3. DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1 Introduction

This section of the Environmental Impact Assessment (EIAR) provides a description of the development and operation of the Proposed Development. The chapter also describes the key features of the environmental controls that will be used within the development and the management of site operations. This description sets the basis against which the EIAR has been carried out.

The Proposed Development being applied for under this planning application includes for the construction of a soil inspection shed, refuelling area, settlement ponds, road improvements, drainage network and environmental berms. The Proposed Development also includes for the extraction, processing and washing of sand and gravel from an area measuring approximately 16.3 hectares (ha) which will allow for the extraction of approximately 1,428,571 tonnes of material.

The development proposals also include for the infilling and restoration of an existing and future quarry void back to original land contour levels. It is proposed to fill the void with either inert soil and stone waste (imported inert greenfield and non-greenfield soils and stone, and river dredge spoil) which will be a soil recovery facility and require a waste management licence or soil and stone by-product (i.e., essentially virgin soil or equivalent to virgin soil and stone, and river dredge spoil) which will be notified to the Environmental Protection Agency (EPA) as an Article 27 by-product. The quantity of soil and stone material required for restoration has been estimated to be approximately 4,471,200 tonnes.

The Proposed Development site EIAR study area and application boundary measures approximately 97.5 hectares.

3.2 Site Setting

3.2.1 Site Location

The Proposed Development site comprises land in the townlands of Ballyquin More, Leitrim, Woodpark and Fahy More North, Co. Clare. The Proposed Development site is located approximately 8 kilometres southwest of the town of Killaloe and 1.5 kilometres to the northwest of the village of Bridgetown, Co. Clare. The site comprises a quarry void area which has been used for sand and gravel extraction since c. 1954. The Grid Reference co-ordinates for the approximate centre of the site are X 562651, Y 669425 in Irish Transverse Mercator (ITM).

The site location is shown in Figure 3-1.

3.2.2 Site Description

The planning application boundary area measures approximately 97.5 ha. The Proposed Development being applied for under this planning application includes for the construction of a soil inspection shed, refuelling area, settlement ponds, road improvements, drainage network and environmental berms. The Proposed Development also includes for the extraction, processing and washing of sand from an area measuring approximately 16.3 ha which will allow for the extraction of approximately 1,428,571 tonnes of material. The Proposed Development also includes for the infilling and restoration of an existing and future quarry void with inert soil and stone over an area of approximately 38 ha. The site topography ranges between 94 metres above ordnance datum (mAOD) at its highest point to approximately 46 mAOD at its lowest point.

A site walkover was undertaken by Eoin O'Sullivan, Project Director Environment and Feargal Lennon, Environmental Scientist, both from MKO, on the 14th June 2023. The existing quarry infrastructure including the site office, wheel-wash and weighbridge was located to the southwest of the site adjacent to the access road. A shed was located to the southeast of the site office. A bunded tank used for water storage was located on a hardstanding area to the north of the site office. There was no visual or olfactory evidence of any spills or leaks in the vicinity of the storage tanks or this area in general. A sand washing plant was located to the northeast of the site office. A settlement pond area was located to the east of the site. The eastern and western sections of the site were dominated by scrub and thick vegetation. The site has been previously used for sand and gravel extraction with continued removal of material from existing stockpiles within the pre 1964 area on a campaign basis. An area to the north of the site was permitted by Clare County Council to recover inert excavation spoil comprising natural materials of clay, silt, sand, gravel or stone for the purpose of restoration. This permission is now expired. Stockpiles of sand and gravel were present in the east of the site adjacent to the site access road. Please refer to Plate 3-1 to Plate 3-6 for a view of the existing site layout.

Land-use in the wider landscape comprises agriculture, forestry, quarrying and one-off housing. The site is bounded by agricultural land to the south and the west. A Local Road called 'Fahymore' runs along the eastern boundary of the site. This Local Road provides access to 4 No. farms adjacent to the site. In the southeast, the site is adjacent to another quarry, Jim Bolton Sand & Gravel. The nearest surface water features to the site are the Broadford watercoure (EPA Code 27B02) which is located at the northern boundary of the site and the Fahy More watercourse (EPA Code 25F17) which is located at the south eastern boundary of the site.

The site is accessed from an existing high quality vehicular entrance on the R466 Regional Road which runs southeast-northwest from the R445 at Birdhill, County Tipperary to the R352 in East Clare.

The Proposed Development will continue to use the existing quarry infrastructure including internal roads, site office, weighbridge, wheel-wash, and other ancillaries to complete the works.

Plate 3-1: View of site entrance and site access road looking northeast.

Plate 3-2: View of existing site office and weighbridge looking south

Plate 3-3: View of existing wheel-wash facility looking north.

Plate 3-4: View of Quarry Void and existing site plant

Plate 3-5: View of the existing site Refuelling Area including tanks currently used to store water.

Plate 3-6: View of infill area to the north of the site where permission is now expired.

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Drawing Title: Site Location	
Project Title: Proposed Ballyquin Quarry	
Drawn By: CJ	Checked By: EOS
Project No.: 211137	Drawing No.: Figure 3-1
Scale: 1:50,000	Date: 2024-11-14

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RECEIVED: 29/11/2024

Map Legend

- Site Boundary
- Extraction Boundary
- Restoration Area
- Washplant Location
- Settlement Pond Area
- Inspection Shed & Refuelling Area

Drawing Title
Proposed Site Layout

Project Title
Proposed Ballyquin Quarry

Drawn By	Checked By
CJ	EOS
Project No. 211137	Drawing No. Figure 3-2
Scale 1:9,000	Date 2024-11-14

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3.3 Proposed Site Development

3.3.1 Construction Phase

Construction works for the at the site will be minimal. It is estimated that the construction phase of the proposed works required will take approximately 1 month. The construction phase will include:

- Preparation of site for construction;
- Stripping of overburden soils under archaeological supervision for use in construction of environmental berms and ongoing site restoration works;
- Removal of existing internal hedgerows in greenfield extraction area,
- Pouring of concrete for soil inspection area/refuelling area foundation;
- Construction of new drainage network and fuel/oil interceptor at refuelling area;
- Erection of quarantine inspection shed;
- Road paving/improvements;
- Construction of settlement ponds;
- Construction of a fixed processing plant including water management system and ponds for the washing of aggregates; and
- Construction of a new chain-link perimeter fence on the eastern and northern boundaries of the extraction area.

Minor excavations will be required for the installation of drainage pipework. It is proposed that excavated soil material will be reused onsite.

It is anticipated that normal construction working hours will be in line with the opening hours for the existing operational quarry as set out in Section 3.5.5.

3.3.1.1 Construction Environmental Management Plan

A Construction and Environmental Management Plan (CEMP) has been prepared for the Proposed Development and is included in Appendix 3-1 of this EIAR. The CEMP includes details of material management and outlines clearly the mitigation measures and monitoring proposals that are required to be adhered to in order to complete the works in an appropriate manner. In the event that planning permission is granted for the Proposed Development, the CEMP will be updated prior to the commencement of the development, to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned and will be submitted to the Planning Authority for approval.

3.3.2 Proposed Extraction Area

The Proposed Development being applied for under this current planning application includes for the extraction, processing and washing of sand from an area measuring approximately 16.3 ha which will allow for the extraction of approximately 1,428,571 tonnes of material. The proposed extraction area is all within the same landholding of the applicant.

It is intended to extend the extraction area of the existing quarry horizontally and vertically using mechanical excavation techniques. The depth of sand varies across the extraction area, as a result levels of excavation will vary from approximately 76mAOD in the north of the site to 57.5mAOD in the south of the site. The zone of sand ranges from 7 to 14m in thickness. Extraction of sand will stop when rock is met. There will be no extraction of rock. Extraction will be by dry working above the water table. Extracted material will be brought to the washing plant if it requires washing otherwise it will be sold directly out the gate. The proposed extraction areas are shown in Figure 3-2.

3.3.3 Proposed Restoration Area

It is proposed to import approximately 4,471,200 tonnes of inert soil and stone material or stone by-product, or river dredge spoil for the infilling and restoration of an existing and future quarry void in order to return the land to a beneficial use.

It is considered that the rate of infilling and restoration will be subject to market conditions and therefore planning permission is being sought for a 20-year operation and 2-year monitoring period (22 years in total).

3.3.3.1 Site Licence or Article 27 notification

It is proposed to fill the void with either inert soil and stone waste (imported inert greenfield and non-greenfield soils and stone, and river dredge spoil) which will be a soil recovery facility and require a waste management licence (WML) or soil and stone by-product (i.e., essentially virgin soil or equivalent to virgin soil and stone, and river dredge spoil) which will be notified to the EPA as an Article 27 by-product.

If it is decided to proceed with a WML application after planning is granted, the WML will set out the conditions under which Roadstone Ltd will operate and manage the facility. The WML will specify the environmental controls required to minimise the risk of environmental pollution and nuisance to the public arising from the activities at the facility. All operational activities will therefore be carried out in accordance with the WML which will be issued by the EPA following a rigorous application process.

If this material is classified as an Article 27 by-product, then the Proposed Development would be operated in accordance with the document titled *"Consultation Paper Regulation 27(7) National By-Product Criteria for Greenfield Soil and Stone used in Developments"*. In this instance, the Proposed Development would be notified to the EPA and regulated by the Local Authority under planning conditions.

3.3.4 Site Infrastructure

The Proposed Development will continue to use the existing quarry infrastructure including internal roads, site office, weighbridge, wheel-wash, and other ancillaries to complete the works.

A quarantine area and refuelling area will also be provided as part of the development of the site. The quarantine area will comprise of a concrete foundation slab and inspection shed. Drainage from the refuelling areas will be routed through a full hydrocarbon interceptor, a wetland, and then a soakaway for final discharge to ground.

The Proposed Development will include the use of the following equipment and machinery:

- 2 No. CAT 345 Excavator or equivalent;
- 2 No. CAT D6 dozer or equivalent;
- 1 No. CAT 980 Loading Shovel;
- 1 No. CAT 966 Loading Shovel;
- 1 No. Komatsu 605 Dumper;
- 1 No. CAT 775 Dumper;
- 1 No. CAT 980G Loading Shovel;
- 1 No. Komatsu HD405 Dump Truck;
- 1 No. Mobile Screener;
- Tractor and Bowser;
- Fixed processing/washing plant including water management system and ponds for the washing of aggregates.

3.3.4.1 Wheel-Wash/Wheel Cleaner

All Heavy Goods Vehicle (HGV) traffic entering/exiting the site will utilise the existing wheel-wash facility located adjacent to the access road.

In addition, a road sweeper will be available if any section of the public roads were to be dirtied by trucks associated with the Proposed Development.

3.3.4.2 Weighbridge and Office

Traffic entering/exiting the site will utilise the existing weighbridge and office located adjacent to the access road. The weighbridge will be upgraded as part of the development proposals. A portable toilet will be provided for staff.

3.3.4.3 Quarantine Area

A quarantine area for any imported material suspected of being contaminated or unsuitable for acceptance at the facility will be provided as part of the Proposed Development. This will comprise of a concrete hardstand area and inspection/storage shed, located to the southeast of the existing site office. The proposed inspection shed will be approximately 1,875m^2 in area and 10m in height.

3.4 Description of Site Operations

3.4.1 Overburden Removal

Prior to extracting the underlying sand material, internal hedgerows and vegetation in the extraction area will be removed and overburden will be stripped. The overburden removed will be used in the construction of environmental berms and ongoing site restoration works. The removal of vegetation will typically be carried out by means of mechanical excavator. Where required, silt fences will be used to ensure sediment-laden run-off does not occur.

3.4.2 Sand Extraction

Sand extraction will take place from an area measuring approximately 16.3 ha which will allow for the extraction of approximately 1,428,571 tonnes of material. It is proposed to construct a new chainlink perimeter fence on the eastern and northern boundaries of the extraction area.

The site will be worked in 2 no. phases as described below:

- Phase 1: The first phase of extraction of sand and gravel will allow for the extraction of approximately 714,286 tonnes of material. Extraction of sand during Phase 1 is anticipated to occur during years 1 to 10.
- Phase 2: The second phase of extraction of sand and gravel will allow for the extraction of approximately 714,286 tonnes of material. Extraction of sand during Phase 2 is anticipated to occur during years 11 to 20.

Extraction will be by dry working above the ground water table and underlying rock. The depth of sand varies across the extraction area, as a result levels of excavation will vary from approximately 76mAOD in the north of the site to 57.5mAOD in the south of the site. The zone of sand ranges from 7 to 14m in thickness. The volume of material permitted to go out the gate will not change from that previously permitted of 248,400 tonnes per annum.

The method of extraction will be mechanical with material being removed using an excavator. The material will be washed to remove unwanted clay and to separate sand. Sand separated during processing is de-watered and stockpiled.

3.4.3 Infilling

There will be a phased restoration of the quarry void working from the base of the void vertically building up soil and stone. The material will be spread in layers, approximately 1 to 2m each, up to ground level. If required, the layers will be compacted using the dozer which is spreading the material.

The temporary side slopes will be engineered to form slopes in the order of 1:1.5 (vertical: horizontal). Temporary access ramps into and out of active backfilling areas will be at a gradient of approximately 1:10 (vertical: horizontal).

During site restoration works the upper surface of the backfilled materials will be graded so as to ensure surface water run-off falls to drains around the perimeter of the infill area as it is being backfilled.

Following completion of the infilling works, the berms which contain a pre-existing natural seedbank from the topsoil, will be spread back over the regraded and re-profiled quarry voids. Additional species are recommended to be sown into the new swards, these species will create tussocky grasslands with a rich litter layer, under grassland management provisions, which will create rodent and small mammal habitat and shelter which will provide foraging opportunities for barn owl post quarry operations and restoration. Following completion of the restoration and site decommissioning works, provision will be made for further, short-term (2-year) period of environmental monitoring of air, surface water and groundwater.

3.4.3.1 Material Types and Quantities

It is proposed to fill the existing and future void space with inert soil and stone waste (imported inert greenfield and non-greenfield soils and stone, and river dredge spoil) which will be a soil recovery facility and require a waste management licence or soil and stone by-product (i.e., essentially virgin soil or equivalent to virgin soil and stone and river dredge spoil) which will be notified to the EPA as an Article 27 by-product. The quantity of soil and stone material required for restoration has been estimated to be approximately 4,471,200 tonnes.

The List of Waste (LoW) types and codes for material to be imported to fill the void is presented in Table 3-1 below if it is decided to apply for a waste management licence after planning permission is granted.

Table 3-1 List of Waste Types and Codes for Imported Material

List of Waste Code	Description	Quantity	
		(tonnes/annum)	(m^3/annum)
17 Construction and demolition wastes			
17 05 04	Soil and stones - Excluding topsoil, peat; excluding soil and stones from contaminated sites.	200,000	111,000
17 05 06	dredging spoil other than those mentioned in 17 05 05		

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

Table 3-2 Class(es) of Activity Fourth Schedule of WMA Act, 1996

Fourth Schedule	
Class	Description
R5 (Principal 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

The material will be sourced from construction projects.

3.4.3.2 Material Acceptance Procedure

It is proposed to fill the existing and future void with either inert soil and stone waste or soil and stone by-product. The material acceptance procedures for both soil and stone by-product and inert soil and stone waste are set out below:

3.4.3.2.1 *Soil and Stone By-product*

The Proposed Development includes provisions for the importation of 4,471,200 tonnes of inert soil, stone and inert dredge spoil materials to the site. If this material is classified as an Article 27 by-product, then the Proposed Development would be operated in accordance with the EPA document titled *"Consultation Paper Regulation 27(7) National By-Product Criteria for Greenfield Soil and Stone used in Developments"*. In this instance, the Proposed Development would be regulated by the Local Authority under planning conditions.

Currently greenfield soil and stone is being notified to the EPA as a by-product material in accordance with the document titled *"Guidance on Soil and Stone By-products in the Context of Article 27 of the European Communities (Waste Directive) Regulations 2011"*. The EPA proposes a departure from the current system to a National By-Product Criteria. In brief, this will put in place a self-assessment / notification system and remove the need for case-by-case notifications.

This notification system will involve a Statement of Conformity from the producer of greenfield material outlining the key information in relation to the material's by-product status. Only by- product that meets the National By-Product Criteria will be dispatched from the site of generation to the end user's development which in this case would be the Proposed Development. An End User's Declaration will then be required in order to approve the supply of by-product material into the site from the producer. For the purposes of monitoring and compliance checks, the end user will be required to maintain a log of the quantity of by-product received against the End User's Declaration. The End User will also be responsible for issuing non-conformance reports to the producer should the material supplied not meet the requirements of the Statement of Conformity, National By-Product Criteria or the End User's Declaration.

As Roadstone Ltd. will act as the end user in the case of the Proposed Development, a number of procedures will need to be followed in accordance with the proposed criteria outlined in the EPA consultation paper[1]. The relevant criteria and procedures are outlined in Table 3-3, for full details refer to the EPA consultation paper[1].

[1] *EPA (2022). Consultation Paper Regulation 27(7) National By-Product Criteria for Greenfield Soil and Stone used in Developments.*

Table 3-3 Relevant National By-Product Criteria for Greenfield Soil and Stone

Proposed Criteria and Management Systems for the End User

- Once the end user signs the End User's Declaration, the end user is declaring the producer is an approved supplier of by-product greenfield soil and stone to their development.
- The end user must manage the greenfield soil and stone accepted and its use in the development to demonstrate compliance with the National By-Product Criteria, planning legislation and any requirements of the development's granted planning permission or declaration of exemption.
- The end user must keep the following documents as a record for future inspection:
    - Statement of Conformity;
    - End User's Declaration;
    - Log of the quantity of by-product accepted at the site from which source sites; and
    - Any Non-Conformances issued.
- The requirements of the documentation listed above, and on-site material management practices will require the end user to complete:
    - The checks prior to signing an End User's Declaration and approving a supplier, shall include:
        i. Checking the source site and nature of the material, including the following checks:
            - The material must be yielded from a production process that's primary aim is not the production of by-product material i.e. a housing development with the primary aim of producing houses.
            - The material must be suitable for direct use in the notified development, without any further processing other than normal industrial practice i.e. stockpiled material that requires waste authorisation or has undergone treatment to address hazardous or not useful material will not be acceptable as a by-product.
            - The material must not contain:
                - Invasive plant species;
                - Anthropogenic material or substances;
                - Made ground; and,
                - Brownfield soil and stone.

        ii. Checking the Statement of Conformity (which must contain evidence that the source site has been validated as a greenfield site),
        iii. Ensuring the granted planning permission provides for the use of the quantity of soil and stone proposed for acceptance or that the local authority were made aware of the proposed use of this quantity of soil and stone in the proposal for exempted development and that this is within the scope of the Section 5 Declaration of Exemption.
    - The end user shall ensure each delivery of by-product greenfield soil and stone:
        i. Is accompanied by a Statement of Conformity which demonstrates the by-product greenfield soil and stone meets the National By-Product Criteria,
        ii. Is "Goods matched" to a signed End User's Declaration;
        iii. Does not exceed the quantity recorded as accepted on the end user's by-product acceptance log against a specific End User's

Proposed Criteria and Management Systems for the End User

Declaration and that the quantity supplied to the Site is recorded;

iv. Checking for the status of any Non-Conformance Reports. The materials entering the Site must be listed on the register as compliant with National By-Product Criteria.

- The quarantining of non-conforming loads;
- The generation, actioning and follow through to decision and sign-off of Non Conformance Reports;
- The communication to the producer of any pausing / revoking / reinstatement of approved suppliers' status;
- The communication to the producer when the maximum quantity of soil and stone as specified on the signed End User's Declaration has been reached and the instruction to not send any further loads until another End User's Declaration has been signed by the end user.
- Training of staff.

- The end user (and producer) shall give competent authorities access to their document management systems and checklists on request.
- The end user shall ensure:
  - Only by-product greenfield soil and stone is accepted from approved suppliers.
  - Only by-product greenfield soil and stone is accepted that is accompanied by a signed Statement of Conformity which matches with a signed End User's Declaration.
  - The end use for the specific quantity of greenfield soil and stone notified and approved for use by the end user via a signed End User's Declaration must be provided for, to the Planning Authority's satisfaction, in the:
    i. Grant of planning permission for the development; or
    ii. In the end user's description of the development in a request made under Section 5 which the Planning Authority subsequently declared to be exempted development.

3.4.3.2.2 *Waste Licence (if required)*

The Proposed Development includes provisions for the importation of 4,471,200 tonnes of inert soil, stone and inert dredge spoil materials to site. If this material is deemed to be a waste, then a Waste Licence will be required under Part 5 of the Waste Management Act 1996 (as amended). An application to the EPA for a waste licence will have to be made, following a grant of planning. The waste licence would need to be gained prior to commencing works onsite. The control of environmental emission from the Proposed Development would be regulated by the EPA under a Waste license.

Waste Acceptance Criteria (if required)

Acceptance criteria for the incoming materials would need to be adhered to as per the EPA Guidance on waste acceptance criteria[2].

[2] *EPA (2020). Guidance on waste acceptance criteria at authorised soil recovery facilities*

Table 3-4 Waste Acceptance Criteria

Greenfield
› A letter of suitability will be obtained for greenfield soil and stone and will be signed by a qualified person; › A letter of suitability will be obtained for the first 5,000 tonnes of material received from a source site, and a further letter of suitability for each subsequent 5,000 tonnes of materials received from the same source site; and, › When the material arrives onsite, a visual check will be completed to verify that the material is greenfield soil and stone. A record of the visual checks will be maintained.
Non-greenfield
› Prior to accepting material from each individual source site, the Facility Operator will get information on the past use of the site and will reject non-greenfield sites where soil or groundwater contamination has been identified or where there is an increased risk of contamination being present; › 2,000 tonnes or more from a single source; ○ Basic characterisation will be carried out off-site prior to agreeing to acceptance or waste at the soil recovery facility; ○ Compliance testing will be completed. One representative sample will be analysed for every 2,000 tonnes of material received at the soil recovery facility; and, ○ Onsite verification will be completed for every load received at the soil recovery facility. › Less than 2,000 tonnes from a single source; ○ Basic characterisation will be completed by sampling at the soil recovery facility prior to the recovery of the material. At least one representative sample will be collected from every 2,000 tonnes of material combined from a number of single sources (each of which is less than 2,000 tonnes).

Other waste criteria to be considered includes onsite verification for every load received at the facility, no hazardous or non-hazardous waste from contaminated land will be accepted at the site and only inert materials will be imported. Topsoil and peat will not be accepted as infill at the facility. Topsoil should only be used for final restoration.

Visual inspections and the tracking of dockets from source site to the site would be the primary controls for ensuring that materials arrive from the site of inspection. All source sites will comply with EPA requirements. All loads will be inspected on arrival at the site. Any loads that are deemed unacceptable for the facility will be rejected and placed in the quarantine shed for removal offsite to a suitable location.

Through the acceptance of non-waste soils, the site will benefit the regions circular economy objectives by providing a facility capable of supplying the region with a non-waste soil destination. However, this process is still being developed, with new guidance from the EPA released periodically. Although preferential, there may not be a suitable supply of such non- waste soils on the local market to make the site financially viable.

Soil Trigger Levels (if required)

As part of the waste acceptance criteria, soil trigger levels will be established and agreed with the EPA. The soil trigger levels will be used for evidence of compliance with acceptance criteria for materials which are accepted for deposition at the site. The soil trigger levels will likely include limits for the following parameters;

- Metals; (Arsenic, Cadmium, Total Chromium, Copper, Mercury, Nickel, Lead and Zinc)
- Total organic carbon;
- Total BTEX (benzene, toluene, ethylbenzene, xylenes);
- Mineral oil;
- Total Polycyclic aromatic hydrocarbons;
- Total Polychlorinated Biphenyls; and
- Asbestos fibres.

3.4.4 Duration of Permission

It is considered that the rate of extraction, infilling and restoration will be subject to market conditions and therefore planning permission is being sought for a 20-year operation and 2-year monitoring period (22 years in total).

3.4.5 Environmental Monitoring

It is proposed that noise, surface water, groundwater and dust monitoring be carried out in line with the existing monitoring requirements. The monitoring programme will be updated with any additional monitoring proposed as part of subsequent planning permission and licence conditions.

3.4.6 Water Management

The proposed water management infrastructure and how it will interact with existing infrastructure is described below:

- Construction of new silt lagoons and settlement ponds at the proposed washing plant location for management of fines/sediments and water from washing process;
- Water consumption rate for washing is estimated to be 320m^3/day (9hr working day) and the proposed settlement pond is sized accordingly;
- Clean water from the proposed settlement pond at the washing plant will be diverted to the existing lagoons on the west of the site for discharge to ground as permitted by the existing discharge licence WP170;
- Water for the washing plant will be sourced, as previously done, from the existing manmade pond on the west of the site where the pumps and pipework are still in place;
- The pumped water from the pond will essentially be recycled water from the washing plant that will flow back through the series of ponds for reuse;
- Management of surface water from the inspection area, the wheelwash area and ancillary buildings will be directed through the existing lagoons on the west of the site via a proposed new wetland area;
- Drainage from the refuelling area will be routed through a proposed full hydrocarbon interceptor and wetland area before discharging to the existing lagoons on the west of the site for final discharge to ground as permitted under WP170. There will be an inspection chamber between the wetland and lagoons for inspection/sampling;
- Runoff from the infill areas will be directed into newly constructed drains/swales situated along the perimeter of the infill areas;
- These swales will be unlined and the high permeability subsoils will allow any surface water runoff to recharge to groundwater (as is currently the case);
- Any sediment which settles at the base of the swales will be removed at regular intervals to maintain the permeability of the swales;
- Sanitary wastewater from the Proposed Development will be collected in sealed tanks and taken off-site for disposal at a wastewater treatment plant.

3.5 Management of Site Operations

3.5.1 Environmental Management System

Roadstone Ltd operates an Environmental Management System (EMS) which meets the requirements of ISO 14001:2015.

The key objectives of the EMS are:

- Compliance with all relevant legislation, regulations and operation to the International Standard ISO 14001:2015.
- The continuous improvement of our environmental performance.
- Maintaining good relationships with our neighbours at each of our locations.
- Management of visual impact of our operations on the surrounding landscape.
- Managing efficiently the generation and disposal of waste and ensuring the prevention of pollution on all our sites.

The Proposed Development will be carried out in accordance with the requirements of the EMS. The EMS includes an 'Environmental Monitoring Programme (EMS 11)' for the monitoring of dust ,noise and groundwater 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 Development. A copy of Roadstone EMS 11 is included in Appendix 3-2. The monitoring programme results will be submitted to Clare County Council on a regular basis, and therefore made available at the council offices for inspection by interested parties. Monitoring results will also be issued to the EPA as per licence requirements.

3.5.2 Facility Management and Staffing

A competent management structure is already in place on site with the Facility Manager - responsible for the overall management of the facility. Management of the site will be as per the organogram in Appendix 3-3. It is estimated that the Proposed Development will create up to 4 no jobs during the construction and operational phases.

All personnel employed on the site are adequately trained in their own personal discipline and will be familiar with the operating conditions relating to the quarry site. The facility manager will have overall responsibility for the infilling works.

Roadstone will continually assess the training needs of all involved in the operation of the quarry and carry out such training as required by regulation. Records of staff training will be regularly updated and stored securely on site.

3.5.3 Site Access and Security

The site is accessed from existing high quality vehicular entrance on the R466 Regional Road which runs southeast-northwest from the R445 at Birdhill, County Tipperary to the R352 in East Clare. All vehicular traffic accessing the sites will be controlled by a security barrier at the site office before gaining access to the site.

The site is surrounded by a vegetation, secure boundary fencing and lockable access gates to prevent unauthorized access. The Proposed Development will not alter any of the existing site boundary fences or gates. A new chain-link perimeter fence will be constructed on the eastern and northern boundaries of the extraction area within the site. The site gates will be locked and secured outside operating hours. Warning signs are placed and will be maintained at the quarry entrance and perimeter fencing. It is

also proposed to install closed-circuit television (CCTV) security cameras (subject to planning permission) at the site, to monitor site operations.

3.5.4 Traffic Control and Transport Routes

All traffic accessing and egressing the site will utilise the existing site entrances and established haul routes. Traffic on site will be controlled by the Facility Manager. Signs on site will indicate maximum permissible speeds and directional information. The weighbridge operator will provide the primary means of marshalling traffic. Traffic control at the site will involve restricting the number of vehicles entering the extraction and infill areas at any one time. No queuing of vehicles will be allowed outside the entrance to the site on the R466 Regional Road.

The following mitigation measures will be employed in the future operation of the site, to ensure traffic associated with the development does not impact negatively on the environment:

- Adequate on-site parking is provided for employees and visitors cars;
- Provision of on-speed restrictions;
- Routing of vehicles with sensitive regard to local communities;
- Ensuring that HGVs transporting material to the site are not overloaded; and
- Checking public roads in the vicinity of the site for signs of spillages. A road sweeper is also available for use on site and adjacent sections of the R466 Regional Road at least on a weekly basis and/or if a spillage occurs.

3.5.5 Opening Hours

It is expected that the extraction and infilling works will occur during the following working hours:

- 07:00 – 18:30 Monday to Friday; and 08:00- 16:00 Saturdays.
- Closed Sunday, Bank Holiday and other Public Holidays.

3.5.6 Services

The arrangements for services for the quarry will be provided as described below:

- The site is serviced by electrical mains and telecommunications supplies.
- Drinking water for staff will be delivered to the site as required.
- A portable toilet will be provided for staff.

3.5.7 Water Supply

There will be no requirement to alter the existing water supply arrangements. Water is required for dust suppression and wheel-wash facilities. When required, water will be sourced from the on-site ponds.

Drinking water for staff will be delivered to the site as required.

3.5.8 Resource Use and Energy Efficiency

Water supply for the wheel-wash, weighbridge and dust suppression will be sourced from the on-site ponds which will allow for the conservation of water use.

Electricity to the wheel-wash and weighbridge will be supplied by ESB or another provider via the existing electricity network. The Proposed Development will result in additional energy consumption (electricity) associated with the use of the wheel-wash, weighbridge and office. However, given the

developed energy infrastructure at the site, the impact will be negligible. Notwithstanding this, 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.

Diesel, hydraulic oil and engine oil will be used to operate diesel powered plant on site. The following fuel efficiency measures will be implemented at the site:

- All on-site plant and vehicles will be maintained in good operational order, thereby minimising any emissions that arise.
- Fixed plant will be turned off when not in use.
- When stationary, delivery and on-site vehicles will be required to turn off engines.
- Users of the site will be required to ensure that all plant and vehicles are suitably maintained to ensure that emissions of engine generated pollutants are kept to a minimum.
- Training in the efficient use of equipment and plant.
- It is planned to phase out the use of diesel as a fuel and replace with HVO (Hydro treated Vegetable Oil) over the course of the Proposed Development.

3.6 Environmental Controls

3.6.1 Dust Control

- The hardstanding/roads adjacent the site will continue to be regularly inspected by the Facility Manager for cleanliness and cleaned as necessary.
- Any hardstanding areas/site roads with the potential to give rise to dust will be regularly watered, as appropriate, during dry and/or windy conditions (also applies to vehicles delivering material with dust potential). Water bowser movements will be carefully monitored, as the application of too much water may lead to increased runoff.
- The transport of material, which has significant potential to cause dust, will be undertaken in tarpaulin-covered vehicles.
- All vehicles required to pass through the wheel-wash on exiting the site.
- Following reinstatement, the area will be reseeded to facilitate immediate revegetation of the site and prevent dust generation.
- All plant and machinery will be maintained in good operational order while onsite.
- All plant and materials vehicles shall be stored in the dedicated area.
- Monitoring of dust will continue as per the existing and proposed locations (Chapter 8).

An assessment of potential dust emissions from the site is detailed further in Chapter 8: Air of this EIAR.

3.6.1.1 Dust Suppression

In periods of extended dry weather, dust suppression may be necessary in operational areas and along access roads to ensure dust does not cause a nuisance. If necessary, a water bowser will be used to dampen down haul roads to prevent the generation of dust. Water bowser movements will be carefully monitored, as the application of too much water may lead to increased runoff.

3.6.2 Noise Control

It is anticipated that there will be no significant noise effects from the plant and HGV movements associated with the Proposed Development. Notwithstanding this, the following general mitigation measures will be in operation at the site:

- In order to reduce the noise levels at Noise Sensitive Receptor SR1, an acoustic barrier of 3 metres height is proposed.
- Regular maintenance of items of plant to ensure that they are operating efficiently;
- Where practicable, location of noisy items of plant at the lowest part of the working quarry floor and as close to the quarry face as possible to provide optimum noise screening;
- Regular maintenance of haul routes to avoid potholes and uneven surfaces;
- Avoiding unnecessary revving of engines, reducing speed of vehicle movement and keeping lorry tailgates closed where possible;
- All mobile equipment is throttled down or switched off when not in use;
- Orienting directional noise away from sensitive areas where possible; and
- Monitoring of noise will continue at the existing and proposed locations (Chapter 10).

3.6.3 Litter Control

It is proposed to fill the void with either soil and stone by-product or inert soil and stone. Therefore, it is not anticipated that the activities on site will give rise to litter problems. In the unlikely event that litter is observed on site, hand-picking will be carried out within 24 hours of the incident and any litter removed.

3.6.4 Odour Control

The material accepted at the site will be inert soil and stone or soil and stone by-product material which will be free of biodegradable material and/or organic contamination. Given the absence of organic/biodegradable material, the activities at the Ballyquin facility are unlikely to give rise to odour nuisance and therefore there is no requirement to implement any specific odour control measures at the facility.

3.6.5 Invasive Species

In addition to the procedures outline in section 3.4.3.2; the following measures have been drawn up to avoid potential impacts associated with the introduction and spread of invasive alien plant species:

- Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g., Himalayan Balsam, Japanese Knotweed etc.) by thoroughly washing vehicles prior to leaving any site.
- All plant and equipment employed on the construction site (e.g., excavator, footwear, etc.) will be thoroughly cleaned down using a power washer unit prior to arrival on site to prevent the spread of invasive plant species. Wheel washing facilities will be provided at the site entrance. All washing must be undertaken in areas with no potential to result in the spread of invasive species.
- All infill material required at the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.
- Should despite these measures any invasive alien species be introduced to site, these shall be dealt with in accordance with guidelines issued by the National Roads Authority - The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA, 2010).

3.6.6 Refuelling

There will be no storage of fuel onsite. The mobile plant at the site will be refuelled using a mobile tanker which will be carried out in a dedicated refuelling area. The proposed dedicated refuelling area will be constructed on the new concrete hardstanding, adjacent to the soil inspection area. All vehicle refuelling operations will take place in this designated area. The mobile plant on site is currently fuelled by diesel, however it is planned to phase out the use of diesel as a fuel and replace with HVO (Hydro-treated Vegetable Oil) over the course of the Proposed Development.

Drainage from the refuelling area will be routed through a full hydrocarbon interceptor, a wetland, and then a soakaway for final discharge to ground. There will be an inspection chamber between the wetland and the soakaway to all for inspection/sampling. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations. Only designated trained and competent operatives will be authorised to refuel plant.

All plant and machinery will be serviced before being mobilised to site, and regular leak inspections will be completed during the site operations. No plant maintenance will be completed on site, any broken-down plant will be removed from site to be fixed.

3.7 Final Restoration and Aftercare

One of the principal activities to be undertaken at the application site is for the restoration of lands within an existing and future quarry void. The quarry void will be backfilled to original land contours and restored for beneficial after use.

Following completion of the infilling works, topsoil will be placed (approximate 300 mm depth) and the soils will be rolled and reseeded with grasses. The final landform will be profiled to ensure surface water run-off over the ground surface is directed to boundary ditches and site drainage infrastructure.

Following completion of the restoration and site decommissioning works, provision will be made for further, short-term (2 year) environmental monitoring of air, surface water and groundwater.

3.8 Health and Safety

Health and Safety will be a priority on site at all times and will be undertaken in accordance with Roadstone's existing Health and Safety procedures. Roadstone shall at all times take such precautions as are necessary to protect the health and safety of its own employees, other employees and all other persons including members of the public, and shall comply with the requirements of the Safety, Health and Welfare at Work Act 2005 (as amended).