JSPE

J Sheils Planning & Environmental Ltd

Roadstone Ltd

Soil Recovery Facility at Garryhesta Pit Knockanemore, Ovens, County Cork

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Environmental Impact Assessment Report

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1 INTRODUCTION

1.1 GENERAL BACKGROUND

Projects likely to have significant effects on the environment *by virtue of their nature, size and location* are subject to the requirement for an Environmental Impact Assessment (EIA), prior to gaining development consent. The EIA is a systematic process undertaken to identify and evaluate the potential environmental impact of proposed projects. The EIA also seeks to consider alternatives and propose mitigation measures to ensure the development is carried out within recognised and accepted standards. Thus, the EIA is a dynamic process in which environmental consideration delivers significantly improved project configurations in respect of environmental protection and sustainability. The Environmental Impact Assessment Report (EIAR), which replaces the previous Environmental Impact Statement (EIS), is the new formal statement or document produced as a result of that process.

This EIAR pertains to a proposed soil recovery facility at a quarry in Knockanemore Townland, Ovens, Co. Cork, known as Garryhesta Quarry. This report accompanies a planning application submitted to Cork County Council by Roadstone Ltd for the proposed development.

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 (SRF) will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works (Refer to Figure 1.3 - Existing Site Survey Plan). 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 refueling area. The total application area including the site infrastructure covers 7.9 ha of lands. The development will be subject to the requirements of a waste management licence.

The EIAR and accompanying planning application are being submitted for consideration to Cork County Council, which is the competent authority for the proposed development. The application has been prepared and compiled under the supervision of John Sheils, (B.Eng. (Mining), MSCS, MRICS) on behalf of the applicant, Roadstone Ltd. John Sheils is the principal of "J Sheils Planning & Environmental Ltd" (JSPE), a company that provides planning, environmental and valuation services and specialises in the areas of minerals extraction and inert waste management.

In addition to the studies within the EIAR carried out by J Sheils Planning & Environmental Ltd (JSPE), some additional technical studies have been carried out by

independent consultants. These studies are incorporated within the EIAR, or are attached to the EIAR as appendices.

The EIAR will be submitted to the planning authority with the planning application and the EIAR will be available for inspection or purchase, at a fee not exceeding the reasonable cost of making a copy, during office hours at the offices of Cork County Council. The planning application may be inspected or purchased, at a fee not exceeding the reasonable cost of making a copy, at the offices of the planning authority during its public opening hours, and a submission or observation in relation to the application may be made to the authority in writing on payment of the prescribed fee (€20) within the period of 5 weeks beginning on the date of receipt by the authority of the application. The Planning Authority may grant permission subject to or without conditions or may refuse to grant permission.

A separate planning report which addresses the need for the development has also been included and is attached as Appendix 5.1.

1.2 SITE LOCATION

The site is located c. 1.5 km to the west of the village of Ovens, within the townland of Knockanemore, Co. Cork (Irish Transverse Mercator (ITM) Ref. E552400, N569850). The site is in the valley of the Bride River, c. 7 km west of the centre of Ballincollig, and c. 15 km west of the centre of Cork City. The valley is a long narrow geomorphic feature running roughly east-northeast to west-southwest in a geological structure known as the Cork Syncline. The walls of the valley are composed of Old Red Sandstone rock, while the valley floor is composed of a deep fill of Quaternary-age, unconsolidated sands and gravels overlying Carboniferous rocks, which are mostly limestones.

The Bride River meanders strongly in a roughly easterly direction, mostly on the southern side of the valley in the vicinity of the site. The Bride River drains into the Lee River approximately 8 km to the east, near Ballincollig. The surrounding landscape consists of a 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 – 65 m OD (Ordnance Datum).

The site has direct access to the N22, which is the National Primary Route connecting Cork with Tralee, via Ballincollig, Macroom and Killarney. The site location is shown on the Site Location Map Figure 1.1.

The proposed soil recovery facility including site infrastructure will comprise a c. 7.9 ha section of the existing quarry workings at Garhyesta, as shown by the Application Area Map Figure 1.2. The total landholding extends to c. 77.2 ha and is shown highlighted in blue. Thus, the proposed application site area (for infilling) will be confined to a relatively small section of the sand and gravel pit, much of which has already been worked out.

The proposed site for backfilling using imported inert soil and stone is located on the north-western corner of the landholding. 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 pit is isolated from a second larger pit which exists on the east of the landholding. Extraction below the groundwater table has been undertaken at the larger pit on the east of the site. The floor of the larger pit is permanently under water.

Current pit floor levels at the application site vary between approximately 23 m and 26 m OD. Natural ground levels in the fields immediately to the west and south of the site are at approximately 54 and 52 m OD, respectively. The ground to the north of the site rises steadily to an elevation of over 120 m OD. A site survey plan (Figure 1.3) is attached.

Land-use in the surrounding area is largely agriculture and quarrying with a 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 site is well screened from outside views along the N22 by well-established planting (Refer to Plate 1-1).

Plate 1-1 Established Screen Planting along N22

The nearest large population centre is the town of Ballincollig, approximately 7km to the northeast, whilst there are no significant population centres within a 1km radius of the site. The nearest small settlement to the site is Farran Village situated 2km to the west.

The site is not located within any designated areas such as proposed Natural Heritage Areas (pNHA), candidate Special Areas of Conservation (SAC) or Special Protection

Areas (SPA). The nearest designated area, the Lee Valley pNHA (Site Code: 0094) is located over 4km northeast of the site.

1.3 LEGISLATION

1.3.1 ENVIRONMENTAL AND PLANNING & DEVELOPMENT LEGISLATION

As a member State of the EU, Ireland is required to transpose EU directives into Irish Law within specified periods of their enactment. The EIA process is covered by the EIA Directive (85/337/EEC), which has been amended three times, and more recently consolidated in the Directive 2011/92/EU. In particular, Annex I of the directive specifies projects requiring an EIA, whilst Annex II specifies those projects where the Member state decides on the thresholds in terms of project scale, as to whether an EIA is required.

Prior to 2000, the rules in respect of EIA contained in the various EC directives were brought into force by the European Communities (EIA) Regulations 1989 and the EC (EIA) (Amendment) Regulations, 1999 and the Local Government (Planning & Development) Regulations 1999. These were largely consolidated within the terms of Part X of the Planning & Development 2000 Act, and Part 10 and Schedules 5, 6 and 7 of the 2001 Planning and Development Regulations, 2001. Therefore, under Irish Law, proposed developments are required to comply with the Planning and Development Acts, 2000 to 2017 and related secondary legislation in the form of Statutory Instruments or Regulations. These pieces of legislation require an EIA to be conducted, typically by specialist consultants on behalf of the developer, before consent is given for projects likely to have significant effects on the environment by reason of their size, nature or location.

The responsibility for the planning and environmental regulation of developments rests with the local authorities, the designated Competent Authority in this instance. These and An Bord Pleanála enforce compliance by attaching conditions relating to the environmental management of granted planning permissions. Licenses and permits may be required from local authorities where discharges, emissions or waste activities occur.

In respect of the Planning & Development Regulations S.I. No. 600 of 2001, Schedule 5, Part 1 specifies projects requiring an EIA (reflecting Annex I of the EIA Directive), and Schedule 5, Part 2 specifies those projects where the Member State decides on the thresholds in terms of project scale, as to whether an EIA is required (reflecting Annex II of the EIA Directive). Schedule 6 specifies information to be contained in an EIA, whilst Schedule 7 specifies the criteria used for determining Sub-Threshold projects, which for reasons of location and characteristics of the development and related impacts, require an EIA.

A new EIA Directive 2014/52/EU came into effect in 2014, which each Member State was required to have transposed into law by May 16th 2017. However, Directive

2014/52/EU was not transposed into Irish law by May 16th, 2017 and was still awaiting transposition at the time of writing of this EIAR.

In accordance with Circular letter PL 1/2017 issued by the Department of Housing, Planning, Community and Local Government, in respect of applications for planning permission received on or after 16th May 2017 falling within the scope of Directive 2011/92/EU, or within the scope of Directive 2014/52/EU, competent authorities are advised to consider applying the requirements of Directive 2014/52/EU by way of administrative provisions in advance of the transposition of Directive 2014/52/EU into Irish law.

The amended Directive uses the term Environmental Impact Assessment Report (EIAR) for what was formerly referred to in Irish legislation as an Environmental Impact Statement (EIS).

In May 2017, the EPA published Draft Guidelines on the information to be contained in environmental impact assessment reports (EPA 2017). The Guidelines have been drafted with the primary objective of improving the quality of EIARs with a view to facilitating compliance (with the Directive). Due consideration of these draft guidelines has taken with respect to the preparation of the EIAR.

1.3.2 WASTE LEGISLATION

The Waste Framework Directive 2008/98/EC, which repealed previous Waste Directives 75/439/EEC, 91/689/EEC and 2006/12/EC, establishes a legal framework for the treatment of waste within the EU, excepting certain waste categories, such as radioactive elements, waste water, animal by-products, etc. The Directive seeks to protect the environment and human health through the prevention of the harmful effects of waste generation, and through waste management. Article 13 requires Member States to take measures to ensure that waste is managed while safeguarding human health and the environment, and in particular:

- without risk to water, air or soil or to plants or animals
- without causing a nuisance through noise or odour
- without adversely affecting the countryside or places of special interest

In order to address the whole waste cycle, Member States are required to implement legislation in accordance with a hierarchy for the treatment of waste, set out in Article 4, which ranges from prevention, reuse, recycle, energy recovery to disposal (i.e., analogous to Landlink's Ladder). The Directive also addresses issues of waste management, permits and registration, and the establishment of national waste management plans.

The management of waste in Irish Law is codified principally in the Waste Management (WM) Acts, 1996 and 2001, and Part 3 of the Protection of the Environment Act, 2003, which may be cited together as the Waste Management Acts, 1996 to 2003, or the Waste Management Act, 1996, as amended. The European Communities (Waste Directive) Regulations, 2011 (S.I. 126 of 2011) represents the transposition of the Waste Framework Directive, 2008 into Irish Law, and amends these Acts.

The 2011 Regulations apply the definition of 'waste' established in the 1996 WM Act as "any substance or object belonging to a category of waste specified in the First Schedule or for the time being included in the European Waste Catalogue (EWC) which the holder discards or intends or is required to discard, and anything which is discarded or otherwise dealt with as if it were waste shall be presumed to be waste until the contrary is proved".

The Waste Management Acts, as amended, require that any person, with few exceptions, carrying out the recovery or disposal of waste shall hold a waste license, a waste facility permit or a certificate of registration, depending on the nature and extent of the activity. Waste licenses are issued by the Environmental Protection Agency (EPA), while waste facility permits and certificates of registration are granted by the local authority in lieu of waste licenses for privately operated waste facilities.

It is expected that inert soil and stone and river derived dredge spoil (EWC 17-05-04 and 17-05-06) will be imported from sites in County Cork, such as infrastructure and civil engineering projects, as well as a wide range of commercial and residential construction and renovation projects. The latter projects are beginning to come on stream at more predictable levels as the economy and construction industry return to stable growth.

A waste management licence application is required for recovery of inert soils and stone through deposition for the purposes of the improvement or development of land, where the total quantity of waste recovered at the facility is greater than 100,000 tonnes.

The Class(es) of Activity for the proposed development which are licensable are specified in the Third and Fourth Schedule of the Waste Management Act, 1996 (as amended) and are detailed in EIAR Section 3.2.2.4.

1.4 SCREENING

1.4.1 ENVIRONMENTAL IMPACT ASSESSMENT

An EIA is a systematic process to identify and evaluate the environmental impact of proposed projects, developments and programmes, and is a key environmental policy instrument of the European Union (EU). The process requires proposed developments likely to have a significant impact on the environment to gain consent from the competent authority prior to proceeding with the project.

As stated above, in respect of the Planning & Development Regulations S.I. No. 600 of 2001, Schedule 5, Part 1 specifies projects requiring an EIA (reflecting Annex I of the EIA Directive), and Schedule 5, Part 2 specifies those projects where the Member state decides on the thresholds in terms of project scale, as to whether an EIA is required (reflecting Annex II of the EIA Directive).

Screening is the initial phase of the EIA process, whereby the proposed project is evaluated to determine if an EIA is required. Projects requiring EIA are listed in Part 1

and 2 of Schedule 5 of the Planning and Development Regulations (PDR) 2001. Part 1 lists projects for which an EIA is obligatory under European law (specified in Annex 1 of the EIA Directive 2011/92/EU). In contrast, Part 2 lists projects for which an EIA is required, based on criteria and/or thresholds determined by the Member State, Ireland in this case (reflecting Annex II of the EIA Directive 2011/92/EU).

The proposed soil recovery facility is covered under Section 11 of Part 2, of Schedule 5 of the Planning and Development Regulations (PDR) 2001. Section 11 of Part 2 refers to "Other Projects"; specifically Clause (b) refers to "Installations for the disposal of waste with an annual intake greater than 25,000 tonnes not included in Part 1 of this Schedule."

1.4.2 APPROPRIATE ASSESSMENT

Appropriate assessment was introduced by the EU Habitats Directive as a way of determining during the planning process whether a project is likely to have a significant effect on one of the Natura 2000 sites so far designated (i.e., the candidate SAC's and SPA's), or their conservation objectives.

Article 6(3) states:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives…."

In the Irish context this has been interpreted as a four-stage process. Firstly, a screening exercise (Stage 1, Refer to Appendix 5.2) determines if a project could have significant effects on a Natura site. If it does or the situation is unclear a Natura Impact Statement (Stage 2) is provided to the planning or regulatory authority which then conducts an Assessment of the information supplied. Examples of significant effects are a loss of habitat area, fragmentation of the habitat, disturbance to species using the site and changes in water resources or quality. If such negative effects come to light in the assessment, alternative solutions are investigated by the proponent (Stage 3) and modifications made unless the project is deemed to be driven by 'imperative reasons of overriding public interest' in its current form. In this case Stage 4 then deals with compensatory action.

An ecological assessment and screening for Appropriate Assessment for the proposed development is included (Refer to Appendix 5.2).

In this case, there are no sites within 15km, with the nearest such area being the Cork Harbour SPA (Site Code 4030), which begins downriver from the City and is joined by the Great Island Channel SAC (Site Code 1058) further to the east.

It has been assessed that there is no likelihood of significant ecological effects from this development on any of the sites in the Natura 2000 network or on their conservation objectives. Thus, the further, more detailed, stages of appropriate assessment are not required.

1.5 SCOPING & CONSULTATION

Scoping should ensure that the constituent environmental studies of the EIA provide all the relevant information, particularly with respect to: (1) significant impacts of the project; and (2) alternatives to the project. As such, the scoping process identifies the issues that are likely to be important during the EIA and eliminates those that are not. The information can be compiled through a formal process, whereby the competent authority is asked to consult with relevant agencies to draw up an opinion about the scope of the coverage required. More informal scoping can also be carried out to ensure that all relevant issues are identified and addressed to an appropriate level of detail.

An informal scoping exercise has been carried out to identify the range of impacts that may be associated with the proposed development, the likely concerns of local residents and landowners, and to assess the information and detail that is required to be included within the EIAR.

Consultation for the purpose of an EIA provides an opportunity to solicit expertise and advice from a wide range of organisations and interested parties. Consultation has also taken place with sub-consultants appointed to prepare studies on specialised subjects. These include geologists, hydrogeologists, ecologists, consulting engineers and archaeological consultants.

As discussed above (Refer to Section 1.4) the requirement to prepare the planning application and EIAR follows on from the screening exercise and pre-consultation with the County Council on 14/09/17 with respect to the proposed development of a soil recovery facility at Garryhesta. Pre-consultation was also held with the EPA on 5/10/17 with respect to preparation of the EIAR and submission of a waste licence application.

Given the level of discussion with Cork County Council including identifying the issues and emphasis that are likely to be important during the EIA, it was not considered necessary to formally request a written opinion ("scoping") on the information to be contained in the Environmental Impact Assessment Report (EIAR) in accordance with Section 173 of the Planning and Development Act 2000, as amended.

Following this scoping exercise, it is recognised that some issues have the potential for greater impact than others. Within the EIAR these impacts and their mitigation will be given priority.

1.6 FORMAT OF ENVIRONMENTAL IMPACT ASSESSMENT REPORT

The EIAR consists of a systematic analysis and assessment of the potential effects of a proposed project on the receiving environment.

The format and scope of this document has been produced having regard to:

I. Schedule 6 and 7 of Planning & Development Regulation 2001 (S.I. No. 600 of 2001)

II. Cork County Development Plan (2015-2022).

III. Guidelines on the Information to be contained in Environmental Impact Statements, Draft, (EPA 2017).

IV. Advice Notes on Current Practice in the preparation of Environmental Impact Statements, Draft (EPA 2015).

The EIAR takes into account these and other Government and commonly accepted standards and guidelines that affect various aspects of the proposed development. Although not yet transposed into Irish Law, the provisions of the revised EIA Directive 2014/52/EU, and the above revised draft guidance issued by the EPA, were taken into account during preparation of the EIAR.

Consideration has also been taken of EPA Licence Application Form Guidance with respect to Waste Licence Applications (EPA 2017) and the Cork County Council Development Plan (2015-2022).

In order to ensure transparency and public awareness of the environmental implications of development decisions, an EIAR is required to contain a non-technical summary according to Article 94 of the PDR 2001 (S.I. No. 600 of 2001). Clause 94(C) specifies "a summary in non-technical language of the information" required to be contained in the EIAR by the preceding clauses 94(a) and 94(b). Thus, the non-technical summary includes descriptions of the project, existing environment, impacts and mitigation measures, as well as graphic elements such as location map, site layout plan, etc. Furthermore, the non-technical summary is written in a format and language that can be understood by persons without the appropriate technical background.

In accordance with the guidance, the non-technical summary is provided as a separate, self-contained document, and is available to the public at the offices of the Cork County Council.

1.7 OBJECTIVES OF ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Formal environmental assessment enables the environmental effects which may be caused by a development to be systematically identified and evaluated. The EIAR presents the results in a manner that enables the importance of the predicted effects, and the scope for modifying or mitigating these effects, to be properly evaluated by the relevant decision-making body prior to deciding with respect to development consent.

This EIAR seeks to provide an objective analysis of the possible environmental effects resulting from the opening of the proposed soil recovery facility at Garryhesta. These effects are assessed against a comprehensive checklist of relevant environmental criteria. The EIAR then systematically evaluates the positive and negative impacts of the project on both natural and human environments.

The overall aims of the Report are:

- To provide relevant and complete environmental information to all project stakeholders, including the general public, in a self-contained and comprehensive document.
- To identify and provide objective analysis of the potential effects of the proposed development on the existing environment, so as to inform the competent authority and other interested parties in the decision-making process.
- To describe available measures to mitigate, either by avoidance, reduction or remediation, any environmental effects that may be identified.
- To assess the likely effectiveness of the mitigation measures, and the acceptability of residual effects.
- To provide a framework for the ongoing monitoring of residual environmental effects.

The EIAR is intended to be a self-contained document which addresses all the potential environmental issues that may arise as a result of the proposed development.

1.8 LAYOUT OF ENVIRONMENTAL IMPACT ASSESSMENT REPORT

The EIAR has been prepared in accordance with 'Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports' published by the Environment Protection Agency. The draft version of these guidelines was published in 2017. The EIAR also takes into account 'Draft Advice Notes for preparing Environmental Impact Statements' published in 2015. While the draft versions of the guidance documents were intended for consultation purposes only, these guidance documents do incorporate the expected provisions of the new law and are thus being used as an interim measure until the new EIA Directive (2014/52/EU) is transposed into Irish Law. Practitioners are expected to adhere to the guidance while preparing EIARs, for applications made on or after May 16th 2017. In addition, the policies contained within the Cork County Development Plan (2015-2022) have been considered.

The EIAR has been prepared using the "Grouped Format Structure", where each topic is examined as a separate section referring to the existing environment, the proposed development, impacts and mitigation measures.

The Report is sub-divided into four main sections:

Section 1 sets out general introductory comments concerning the project and a brief explanation of the aims and format of the EIAR. It also identifies the various consultees and professional consultants who have contributed to this EIAR and any difficulties encountered in preparation of the EIAR.

Section 2 describes reasonable alternative project locations, layouts, designs and processes that were considered with regards to their environmental effects.

Section 3 describes the details and nature of the proposed development and introduces some of the potential environmental effects that may result. It also provides details of any proposed or anticipated growth of the development and possible associated projects.

Section 4 provides detailed information on all aspects of the existing environment, identifies potential impacts on the environment by the proposed development, and recommends mitigation measures to avoid, reduce or remedy these impacts. They are grouped under the following sub-sections:

- Population & Human Health
- Biodiversity
- Land, Soils and Geology
- Water
- Climate
- Air
- Noise & Vibration
- Landscape
- Cultural Heritage
- Material Assets
- Roads & Traffic
- Interaction of the Foregoing (This section is an examination of any interaction between impacts identified in the previous sub-sections).

The associated references, plates and figures are provided either with the text or at the end of each section, while appendices are provided in Section 5.

1.9 THE PROJECT TEAM

The EIAR has been prepared by J Sheils Planning and Environmental Ltd. (JSPE). JSPE were commissioned on behalf of the client, Roadstone Ltd., to prepare the EIAR for the proposed waste recovery facility at Garryhesta. The principal J Sheils is a chartered minerals surveyor, mining engineer with a postgraduate diploma in environmental protection, and has considerable experience in the compilation of planning applications, waste licence applications for the recovery of soil and stones and restoration of quarry developments, and the preparation of Environmental Impact Assessment Reports (EIARs).

A list of the other experts who contributed to the individual sections of the EIAR is given in Table 1.1, which shows which factors and topics they covered. Their qualifications, experience and any other relevant credentials are provided below.

Raymond E. Healy B.Sc., M.Sc., Dip. GIS, Dip. Sust. Dev., Research Geologist, contributed to several sections of the EIAR. Mr. Healy formerly operated the consulting firm Minoretek in Winnipeg, Manitoba, Canada, where he held the professional designation of P.Geo. He has over twenty years' experience in applied mineralogy, mining and exploration geology. He holds an M.Sc. in geology (1991), a Diploma in GIS from DIT (2012) and a Specialist Diploma in Environmental Sustainability from NUIG (2013).

Roger Goodwillie, Ecologist, carried out the required surveys and analysis, and authored Section 4.2. Biodiversity. Roger Goodwillie is a member of the Chartered Institute of Ecology and Environmental Management. The report is accompanied by a screening for Appropriate Assessment Report prepared by Roger Goodwillie (Refer to Appendix 5.2).

Hydro-Environmental Services (HES) were commissioned to complete a hydrogeological / hydrological assessment of the proposed development, carried out the required surveys and analysis, and authored Section 4.4 Water. 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.

Dermot Nelis, BA, ArchOxon, AIFA, MIAI carried out the required surveys and analysis, and authored Section 4.9 Cultural Heritage. Dermot graduated from Queen's University Belfast, and after gaining extensive fieldwork experience undertook postgraduate studies at the University of Oxford in archaeological consultancy and project management. Dermot has carried out numerous walkover surveys, testing and monitoring programmes. He has completed over 100 Licensed fieldwork programmes and over 150 archaeological, architectural and cultural heritage desk-based assessments and Environmental Impact Assessments.

The traffic section 4.11 was prepared by Tony J. McNulty BE. F.I.E.I, chartered engineer. Tony was previously a Mayo County Council senior engineer and has 40 years' experience in road design, construction & maintenance, preparation of traffic

management and safety plans, and traffic sections of Environmental Impact Assessments.

Table 1.9-1 List of Expert Contributors by Section of the EIAR

Section	Contributing Experts
Section 1. Introduction	John Sheils & Raymond Healy
Section 2. Alternatives	John Sheils & Raymond Healy
Section 3. Description of Proposed Project	John Sheils
Section 4.1. Population & Human Health	John Sheils & Raymond Healy
Section 4.2. Biodiversity	Roger Goodwillie
Section 4.3. Land, Soils & Geology	Raymond Healy & John Sheils
Section 4.4. Water	Hydro-Environmental Services (HES)
Section 4.5. Climate	John Sheils & Raymond Healy
Section 4.6. Air	John Sheils
Section 4.7. Noise & Vibration	John Sheils
Section 4.8. Landscape	John Sheils & Raymond Healy
Section 4.9. Cultural Heritage	Dermot Nelis
Section 4.10. Material Assets	John Sheils & Raymond Healy
Section 4.11. Roads & Traffic	John Sheils & Tony McNulty
Section 4.12. Interactions of the Foregoing	John Sheils

1.10 APPLICANT

Roadstone Ltd. was originally founded by the Roche Brothers in the 1930's and became part of Cement Roadstone Holdings (CRH) plc in 1970, following the merger of Roadstone and Cement Ltd. The present-day company was formed in 2009 by the amalgamation of CRH's three construction materials businesses in Ireland, Roadstone Dublin Ltd., Roadstone Provinces Ltd. and John A. Wood Ltd. The company is Ireland's leading supplier of aggregates, construction and road building materials.

The Company operates eleven locations in Cork, Kerry and West Waterford, including quarries, gravel pits, blockyards, 'Ready Mixed Concrete' plants, blacktop plants, pipeworks, and D.I.Y. centres.

Although Roadstone's principal business interest is in rock extraction and manufacture of building materials and products, it is currently backfilling and restoring a number of

former quarries using imported inert soil waste and operating construction and demolition waste recycling facilities at several of its locations across the State.

Within the Greater Dublin Region, Roadstone currently operates an EPA licensed inert soils recovery facility at Fassaroe, west of Bray (Waste Licence Ref W0269-01). It also operates a permitted soil recovery facility and construction and demolition waste recovery facility at two separate locations within the Belgard Quarry Complex, near Tallaght.

In January 2015, the Environmental Protection Agency (EPA) issued a waste licence to Roadstone in respect of a soil recovery facility at Huntstown Quarry, near Finglas in North Dublin (Ref. No W0277-01).

The EPA issued a waste licence in respect of another facility at Milverton Quarry, near Skerries, Co. Dublin in June 2015 (Ref. No. W0272-01).

A waste licence (W0278-01) was granted in April 2017 for an inert waste recovery facility at Mullaghcrone Quarry, Platin and Cruicerath Townlands, Donore, County Meath. The principal activity is backfilling of an exhausted quarry void using imported natural soil and stone.

A waste licence (W0280-01) was granted in December 2014 for an inert waste recovery facility at Brownswood, Enniscorthy, County Wexford. The principal activity is backfilling of an exhausted quarry void using imported natural soil and stone.

Roadstone is committed to achieving and maintaining industry leading environmental standards. To this end, the company has established, and actively implements, an in-house Environmental Management System (EMS) at all its established waste recovery locations. The EMS has achieved external accreditation to ISO 14001 standard and is subject to audit on an annual basis. Roadstone envisages that an EMS will be developed and implemented for planned backfilling and restoration activities at Garryhesta.

1.11 ANY DIFFICULTIES IN COMPILING SPECIFIED INFORMATION

No major difficulties arising from either deficiencies in technology, knowledge or expertise were encountered in the preparation of the EIAR. The EIAR has been prepared by consultants with considerable experience in the compilation of planning applications and the preparation of Environmental Impact Assessment Reports (EIAR's) for quarry developments and waste recovery facilities (Refer to Section 1.9).

The contents of an earlier EIS from 2006 (produced by Golders Associates), which accompanied a planning application in relation to continued operation of the quarry at Garryhesta after registration under section 261, was submitted to the Cork County Council in 2006, and ensured a considerable volume of relevant data was available. The contents of documents related to the subsequent grant of planning permission and appeal (Ref. QR19 06/11798 & PL04.225332)) were also considered in the preparation of this EIAR.

1.12 REFERENCES

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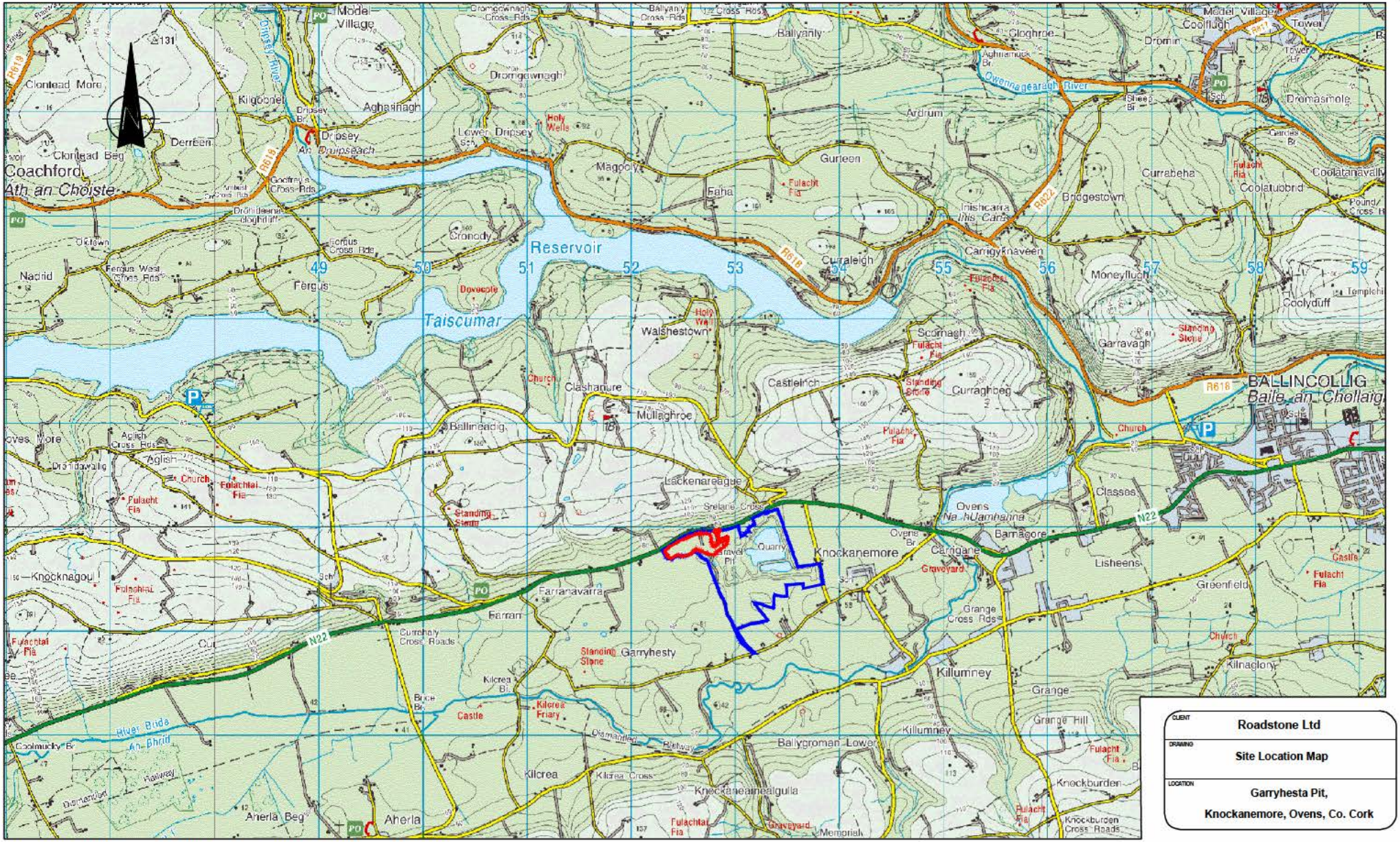
1.13 SECTION 1 FIGURES



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Legend

- Proposed Soil Recovery Facility (SRF) Application Area *(c. 7.9 ha)*
- Landholding (77.2 ha)

NOTES:

1. All Dimensions in metres (m)
2. Elevation Levels - metres Above Ordnance Datum (mAOD)
3. Extract from 1:50,000 OSI Discovery Series Map No. 80, 86 & 87

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J SHEILS PLANNING & ENVIRONMENTAL LTD

CLIENT	Roadstone Ltd
DRAWING	Site Location Map
LOCATION	Garryhesta Pit, Knockanemore, Ovens, Co. Cork

Drawn by: John Sheils	Scale: 1: 50,000	
Checked by: John Sheils	Job No.: JSPE 255	
Date: 18/01/18	Figure No.: 1.1	Rev.: 0

SITE NOTICE LOCATION

SITE NOTICE LOCATION

SITE NOTICE LOCATION

552400 E
569850 N

N22

KNOCKANEMORE
An Cnocán Mór

RYHESTY
í Hoiste

Legend

Proposed Soil Recovery Facility (SRF) Application Area *(c. 7.9 ha)*

Landholding (77.2 ha)

Irish Transverse Mercator (ITM) geographic coordinates

Scale 1:5,000

0m 50m 100m 150m 200m

Map Series:

1:5000

6424
REVISION DATE 27 Mar 2015
SURVEY DATE 31 Jul 2000

6373
REVISION DATE 27 Mar 2015
SURVEY DATE 31 Jul 2000

Projection:

ITM

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.

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J SHEILS PLANNING & ENVIRONMENTAL LTD

CLIENT: Roadstone Ltd

DRAWING: Application Area Map

LOCATION: Garryhesta Pit, Knockanemore, Ovens, Co. Cork

Drawn by: John Sheils	Scale: 1 5,000	
Checked by: John Sheils	Job No.: JSPE 255	
Date: 18/04/18	Figure No.: 1.2	Rev.: 0

Legend

- Applicants Ownership
- Application Area (c. 7.9 ha)
- Pit Area
- Scrubland
- Agricultural Land
- Rough Pasture
- Restored Silt Beds
- Pit Area to be restored using imported inert Soil & Stones.
- Concrete Surface
- Track
- Quarry Stockpiles
- Ponds
- Recolonisation of Shallow Ponds
- Residential Property *(within 250m)*
- Buildings/Structures
- Hedgerow
- Fence
- Gate
- Contours *(mAOD)*
- + 27.0 Spot Levels *(mAOD)*
- Irish Transverse Mercator (ITM) geographic coordinates
- D1 Dust Monitoring Points
- N1 Noise Monitoring Points
- MW1 Groundwater Monitoring Points
- SW1 Surface Water Monitoring Points
- Cross Sections (Refer to Figure 3.4)
- 11m Distance of Structures from Boundaries of Site
- + 21.7 Water Level *(mAOD)* on 27/01/2017

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 1:2,500

0m 20 40 60 80 100

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)

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J SHEILS PLANNING & ENVIRONMENTAL LTD

CLIENT	Roadstone Ltd
DRAWING	Existing Site Survey Plan
LOCATION	Garryhesta Pit, Knockanemore, Ovens, Co. Cork

Drawn by: John Sheils	Scale: 1 2,500		
Checked by: John Sheils	Job No.: JSPE 255		
Date: 18/04/18	Figure No.: 1.3	Rev.: 0	

2 CONSIDERATION OF ALTERNATIVES

2.1 ALTERNATIVES EXAMINED

Schedule No. 6 of the Planning and Development Regulation 2001 (reflecting Annex IV of Directive 97/11/EC) specifies the information to be contained in an EIAR, and requires *"An outline of the main alternatives studied by the developer and an indication of the main reasons for his or her choice, taking into account the effects on the environment"*.

One of the key changes between the EIA Directive 2011/92/EU and the revised Directive 2014/52/EU pertains to the "mandatory assessment of alternatives." The EIA Directive 2014/52/EU requires an EIAR to contain "A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."

The Directive had not been transposed into Irish law before the deadline of 16 h May 2017, but is expected to be in force during the expected life of the proposed development. "In respect of applications for planning permission or other development consent received on or after 16 May 2017 falling within the scope of Directive 2011/92/EU, or within the scope of Directive 2014/52/EU, competent authorities are advised to consider applying the requirements of Directive 2014/52/EU by way of administrative provisions in advance of the transposition of Directive 2014/52/EU into Irish law". Consequently, the EPA has prepared several guidance documents in the interim that incorporate the expected provisions of the new law (EPA 2015 and 2017). Practitioners are expected to adhere to the guidance while preparing EIARs, for applications made on or after May 16 h 2017.

On the basis of the Draft Advice Notes on Current Practice for preparing Environmental Impact Statements (EPA 2015), and Draft Guidelines on the Information to be contained in an Environmental Impact Assessment Report (EPA 2017), which take account of the revised EIA Directive (2014/52/EU), alternatives to the current proposals have been considered at five principal levels.

2.1.1 'DO-NOTHING' ALTERNATIVE

There is currently a lack of licensed inert soil recovery facilities in the Cork area. As the economy recovers there will be a need to provide additional void space for the recovery of soils and stones and river dredged material in the Cork area.

The existing site comprises a worked-out sand and gravel pit. The 'Do Nothing' alternative means the site will remain unrestored and the lands will not be put to any beneficial after-use. The proposal to import inert soil and stone backfill will facilitate proper restoration, landscaping, and the long-term security of the site and ensure that the lands are returned to beneficial after-use.

The current pit floor is at or near the groundwater level in the local sand and gravel aquifer below the pit. The presence of exposed groundwater/or ponding on the floor of the quarry should not be a major concern if appropriate backfilling is completed. Backfilling the site with inert material could be viewed as a good approach to increase the vulnerability rating, i.e., provide better aquifer protection in the long term, and proper landscaping and closure of the site will prevent dereliction and possible fly tipping.

The possible benefits to groundwater vulnerability from the deposition of inert infill material would not be realised under a 'do nothing' scenario.

2.1.2 ALTERNATIVE LOCATIONS

Environmentally beneficial site reinstatement, such as that proposed at the application site, can only be undertaken where previous land-use activities have created a disturbed landscape. Because reclamation of the quarry site is required as a condition of existing planning permission (Ref. QR19 06/11798 & PL04.225332), it was not considered particularly relevant in this case for the applicant to identify and appraise the merits of alternative sites for the proposed soil recovery facility. It is the existence of this requirement for reinstatement using inert materials, and the environmental gain derived therefrom, that constitutes the principal qualification of the application site.

Notwithstanding the foregoing, quarry restoration is typically ranked favourably in the hierarchy applied, for example by Kildare County Council (2005), to site selection for recovery of inert waste material:

- re-use of material where produced
- **quarry restoration**
- land reclamation
- agricultural/recreational use
- raising of development land
- raising of sites for one-off houses

Reclamation of the Garryhesta quarry will result in infilling of a large exposed void and partial restoration of the disturbed landscape to its original pre-extraction condition, with emplacement of soil cover to protect the underlying groundwater.

Many local authorities also encourage co-location of Material Recovery Facilities with quarries, in preference to stand-alone waste recovery facilities, because of the shared / complementary infrastructure, plant, processes, products and materials, as well as common environmental aspects.

The application site is particularly advantageous as it is strategically located in central south Cork, in a rural area with direct access to the N22 regional road, and can serve the needs for recovery of inert soils and stone and river derived dredge spoil sourced from across much of the county, including Cork City and the major towns of Macroom, Bandon, Kinsale, Carrigaline, Blarney and Ballincollig, all of which are within 25 km.

In previous cases, An Bord Pleanála have decided that there is no requirement that if a more advantageous site is identified that it excludes the site under application, and that the suitability of a site can be the primary element in the assessment of an application. The proposed development will enable the operator to begin the restoration of the existing quarry to a secure wild life habitat, which is at the moment in a semi-derelict state.

2.1.3 ALTERNATIVE SITE LAYOUT

The layout relates to the logical placement of infrastructure and plant associated with the elements of the process within the area of the site. It is largely dictated by the commercial imperatives of process efficiency, operational efficiency and cost-efficiency, as well as environmental effects such as noise, dust, and visual impact.

The layout of the facility is driven by the basic processes of recovery of soil with the recovery by backfilling of otherwise unusable materials to meet the requirement to reclaim the quarry back to beneficial after-use (e.g. agriculture and/or secure wildlife habitat). Integration of the soil recovery facility layout with that of the existing quarry is driven by the numerous common processes of sorting and separation as well as backfilling of the quarry. In addition, there is a need to minimise any adverse impact, particularly visual impact, and to optimise the quarry for a restoration scheme to beneficial after-use. Because the soil recovery facility will share much of the infrastructure and process plant of the quarry, layout alternatives are constrained by the layout of the existing facility and the imperative of achieving maximum synergy.

Allocation of areas for inspection of intake material, quarantine material, residual waste and placement of recovered material is an additional requirement of the material recovery facility. The layout and siting of these areas is driven by the need to maximise operational efficiencies and offers the greatest latitude in designing the facility layout. However, as the soil recovery facility will be using the existing infrastructure, plant and hard standing areas currently on site, the layout has largely been predetermined.

2.1.4 ALTERNATIVE DESIGNS

Design more closely relates to the visual aesthetics of the development, which is less of a consideration in impermanent and screened quarries and waste facilities as compared to enduring and visual imposing residential, retail and commercial developments, public buildings or major pieces of infrastructure. Nonetheless, as negative visual impact can be a major environmental aspect associated with such developments, optimising the design alternatives is considered a priority.

Visual impacts can be resolved through a number of design solutions by varying key aspects such as the location, shape, size, orientation, colour, etc. of the facilities.

In this case the site is well screened by mature planting along the N22 and other boundaries. Its location in a valley ensures that there are no significant outside views of the area to be restored by backfilling with inert soil and stones and river dredged materials.

As the soil recovery facility will be using the existing infrastructure, plant and machinery currently on site, there are few alternatives with respect to these aspects of the design.

As a natural consequence of the planning and EIAR process, alternative schemes in terms of the layout and design of the inspection area, quarantine area and residual waste holding area, as well as the direction of working, phasing and character of site restoration have been considered. By a process of examination and elimination the final scheme now proposed is considered to be the most appropriate. The detail with respect to the design of the soil recovery facility is described under Section 3 – Description of the Proposed Project.

2.1.5 ALTERNATIVE PROCESSES

Waste recovery lies at the second lowest tier in the European Waste Hierarchy, and as such is the process of last resort prior to disposal. Process alternatives diminish as we descend the tiers of the hierarchy from the pinnacle of prevention to reduction, reuse, recycling, recovery and ultimately to disposal/landfill at the base. The inert soil and stone can be used for beneficial restoration purposes subject to basic characterisation, inspection and verification without the requirement for any secondary recovery operations.

The opportunities to exploit process alternatives lie further up the waste hierarchy with designers, producers, users and other participants in product lifecycles, and where adoption of the principles of product stewardship could significantly reduce the environmental impact of products, particularly resource utilisation. However, at this point in the product lifecycle, higher level alternatives are not necessary, and waste recovery by backfilling waste inert soils and river dredged material represents the optimum economic utilisation of these materials. Diverting waste soil and stone and river derived dredge spoil for the improvement of land as part of the reinstatement of a quarry offer significant environmental gains.

While the process is largely determined by the principle of best available technology (BAT), process options can include such aspects as management of the process that affect the volumes and characteristics of emissions, residues, traffic and the use of natural resources. The precise working method and phasing to be implemented will be determined following a detailed examination of various environmental issues.

2.1.6 ALTERNATIVE MITIGATION MEASURES

The central purpose of an EIA is to identify potentially significant adverse impacts at the pre-consent stage and to propose measures to mitigate or ameliorate such impacts. There are three established strategies for impact mitigation - avoidance, reduction and remedy, and thus it may be possible to mitigate effects in a number of different ways. The EIAR describes the various options and provide an indication of the main reasons for selecting the chosen options, including a comparison of the environmental effects.

2.1.7 CONSULTATION ABOUT CONSIDERATION OF ALTERNATIVES

Roadstone have identified a need for the development of a soil recovery facility in the area. There is currently a lack of licensed inert soil recovery facilities in the Cork area. As the economy recovers there will be a need to provide additional void space for the recovery of soils and stones and river dredged material in the Cork area. The following table provides a summary of alternative types of waste authorisations that are currently available.

Table 2.1-1 Alternative Types of Waste Authorisations

Type of Waste Authorisation	Scale of activity to be authorised	Regulatory Body
Certificate of Registration	Activities involving a total fill of up to 25,000 tonnes	Local Authority
Waste Facility Permit	Activities involving a total fill of less than 100,000 tonnes	Local Authority
Waste Licence (Soil Recovery)	Activities involving a total fill of 100,000 tonnes or greater	EPA

Following pre-consultation with both the EPA and Cork County Council it is acknowledged that there is need for larger better regularised waste licenced soil recovery facilities in the region. The site has direct access to the N22, which is the National Primary Route connecting Cork with Tralee, via Ballincollig, Macroom and Killarney. The site also has the benefit of restoring an existing sand and gravel pit to beneficial after-use as opposed to backfilling more remote smaller and possibly greenfield sites through authorisation by the Local Authority under a Certificate of Registration or Waste Facility Permit. The site also benefits from economy of scale in terms of the established quarrying activity, site infrastructure and plant and machinery as opposed to the alternative of developing a proliferation of smaller waste recovery facilities to meet demand. It is acknowledged that a licenced facility will have been subject to rigorous assessment by the Regulatory through the EIA process and Waste Licensing.

2.1.8 REFERENCES

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http://www.irishstatutebook.ie/home.html Irish Statute Book, Office of the Attorney General

3 DESCRIPTION OF THE PROPOSED PROJECT

3.1 INTRODUCTION

In describing the proposed development, all relevant phases of the existence of the project from construction through existence and operation, to decommissioning and restoration may be relevant.

3.2 CHARACTERISTICS OF THE PROJECT

In providing a description of the physical characteristics of the project development, issues such as site layout, design and size/scale, as well as any existing development on the site may be relevant.

3.2.1 THE EXISTING SITE

3.2.1.1 General Site Description

The site is located c. 1.5 km to the west of the village of Ovens, within the townland of Knockanemore, Co. Cork (Irish Transverse Mercator (ITM) Ref. E552400, N569850). The site is in the valley of the Bride River, c. 7 km west of the centre of Ballincollig, and c. 15 km west of the centre of Cork City. The valley is a long narrow geomorphic feature running roughly east-northeast to west-southwest in a geological structure known as the Cork Syncline. The walls of the valley are composed of Old Red Sandstone rock, while the valley floor is composed of a deep fill of Quaternary-age, unconsolidated sands and gravels overlying Carboniferous rocks, which are mostly limestones.

The Bride River meanders in a roughly easterly direction, mostly on the southern side of the valley in the vicinity of the site. The Bride River drains into the Lee River approximately 8 km to the east, near Ballincollig. The surrounding landscape consists of a 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 – 65 m OD (Ordnance Datum).

The site has direct access to the N22, which is the National Primary Route connecting Cork with Tralee, via Ballincollig, Macroom and Killarney. The nearest large population centre is the town of Ballincollig, approximately 7km to the northeast, whilst there are no significant population centres within a 1km radius of the site. The nearest small settlement to the site is Farran Village situated 2km to the west. The site location is shown on the Site Location Map Figure 1.1.

Land-use in the surrounding area is largely agriculture 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 site is well

screened from outside views along the N22 by well-established planting (Refer to Plate 1-1).

3.2.1.1.1 Description of Site Layout

The proposed soil recovery facility including site infrastructure will comprise a c. 7.9 ha section of the existing quarry workings at Garhyhesta, as shown by the Application Area Map Figure 1.2. The total landholding extends to c. 77.2 ha and is shown highlighted in blue. Thus, the proposed application site area (for infilling) will be confined to a relatively small section of the sand and gravel pit, much of which has already been worked out.

The proposed site for backfilling using imported inert soil and stone is located on the north-western corner of the landholding. 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 pit is isolated from a second larger pit which exists on the east of the landholding. Extraction below the groundwater table has been undertaken at the larger pit on the east of the site. The floor of the larger pit is permanently under water.

Current pit floor levels at the application site vary between approximately 23 m and 26 m OD. Natural ground levels in the fields immediately to the west and south of the site are at approximately 54 and 52 m OD, respectively. The ground to the north of the site rises steadily to an elevation of over 120 m OD. A site survey plan (Figure 1.3) is attached.

3.2.1.2 Planning History

The Application Site is part of a working sand and gravel pit, and has been since the 1940's. The pit at Garryhesta operates at a production rate of up to c. 350,000 tonnes per annum (total output) depending on market demand.

The Garryhesta property is c. 77.2 ha, much of which has already been worked-out. Sand and gravel extraction and processing, including extraction beneath the water table, at Knockanemore, Ovens, Co. Cork ('Garryhesta Pit') 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 is being carried out in compliance with conditions imposed under Section 261 of the Planning & Development Act, 2000, as amended (Ref. QR19 06/11798 & PL04.225332).

Planning Permission (P.A. Ref No. 066387, PL 04.220318) was granted on 14/08/2008 for construction of 1.38km conveyor to transport material from the Garryhesta sand and gravel pit to the processing plant at Classis, Knockanemore, Ovens. Co. Cork.

The following is a summary of relevant planning history for the quarry at Garryhesta.

Table 3.2-1 Planning History for Site at Garyhesta

Planning Reference	Details	Decision
065647	Construction of 1.38 km of conveyor to facilitate road crossing to transport material, Knockanemore, Ovens, Co. Cork	Invalid Application 16/03/2006
066387 & PL 04.220318	Construction of 1.38km conveyor to transport material from the Garryhesta sand and gravel pit to the processing plant at Classis, Knockanemore, Ovens. Co. Cork	14/08/2008
06/11113	Continuation of sand and gravel extraction and processing, including extraction beneath the water table, by mechanical means using conveyor system feeding the aggregate processing area, power house and control rooms, washing, screening and crushing plant, lagoons and landscaping berms. Garryhesta Pit, Knockanemore, Ovens, Co. Cork.	Invalid Application 3/10/2006
QR19 06/11798 & PL04.225332	The continuation of sand and gravel extraction and processing, including extraction beneath the water table, at Knockanemore, Ovens, Co. Cork ('Garryhesta Pit') 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. The Application Site area is ca. 88.1 ha. in size, and is the subject of Section 261 Registration Reference No. QR19	24/06/2008
S261A QY146	No further action	04/04/2012

3.2.2 PROPOSED DEVELOPMENT

3.2.2.1 Development Overview

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 (SRF) will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works (Refer to Figure 1.3 - Existing Site Survey Plan). 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 refueling area. The total application area including the site infrastructure covers 7.9 ha of lands. The development will be subject to the requirements of a waste management licence.

The proposed site layout is shown on the attached Site Layout Figures 3.1 to 3-3. The proposed site area being within the quarry is screened from outside views and nearest residences by perimeter hedgerows screening berms constructed as part of the quarry development (Refer to Figure 3-4).

The site has the benefit of direct access to the N22, which is the National Primary Route connecting Cork with Tralee, via Ballincollig, Macroom and Killarney. The site location is shown on the Site Location Map Figure 1.1.

The existing access was subject to a detailed traffic and transport assessment submitted in support of a planning application under Section 261 of the Planning and Development Act 2000, as amended in 2006. This permission for the continuation of sand and gravel extraction and processing at Garryhesta was granted by Cork County Council on 24/06/2008. It was proposed to facilitate HGV traffic associated with the extraction of 350,000 tonnes per annum (i.e. c.17,500 outbound HGV movements annually or in the region of 60 outbound HGV's per day) from the Garyhesta site in accordance with this permission.

Planning Permission (P.A. Ref No. 066387, PL 04.220318) was subsequently granted on 14/08/2008 for construction of 1.38km conveyor to transport material from the Garryhesta sand and gravel pit to the processing plant at Classis, Knockanemore, Ovens. Co. Cork. This had the effect, save for staff and maintenance vehicles, of reducing the HGV traffic generated by the Garryhesta pit to be practically nil.

As stated above the proposed 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 HGV's per day). As such the volume of HGV traffic will be significantly less than that permitted under Planning Permission (QR19 06/11798 & PL04.225332) as detailed above.

Standard Operating Procedures (SOP's) will be put in place to ensure that all inert waste imported to site for recovery will be subject to comprehensive waste acceptance, inspection and sampling procedures (Refer to Appendix 5.3 for typical examples of SOP's).

All waste accepted for recovery will undergo a site pre-approval procedure (Refer to Appendix 5.3.4).

Each consignment of material arriving at the facility will be inspected at the point of entry by trained personnel to ensure it complies with what was agreed in the pre-

approval stage. Basic characterisation of the material will be carried out in accordance with the Waste Inspection Procedure (Refer to Appendix 5.3.2).

Only suitable material will be permitted to be accepted in the facility (i.e. inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06)).

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. The recycling manger will be informed immediately. A waste acceptance/rejection procedure will be put in place (Refer to Appendix 5.3.3).

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.

Material accepted at the facility will undergo routine testing as detailed in the Roadstone Waste Intake Sampling Procedure (Refer to Appendix 5.3.1).

Basic characterisation will be undertaken a second time, upon tipping. Only after this second inspection will the waste be accepted. Following the second inspection the material will be accepted and placed within the infill area (placement by bulldozer/excavator).

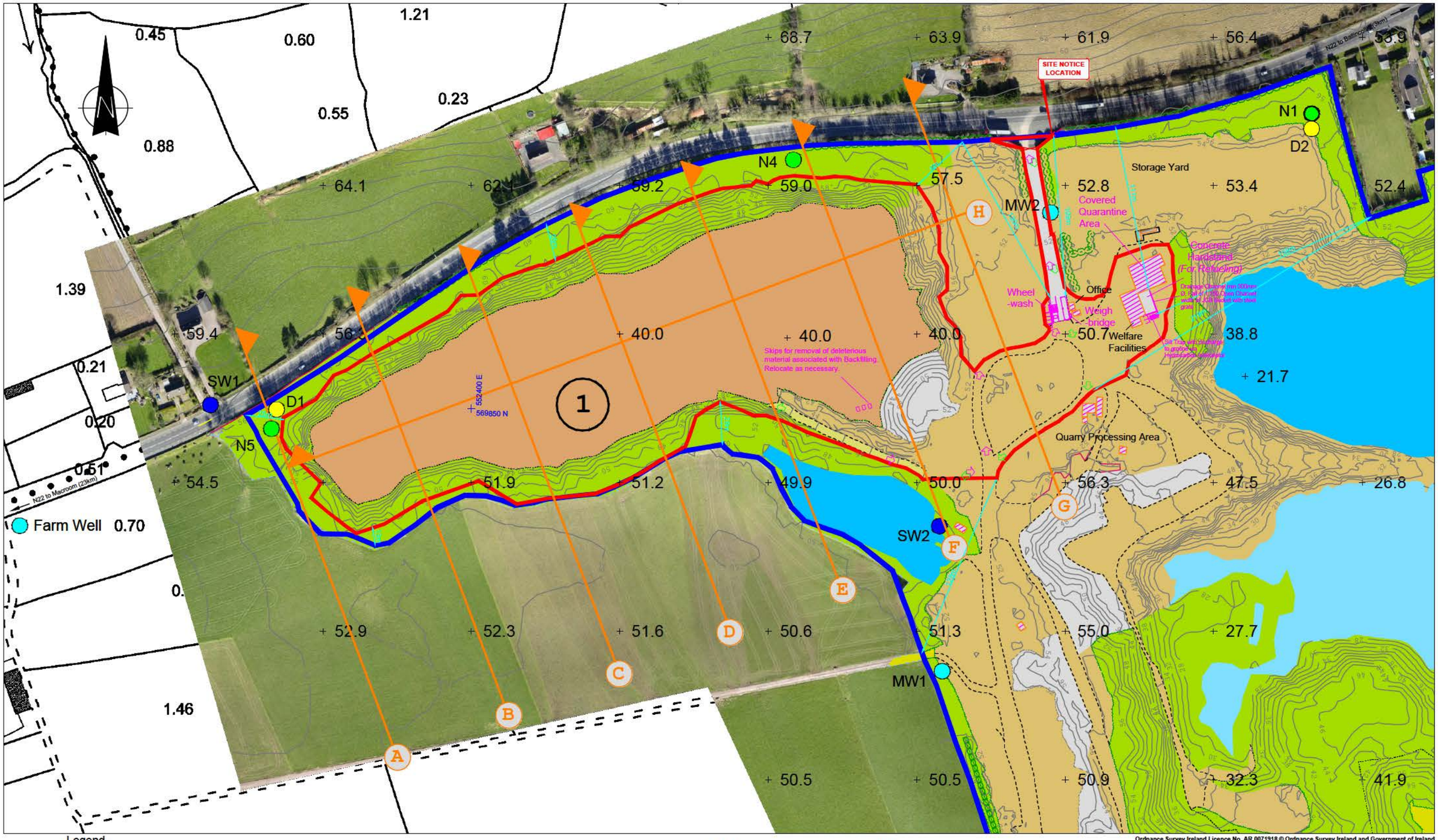
Progressive restoration involving grass seeding of restored areas shall be carried out on a staged basis to reduce the effects of soil erosion, windblown dust, to aid ground stabilisation and as an effective means of weed control.

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.

The recovery operations will be sited within the quarry area, being removed from residential property and screened from outside views by the existing perimeter screening berms.

The SRF will require one person to operate a bulldozer/excavator and one general foreman to monitor and inspect the quality and suitability, of imported materials being brought to the site for recovery and two other general site operatives. It is expected that the existing staff will take on these roles.

Mitigation measures to alleviate any adverse impacts from the development on the environment have been incorporated into the design (Refer to Section 3 and Section 4) to ensure that the development can be operated within accepted standards for this type of development.



Legend

- Applicants Ownership
- Application Area (c. 7.9 ha)
- Pit Area
- Scrubland
- Agricultural Land
- Rough Pasture
- Restored Silt Beds
- Phase 1 restored using imported inert Soil & Stones to 40m AOD.
- 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
- Traffic In
- Traffic Out
- Hedgerow
- Fence
- Gate
- D1 Dust Monitoring Points
- N1 Noise Monitoring Points
- MW1 Groundwater Monitoring Points
- SW1 Surface Water Monitoring Points
- Cross Sections (Refer to Figure 3.4)
- 11m Distance of Structures from Boundaries of Site
- + 21.7 Water Level *(mAOD)* on 27/01/2017

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 1:2,500

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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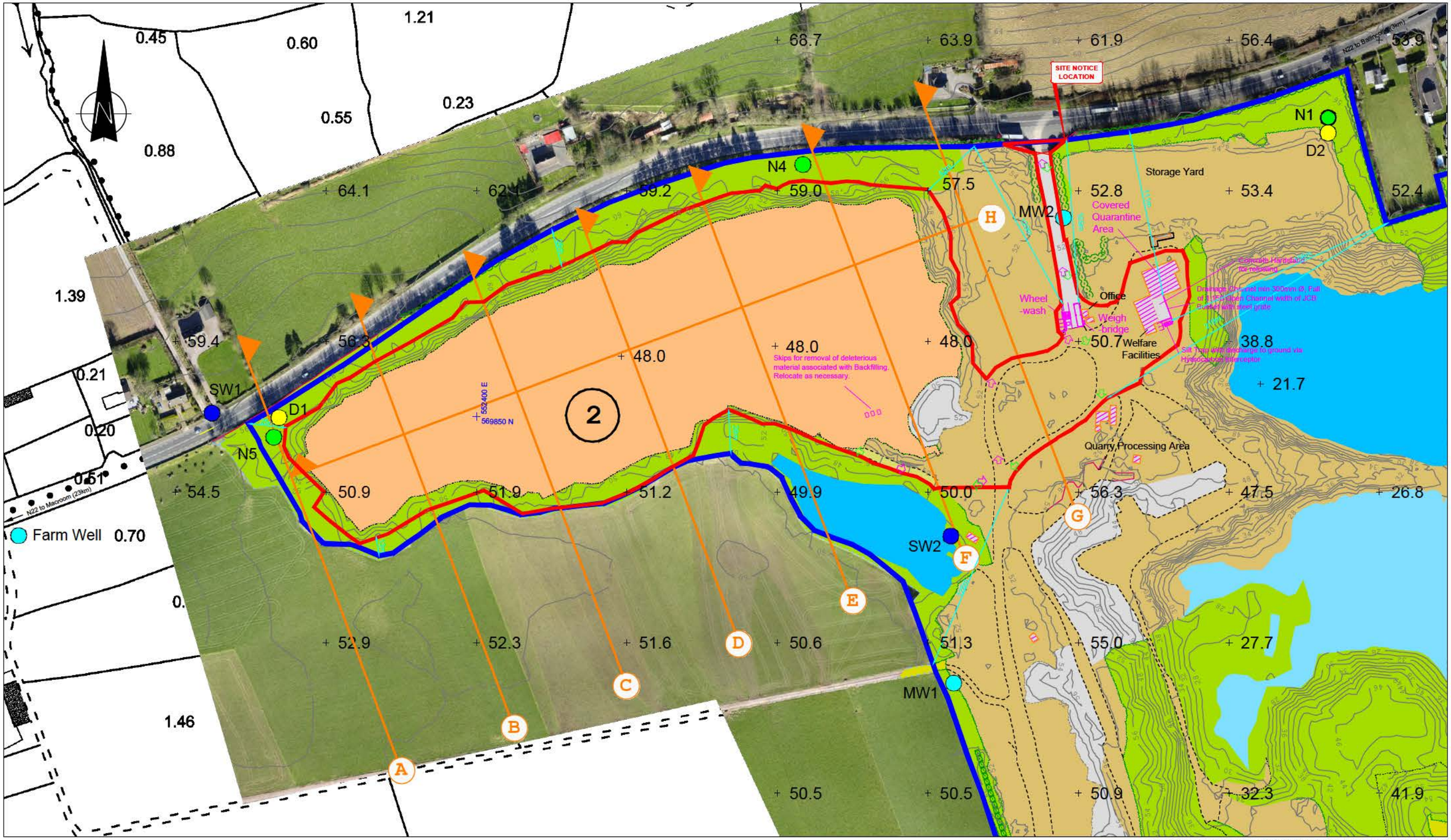
CLIENT	Roadstone Ltd
DRAWING	Site Layout/Reclamation Scheme Phase 1
LOCATION	Garryhesta Pit, Knockanemore, Ovens, Co. Cork

Drawn by: John Sheils		Scale: 1 2,500	
Checked by: John Sheils		Job No.: JSPE 255	
Date: 16/04/18	Figure No.: 3.1		Rev.: 0



Legend

- Applicants Ownership
- Application Area (c. 7.9ha)
- Pit Area
- Scrubland
- Agricultural Land
- Rough Pasture
- Restored Silt Beds
- Phase 2 restored using imported inert Soil & Stones to 48m AOD.
- Concrete Surface
- Track
- Quarry Stockpiles
- Ponds
- Recolonisation of Shallow Ponds
- Residential Property *(within 250m)*
- Buildings/Structures
- Backfill Phasing
- Contours *(mAOD)*
- + 48.0 Spot Levels *(mAOD)*
- Irish Transverse Mercator (ITM) geographic coordinates
- Traffic In
- Traffic Out
- Hedgerow
- Fence
- Gate
- D1 Dust Monitoring Points
- N1 Noise Monitoring Points
- MW1 Groundwater Monitoring Points
- SW1 Surface Water Monitoring Points
- Cross Sections (Refer to Figure 3.4)
- 11m Distance of Structures from Boundaries of Site
- + 21.7 Water Level *(mAOD)* on 27/01/2017

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 1:2,500

0m 20 40 60 80 100

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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CLIENT: Roadstone Ltd

DRAWING: Site Layout/Reclamation Scheme Phase 2

LOCATION: Garryhesta Pit, Knockanemore, Ovens, Co. Cork

Drawn by: John Sheils		Scale: 1 2,500	
Checked by: John Sheils		Job No.: JSPE 255	
Date: 29/01/18	Figure No.: 3.2		Rev.: 0

Legend

- Applicants Ownership
- Application Area (c. 7.9 ha)
- Pit Area
- Scrubland
- Agricultural Land
- Rough Pasture
- Restored Silt Beds
- Creation and/or retention of 10-metre-long x 1 to 2 m high South-facing banks along the boundary with the N22 road and the establishment of native plant species in hedges and field margins.
- 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
- Contours *(mAOD)*
- + 59.0 Spot Levels *(mAOD)*
- Irish Transverse Mercator (ITM) geographic coordinates
- Traffic In
- Traffic Out
- Hedgerow
- Fence
- Gate
- 1.0m Distance of Structures from Boundaries of Site
- D1 Dust Monitoring Points
- N1 Noise Monitoring Points
- MW1 Groundwater Monitoring Points
- SW1 Surface Water Monitoring Points
- Cross Sections (Refer to Figure 3.4)
- + 21.7 Water Level *(mAOD)* on 27/01/2017

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 1:2,500

0m 20 40 60 80 100

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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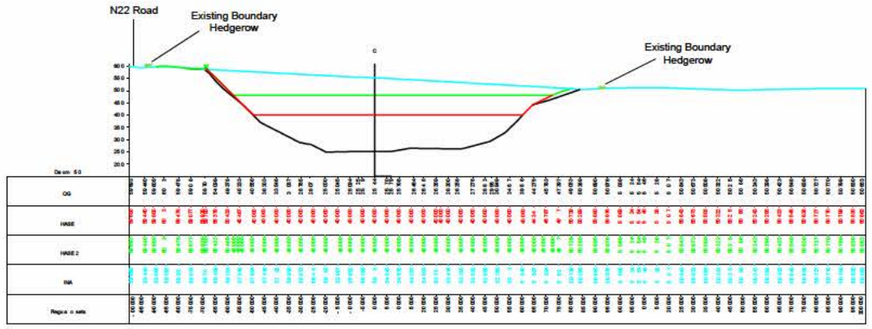
CLIENT: Roadstone Ltd

DRAWING: Final Reclamation Scheme *(Phase 3)*

LOCATION: Garryhesta Pit, Knockanemore, Ovens, Co. Cork

Drawn by: John Sheils		Scale: 1 2,500	
Checked by: John Sheils		Job No.: JSPE 255	
Date: 29/01/18	Figure No.: 3.3		Rev.: 0

D



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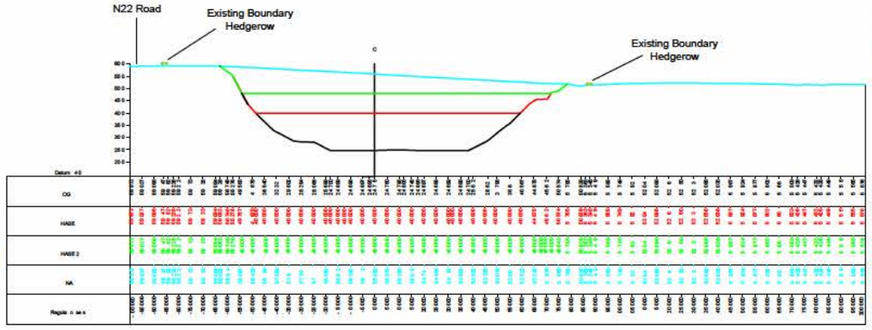

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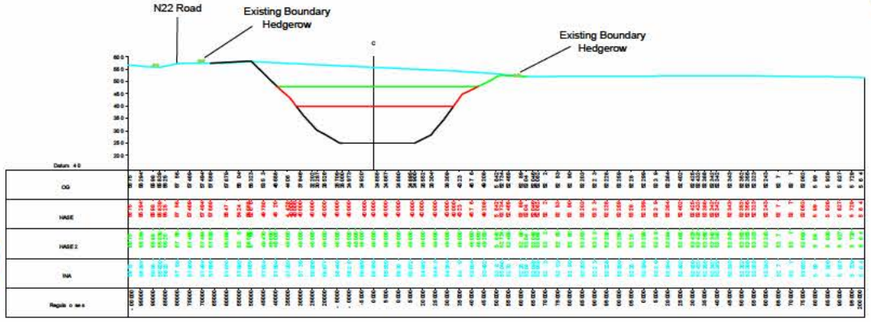

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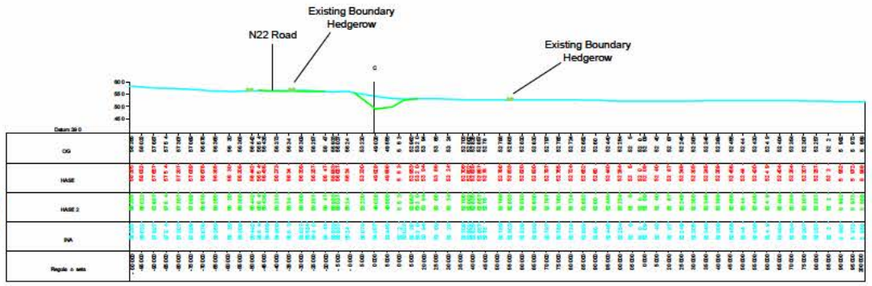

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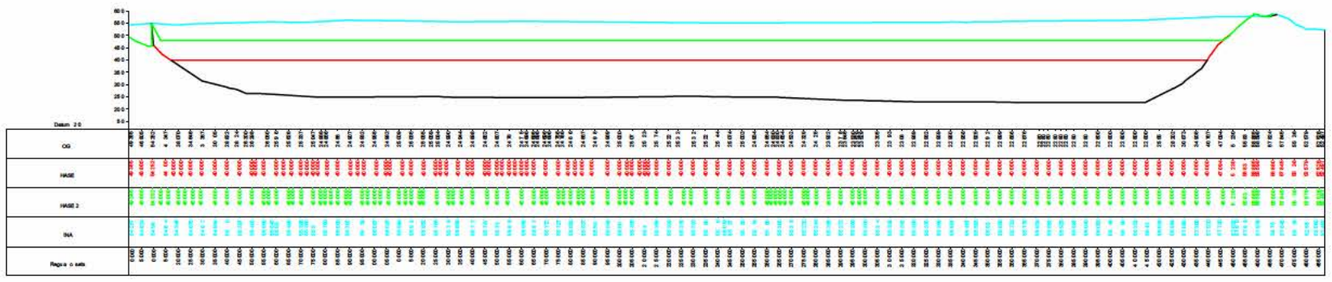

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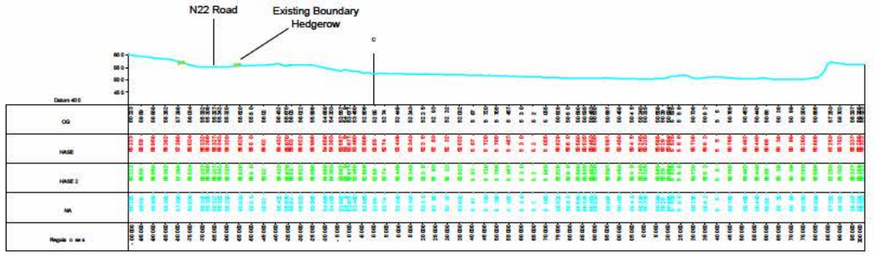

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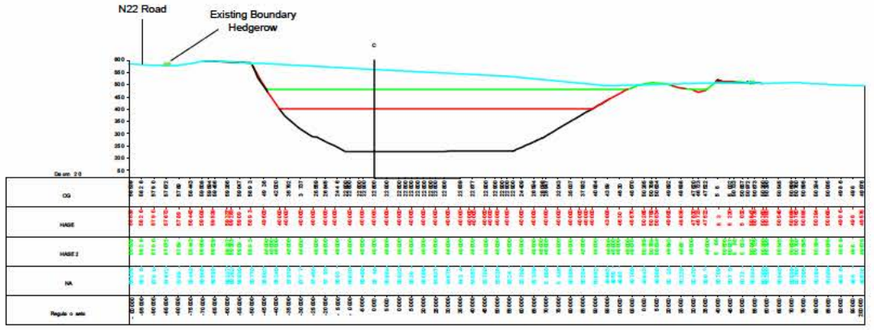

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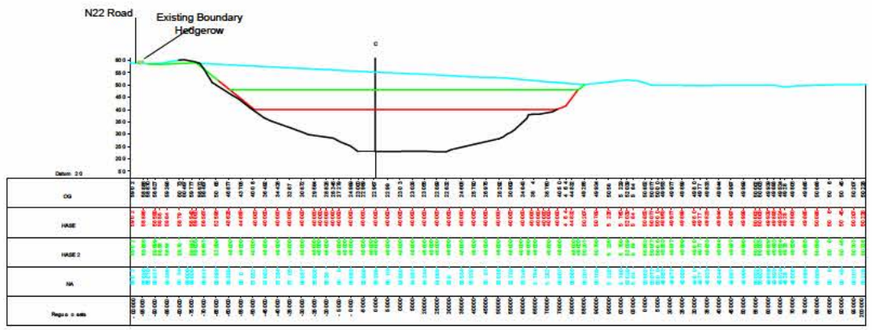

Legend

- *Existing Ground Profile (mAOD)*
- *Phase 1 Reclamation Profile(mAOD)*
- *Phase 2 Reclamation Profile(mAOD)*
- *Phase 3 Final Reclamation Profile(mAOD)*

Minimum Fill Depth <1m
Maximum Fill Depth 30m
Average Fill Depth 20.6m

Scale 1:2,500

0m 20 40 60 80 100

Notes:

1. All Dimensions in metres(m)
2. Elevation Levels - metres Above Ordnance (Malin Head) Datum (mAOD)
3. Cross Sections A to G - **Centre Line (C/L)** offset distance from Long Section H (Refer to Figure 1.3).

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CLIENT	Roadstone Ltd
DRAWING	CROSS SECTIONS A to H
LOCATION	Garryhesta Pit, Knockanemore, Ovens, Co. Cork

Drawn by: John Sheils	Scale: 1:2,500	
Checked by: John Sheils	Job No.: JSPE 255	
Date: 18/04/18	Figure No.: 3.4	Rev.: 0

3.2.2.2 Description of Design

Design more closely relates to the visual aesthetics of the development, which is less of a consideration in impermanent and screened quarries and waste facilities as compared to enduring and visually imposing residential, retail and commercial developments, public buildings or major pieces of infrastructure.

Visual impacts can be resolved through a number of design solutions by varying key aspects such as the location, shape, size, orientation, colour, etc. of the facilities.

In this case the site is well screened by mature planting along the N22 and other boundaries. Its location in a valley ensures that there are no significant outside views of the area to be restored by backfilling with inert soils and stone.

As the soil recovery facility will be using the existing infrastructure, plant and machinery currently on site, there are few alternatives with respect to these aspects of the design.

As a natural consequence of the planning and EIAR process, alternative schemes in terms of the layout and design of the inspection area, quarantine area and residual waste holding area, as well as the direction of working, and character of site restoration have been considered. By a process of examination and elimination the final scheme now proposed is considered to be the most appropriate. The detail with respect to the design of the soil recovery facility is described under Section 3.3 below headed "*Existence of the Project*".

3.2.2.3 Description of Size or Scale

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 total landholding extends to c. 77.2 ha and is shown highlighted in blue. Thus, the proposed application site area (for infilling) will be confined to a relatively small section of the sand and gravel pit, much of which has already been worked out.

The proposed site for backfilling using imported inert soil and stone is located on the north-western corner of the landholding. 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 pit is isolated from a second larger pit which exists on the east of the landholding. Extraction below the groundwater table has been undertaken at the larger pit on the east of the site. The floor of the larger pit is permanently under water.

Current pit floor levels at the application site vary between approximately 23 m and 26 m OD. Natural ground levels in the fields immediately to the west and south of the site are at approximately 54 and 52 m OD, respectively. The ground to the north of the site rises steadily to an elevation of over 120 m OD. A site survey plan (Figure 1.3) is attached.

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 (Refer to Figure 1.3 - Existing Site Survey Plan). 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 proposed site layout is shown on the attached Site Layout Figure 3.1 above The proposed site area being within the quarry is screened from outside views and nearest residences by perimeter screening berms constructed as part of the quarry development.

3.2.2.4 Classes of Activity

It is expected that inert Soil and stone and river derived dredge spoil (EWC 17-05-04 and 17-05-06) will be imported from sites in Cork, such as infrastructure and civil engineering projects as well as a wide range of commercial and residential construction and renovation projects.

The Class(es) of Activity at the site, as specified in the Third and Fourth Schedule of the Waste Management Act, 1996 (as amended), are as follows:

Table 3.2-2 Class(es) of Activity Fourth Schedule of WMA Act, 1996

Fourth Schedule	
Class	Description
R5 *(Principle Activity)*	Recycling/reclamation of other inorganic materials, which includes soil cleaning resulting in recovery of the soil and recycling of inorganic construction materials
R13	Storage of waste pending any of the operations numbered R1 to R12

A waste management licence application is required for recovery of inert Soil and stone and river derived dredge spoil (EWC 17-05-04 and 17-05-06) for the purposes of the improvement or development of land, where the total quantity of waste recovered at the facility is greater than 100,000 tonnes.

3.2.2.5 Waste Categories & Quantities

Only inert Soils and stones inert Soil and stone and river derived dredge spoil will be acceptable for recovery at the facility.

Table 3.2-3 Waste Categories & Quantities

EWC Code	Waste Type	Maximum tonnes per annum
17 05 04	soil and stones other than those mentioned in 17 05 03	<300,000
17 05 06	dredging spoil other than those mentioned 17 05 05	

3.2.2.6 Duration of Permission

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 land reclamation works will be subject to a waste management licence for a period of c. 8 to 10 years.

The proposed development of an SRF at this quarry location will;

(a) allow for the continued reinstatement of the quarry;

(b) provide an environmentally beneficial alternative to the disposal of inert soils in landfill;

(c) justify the capital expenditure; and

(d) provide for the continued employment of the workforce within the local community.

It is considered that the life of the SRF will be determined by demand for recovery of inert Soil and stone and river dredging spoil. The life of the SRF will therefore be dependent on future market conditions.

The upturn in construction has led to a significant increase in the generation of inert soils and river dredging spoil in the South West Region including Cork. There is an urgent need for Local Authorities in the region to provide for Soil Recovery Facilities to meet demand for recovery and re-use of inert materials. The following section on Government Policy provides relevant background information with respect to Local Government initiatives to encourage the development of waste infrastructure and associated developments in appropriate locations, as deemed necessary in accordance with the requirements of the Regional Waste Management Plan.

Provision of an appropriate waste management infrastructure, including the capacity to recover inert soils and river dredge spoil, should be viewed as part of a more

sustainable approach to balancing protection of the natural environment and increased economic growth. It is against this background that Roadstone Ltd seeks to develop a Soil Recovery Facility (SRF) at Garryhesta, and thereby contribute to enhanced waste management and sustainable development.

3.2.2.7 Government Policy

Government Policy in a National and Regional context with respect to the proposed development is address in Appendix 5.1.

3.2.2.8 Planning & Development Control

The Cork County Development Plan (CPD) 2014 outlines an overall strategy for the proper planning and sustainable development of County Cork over the timescale of the Plan. The following section details the relevant polices within the County Development Plan that are of relevance to the proposed development at Garryhesta. Consideration of the relevant policy statements has been given through preparation of the relevant sections of the EIAR.

3.2.2.8.1 Cork County Development Plan 2014

The County Development Plan (CDP) sets out Cork County Council's overall strategy for the proper planning and sustainable development of Cork County and the associated planning policies looking towards the horizon year of 2022. The plan is set in the context of the sustainable development strategy for the country as set out in the National Spatial Strategy 2002-2020 and the South West Regional Planning Guidelines 2010-2022.

The planning principles set out provide for the development of County Cork as an attractive, competitive and sustainable place to live, visit and do business, where the quality of its economy, natural and built environment, culture and the strength and viability of its communities are to the highest standards.

The CDP recognizes the need to promote development of industry with good access to the National Road network. The CDP recognises the requirement to reduce the impact of mineral extraction through re-instatement of worked sites. It is an objective of the CDP to improve the N22 (Ballincollig-Macroom-Ballyvourney) Route.

The following section details relevant CDP objectives and measures proposed to address same with respect to the proposed development of a Soils Recovery Facility (SRF) at Garryhesta quarry:

Transport & Mobility (CDP Chapter 10)

The following CDP Objectives are considered relevant with respect to Transport:

Policy	Detail
	National Road Network
TM 3-1(d)	Avoid the creation of additional access points from new development or the generation of increased traffic from existing accesses onto national roads to which speed limits greater than 50kph apply.
	Road Safety & Traffic Management
TM 3-3 (a)	Where traffic movements associated with a development proposal will have a material impact on the safety and free flow of traffic on a National, Regional or other Local Routes, to require the submission of a Traffic and Transport Assessment (TTA) and Road Safety Audit as part of the proposal.

The existing access was subject to a detailed traffic and transport assessment submitted in support of a planning application under Section 261 of the Planning and Development Act 2000, as amended in 2006. This permission (QR19 06/11798 & PL04.225332) for the continuation of sand and gravel extraction and processing at Garryhesta was granted by Cork County Council on 24/06/2008. There will be no increase in traffic generated from the existing access onto the N22 as the total traffic volumes generated by both the existing sand and gravel pit and proposed operation of a soil recovery facility will below the levels provided for under Planning Permission (QR19 06/11798 & PL04.225332). See Roads & Traffic Section 4.11.

Waste Management (CDP Chapter 11.7)

The Cork County Development Plan 2014 refers to the Waste Management Plan (WMP) for Cork County (2004). This has since been superceded by the Southern Region Waste Management Plan 2015 – 2021 (Refer to Appendix 5.1.1.2.2 below).

Policy	Detail
	Waste Management Assessments
11.7.9	A significant amount of waste generated in Cork County in the recent past was as a result of construction activity. The Department of the Environment and Local Government Report 'Preventing and Recycling Waste – Delivering Change" (March 2002) called for the re-use or recycling of 85% of construction and demolition (C and D) waste by 2013. If achieved this target is likely to lead to a decrease in the rate of extraction of minerals in the future.
	Waste Management Facilities
	The following CDP Objectives are considered relevant with respect to Waste Management:

Waste Management

WS 7-1 (a) Support the policy measures and actions outlined in 'A Resource Opportunity' 2012 – National Waste Policy.

WS 7-1(b) Encourage the delivery of an effective and efficient waste management service in line with the Waste Management Acts and relevant Waste Management Plan for the County/Region.

The proposed facility will involve the recovery/reuse of inert soil and stones and river dredging spoil, and as such the recovery operations are further up the waste hierarchy, insofar as the wastes are prepared for re-use. Clean, uncontaminated soils and dredged materials are suitable as intake in waste recovery facilities for quarry restoration projects. The facility will result in a reduction of quantities of such waste being sent to landfill sites in the region and will also enable the lands to be restored to agricultural use.

Heritage (CDP Chapter 12)

It is an objective (HE 2-1) of the CDP to provide protection to all natural heritage sites designated or proposed for designation under National and European legislation and International Agreements, and to maintain or develop linkages between these. This includes Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas, Statutory Nature Reserves, Refuges for Fauna and Ramsar Sites.

In order to fulfil obligations outlined with regard to Special Areas of Conservation, Candidate Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas and proposed Natural Heritage Areas the Council will continue to;

- Carry out an appropriate level of assessment for all development plans, land-use plans and projects it authorizes or proposes to undertake and adopt, to determine the potential for these to impact on designated or proposed designated sites in accordance with the Habitats Directive;
- Consider to give consent to development within or likely to affect European Sites, only in accordance with the Habitats Directive;
- Consider development within or with the potential to affect Natural Heritage Areas or proposed Natural Heritage Areas, only where it is shown that such development, activities or works will not have significant negative impacts on such sites or features, or in circumstances where impacts can be appropriately mitigated;

It is an objective (HE 2-2) of the CDP to provide protection to species listed in the Flora Protection Order 1990, on Annexes of the Habitats and Birds Directives, and to animal species protected under the Wildlife Acts in accordance with relevant legal requirements.

It is an objective (HE 2-3) of the CDP to retain areas of local biodiversity value, ecological corridors and habitats that are features of the County's ecological network, and to protect these from inappropriate development. This includes rivers, lakes,

streams and ponds, peatland and other wetland habitats, woodlands, hedgerows, tree lines, veteran trees, natural and semi-natural grasslands as well as coastal and marine habitats. It particularly includes habitats of special conservation significance in Cork as listed in Volume 2 Chapter 3 Nature Conservation Areas of the plan.

It is an objective (HE 2-6) of the CDP to maintain the conservation value of those features or areas of geological interest that are listed in Volume 2, Chapter 3 Nature Conservation Areas, of the plan, and to protect them from inappropriate development.

It is an objective (HE 2-7) of the CDP to control the spread of invasive plant and animal species within the county.

An ecological assessment (Refer to EIAR Section 4.2) and screening for Appropriate Assessment (Refer to Appendix 5.2) for the proposed development is included.

In this case there are no sites within 15km, the nearest such area is the Cork Harbour SPA (Site Code 4030) which begins downriver from the City and is joined by the Great Island Channel SAC (Site Code 1058) further to the east.

There is no likelihood of significant ecological effects from this development on any of the sites in the Natura 2000 network or on their conservation objectives.

Green Infrastructure and Environment (CDP Chapter 13)

Landscape Character Assessment of County Cork (CDP 13.6)

Cork County's landscape character areas have been amalgamated into a set of 16 landscape character types based on similarities evident within the various areas. These landscape character types provide a more general categorization of the County's landscape.

The site at Garyhesta falls within the following Landscape Character Area.

	Landscape Character Type	Landscape Value	Landscape Sensitivity	Landscape Importance
6a	Broad Fertile Lowland Valleys	High	High	County

This landscape type stretches west and east from the environs of Cork City but also includes a smaller area east of Rathcormac. The valleys in these areas are created by the rivers flowing east to west and are surrounded by low well-spaced ridges. These shallow and flat valleys wind as they follow the course of the river, rising to the north and south with gentle slopes where the valley is wide but with steeper faced slopes where the valley narrows. Further upstream to the west the broad flatness narrows and winds between low hills.

Landcover comprises highly fertile, regularly shaped fields typically of medium size and with mature broadleaf hedgerows. Agricultural use primarily involves intensive dairying as well as tillage, with farmsteads relatively well screened by the hedgerows. Some of the larger settlements include Bandon, Ballincollig and Blarney to the west of Cork City, Castlemartyr to the east and Rathcormack to the north. Major roads such

as the N22 between Macroom and Cork City and the N71 between Innishannon and Bandon tend to follow the rivers, often providing distant views across the landscape.

The Cork County Draft Landscape Strategy (2007) includes the following recommendations with respect to quarry developments.

- Ensure that current quarrying sites undergo a rigorous monitoring regime by ensuring that agreed mitigation measures are fully implemented.
- Require that new quarries undergo a landscape and visual impact assessment with appropriate restoration plan to respect landscape character. Screen planting should respect landscape character.

Landscape Character Types which have a very high or high landscape value and high or very high landscape sensitivity and are of county or national importance are considered to be our most valuable landscapes and therefore it is proposed to designate them as High Value Landscapes (HVL).

The site at Garryhesta is not within a High Value Landscape Area.

The following CDP Objectives are considered relevant with respect to Landscape.

GI 6-1: Landscape

a) Protect the visual and scenic amenities of County Cork's built and natural environment.

b) Landscape issues will be an important factor in all land-use proposals, ensuring that a pro-active view of development is undertaken while maintaining respect for the environment and heritage generally in line with the principle of sustainability.

c) Ensure that new development meets high standards of siting and design.

d) Protect skylines and ridgelines from development.

e) Discourage proposals necessitating the removal of extensive amounts of trees, hedgerows and historic walls or other distinctive boundary treatments.

GI 6-2: Draft Landscape Strategy

Ensure that the management of development throughout the County will have regard for the value of the landscape, its character, distinctiveness and sensitivity as recognised in the Cork County Draft Landscape Strategy and its recommendations, in order to minimize the visual and environmental impact of development, particularly in areas designated as High Value Landscapes where higher development standards (layout, design, landscaping, materials used) will be required.

Visual impact has been taken into consideration during the design of the proposed development. As such the visual impact of the site will not increase as a result of the Soil Recovery Facility, as all the workings will occur within the existing quarry protected from view by an existing planted screening berm along the N22 road.

Soil (CDP 13.9)

It is an objective (GI 9-1) of the CDP to ensure the protection and conservation of the soils in County Cork by encouraging sustainable management practices and the reuse of brownfield lands.

The Council will encourage the reuse of brownfield land where possible in preference to developing green field sites in order to reduce the loss of the county's more agriculturally productive soils.

The existing site comprises a worked-out sand and gravel pit. Importation of inert soil and stones and river dredged material will allow the site to be restored to beneficial agricultural lands.

Groundwater Protection (CDP 13.10.14)

The following CDP Objectives are considered relevant with respect to Groundwater Protection.

GI 10-3: Groundwater Protection

Preserve and protect groundwater and surface water quality throughout the County.

GI 10-4: Groundwater Protection Schemes and Zones

In order to protect groundwater quality new developments must have regard to any Groundwater Protection Scheme and / or Groundwater Protection Zones in place and existing developments and abstractions".

A detailed Hydrological/Hydrogeological Assessment has been prepared by Hydro Environmental Services in support of this application (Refer to EIAR Section 4.4).

As stated in Section 4.4.3.8.6 – Water Resources of the attached report *"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 of the site. The site is not located within the Zone of Contribution (ZOC) of this source".*

"Only 1 no. private well was identified during the well survey and this is a farm which is located approximately 280m to the west of the site. This farm well is located up-gradient of the site. Sampling of this well was completed as part of the baseline groundwater quality monitoring" (Refer to EIAR Section 4.4.3.9.2 Groundwater Quality).

Noise and Light Emissions

The following CDP Objectives are considered relevant with respect to Noise Emissions

GI 13-1: Noise Emissions

a) Seek the minimisation and control of noise pollution associated with activities or development, having regard to relevant standards, published guidance and the receiving environment.

b) Support the implementation of Noise Action Plans prepared for the Cork County area.

Zoning and Land Use (CDP Chapter 14)

It is an objective (ZU 2-3) of the CDP that where lands have not been explicitly zoned, in either the adopted Local Area Plans or the adopted Special Local Area Plans, the specific zoning shall be deemed to be that of the existing use of the lands (if such a use is not an unauthorised use under the Planning Acts) or, if such a use is unauthorised, that of the most recent authorised use of the lands.

It is an objective (ZU 4-1) of the CDP to recognise the employment potential of brownfield sites in both urban and rural areas in the County and their contribution to a more sustainable pattern of development.

In this case the lands have the benefit of planning permission for extraction of sand and gravel. The proposed restoration of the workings using imported inert soil and stones and river dredged material will allow the existing disturbed ground to be restored to beneficial agricultural lands.

Sources of Funding (CDP Section 15.3)

Development Contributions and Public Infrastructure (CDP 15.3.1)

The Planning and Development Acts provide that when granting planning permission, planning authorities may attach conditions to the permission requiring the payment of monetary contributions in respect of public infrastructure and facilities that benefiting development generally in the County. Details of the arrangements for the payment of these contributions are be set out in the County Council's Development Contribution Scheme. The Department of the Environment, Community and Local Government have also published Development Contribution Guidelines (Jan 2013).

Additionally, planning authorities may, by further conditions attached to planning permissions, require the payment of a 'special contribution' in the case of a particular development where specific exceptional costs not covered by the Development Contribution Scheme are incurred in respect of public infrastructure and facilities which benefit the development.

Cork Development Contributions 2004

Development contributions for windfarms, golf courses, quarries, gravel pits and other non-agricultural developments, which are not specifically allowed for in the General Scheme, will be levied as special contributions (however, buildings provided as part of

quarries/gravel pits, golf courses and other leisure facilities, etc. will also be levied in accordance with the General Scheme on the gross floor area). (Cork Development Contributions 2004).

Bonds (CDP 15.3.3)

To ensure the satisfactory completion of development on a site which has been the subject of a grant of planning permission, a bond or cash lodgement may be required until the development has been completed to the satisfaction of the Council. The bond or cash lodgement may be sequestered in part or in its entirety where the development has not been satisfactorily completed.

The facility will be subject to a waste licence and as such there will be a requirement under the Waste Licence to make financial provision for the closure and restoration of the proposed Soil Recovery Facility.

3.2.2.9 Other Relevant Guidelines

Draft Best Practice Guidelines on the preparation of Waste Management Plans for Construction and Demolition Projects have been produced by DEHLG. These provide guidance on the preparation of construction and demolition Waste Management Plans and provide local authorities, engineers and developers with an agreed basis for the content of C&D Waste Management Plans. Coinciding with these draft guidelines, the National Construction and Demolition Waste Council (NCDWC) launched their Voluntary Construction Industry Initiative in October 2004. This initiative places responsibility on each participant in the construction industry to encourage best practice in waste management by promoting waste prevention, reduction and reuse of materials and recycling and waste management plans will be required for all projects with a floor area in excess of 500m^2, all civil engineering projects in excess of 25,000m^3 excavated materials and for all demolition work in excess of 100m^3 (National Construction and Demolition Waste Council, 2004).

Soil and stone, the largest fraction of C&D waste, is currently deposited on agricultural land under Waste Permit, the activity being classified as 'waste recovery'. Nominally the soil is being used to improve agricultural land, but this may not be the main objective in many cases. While the current practice is a relative low-cost option for the building industry, there are some concerns over current practice:

- Regulating a large number of small sites is more challenging and costly for the local authority, and the risk of illegal disposal at these sites is potentially higher,
- There is a risk that 'marginal land' high in biodiversity and ecological value (but low in economic value) will be damaged in a piecemeal fashion (wetlands, marshy land, hedgerows, natural grasslands) and
- The opportunity to re-instate existing quarries, landfills and other 'brownfield' sites is being lost.

Existing quarries and pits whether worked out or in operation are potentially useful sites for the management of C&D waste - rubble, stones, and other recyclables could

be screened from the waste for re-use. The inert soil can be used to restore the topographical contours. It may be possible to use the same trucks to deliver aggregates / raw materials to building sites and remove soil, thereby reducing traffic impacts. With fewer of these sites, better regulation will be possible at a lower cost.

Local authorities should therefore encourage the use of quarries / pits for sustainable management of C&D waste as opposed to using agricultural land, with an emphasis on resource recovery. Local authorities should divert suitable C&D waste to relevant landfill sites where there is potential to use it for restoration and environmental protection. Local authorities in the region are in general working both together and with the private sector to develop C&D waste recycling facilities.

Applications for waste permits for deposit of soil on agricultural land should be closely inspected, with a view to potential environmental impacts. Where alternative regulated sites are available the use of virgin land for C&D waste should be discouraged.

The DEHLG has published "Quarries & Ancillary Activities – Guidelines for Planning Authorities" in April 2004. In this publication it is stated that as part of best practice

- the availability of a choice of raw aggregates and C&D waste-derived aggregates for the purposes of new construction would serve to limit the depletion of natural resources.
- Quarries should consider using inert C&D waste arisings, which do not have the potential to displace natural aggregates, for reinstatement and restoration purposes on the quarry site.

3.3 EXISTENCE OF THE PROJECT

The description of the existence of the project considers all aspects of the project lifecycle from construction to decommissioning. These include the following:

- Construction
- Commissioning
- Operation
- Changes to the project
- Decommissioning

3.3.1 DESCRIPTION OF CONSTRUCTION

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 (SRF) will utilise the permitted quarry infrastructure including internal roads, site office, welfare facilities and other ancillaries to complete the works (Refer to Figure 1.3 - Existing Site Survey Plan). 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 refueling area. The total application area including the site infrastructure covers 7.9 ha of lands. The development will be subject to the requirements of a waste management licence.

The proposed site layout is shown on the attached Site Layout Figure 3.1 above. The proposed site area being within the quarry is screened from outside views and nearest residences by perimeter screening berms constructed as part of the quarry development. The existing quarry site access will be utilised by the proposed SRF.

3.3.1.1 Land-Use

The proposed soil recovery facility including site infrastructure will comprise a c. 7.9 ha section of the existing quarry workings at Garhyhesta, as shown by the Application Area Map Figure 1.2. The total landholding extends to c. 77.2 ha and is shown highlighted in blue. Thus, the proposed application site area (for infilling) will be confined to a relatively small section of the sand and gravel pit, much of which has already been worked out.

The proposed site for backfilling using imported inert soil and stone is located on the north-western corner of the landholding. 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.

3.3.1.2 Preliminary Development Works

The site has the benefit of an established access onto the N22, which is the National Primary Route connecting Cork with Tralee, via Ballincollig, Macroom and Killarney.

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 (Refer to Figure 1.3 - Existing Site Survey Plan). 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.

3.3.2 DESCRIPTION OF COMMISSIONING

On some large projects there is a considerable time delay between the end of construction and the commencement of full operation.

In this case given that the development is located within an existing quarry which has the necessary plant and machinery and site infrastructure including site offices, welfare facilities, an experienced workforce and an established EMS there will be no expected delay between the end of construction and the commencement of full operation.

The proposed site area being within the quarry is screened from outside views and nearest residences by perimeter screening berms constructed as part of the quarry development.

3.3.3 OPERATION OF THE PROJECT

3.3.3.1 Management of the Facility

3.3.3.1.1 Technical Competences & Site Management

Roadstone already have a competent management structure in place with respect to management of the proposed Soil Recovery Facility as shown by the following Organogram Figure 3.5 below.

3.3.3.1.2 Environmental Management & Monitoring

The quarry has an established Environmental Management System (EMS). The existing EMS was established in compliance with Planning Permission Condition no. 39 of Planning Permission QR19 06/11798 & PL04.225332 for the quarry.

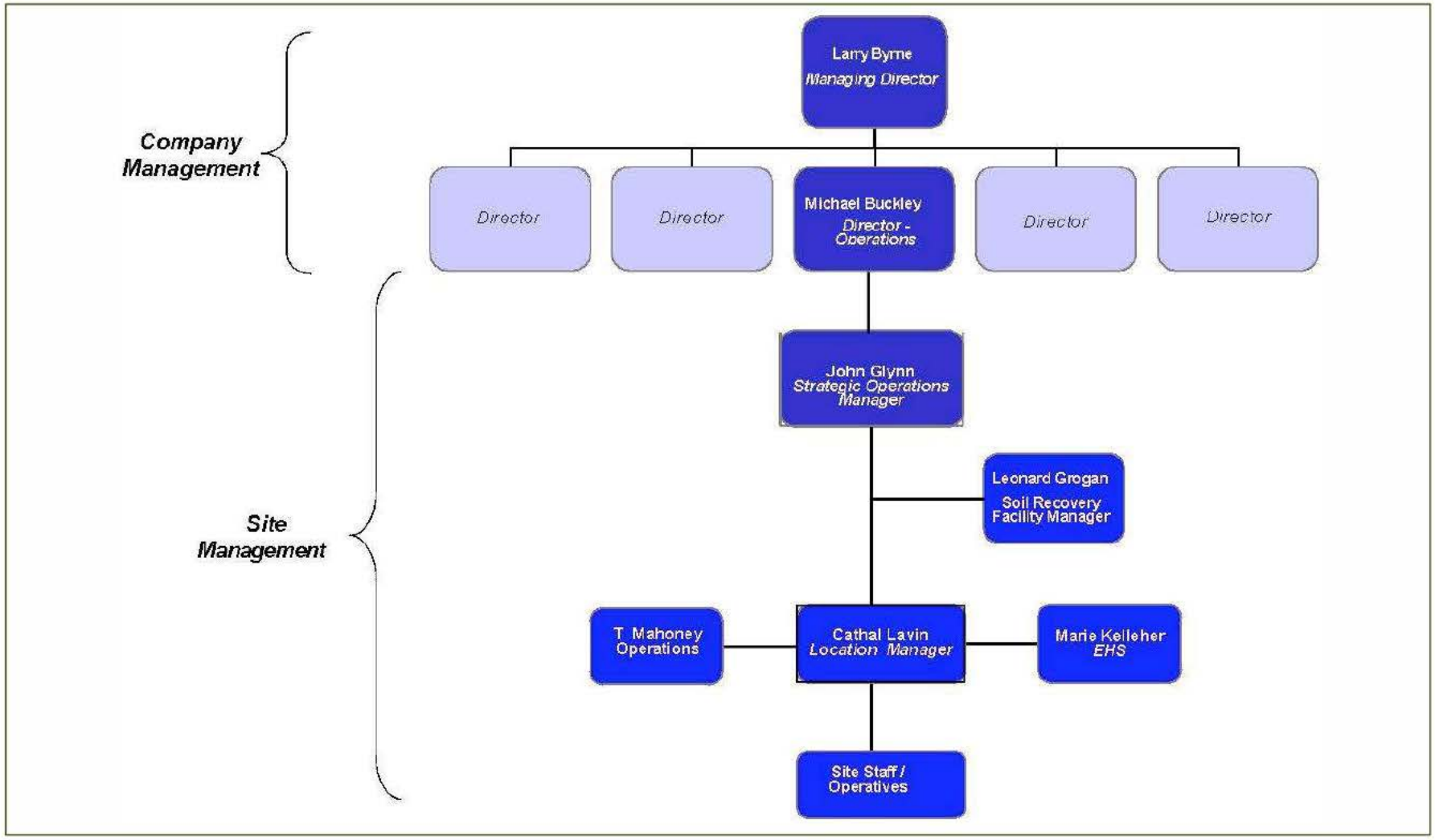
Roadstone regards environmental protection management as an integral and essential part of good business practice. They are committed to achieving and maintaining a high standard of environmental quality in all of their operations.

Roadstone are committed to providing the necessary information, training and equipment to enable their employees to carry out their duties safely and in an environmentally responsible manner. All staff and persons working for and/or on behalf of Roadstone are made aware of the Environment Policy.

A facility manager will be appointed by Roadstone to ensure that the Environmental Management System, Environmental Objectives & Targets and the Environmental Monitoring Plan are fully implemented (Refer to Figure 3.5 below).

The EMS includes an 'Environmental Monitoring Programme' for the monitoring of water, dust and noise, and will be revised subject to compliance with any conditions attached to any decision to grant planning permission and a Waste Management Licence for the proposed SRF. The monitoring programme results will be submitted to the relevant regulatory Authority on a regular basis, and therefore made available for inspection by interested parties. Environmental monitoring locations are shown by Figure 3.6 below.

Figure 3.5 Garryhesta Quarry Soil Recovery Facility - Management Structure



N1
N2
N3
N4
N5
N6
D1
D2
D3
D4
SW1
SW2
MW1
MW2
MW3
MW4
Farm Well
552400 E
569850 N
KNOCKANEMORE
An Cnocán Mór
RRYHESTY
raí Hoiste

Legend

Proposed Soil Recovery Facility (SRF) Application Area *(c. 7.9 ha)*

Landholding (77.2 ha)

Irish Transverse Mercator (ITM) geographic coordinates

D1 Dust Monitoring Points

N1 Noise Monitoring Points

MW1 Groundwater Monitoring Points

SW1 Surface Water Monitoring Points

D2 Environmental Monitoring Points *(Previous Locations)*

Scale 1:5,000

0m 50m 100m 150m 200m

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

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.

JSPE
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Web: jspe.ie
J SHEILS PLANNING & ENVIRONMENTAL LTD

CLIENT: Roadstone Ltd

DRAWING: Environmental Monitoring Plan

LOCATION: Garryhesta Pit, Knockanemore, Ovens, Co. Cork

Drawn by: John Sheils	Scale: 1 5,000	
Checked by: John Sheils	Job No.: JSPE 255	
Date: 29/01/18	Figure No.: 3.6	Rev.: 0

3.3.3.1.3 Record Keeping

The facility will maintain full and complete records, including a log of intake and deliveries, documentation relating to planning, health and safety, environmental monitoring, the environmental management system (EMS), etc.

The record keeping will be revised to achieve compliance with any conditions attached to any decision to grant planning permission and a Waste Management Licence for the proposed SRF.

The Location Manager will be responsible for maintaining detailed records of all waste material brought to the site. Full details of all waste materials brought to this facility will be kept at the site office.

Site records will be available for inspection by the Local Authority and/or EPA at all times. An annual report will be prepared by the site manager and submitted to the EPA as will be required in accordance with any Waste Licence.

3.3.3.1.4 Working Hours & Employment

For consistency it is considered the hours of operation should be in accordance with Condition No. 31 under planning permission (QR19 06/11798 & PL04.225332) for the quarry i.e.,

> *Hours of operation shall be restricted to the following hours:*
>
> *07 .00 to 18.00hrs Monday to Friday and between 07.00 and 14.00 hrs Saturday.*
>
> *No operations shall take place on Sundays and Bank or Public holidays.*

The site entrance gates will be locked shut outside of normal working hours.

All existing staff at Garryhesta Quarry are very experienced, with appropriate awareness and training. Appropriate training will be provided to any new employees at the site.

The SRF will require one person to operate a bulldozer/excavator and one general foreman to monitor and inspect the quality and suitability, of imported materials being brought to the site for recovery and two other general site operatives. It is expected that the existing staff will take on these roles.

3.3.3.2 Site Infrastructure

3.3.3.2.1 Introduction

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 (Refer to Figure 1.3 - Existing Site Survey Plan). 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 proposed facility site layout is shown by Figures 3.1 to 3.3 above.

3.3.3.2.2 Site Security

As stated above, the proposed waste facility will be located within the quarry site boundaries, which is currently governed by Planning Permission (QR19 06/11798 & PL04.225332). In accordance with Condition No. 3 of this permission "*Child and stock-proof fencing shall be provided and maintained along the perimeter of the quarry to the planning authority's satisfaction"*.

This quarry is in an area of low population density. The boundaries of the quarry are enclosed by a combination of bunds, hedgerows and fencing, which is designed to blend into the surrounding landscape. There is ongoing monitoring to ensure that site boundaries are maintained in a proper manner, and these include thickening of hedgerows, fencing of the landholding, provision and maintenance of quarry signage, routine cleaning/housekeeping and the removal of unsightly features. Appropriate warning signs to the public have been provided on the approaches to the site, and the access gate is kept padlocked shut outside of the normal working hours. It is also proposed to install CCTV subject to grant of any planning permission for an SRF to monitor and document incoming loads.

3.3.3.2.3 Design of Site Roads

Access to the site will be gained through the existing entrance onto the N22. The site access road between the site entrance and proposed weighbridge and wheelwash has been provided with a concrete surface. Internal hardcore haul roads have been provided between the weighbridge/wheelwash and the proposed backfill area of the pit.

In accordance with condition No. 14 of Planning Permission (QR19 06/11798 & PL04.225332) a fixed water spray system has been installed to include the access road, all internal roads, any processing areas, storage yards / storage bays and bins.

A mobile water browser is also provided in periods of dry or windy weather to cover locations where it is impractical or inappropriate to use a fixed water spray system. There is no evidence of mud and debris being carried out on to the public road due to the above mitigation measures that are in place.

The site entrance has been adequately set-back and splayed in accordance with planning permission (QR19 06/11798 & PL04.225332) to the satisfaction of the Planning Authority.

All materials will be transported to and from the site using licenced vehicles.

3.3.3.2.4 Plant

Plant on site will consist of a bulldozer/excavator, tractor and bowser, with respect to the backfilling of the quarry workings using inert soils and stones and dredging spoil. All this plant is currently in use on site as part of the quarry operations. A road sweeper is also available for use on site and adjacent sections of the N22 at least on a weekly basis and/or if a spillage occurs.

3.3.3.2.5 Weighbridge

A weighbridge will be located along the concrete paved road leading from the entrance and passing in front of the site office. Details with respect to truck loads, tonnages, type and character of inert materials being received will be recorded. All weighbridge records shall be retained on site. The provision of a weighbridge will ensure that no heavy goods vehicles serving the site will be overloaded.

3.3.3.2.6 Wheel-wash

A wheelwash will be provided for the duration of the development.

3.3.3.2.7 Laboratory Facilities

Laboratory facilities on site will not be required as the services of an external accredited lab will be used as required.

3.3.3.2.8 Fuel & Oil Storage

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 (Refer to Figure 3.1 above). 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 Appendix 5.3.5).

3.3.3.2.9 • Waste Quarantine Area

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. The existing workshop will be utilised as a quarantine area (Refer to Figure 3.1). The recycling manger will be informed immediately. A waste acceptance/rejection procedure will be put in place (Refer to Appendix 5.3.3).

3.3.3.2.10 Waste Inspection Areas

Standard Operating Procedures (SOP's) will be put in place to ensure that all inert waste imported to site for recovery will be subject to comprehensive waste acceptance, inspection and sampling procedures (Refer to Appendix 5.3 for typical examples of SOP's).

All waste accepted for recovery will undergo a site pre-approval procedure (Refer to Appendix 5.3.4).

Each consignment of material arriving at the facility will be inspected at the point of entry by trained personnel to ensure it complies with what was agreed in the pre-approval stage. Basic characterisation of the material will be carried out in accordance with the Waste Inspection Procedure (Refer to Appendix 5.3.2).

Only suitable material will be permitted to be accepted in the facility (i.e. inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06)).

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. The existing workshop will be utilised as a quarantine area (Refer to Figure 3.1). The recycling manger will be informed immediately. A waste acceptance/rejection procedure will be put in place (Refer to Appendix 5.3.3).

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 (Refer to Figure 3.1).

Material accepted at the facility will undergo routine testing as detailed in the Roadstone Waste Intake Sampling Procedure (Refer to Appendix 5.3.1).

Basic characterisation will be undertaken a second time, upon tipping. Only after this second inspection will the waste be accepted. Following the second inspection the material will be accepted and placed within the infill area (placement by bulldozer/excavator).

3.3.3.2.11 Traffic Control

Access to the site will be gained through the existing entrance from the N22 National Primary road. The site entrance has been adequately set-back and splayed. The site access road has been provided with a concrete surface for a distance of c.117 metres. There is no evidence of mud and debris being carried out on to the public road, but the operator will ensure that any spilled material is removed from the road surface in a safe and timely manner, as soon as notified that a spillage has arisen. Regular sweeping of the access road and site entrance is also to be carried out. All traffic generated will be directed via the proposed wheelwash (Refer to Figure 3.1) prior to leaving the site.

Car parking including visitors parking is provided at the site entrance in front of the site office. Trucks entering the site will report to the site office where each load will be

inspected as to its suitability to be recovered on site. The site entrance has been designed to provide ample provision within the facility to facilitate queuing of vehicles, and that such vehicles queuing to enter the site are accommodated within the curtilage of the site entrance. All materials will be transported to and from the application site using licenced vehicles. Traffic direction signs, warning signs, speed limit signs are/will be established throughout the site. Refer also to Site Layout Plan Figure 3.1 above for details of traffic routing.

The site entrance gates will be locked shut outside of normal working hours. Internal traffic will be kept within the working area. Internal roads are constructed of hardcore material.

Refer to report Section 4.11 – Traffic with respect to impacts and mitigation measures.

It is considered that given the scale of the proposed development and the nature and condition of the road serving the site, and the proposed mitigation measures that the development will not lead to a greater risk to public safety by reason of traffic hazard.

3.3.3.2.12 Sewerage and Surface Water Infrastructure

The existing welfare facilities including toilets provided in the quarry will be utilised by the proposed development. A holding tank is provided which is emptied on a routine basis by a certified waste collection contractor to an approved waste facility.

As only inert materials are to be imported to site there will be no source of possible contamination of surface waters. The natural drainage pattern existing on site means that rain water falling on the site percolates through the underlying sand and gravels down to the water table. Details with respect to the impacts and mitigation measures with respect to surface and groundwater are provided in EIAR Water Section 4.4.

3.3.3.2.13 All Other Services

The existing site office and welfare facilities will be retained at the site entrance for the duration of the proposed waste facility. The water supply for the site office is provided by the local mains. An overhead telephone line also serves the site office. Diesel will be used for the bulldozer/excavator.

The lighting for this development is that attached to any plant and machinery, the site office, and quarantine shed. For the short periods when the operation will be working into darkness (i.e., over winter months), the operators will ensure that sufficient lighting is provided to ensure safe operations. As waste recovery activity will be screened from public view, light pollution from site activity will be minimal.

3.3.3.3 Facility Operation

3.3.3.3.1 Unit Operations

The attached Site Infrastructure Plan (Refer to Figure 3 1) indicates the location of all activities and identifies all facilities at the proposed SRF.

3.3.3.3.1.1 Delivery, Inspection & Acceptance

A flow diagram of the delivery, inspection & acceptance procedure is provided in Figure 3-7 below.

Standard Operating Procedures (SOP's) will be put in place to ensure that all inert waste imported to site for recovery will be subject to comprehensive waste acceptance, inspection and sampling procedures (Refer to Appendix 5.3 for typical examples of SOP's).

All waste accepted for recovery will undergo a site pre-approval procedure (Refer to Appendix 5.3.4).

Each consignment of material arriving at the facility will be inspected at the point of entry by trained personnel to ensure it complies with what was agreed in the pre-approval stage. Basic characterisation of the material will be carried out in accordance with the Waste Inspection Procedure (Refer to Appendix 5.3.2).

Only suitable material will be permitted to be accepted in the facility (i.e. inert soil and stones and river dredging spoil (EWC 17-05-04 and 17-05-06)).

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. The existing workshop will be utilised as a quarantine area (Refer to Figure 3.1). The recycling manger will be informed immediately. A waste acceptance/rejection procedure will be put in place (Refer to Appendix 5.3.3).

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 (Refer to Figure 3.1).

Material accepted at the facility will undergo routine testing as detailed in the Roadstone Waste Intake Sampling Procedure (Refer to Appendix 5.3.1).

Basic characterisation will be undertaken a second time, upon tipping. Only after this second inspection will the waste be accepted. Following the second inspection the material will be accepted and placed within the infill area (placement by bulldozer/excavator).

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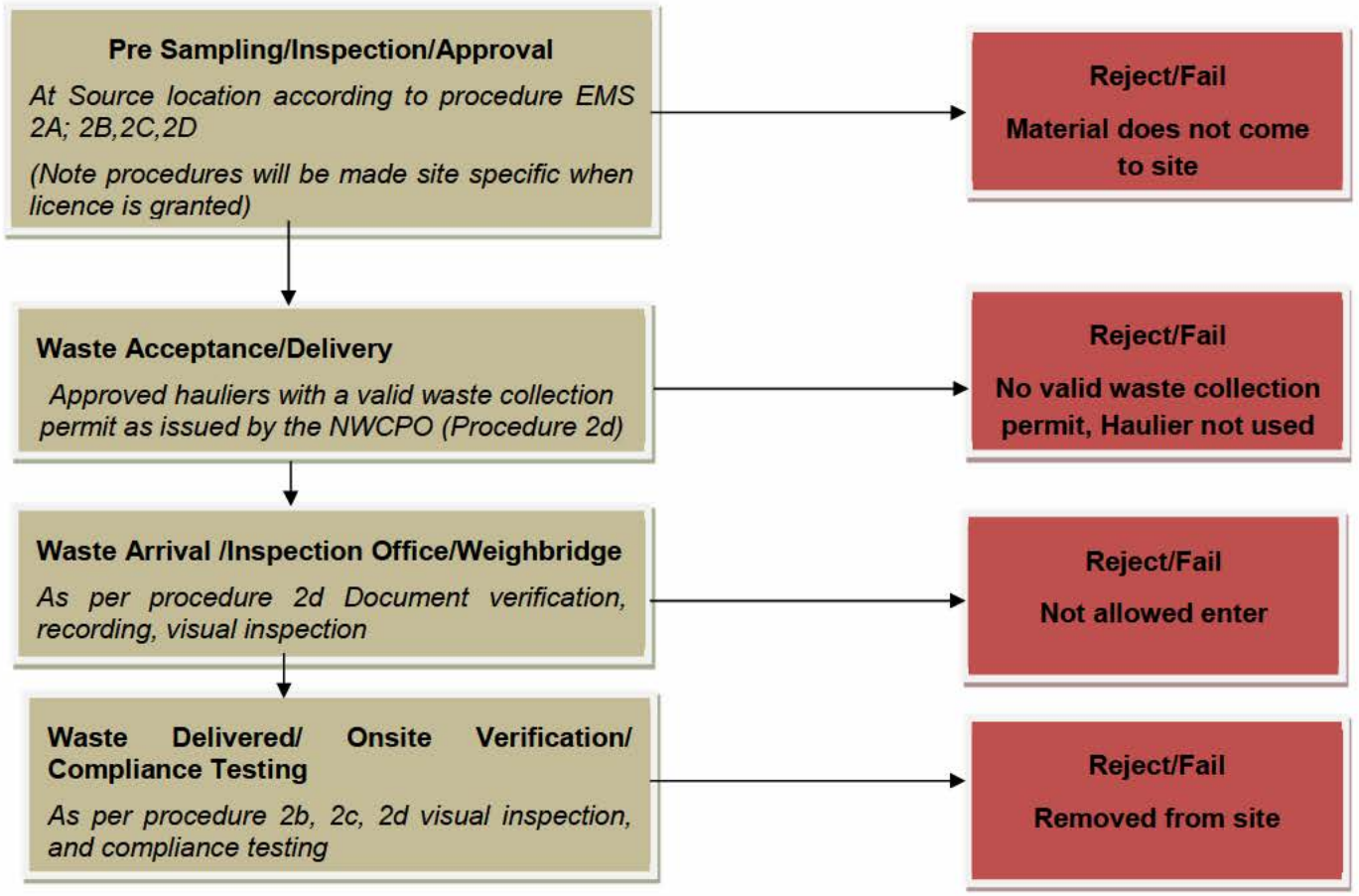
Figure 3-7 Flow Diagram of the whole process, along with a brief description (italics) detailing management and maintenance plans

Refer to Appendix 5.3 for details of Procedures EMS 2A, 2B, 2C, 2D



3.3.3.3.1.2 Quarantine

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. The existing workshop will be utilised as a quarantine area (Refer to Figure 3.1). The recycling manger will be informed immediately. A waste acceptance/rejection procedure will be put in place (Refer to Appendix 5.3.3).

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 (Refer to Figure 3.1).

3.3.3.3.1.3 Recovery of Soils

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).

Following inspection and acceptance the soil and stone material will be placed within the restoration area (placement by bulldozer).

3.3.3.3.2 Exceptional Operations

There will be no major servicing of plant and machinery carried out on site apart from routine maintenance and running repairs.

3.3.3.3.2.1 Accident Prevention and Emergency Response

As outlined in Section 3.3.3.1.2 the operator has in place an Environmental Management System (EMS) which addresses such matters as Emergency Preparedness & Response in dealing with accident and emergency situations resulting in effects on the environment (Refer to Appendix 5.3.5).

It is intended that the proposed development will be operated in accordance with Condition No. 31 under planning permission (QR19 06/11798 & PL04.225332) for the quarry i.e.,

> *Hours of operation shall be restricted to the following hours:*
>
> *07 .00 to 18.00hrs Monday to Friday and between 07.00 and 14.00 hrs Saturday.*
>
> *No operations shall take place on Sundays and Bank or Public holidays.*

An emergency contact number for out of hours will be prominently displayed at the site entrance and staff members will be available in the event of an emergency call-out.

3.3.3.3.2.2 Emergency/Spill Response Procedures

It is considered that accidents and emergency situations resulting in effects on the environment is confined to possible emissions to groundwater in the event of a fuel spillage. The operator has put in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation. (Refer to Appendix 5.3.5).

It should be noted that significant emphasis has been placed on control and abatement measures to ensure there is no risk to surface and /or groundwater (Refer to EIAR Section 3.3.3.2.8 above).

3.3.3.4 Environmental Treatment, Abatement and Control Systems

The main potential source of emissions from an inert SRF is noise and dust associated with movement, handling and placement of materials. Other possible emissions to the atmosphere are from machinery exhaust fumes, and possible emissions to surface and/or groundwater in the event of fuel or oil spillage. These are discussed in more detail in the next section (Section 4), which deals with distinct environmental topics.

Emissions to Atmosphere and Water are currently monitored in compliance with planning permission (QR19 06/11798 & PL04.225332) for the quarry development.

The existing EMS includes an 'Environmental Monitoring Programme' for the monitoring of water, dust and noise, and will be revised subject to compliance with any conditions attached to any decision to grant planning permission and a Waste Management Licence for the proposed SRF. Environmental monitoring locations are shown by Figure 3.6 above.

3.3.3.4.1 Emissions to Atmosphere

The following section details the techniques for preventing or reducing the emissions from the proposed SRF including treatment/abatement systems as necessary. The following activities may give rise to potential fugitive dust emissions.

- Internal movement of vehicles
- Tipping and levelling
- Loading and unloading vehicles

The materials to be recovered are inert soil and stones and river dredged material. Any dust generated by the operation will comprise inert particulate matter.

There will also be emissions to air from the exhaust of the site plant & machinery, and the haulage trucks; arriving/departing the site.

Experience of inert SRF's, quarry workings and associated ancillary activities indicates that mechanical activity is the most significant factor in material erosion and dust generation. Dust emanates from a number of site activities as detailed in section 4.6.5.3 below. However, the effect of wind and high ambient temperatures are also

important factors in dust generation and migration. Problems may arise at sites when all these factors arise simultaneously.

The impacts of any dust deposition from the operations will be direct, of short duration, temporary and largely confined to the site area.

The principal measures employed to control fugitive (ground) dust emissions from general site activity, internal haulage and land reclamation operations as follows:

- In accordance with condition No. 14 of Planning Permission (QR19 06/11798 & PL04.225332) a fixed water spray system has been installed to include the access road and internal roads,
- During dry weather the haul roads and tipping area will be sprayed with water to dampen any likely dust blows.
- A mobile water browser is provided in periods of dry or windy weather to cover locations where it is impractical or inappropriate to use a fixed water spray system.
- Consideration will be given to location of mobile plant to ensure that any principle dust sources cannot adversely affect sensitive off-site locations.
- A wheel wash facility will be installed on site and all vehicles required to pass through the wheel wash on exiting the site.
- Main site haulage routes within the site shall be maintained with a good temporary surface, as is the case at present.
- All internal roadways will be adequately drained, to prevent ponding.
- A road sweeper is available for use on site and adjacent sections of the N22 at least on a weekly basis and/or if a spillage occurs onto the public roadway.
- Reclaimed areas will be seeded at the earliest appropriate time.

Dust emissions from the facility will be controlled and monitored. Dust emissions and their management will be addressed in a revamped 'Environmental Management System' (EMS) for the entire Garryhesta site.

Regular servicing of facility plant & machinery will ensure that exhaust emissions are kept to a minimum.

3.3.3.4.2 Emissions to Surface Water

There are no surface water flowpaths 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; and,
- 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.

3.3.3.4.3 Emissions to 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.

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.

3.3.3.4.4 Emissions to Sewers

The existing welfare facilities including toilets provided in the quarry will be utilised by the proposed development. A holding tank is provided which is emptied on a routine basis by a certified waste collection contractor to an approved waste facility.

3.3.3.4.5 Noise Emissions

The main source of noise and vibration will be from the movement of trucks on internal haul roads, the tipping of material, placing and grading of material. The type of mitigation techniques implemented to reduce noise are detailed below:

- The site benefits from an established mature planted screening berm along the site boundary with the N22 Primary Route.
- The provision of temporary screen banks to screen site activities from outside views as necessary.
- The existing designated internal haul roads will be utilised to manage traffic entering and leaving the site to ensure that site traffic is removed from nearest noise sensitive receptors.
- Internal haul road gradients will be kept as low as possible to reduce engine / brake noise from heavy vehicles.
- All machinery used will be CE certified for compliance with EU noise control limits.
- Regular maintenance of all plant and machinery is an integral part of site management and is important in helping to minimise noise impact.
- All plant and machinery are switched off when not in use.
- A noise management programme will be defined as part of the EMS.

Noise emissions from the facility will be controlled and monitored. Noise emissions from the facility and their management will be addressed in the revamped 'Environmental Management System' (EMS) for the Garryhesta site. The issue of noise and the mitigation measures available to reduce noise to acceptable levels is dealt with in detail in EIAR Section 4.7 - Noise.

3.3.3.4.6 Environmental Nuisances

3.3.3.4.6.1 Litter Control

The only waste to be accepted at the proposed facility will be inert soil and stone and river dredged spoil. As such it is not expected that the waste recovery activities on site are likely to give rise to litter.

The entrance gates remain locked outside of normal working hours and public warning notices are posted at appropriate locations along the site boundary. These measures are to ensure that there is no unauthorised dumping of unacceptable wastes outside of operating hours likely to give rise to nuisance.

A daily site inspection including site boundaries adjoining public roads will be carried out. Any litter observed will be removed as soon as possible and disposed of at a suitable Waste Management Facility.

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.

3.3.3.4.6.2 Bird & Vermin Control

As the site is not a landfill, and the only material imported into the facility is inert soil and stone and dredging spoil waste, and not domestic or municipal waste, the potential of attracting large numbers of birds and vermin is very low.

Litter, especially foodstuffs brought on site by employees, will be disposed of properly, and adequate facility for such will be maintained. Litter control as an integral element of vermin control, will be monitored as part of the Environmental Management System. It is considered that there will be no need for any specific controls for birds.

3.3.3.4.6.3 Fire Control

As the waste to be accepted at the facility for recovery comprises inert soil and stones, it is unlikely that the site activities are likely to give rise to any significant risk of fire.

The operator has put in place an emergency response procedure as part of the existing EMS for the quarry which addresses measures to be taken in the event of a fire (Refer to Appendix 5.3.5).

3.3.3.4.6.4 Traffic Control

Car parking including visitors parking is provided at the site entrance in front of the main office. Trucks entering the site report to the site office where each load is inspected as to its suitability to be recovered at the facility.

The site entrance has been designed to ensure that queuing for vehicles entering the site is accommodated within the curtilage of the site entrance.

All trucks exiting the site will pass through the proposed wheelwash facility. Traffic direction signs, warning signs, speed limit signs are/will be established throughout the site.

3.3.3.4.6.5 Road Cleaning

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.

A road sweeper is also available for use on site and adjacent sections of the N22 at least on a weekly basis and/or if a spillage occurs.

The proposed wheelwash facility will be maintained for the duration of the development.

3.3.3.4.7 Environmental Monitoring

An environmental monitoring programme is already in place at the quarry for the monitoring of water, dust and noise in compliance with planning permission (QR19 06/11798 & PL04.225332). The Environmental Monitoring locations (Water, Dust and Noise) are shown on Figure 3.6 above. In preparation of this application consideration has been given to updating the environmental monitoring programme including provision of four ground water monitoring wells (MW1 to MW4), and also groundwater quality testing at the farm well to the west of the site. A number of the monitoring locations have been relocated due to difficulties with access and vegetation growth (i.e. Dust Locations D1 to D3 and noise monitoring location N5).

The monitoring programme results will be submitted to Cork County Council on a regular basis and therefore made available at the council offices for inspection by interested parties.

The environmental programme is discussed under Section 4 – “Environmental Factors” of this report.

The future monitoring programme will be revised accordingly, subject to compliance with any conditions attached to any decision to grant planning permission and subsequent Waste Management Licence.

3.3.3.4.7.1 Air – Dust

Condition No. 13 of the existing planning permission for the quarry (QR19 06/11798 & PL04.225332) states that "*dust deposition levels arising out of activities on site shall not exceed 350 milligrammes per square metre per day, averaged over 30 days, when measured at the site boundaries".*

The measurement technique shall be the German Standard VDI Method 2119 - Part 2 (Bergerhoff Gauge). This standard is also in accordance with guidance issued by both the Department of the Environment and the EPA in relation to dust deposition monitoring for these types of developments, and its continued application is expected.

The operator has put in place a dust monitoring programme for the overall Garryhesta site (Refer to Figure 3.6 above). This allows on-going monitoring of fugitive dust emissions from the site, and ensures that dust threshold limits are not exceeded, and that dust emissions are compliant with any future requirements or regulations.

3.3.3.4.7.2 Surface & Groundwater

In accordance with condition No. 33 of the existing planning permission for the quarry (QR19 06/11798 & PL04.225332) a ground water monitoring programme has been put in place to ensure ground water levels and quality in the vicinity of the site will not be impacted by the proposed development.

Groundwater and surface water quality monitoring will be completed on a regular basis in accordance with the Waste Management Licence which is being sought (Refer to EIAR Section 4.4.8).

3.3.3.4.7.3 Noise

In accordance with condition No. 32 of the existing planning permission for the quarry (QR19 06/11798 & PL04.225332):

"During the operation of the quarry, the noise level from within the site, measured at noise sensitive locations in the vicinity, shall not exceed an LAeq value of 55 dB(A) during the period 0800 hours to 1800 hours from Monday to Friday (inclusive) and 0800 hours to 1600 hours on Saturdays and an LAeq, l5mins value of 45 dB(A) at any other time.

All sound measurements shall be carried out in accordance with ISO Recommendations R 1996, "Assessment of Noise with Respect to Community Response" as amended by ISO Recommendations R 1996/1, 2 and 3, "Description and Measurement of Environmental Noise", as appropriate. Noise surveys shall be carried out in accordance with the Environmental Protection Agency's "Environmental Noise Survey — Guidance Document" (2006)".

Routine noise monitoring is carried out by the operator at a number of locations both within the quarry and nearest noise sensitive receptors (Refer to EIAR Figure 3.6 above).

3.3.3.4.8 Resources Use & Energy Efficiency

The only waste to be accepted at the proposed facility will be inert soil and stone and river dredged spoil. As such the materials will not undergo any form of processing involving the use of chemicals or additives.

An existing single phase overhead electricity supply provides for lighting and heating of the office. An overhead telephone line also serves the site office. Energy awareness notices will be posted around the site to ensure employees are aware of the need to conserve energy. Energy efficiencies will be achieved by using modern plant and equipment and servicing that equipment on a scheduled basis. Plant and equipment not in use will be shut off.

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 quarry lagoon. It should be noted that in Ireland rainfall occurs daily about 50% of the year. On days requiring dust suppression water usage would amount to 5 to 10m^3 per day.

The only raw materials used on site are diesel, hydraulic oil and engine oil, which will be used to operate diesel powered plant on site. As only an excavator/bulldozer will be used in the proposed SRF, the quantities of fuel oil used on site will be relatively small.

3.3.3.4.9 Waste Arisings

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.

3.4 SITE RESTORATION, DECOMMISSIONING & AFTERCARE

3.4.1 PHASING OF RESTORATION WORKS

The restoration plan involves the progressive backfilling of the quarry void on a phased basis, with natural inert soil and stone and dredging spoil sourced externally and imported. Topsoil will be seeded and the area returned to grassland.

Table 3.4-1 Material Balance for Backfilling

Phase		Figures	Depth of Fill		Void Space	
			Average	Maximum		
			m	m	m^3	*tonnes
1	*Infill to 40m AOD*	*3.1*	*11.9*	*17.2*	*507,493*	*913,487*
2	*Infill to 48mAOD*	*3.2*	*7.2*	*8*	*376,915*	*678,447*
3	*Final Profile*	*3.3*	*6.3*	*10*	*391,635*	*704,943*
Totals	*1 to 3*		*20.6*	*30*	*1,276,043*	*2,296,877*

Note: ** Assumes conversion factor of 1.8 tonnes/m^3 for inert soils and stones (allowing for compaction and settlement). This is based on JSPE Ltd.'s experience and other operators in the sector.*

The phased scheme for reclamation of the area is shown by Figures 3 1 to 3.3 above. The volume of material required to be imported to the site to complete the proposed reclamation scheme has been calculated (using the Digital Terrain Modelling Software Package LSS) and is shown below. It is proposed that that the void space will be filled over a period of c.8 to 10 years.

It is proposed that the restoration scheme will be completed using "Soil and Stones" and "River Dredging Spoil" imported to the site under the terms of an EPA Waste Licence. This material corresponds to Class 5 in accordance with the Fourth Schedule of WMA Act, 1996.

The applicant is an experienced earthmoving contractor. Soils will be handled in accordance with accepted guidelines and good practice.

A bulldozer will be used to appropriately grade and compact the material to the desired profile as shown by the detailed plans and sections (Refer to Figures 3-1 to 3-4. Typically, the soil will be placed in 2m lifts with fill slopes of a safe angle of repose of at least 1:2.

It is proposed to reclaim the lands to a condition / gradient suitable for agricultural. For restoration to agricultural use, the restored soil profile (capping) shall comprise 300mm topsoil over 1200-1350mm of subsoil.

Good quality indigenous or imported soil will be conserved wherever possible to provide the subsoil/top-soil capping.

To ensure that damage to these materials is kept to a minimum, movement and placement of topsoil and subsoil for final restoration will only take place during appropriate weather conditions and when the soils are in the optimum condition. This optimum soil condition may be described as moist but friable. No soils will be moved when they are too dry or when there are unusually windy weather conditions. This will help to prevent erosion and any consequential creation of dust. Conversely, soils will not be handled in wet conditions or when the moisture content of the soils is too high. This will ensure that smearing of the soils does not take place and that the soil retains its structure.

Progressive restoration involving grass seeding of restored area's will be carried out on a staged basis to reduce the effects of soil erosion and windblown dust, to aid ground stabilisation, and as an effective means of weed control. Final restoration is dependent on the availability of good topsoil/subsoil and subject to suitable weather conditions. The final contours and topography for the site is shown by the Reclamation Scheme Figure 3-3 and 3.4 (Cross Sections).

Once the topsoil 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.

3.4.2 FINAL SITE RESTORATION SCHEME

As discussed in previous sections, restoration of the quarry will be carried out in a progressive fashion over the life of the operation (Refer to Section 3.4.1 above). EIAR Figure 3.3 shows the final layout of the restoration scheme at cessation of extraction operations.

The only waste to be accepted at the proposed facility will be inert soil and stone and river dredged spoil.

In this case only inert soils and stones and river dredged spoil is to be accepted at the facility for recovery and phased restoration of a sand and gravel pit to a contoured landform that will be in keeping with the surrounding landscape.

Roadstone propose to carry out the reclamation works in accordance with the Green, Low Carbon, Agri-environment Scheme (GLAS). i.e. 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, establishment of species rich hay meadow.

The proposed development will be subject to an EPA Waste Management Licence. As such a Closure and Restoration/After Care Management Plan (CRAMP) may be required as a condition of the Waste Licence.

Clean closure is envisaged such that all plant is safely removed for reuse or recycling, and all wastes are removed off site at the time of closure for appropriate recovery or

disposal. Monitoring undertaken should demonstrate that there are no outstanding environmental issues.

An Environmental Validation Audit of the site will be carried out following the announcement of closure and prior to actual decommissioning and closure operations taking place. The audit will devise an accurate inventory of all plant, equipment and wastes on the site. This inventory will be used as a benchmark against which successful decommissioning will be assessed.

It is proposed that the Environmental Validation Audit will be undertaken by JSPE and/or other independent Auditor to be agreed with EPA prior to the validation commencing.

The scope of the validation audit will be agreed in advance with the EPA and following approval, the chosen independent auditor will complete the validation audit. The completed validation audit report will be submitted to the EPA for approval.

The Environmental Management System including environmental monitoring (Surface & Groundwater only) shall remain in place and will continue to be actively implemented during the closure period.

The licence holder shall carry out such tests, investigation or submit certification, as requested by EPA in accordance with the waste licence to confirm that there is no risk to the environment.

It is anticipated that final restoration will be achieved within two years of completion of extraction operations. Final restoration will be to agriculture/secure wildlife habitat. A detailed planting and landscaping plan has been prepared as part of the application (Refer to Figure 3.3). The perimeter overburden storage areas will be landscaped to form part of a woodland/ nature reserve area.

3.4.3 DECOMMISSIONING

Redundant structures and plant equipment will be removed from site on cessation of the Soil Recovery activity.

Plant and machinery will either be utilised by the operators on other sites, or be sold as working machinery or scrap. In the case of machinery to be scrapped all contaminants will be removed, drained or flushed from all plant, tanks and pipelines. All residues containing fuels, oils and other contaminants will be removed off site by a a licensed waste contractor for recovery or disposal. The cesspit storage tank will also be removed from the site. Therefore, there will be no potential for fuel, oil or sewage to cause long-term water pollution following cessation of soil recovery activities.

Any hard-standing areas will be broken up and the material recovered at an appropriate Material Recovery Facility for use as secondary aggregates. The site access will be retained as agricultural access to the restored lands.

The Environmental Management System shall remain in place and will continue to be actively implemented during the closure period.

3.4.4 AFTERCARE & MONITORING

There will be no on-going requirement for environmental monitoring after recovery operations have ceased.

An aftercare scheme will be implemented with the aim of bringing the restored soils (and hence land) into a condition which does not need to be treated differently from undisturbed land in the same use. The final restoration of the site will facilitate an agricultural after-use like that which existed prior to extraction works.

A final site inspection 6 months after site closure will be carried out to ensure that the final site restoration scheme implemented is functioning and progressing as required.

It is evident from the above description given the relatively short-term measures necessary to close the site satisfactorily, that there will be no environmental liabilities once closure, decommissioning and residuals management are completed.

3.4.5 CLOSURE PLAN COSTING

Clean closure is envisaged and the site will be restored in a progressive manner.

The document *Guidance on Financial Provision for Environmental Liabilities, Environmental Protection Agency (EPA) 2015* sets out broad guidance in relation to how the Environmental Protection Agency (EPA) anticipates it will approach financial provisions.

Financial provisions are, in broad terms, required to cover environmental liabilities that may occur during the operating life of a licensed facility or that may arise from or following the closure of a licensed facility.

The EPA's preference is for the use of established and low risk financial instruments, which are in line with the principles of being secure, sufficient and available when required. The type of financial instrument(s) accepted by the EPA will depend on the nature of the risk being covered.

The following forms of financial instrument are, in principle, acceptable to the EPA:

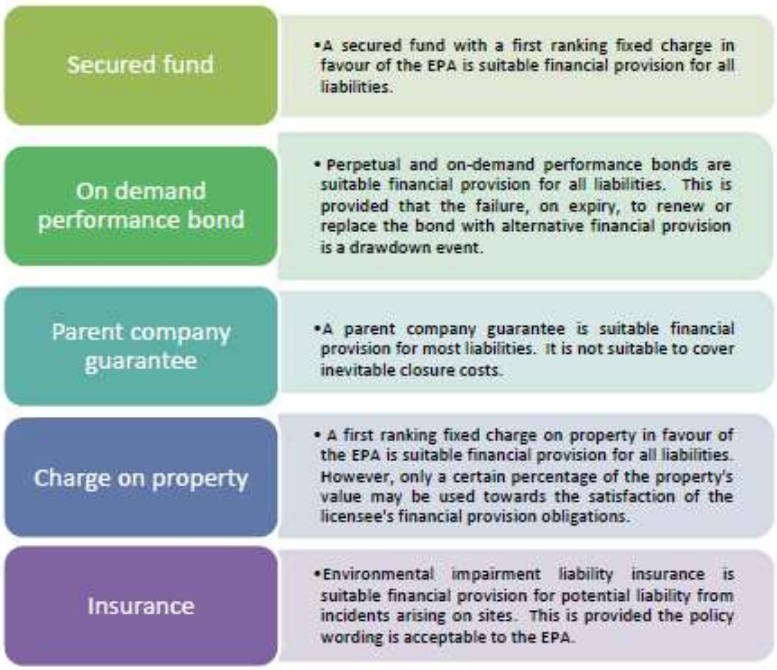


Figure 3-9 Forms of Financial Instruments acceptable to EPA

Roadstone Ltd will make the necessary financial provision to cover the closure and restoration/ aftercare requirements. The form and value of the financial provision will be subject to agreement with the EPA following grant of the Licence.

Closure and restoration/aftercare costs will be reviewed annually, and any proposed amendments thereto notified to the EPA for agreement.

3.5 CHANGES TO THE PROJECT

3.5.1 GROWTH – POTENTIAL FOR FUTURE EXPANSION

Waste recovery operations in accordance with the scheme proposed will provide for the security of the existing business of the Applicant for the foreseeable future. The client owns the land and as such has a direct interest in ensuring the lands are returned to a beneficial after-use at the earliest opportunity in accordance with the progressive restoration scheme proposed. There is potential that additional areas of the pit could be restored in the future through backfilling of inert soil and stone and river dredge material, but this would be subject to market conditions in the future and a separate planning application and waste licence application.

3.5.2 DESCRIPTION OF RELATED PROJECTS

Associated developments are restricted to the production of sand and aggregates from the quarry. Many local authorities also encourage co-location of Soil Recovery Facilities with quarries, in preference to stand-alone waste recovery facilities, because of the shared / complementary infrastructure, plant, processes and materials, as well as common environmental aspects.

There are no required or apparent opportunities for any further associated developments at this time.

Roadstone also has in place an Environmental Management System (EMS) to ensure that all quarry activities are carried out in compliance with the relevant Planning Permissions. As part of the EMS environmental monitoring (water, noise and dust) is carried out to ensure that the site activities are carried out within acceptable standards for these types of developments and that there is no significant cumulative impact with respect to the operation of their developments.

The restoration works using imported “soil and stones” and “river dredging spoil” are no different from normal quarry restoration operations. As such there is no cumulative impact with respect to the movement and placement of materials during the progressive restoration of the quarry development.

Indirect or cumulative impacts associated with other similar developments within the area are dealt with where necessary under the relevant environmental topic in Section 4 of this EIAR.

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