and usually a few of each of these species over-winter.

Cork Harbour has a nationally important breeding colony of Common Tern (102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed.

Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, it supports nationally important wintering populations of 22 species, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Little Egret, Golden Plover, Bar-tailed Godwit, Ruff, Mediterranean Gull and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it. Cork Harbour is also a Ramsar Convention site and part of Cork Harbour SPA is a Wildfowl Sanctuary.

3.2. Conservation Objectives of European Sites

3.2.1. Great Island Channel SAC [001058]

Th Specific Conservation Objectives and Target Notes are set by the NPWS (Version 1. 6th June 2014) for the Great Island Channel SAC [001058]. as follows.

1140 Mudflats and sandflats not covered by seawater at low tide

To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Great Island Channel SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes.
Community distribution	Hectares	Conserve the following community type in a natural condition: Mixed sediment to sandy mud with polychaetes and oligochaetes community complex.

1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

To restore the favourable conservation condition of Atlantic salt meadows (GlaucoPuccinellietalia maritimae) in Great Island Channel SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Bawnard - 0.29ha; Carrigatohil - 1.01ha.
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes.
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions
Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime

Attribute	Measure	Target
Vegetation structure: zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated
Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of subcommunities with typical species listed in SMP (McCorry and Ryle, 2009)
Vegetation structure: negative indicator species - *Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1% where it is already known to occur

3.2.2. Cork Harbour SPA [004030]

Generic Conservation Objectives:

To maintain the favourable conservation condition of [bird species listed] in Cork Harbour SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by **[Qualifying Bird Species]**, other than that occurring from natural patterns of variation

Specific Conservation Objectives

A193 Common Tern *Sterna hirundo*

To maintain the favourable conservation condition of Common Tern in Cork Harbour SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target
Breeding population abundance: apparently occupied nests (AONs)	Number	No significant decline
Productivity rate: fledged young per breeding pair	Mean number	No significant decline
Distribution: breeding colonies	Number; location; area (hectares)	No significant decline
Prey biomass available	Kilogrammes	No significant decline
Barriers to connectivity	Number; location; shape; area (hectares)	No significant decline
Disturbance at the breeding site	Level of impact	Human activities should occur at levels that do not adversely affect the breeding common tern population

A99 Wetlands

To maintain the favourable conservation condition of the wetland habitat in Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it. This is defined by the following attribute and target:

Attribute	Measure	Target
Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,587 hectares, other than that occurring from natural patterns of variation

3.3. Consideration of Impacts on European Sites

3.3.1. Habitats Directive Annex I Habitats

There would be no direct impacts on the Great Island Channel SAC or the Cork Harbour SPA and there would be no habitat loss or fragmentation as a result of the proposed development. Having considered direct impacts and ruling them out, indirect impacts are then considered.

A worst-case scenario may be considered whereby the Project may result in a significant detrimental change in water quality in the Great Island Channel or Cork Harbour either alone or in combination with other projects or plans as a result of indirect pollution. The effect would have to be considered in terms of changes in water quality which would affect the habitats or food sources for which the Great Island Channel SAC or the Cork Harbour SPA species are designated.

It is unlikely that there would be a pollution event arising from fuel or from chemical spillage. However, such an event could significantly affect the trophic status of the Great Island Channel, which would also be contrary to the conservation objectives of the Great Island Channel SAC in terms of potential significant impacts on the saltmarsh habitats for which the SAC is designated.

3.3.2. Birds Directive Annex I Species

A worst-case scenario may be considered whereby the Project may result in a significant detrimental change in water quality in the Great Island Channel or Cork Harbour either alone or in combination with other projects or plans as a result of indirect pollution. The effect would have to be considered in terms of changes in water quality which would affect the habitats or food sources for which the Great Island Channel SAC or the Cork Harbour SPA species are designated.

It is unlikely that there would be a pollution event from fuel or chemical spillage. However, such an event could significantly affect the trophic status of the waters of Cork Harbour, which would also be contrary to the conservation objectives of the Cork Harbour SPA in terms of potential significant impacts on the mudflat habitats on which the bird species for which the SAC is designated rely upon. .

3.3.3. Ecological Network Supporting Natura 2000 Sites

An analysis of the proposed Natural Heritage Areas and designated Natural Heritage Areas in terms of their role in supporting the species using Natura 2000 sites was undertaken. These supporting roles mainly relate to mobile fauna such as mammals and birds which may use pNHAs and NHAs as “stepping stones” between Natura 2000 sites.

Article 10 of the Habitats Directive and the Habitats Regulations 2011 place a high degree of importance on such non-Natura 2000 areas as features that connect the Natura 2000 network. Features such as ponds, woodlands and important hedgerows were taken into account during the AA process.

There are no other designated or proposed designated sites or areas of semi-natural habitat that would be affected by the proposed Project.

3.3.4. Potential Impacts on European Sites

The Project is not directly connected with or necessary to the management of the European sites considered in the assessment and therefore potential downstream impacts must be identified and considered.

There will be no direct impacts on the Great Island Channel SAC or the Cork Harbour SPA designated habitats as a result of the proposed development. Direct impact refers to physical impacts defined in the Departmental Guidance as 'Loss of habitat area' and/or 'Habitat Fragmentation'. Having established this, the assessment emphasis is placed on potential indirect and cumulative impacts.

The potential for impact is considered whereby the Project would result in a significant detrimental change in water quality either alone or in combination with other projects or plans as a result of indirect pollution of surface water. The effect would have to be considered in terms of changes in water quality or changes in hydrology which would affect the habitats or species for which the Great Island Channel SAC or the Cork Harbour SPA are designated. This is assessed by firstly establishing the pathways by which impacts could occur and then reviewing the design measures included which will avoid these impacts and then by also looking at the potential in-combination effects which will be assessed in Sections 3.6 and 3.7 later in this report.

3.4. Description of the Existing Environment

A synopsis of the existing habitats is taken from the project EIAR as follows.

The site is a narrow arm of the existing quarry that runs E-W, immediately south of the N22 road. It covers about 6.7 ha altogether and is 25-30m deep with steep sides. It lies at or above the seasonal watertable but the groundwater level can temporarily rise above the level of the pit floor during very wet periods over winter, notably in early 2016 when 3.5m of water was present for some weeks. The only substrate visible is the unconsolidated sands and gravels that have been extracted. The habitat is

generally recolonising bare ground (ED3 in Fossitt 2000) with willow or gorse scrub (WS1) but there is some exposed sand, gravel or till (ED1) at the eastern end, with vehicle tracks.

The pit slopes have been partially covered by an open scrub of common gorse *Ulex europaeus*, as well as self-sown downy birch *Betula pubescens*, butterfly bush *Buddleja davidii*, bramble *Rubus fruticosus* and black pine *Pinus nigra*. There are several prominent herbs and mosses, the species depending on the stability of the substrate.

The older pit slopes, especially on the southern side, support young sycamores *Acer pseudoplatanus* and hawthorn *Crataegus monogyna* growing with brambles *Rubus fruticosus*, foxglove *Digitalis purpurea* and heath speedwell *Veronica officinalis*.

A more defined scrub of willows covers the base below each side. It is formed of grey willow *Salix cinerea* with a few osiers *S. viminalis* and white willow *S. alba* also. The young trees grow in a cover of the moss *Calliergonella cuspidate* (which is abundant) and grass. The canopy is still quite open, so the associated species include some plants that extend to the treeless ground in the centre of the site.

Species restricted to the open grassland are yellow trefoil *Trifolium dubium*, sticky mouse-ear *Cerastium glomeratum*, oval sedge *Carex ovalis* and small Hawkbit *Leontodon saxatilis*.

A remnant pond (now dry) occurs at the lowest point and supports a few shoots of bulrush *Typha latifolia* along with marsh bedstraw Galium palustre and tufted vetch *Vicia cracca*.

The Cork Harbour SPA is located approximately 20km downstream of the proposed development site and therefore only indirect impacts are possible. However, as there are no surface water outlets from the site, the indirect pathway is firstly via groundwater to the River Bride, and then via surface water to the downstream designated site. Due to the distances involved and the nature of the infill proposal no significant impacts are anticipated.

3.5. Impacts on the Qualifying Interests of European Sites

3.5.1. Direct Impacts

There will be no direct impacts on the SAC or SPA conservation areas as a result of the construction and operation of the proposed project. Direct impact refers to physical impacts defined in the Departmental Guidance as 'Loss of habitat area' and/or 'Habitat Fragmentation'. There are no direct impacts identified which may affect the Annex I habitats and Annex II species of the SAC. The construction works of the proposed development will have no impacts upon the integrity or the site structure of the Great Island Channel SAC and Cork Harbour SPA. There is an adequate distance between the proposed development site and designated areas to ensure that no direct impacts will occur.

Having established this, the assessment emphasis is placed on potential indirect and cumulative impacts.

The primary consideration in terms of source-vector-pathways for indirect impacts relates to surface water and potential indirect impacts on hydrologically linked habitats and aquatic species.

3.5.2. Indirect Impacts

The potential for impact is considered whereby the Project would result in a significant detrimental change in water quality either alone or in combination with other projects or plans as a result of indirect pollution of surface water. The effect would have to be considered in terms of changes in water quality which would affect the habitats or species for which the Great Island Channel SAC (Site Code 001058) and Cork Harbour SPA (Site code 004030) are designated.

The proposed soil recovery facility will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works. Access to the site will be from the permitted main entrance on the N22 National Primary Road. A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A hard-stand with drainage to oil interceptor will also be provided as a designated refuelling area. The operation will be subject to the requirements of a waste management licence and an 'Environmental Management System' (EMS).

Consideration of impacts on Surface Water

There are no surface water flow paths from the proposed development site to either the River Bride or the River Lee and therefore no direct impacts on either of these surface water bodies is possible from any runoff generated on-site.

During infilling there will be no pathway for surface water to leave the site other than by recharging into groundwater. The infilling works will require significant ground works and site levelling, and despite the lack of pathway certain measures can be implemented to ensure no indirect issue with groundwater quality.

Consideration of impacts on Groundwater

The proposed infill material is inert soil and stone (EWC 17 05 04) and river dredging spoil (EWC 17 05 06). Infilling of the site with inert soil and dredging spoil should pose a low risk to groundwater quality regardless of the vulnerability rating as no harmful contaminants will be present. In addition, inert soil and stone and river dredging spoil will not contain either organic matter or liquids that will form a source of organic contaminants of microbial pathogens, nor provide a substrate to feed microbial pathogens.

In terms of impacting on the groundwater vulnerability of the site, the importing of the inert fill will have a positive effect on the site in that the groundwater vulnerability rating will be lower. In terms of mitigation for groundwater quality protection it is proposed that infilling will only be undertaken when the groundwater level is at or below the base of the pit (i.e. infilling will not be completed during very wet periods over winter when the pit floor becomes submerged in groundwater).

Risks to groundwater on site relate primarily to the use and storage of hydrocarbon liquids.

3.6. Mitigation Measures

The proposed Soil Recovery Facility (SRF) will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works. A wheel wash and weighbridge will be provided as part of the proposed development and the existing workshop will be utilised as a quarantine area. A hard-stand with drainage to oil interceptor will also be provided as a designated refueling area.

The covered quarantine area, concrete hardstanding for refueling with drainage channel (300mm Ø, fall of 1:150 open channel with steel grate) and silt trap will discharge to ground via Hydrocarbon Interceptor. The wash water from the wheel wash will be recycled through a system of settlement chambers.

Mitigation Measures for Surface Water

There are no surface water flow paths from the proposed development site to either the River Bride or the River Lee and therefore no direct impacts on either of these surface water bodies is possible from any runoff generated on-site.

During infilling there will be no pathway for surface water to leave the site other than by recharging into groundwater. The infilling works will require significant ground works and site levelling, and despite the lack of pathway certain measures can be implemented to ensure no indirect issue with groundwater quality.

Management of surface water runoff and mitigation of surface water runoff impacts will be undertaken as follows:

- Infilling will only be undertaken when the groundwater level is at or below the base of the pit (i.e. infilling will not be completed during very wet periods over winter when the pit floor can become submerged with groundwater);
- Prior to pit floor backfilling the existing residual sand and gravel in the floor of the pit will be levelled to ensure there is no potential for ponding or exposed groundwater during the backfilling operations;
- Runoff collected within the pit will be routed in a temporary sump and allowed to recharge into the ground via a percolation area;
- The infilled area will be seeded for establishment of grassland at the soonest opportunity to avoid erosion.

An emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation, are in place. Surface water emissions from the facility and their management will be addressed in a revamped 'Environmental Management System' (EMS) for the Garryhesta site".

Mitigation Measures for Groundwater

Proposed mitigation measures are outlined as follows:

- A hard-stand with drainage to oil interceptor will be provided as a designated refueling area.
- All plant and machinery will be serviced before being mobilised to site, and regular leak inspections will be completed during the backfilling works;
- No plant maintenance will be completed on site, any broken-down plant will be removed from site to be fixed; and,
- An emergency spill kit with oil boom, absorbers etc. will be kept on site for use in the event of an accidental spill.
- All waste oils will be removed from the site for authorised disposal by licenced waste contractors. A record of all waste removal will be kept in the site office.
- The operator has put in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation.
- A groundwater monitoring programme has been put in place to ensure that there is no impact on water quality because of the recovery operations. 4 no. monitoring wells were installed in the area of the proposed infill site (MW1 – MW4) in October 2017.

The proposed Waste Management Licence will address the following:

- Pre-agreed sites for inert material ensuring; no pollutants, unauthorised material, invasive species.

- Will be operated under an Environmental Management System.
- Will implement pollution prevention measures.
- Will prepare an Emergency response procedure.
- Will complete environmental monitoring, including local groundwater and surface water monitoring.
- Will implement a phased restoration of the site, and end with the closure of site.
- Will have a documented waste recording procedure for all material entering the site.
- Will not allow unauthorised dumping of waste.
- The construction of a proposed wheel-wash and weighbridge will be located near the entrance and not on the pit floor. The facility will utilise the existing administration and welfare facilities at the site entrance being removed from the pit floor area.

3.7. Assessment of In-Combination Effects

The Commission services' interpretation document 'Managing Natura 2000 sites', makes clear that the phrase 'in combination with other plans or projects' in Article 3(3) refers to cumulative effects caused by the projects or plans that are currently under consideration together with the effects of any existing or proposed projects or plans. When impacts are assessed in combination in this way, it can be established whether or not there may be, overall, an impact which may have significant effects on a Natura 2000 site or which may adversely affect the integrity of a site.

As part of the Appropriate Assessment, in addition to the proposed works, other relevant projects and plans in the region must also be considered at this stage. This step aims to identify at this early stage any possible significant in-combination or cumulative effects / impacts of the proposed development with other such plans and projects on the Natura 2000 site.

A review of mapping made available through the planning section of the Cork County Council website indicates that, within the last three years, there has been one other application for planning granted permission in the vicinity of the proposed Project at Garryhesta, details in Table 4.

Table 4. Planning Application granted permission in the vicinity of the proposed Project.

Planning Ref.	Description of development	Comments
19/4585	Works to an existing dwellinghouse to include the demolition of rear extension and portion of patio, material alterations to existing elevations and roof,	None

Planning Ref.	Description of development	Comments
	construction of rear extension and all associated landscaping and site works	

There are no predicted in-combination effects with the developments in Table 4 given that they have been screened for potential significant effects on European sites where appropriate and given that it is predicted that the proposed Project is unlikely to have any adverse effects on any European site.

3.7.1. Conclusion of In-combination Effects

The only other land use activities visible in the area are quarries, existing farming operations and single dwelling houses. There will be no significant in combination hydrological and hydrogeological impacts resulting from this project, and other local existing developments, quarries, projects and plans.

Given the inclusion of Mitigation Measures to be included and enforced through an Environmental Management System under a Waste Management Licence, the proposed development will have no predicted impacts on local ecology and biodiversity or on hydrologically linked European sites, therefore in-combination impacts can be ruled out.

The Cork County Development Plan in complying with the requirements of the Habitats Directive requires that all Projects and Plans that could affect the Natura 2000 sites in the same zone of impact of the Project site would be initially screened for Appropriate Assessment and if requiring Stage 2 AA, that appropriate employable mitigation measures would be put in place to avoid, reduce or ameliorate negative impacts. In this way any, in-combination impacts with Plans or Projects for the development area and surrounding townlands in which the development site is located, would be avoided.

Any new applications for the Project area will be initially assessed on a case by case basis initially by Cork County Council which will determine the requirement for AA Screening as per the requirements of Article 6(3) of the Habitats Directive.

4. Natura Impact Statement & Conclusion

This NIS has reviewed the predicted impacts arising from the Project and found that with the implementation of appropriate mitigation measures specifically with regard to surface and ground water, significant effects on the integrity of the Great Island Channel SAC or Cork Harbour SPA can be ruled out.

It is the conclusion of this NIS that the implementation or the operation of the Project under the conditions of appropriate planning will not result in significant adverse effects to the conservation objectives or integrity of the Great Island Channel SAC or Cork Harbour SPA, or any other European Site, either alone or in combination with other plans or projects.

5. References

Department of the Environment, Heritage and Local Government (2010) Guidance on Appropriate Assessment of plans and projects in Ireland (as amended February 2010).

European Commission (2000) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission Environment DG (2002) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43EEC. European Commission, Brussels.

European Commission (2007) Guidance document on Article 6(4) of the 'Habitats Directive '92/43/EEC: Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interests, compensatory measures, overall coherence and opinion of the Commission. European Commission, Brussels.

European Commission (2018) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

NPWS (2014) Conservation Objectives: Great Island Channel SAC 001058. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2014) Conservation Objectives: Cork Harbour SPA 004030. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2019) The Status of EU Protected Habitats and Species in Ireland. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.

Schedule of Plans, Drawings & Maps

Ref.	Revision	Details	Size	Scale
D13	01	Site Layout - Infrastructure	A3	1:1,000

SITE NOTICE LOCATION

Drainage Channel min 300mm Ø, Fall of 1:150 Open Channel width of JCB Bucket with steel grate. Drain to Stormwater Drain along access road

57.5

52.8

MW2

Access Road Stormwater Drain *(Gulleys @ 20m intervals)*

Storage Yard

Covered Quarantine Area

53.4

Stormwater Drain & Gulleys for Roof Run-off

Concrete Hardstand *(For Refueling)*

Drainage Channel min 300mm Ø, Fall of 1:150 Open Channel width of JCB Bucket with steel grate

Temporary 4m x 8m sump to allow recharge of rainwater to ground. Relocate as necessary.

Wheel -wash

Office

Full Retention Interceptor with Silt Trap

Soakaway

Access Chamber to Monitor Discharge to Ground (DL1)

40.0

50.7

38.8

Weigh -bridge

Welfare Facilities

Wetland/ Retention Pond

Car Park with drainage to Interceptor

Skips for removal of deleterious material associated with Backfilling. Relocate as necessary.

Quarry Processing Area

Legend

- Applicants Ownership
- Application Area (c. 7.9 ha)
- Pit Area
- Scrubland
- Agricultural Land
- Rough Pasture
- Restored Silt Beds
- Final Profile of lands to be restored using imported inert Soil & Stones.
- Concrete Surface
- Track
- Quarry Stockpiles
- Ponds
- Recolonisation of Shallow Ponds
- Residential Property *(within 250m)*
- Buildings/Structures
- 1 Backfill Phasing
- Contours *(mAOD)*
- + 40.0 Spot Levels *(mAOD)*
- + Irish Transverse Mercator (ITM) geographic coordinates
- 5m Buffer Strip to Surface Water Course
- Direct Surface Water Runoff to Temporary Sump
- Traffic In
- Traffic Out
- Hedgerow
- Fence
- Gate
- D1 Dust Monitoring Points
- N1 Noise Monitoring Points
- MW1 Groundwater Monitoring Points
- SW1 Surface Water Monitoring Points
- + 21.7 Water Level *(mAOD)* on 27/01/2017

Monitoring Point	ITM		Irish National Grid	
	Easting	Northing	Easting	Northing
Discharge to Ground				
DL1	552859	569905	152899	69842

Map Series:
==========
1:5000

6424
REVISION DATE = 27-Mar-2015
SURVEY DATE = 31-Jul-2000

6379
REVISION DATE = 27-Mar-2015
SURVEY DATE = 31-Jul-2000

Projection:
==========
ITM

Scale 1:1,000

0m 20m 40m

NOTES:

1. All Dimensions in metres (m)
2. Elevation Levels - metres Above Ordnance Datum (mAOD)
3. For Planning Purposes Only. Do not scale for setting out.
4. Survey derived from point-cloud survey (03/2016)
5. Waste Management Infrastructure to be provided shown in purple

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J SHEILS PLANNING & ENVIRONMENTAL LTD

CLIENT	Roadstone Ltd
DRAWING	Site Layout - Infrastructure
LOCATION	Garryhesta Pit, Knockenamore, Ovens, Co. Cork

Drawn by	John Sheils	Scale	1: 1,000
Checked by	John Sheils	Job No.	JSPE 255
Date	15/10/19	Figure No.	D13
		Rev.	01