

ROADSTONE DUBLIN LTD.

**INERT WASTE RECOVERY FACILITY
MILVERTON, SKERRIES, CO. DUBLIN**

ENVIRONMENTAL MANAGEMENT PLAN

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Prepared by :
SLR Consulting Ireland
7 Dundrum Business Park
Windy Arbour
Dublin 14

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1. INTRODUCTION

1.1 Background

This Environmental Management Plan has been prepared by SLR Consulting Ltd. in support of a Waste Licence Application in respect of a waste licence recovery facility operated by Roadstone Dublin Ltd. on its lands at Milverton, Skerries, Co. Dublin. The principal waste activity at the site comprises restoration / backfilling of a limestone quarry using inert soil and stones. This plan has been prepared having regard to the best operational practice for waste recovery facilities.

1.1 Purpose and Scope

An Environmental Management Plan (EMP) is a working document which accommodates the need for certain matters in respect of the ongoing waste recovery activities to be determined or amended as it progresses through development and implementation stages.

It is envisaged that amendments to the EMP will either be made by the Licensee, subject to approval by the Licensing Authority, or at the request of the Licensing Authority. No operational procedure will be implemented that is not contained within the approved EMP.

A complete copy of the EMP will be kept on site and at the principal office of Fingal County Council (the Local Authority). The Licensing Authority will be issued with a copy of the EMP and any subsequent modifications thereto.

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2 SITE MANAGEMENT

2.1 Site Location and Name

The location of the site is indicated in Figure EMP1, at National Grid Reference 3247E 2592N. The facility will be known as Milverton Inert Waste Recovery Facility.

2.2 Licence Holder

The Waste Licence in respect of waste recovery activities at Milverton is held by Roadstone Dublin Ltd. The plan extent of the licensed area is indicated in Figure EMP2.

2.3 Operator

The management and operational responsibilities for the facility are borne by Roadstone Dublin Ltd.

Contact: Mr Mark Prendergast (Recycling Manager)
Telephone: (01) 286 7194 Fax: (01) 286 2596

2.4 Site Description

The waste licence area comprises approximately 7.9 hectares (19.0 acres). The site is located at a limestone quarry. No quarry backfilling or restoration works have been undertaken at the application site to date.

2.5 Operational Hours

The waste recovery activities at the facility comprising importation, placement and compaction of inert soils and stones extend from 07.00 hours to 18.00 hours each weekday (Monday to Friday) and from 07.00 hours to 13.00 hours on Saturday. No waste recovery activities are undertaken on Sunday or on Bank / Public Holidays.

2.6 Permitted Waste

The inert materials to be accepted at the site for use in backfilling / recovery activities are identified by their European Waste Catalogue reference number below

EWG Code	Description
17 01 01	Concrete
17 01 02	Brick
17 05 04	Soil and stones other than those mentioned in 17 05 03
17 05 06	Dredging spoil other than those mentioned in 17 05 05
20 02 02	Soil and stones

2.7 Design Philosophy

The quarry backfilling / restoration scheme seeks to apply best environmental and operational practices for waste recovery facilities. To this end, maximum effort is made to ensure that only inert materials (principally soil and stones, with some minor quantities of inert recovered construction and demolition waste) are imported to and accepted at the site and used for backfilling and recovery purposes.

Any non-hazardous or hazardous waste inadvertently mixed with the imported inert materials will be segregated and brought to the waste quarantine area for further examination and detailed classification. Any material which is deemed to be either non-hazardous or hazardous shall be removed off-site to a suitably licensed waste disposal or waste recycling facility.

2.8 Life Expectancy

The estimated volume of material to be placed at the site is approximately 1,300,000m³. Assuming an in-situ compacted density of 1.9t/m³, the estimated amount of material to be placed at the application site is approximately 2,470,000 tonnes. Of this, approximately 570,000tonnes will be sourced from existing overburden stockpiles at the site. The duration of backfilling activities at the quarry void will largely be dictated by the rate at which the remaining, approximately 1,900,000 tonnes of externally sourced inert soil and stone can be sourced and imported to the site.

There are many factors which will influence this, including, but not limited to,

- Availability of acceptable inert materials at construction sites
- Prevailing economic climate
- Construction industry output
- Project location, scale, duration and distance from the facility
- Logistical and/or programming constraints at sites generating inert materials
- Climatic conditions (reduced construction activity in wet weather)
- Availability of hauliers
- Disruptions along the existing local and national road network
- Capacity of earthmoving plant to place and compact materials
- Waste inspection / weighbridge processing constraints

In light of these and other variables, calculation of intake rates and duration is not an exact science. It is estimated that the importation of inert materials to the quarry will average 250,000 tonnes per annum. The intake at the facility could increase to a maximum of 400,000 tonnes per annum were a large scale infrastructure or development project(s) to proceed within the surrounding catchment area over the operational life of the facility.

At the present time, assuming 50 working weeks in each calendar year, 5.5 days per working week, 10 hours per working day and an average importation rate of 250,000 tonnes/year, the expected operational life of the facility will be of the order of 7 years. In view of the difficult economic climate which exists at the present time, intake tonnages may be lower of the next few years and over that time, the facility may only operate on an intermittent, project specific basis.

2.9 Site Management and Responsibilities

The key staff and their respective responsibilities are highlighted in the table below:-

Name	Position	Duties and Responsibilities
Mark Prendergast	Recycling Manager	Liaison with Regulatory Authorities; Ensuring Compliance with Waste Licence Conditions; Management of Staff (including consultants), Contractors, Plant and Human Resources,
Robert Moore	Facility Manager	Day to day site management Waste classification and testing; Establishment and monitoring of waste handling and acceptance procedures; Environmental monitoring

2.10 Record Keeping

The site records to be maintained on site for the duration of waste recovery activities will include all of those listed in the EPA Waste Licence.

All site procedures, operational plans, environmental and legal consents, Environmental Impact Statement, contract documents (including construction drawings), staff records, external correspondence are maintained by and are the responsibility of the Facility Manager.

Records in respect of waste inspections and compliance / classification testing are maintained by and are the responsibility of the Facility Manager and/or Assistant Facility Manager.

Records in respect of acceptance of inert waste at the site are maintained by, and are the responsibility of the Facility Manager and/or Assistant Facility Manager.

Records in respect of environmental monitoring are maintained by, and are the joint responsibility of, the Facility Manager, the internal and external Environmental Consultants.

Site inspections are carried out by the Facility Manager or Assistant Facility Manager on a daily, bi-weekly or weekly basis as activity levels demand. A site inspection report form is completed by the Facility Manager or Assistant Facility Manager in respect of each inspection.

All records are maintained and available for inspection at the site office.

2.11 Annual Report

Roadstone Dublin Ltd., on an annual basis, in January of each year, provides the following information in an Annual Environmental Report (AER) issued to the EPA :

- Reporting period (year)
- Site name, location and licence number
- Facility Manager(s)
- Tonnage and composition of waste processed
- Rejected waste consignments
- Plans showing active and restored areas
- Environmental monitoring records
- Copy of complaints register for reporting period.
- Copy of register of pollution incidents for period
- Copy of accident / incident reports for period

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3 SITE INFRASTRUCTURE

3.1 Site Security

Vehicular access into Roadstone Dublin's landholding and the application site can only be gained via an entrance opening out onto the R127 Regional Road which runs between Skerries and the junction with the former N1 National Primary Road (now the R132 Regional Road) at Blakes Cross. Aside from this road, there is no other vehicular access to the landholding.

At the present time, the entire site boundary is closed off by post and wire fencing and/or hedgerow. Prior to commencement of the proposed quarry backfilling and restoration activities, a detailed survey of the entire property boundary will be undertaken and where necessary, existing fences will be repaired and/or replaced and hedgerows will be strengthened or fortified by additional planting.

The only vehicles which will be permitted to access the proposed recovery facility will be HGV's carrying inert soil for backfilling and restoration purposes. Inert materials will be accepted at the site between 07.00 hours and 18.00hours each weekday (Monday to Friday) and 07.00hours to 13.00hours on Saturday. No materials are accepted at any other time including Sundays and Public Holidays. At all other times, the front gates at the access road will be closed, thereby restricting entry.

All heavy good vehicles (HGVs) importing inert soil and stone to the proposed recovery facility are required to pass over the existing weighbridge at the front of the Milverton. On arrival at the recovery facility, HGV drivers will identify themselves to the facility manager (or his nominated replacement) before proceeding to the active backfilling location within the quarry. The facility manager (or his nominated replacement) will take a copy of the weigh docket, record the time and date of arrival, the nature and origin of the imported soils, the Client, the truck licence plate number and relevant collection permit details.

3.2 Site Roads and Parking Areas

All trucks delivering inert soil for quarry restoration purposes will be confined within the Applicant's landholding. Trucks will initially travel over a paved road surface leading to the existing weighbridge immediately inside the site entrance. Thereafter they will travel over a network of unpaved internal roads to get to the active restoration area. Existing paved and unpaved haul roads across the site are indicated on the site infrastructure drawing in Figure EMP3.

Provision for employee and visitor car parking is currently provided on a paved area to the west of the existing site office (the listed 'Engine Room' building), immediately inside the site entrance.

3.3 Hardstanding Areas

At the present time, there is a permanent hardstanding area in front of the concrete production facility immediately inside the western site boundary. This hardstanding area is not sealed and any rain falling over this area either percolates downwards into the underlying soil / bedrock or runs-off eastwards over the existing ground surface, toward the existing quarry void. It is envisaged that the unpaved hardstanding area will be used for the storage of any necessary site plant, equipment and/or materials required at the facility.

The existing car parking area to the north of the maintenance shed is sealed by a concrete slab and will remain in place for the duration of the waste recovery activities at the site. Surface water run-off falling over this area runs over the ground surface, toward the quarry void. Water collecting at the quarry floor is collected in sumps, pumped and discharged via a buried surface water pipe to the stream which runs immediately north of the site. The inferred location of the surface water pipe and the discharge point are both indicated on the site infrastructure layout in Figure EMP3.

3.4 Wheelwash and Weighbridge

In order to prevent transport of soil across internal haul roads and onto public roads, it is envisaged that a temporary wheelwash facility will be installed along the existing roadway leading out of the proposed waste facility, as shown on the site infrastructure layout in Figure EMP3. All site traffic exiting the waste recovery facility will be directed through this wheelwash.

In order to track and record the amount of material entering the application site, it is proposed to direct all HGV traffic importing soil and stones to the waste recovery facility across the existing weighbridge inside the front gate. Any separated non-inert construction and demolition waste dispatched (in skips) to other licensed waste disposal or recovery facilities will also be weighed at the existing weighbridge. Records of imported soil tonnage will be maintained for waste auditing purposes.

3.5 Fuel and Oil Storage

It is not intended to provide dedicated bunded fuel storage tanks at the application site. Fuel for the proposed facility will be stored in existing fuel storage tanks within the Milverton facility. These tanks are constructed on a sealed concrete surface and are bunded to 110% of tank storage volume.

Plant maintained on site will principally comprise mechanical excavators and/or bulldozers. Mobile plant and equipment undertaking quarry backfilling works will be refuelled from mobile, double skin fuel bowzers or at existing maintenance sheds within the Milverton facility. Oil and lubricant changes and servicing of wheeled or tracked plant will be undertaken at the existing maintenance shed. Re-fuelling of HGV trucks will take place on site at the auto-diesel tanks adjacent to the existing concrete production facility (Refer to Figure EMP3).

A small bunded tank for waste oils is currently provided at the maintenance shed and is emptied at intervals by a licensed waste contractor and disposed off-site at a suitably licensed waste facility.

3.6 Waste Inspection and Quarantine Area

Any imported waste which, it is suspected, may not comply with waste acceptance criteria for the waste recovery facility, will be transferred across the application site to a covered shed which is currently unused and located adjacent to the concrete production facility (refer to Figure EMP3). This shed is constructed over a sealed concrete slab. It will serve as the dedicated waste inspection and quarantine facility for the waste recovery operation.

As incipient rainfall will not come into contact with consignments of suspected contaminated waste stored at the covered shed, there is no requirement to install drainage infrastructure to provide for the separate collection and storage of potentially contaminated surface water run-off.

Visual inspection, in-situ monitoring and testing of imported waste materials will be undertaken by the Applicant's site staff as inert waste materials are end-tipped at the active restoration area. Should there be any concern about the nature of the soil materials being end-tipped it will be re-loaded onto the truck and re-directed to the waste inspection and quarantine facility for closer examination and inspection. Detailed records of all such inspections will be kept.

Should inspection or testing of suspect soil waste at the inspection and quarantine facility identify any non-inert material which cannot be accepted and used for restoration of this site, it will be segregated and temporarily stockpiled (quarantined) pending removal off-site by permitted waste collectors to a suitably licensed permitted waste disposal or recovery facility. Provision will also be made for temporary storage of any separated non-inert construction and demolition waste (including metal, timber, plastic etc.) at the waste inspection area prior to removal off-site to a licensed recovery facility.

3.7 Traffic Control

Traffic to and from the proposed waste facility will generally travel along the R127 Regional Road from Blakes Cross to the south (on the former N1 National Primary Road). A minor proportion will also travel along the same road from Balbriggan and through the town of Skerries, which lies immediately north of the site.

Internally, within the Milverton facility, warning notices, direction signs and speed restriction signs will be established along paved and/or unpaved roads leading to and from the active restoration area and/or the waste inspection and quarantine area. All HGV traffic egressing the application site will be required to pass through the proposed temporary wheelwash facility and the existing weighbridge inside the front gates, both of which are shown on Figure EMP3.

3.8 Sewerage and Surface Water Drainage Infrastructure

Site staff at the Milverton facility will use toilet, hand washing and welfare facilities provided at the existing site offices and concrete production facility.

Currently, rainfall across the application site either

- (i) runs over sealed ground surfaces to collector drains which discharge via a buried surface water pipe to the stream which runs immediately north of the site. The inferred location of the buried pipe and the discharge point are both indicated on the site infrastructure layout in Figure EMP3.
- (ii) runs over unsealed ground to a sump at the bottom of the existing quarry or
- (iii) percolates through unsealed ground into the underlying bedrock – this will ultimately flow to the sump at the floor of the existing quarry.

Removal of Water from Quarry Floor

At the present time, surface water run-off is ponding across the floor of the existing quarry. Prior to commencement of backfilling activities and site restoration works, ponded water (which is relatively shallow) will be pumped to the ground surface and discharged via existing channels and drainage pipes (previously used for quarry dewatering purposes) to the stream running immediately north of the site.

Pumping from the existing surface water pond on the quarry floor will be undertaken over a period of time, the intention being to reduce the pond footprint and the area of wetted ground across the quarry floor. Importation and placement of inert materials will proceed according as the depth of water across the quarry floor reduces and the area of exposed dry ground increases.

Surface Water Management at Waste Inspection and Quarantine Area

Any suspect contaminated waste imported to this facility will be transferred across the application site to a covered shed located north of the concrete production facility. As the floor of the shed is sealed by a concrete slab and as no rainfall will come into contact with consignments of suspected contaminated waste, there is no requirement to install drainage infrastructure to provide for the separate collection and storage of potentially contaminated surface water run-off at the waste inspection and quarantine facility.

Surface Water Management during Quarry Backfilling

As backfilling of the quarry proceeds over the short-to-medium term, the flow of surface water run-off into the quarry will be minimised by the construction of drainage channels around the edge of the quarry. These channels will collect and divert overground surface water flows via temporary settlement ponds (excavated and constructed at the ground surface as required). Surface water run-off will initially discharge to a 'silt pond' where suspended solids will settle out in a still water environment. As this pond is filled and replenished with additional surface water run-off, excess water at the far end of the pond is discharged via an overflow pipe to a second pond, the 'clear water pond'. Depending on its location and relative ground level, water from the clear water ponds will either be pumped or transferred via surface channels into existing surface water drainage infrastructure prior to discharge into the stream which flows immediately north of the site.

During each restoration phase, the upper surface of the backfilled materials will be graded so as to ensure that surface water run-off falling over the quarry footprint falls to a sump at a temporary low point within the backfilled materials. Water will be pumped from sumps to temporary settlement ponds at the original ground surface as and when required, and from there via surface channels or by pumping, to site drainage infrastructure and the stream immediately north of the site.

In the longer term, during and after the final phase of the quarry backfilling works, ground contours and/or drainage channels will be modified as necessary to ensure that surface water run-off across the restored site is directed to boundary ditches, existing site drainage infrastructure or to the proposed closed depression to be created in front of the eastern quarry face. It is necessary to provide this closed depression in order to preserve the nesting site for the peregrine falcon in the existing rock face. It is envisaged that this landform will be permanently drained by installing a buried pipeline which will provide for gravity drainage (via an interceptor or settlement ponds) to the existing buried pipeline at the north-eastern corner of the site (refer to Figure EMP4). Thereafter surface water will be discharged via the existing surface water pipeline to the stream which runs immediately north of the site.

3.9 Site Services

Electric power, lighting and heating are all currently provided via the electricity network to the existing site offices at the Milverton facility.

Site staff overseeing backfilling and recovery operations at the application site will be contactable by mobile phone. Site staff may also be contacted by fixed line telephone, fax and email facilities available at the site office.

A septic tank is installed south of the site office and currently services 2 toilets, 2 washbasins and a sink unit at the site offices.

Given the lack of combustible waste materials at this site, it is considered highly unlikely that a fire will break out during backfilling and recovery operations. A range of fire extinguishers (water, foam and CO₂) will be kept at the site office to deal with any localised small scale fires which might occur. Additional fire-fighting capacity will be provided by storing water in a mobile bowser at the hardstanding area.

Apart from water supply and surface water drainage pipes, no other buried services are understood to occur across the application site.

3.10 Plant Sheds and Equipment Compounds

Plant and equipment used in the quarry backfilling and soil recovery activities will be stored on the temporary hardstanding area in front of the concrete production facility. Given the restricted access into the Milverton facility, it is not considered necessary to provide a secure compound for the waste recovery facility.

Any plant or equipment requiring specialist repair or overhaul will be taken to existing maintenance sheds near the entrance to the site. Small items of mobile or hand-held plant and equipment will also be stored in the maintenance sheds.

3.11 Site Accommodation

At the present time, a site office and staff welfare facilities are provided in the listed stone building at the front of the application site (the 'Engine Room'). It is intended that all administration and management functions for the waste recovery facility will be based at this office for the duration of the site restoration and soil recovery activities. Staff changing, washing and cooking facilities will also be provided at the same location.

3.12 Waste Recovery Infrastructure

Any intermixed construction and demolition waste inadvertently imported to site with the inert soil will be segregated and stored at the waste quarantine facility. Concrete, bricks, tiles or other inert construction and demolition waste will be transferred to a construction and demolition waste recovery site, most likely that operated by the Applicant at Huntstown Quarry.

Any metal waste will be separated and placed in a skip pending removal off site to a licensed recovery facility. Any other non-inert waste (timber, plastic etc.) will also be separated off and placed in a skip pending removal off-site by permitted waste collectors to a licensed disposal or recovery facility.

4 DESIGN OF WASTE RECOVERY FACILITY

4.1 General

The design of the waste recovery facility has been carried out on the basis that the waste placed within the repository is classified as inert.

4.2 Formation Levels and Gradients

The quarry void will be backfilled in three phases working upwards from the existing quarry floor at a reduced level of -12mOD. The approximate filling level at the end of Phases 1 to 3 will be -2mOD, 12mOD and 26mOD. Final formation levels on completion of the restoration works at the end of Phase 3 vary on account of the sloped nature of the restored landform and the requirement to provide a rock exposure for nesting birds, as indicated on Figure EMP4.

During each restoration phase, the upper surface of the backfilled materials will be graded so as to ensure surface water run-off falls to a sump at a low point within the quarry excavation. Surface water collecting in the sump will be pumped to temporary settlement ponds at the ground surface as and when required prior to discharge to the stream which runs immediately north of the site.

Temporary access ramps into and out of the active backfilling areas will generally be constructed at a gradient of approximately 1v:10h. Temporary side slopes will be constructed at gradients no greater (steeper) than 1v:1.5h in order to ensure stability. On completion, final gradients across the restored ground surface will generally be very shallow, typically of the order of 1v:8v or less.

4.3 Capacity and Lifespan

The estimated volume of material to be placed at the application site is approximately 1,300,000m³. Of this, 300,000m³ is sourced within the application site, while the remainder will have to be imported. The duration of backfilling activities at the quarry void will largely be dictated by the rate at which approximately 1,000,000m³ (1,900,000 tonnes) of externally sourced inert soil and stone is imported to the site.

It is estimated that the importation of inert materials to the quarry will average 250,000 tonnes per annum. The intake at the facility could increase to a maximum of 400,000 tonnes per annum were a large scale infrastructure or development project(s) to proceed within the surrounding catchment area over the operational life of the facility.

At the present time, assuming 50 working weeks in each calendar year, 5.5 days per working week, 10 hours per working day and an average importation rate of 250,000 tonnes/year, the expected operational life of the facility will be of the order of 7 years. In view of the difficult economic climate which exists at the present time, intake tonnages may be lower of the next few years and over that time, the facility may only operate on an intermittent, project specific basis.

4.4 Capping and Decommissioning

The application site will be restored on completion of backfilling operations to a landform which is generally similar to that which existed prior to rock extraction at the quarry, but for the provision of a closed depression in front of the eastern quarry face in order to preserve the existing rock face where a peregrine falcon has been observed to nest.

During and after the final phase of the quarry backfilling works, ground contours and/or drainage channels will be modified as necessary to ensure that surface water run-off across the restored site is directed to boundary ditches, existing site drainage infrastructure or to the proposed closed depression to be created in front of the eastern quarry face. It is envisaged that the closed depression will be permanently drained by installing a buried pipeline which will provide for gravity drainage (via an interceptor or settlement ponds) to the existing buried pipeline at the north-eastern corner of the site (refer to Figure EMP4). Thereafter surface water will be discharged via the existing surface water pipeline to the stream which runs immediately north of the site.

A cover layer comprising 150mm of topsoil and approximately 350mm of subsoil shall be placed over the inert backfilled materials on completion of the backfilling activities. This will then be planted with

grass in order to promote stability and minimise soil erosion and dust generation. Thereafter the lands will be progressively returned to use as agricultural grassland.

Topsoil and subsoil will be imported to the site on a continual basis and shall not be used in the general backfilling of the site. The topsoil and subsoil shall be stockpiled pending re-use on completion of the site restoration works. These materials shall be stored separately within the application site, away from the active backfilling area and in such location and manner as not to create any temporary adverse visual impact.

On completion of the third (and final) phase of the quarry backfilling and restoration works, all mobile plant and equipment associated with the waste recovery activities will be removed off site. Any temporary site accommodation, infrastructure and services will also be progressively removed off-site or decommissioned.

Wherever necessary, hardstanding surfaces will be broken up using a hydraulic breaker and transferred-off site to a permitted construction and demolition waste recovery facility, most likely that operated by the Applicant at Huntstown Quarry.

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5 WASTE HANDLING AND EMPLACEMENT

Only inert, uncontaminated soils and construction and demolition waste, consistent with the European Waste Catalogue codes indicated in Section 2.6, are accepted at the site.

Inert materials are accepted at the site between 07.00 hours and 20.00hours each weekday and 07.00hours to 20.00hours on Saturday. No materials are accepted at any other time.

5.1 Soil Recovery Activities

Insofar as practicable, the source of each consignment of soil imported to site for backfilling purposes is identified in advance and subject to basic characterisation testing to confirm that soils at that location can be classified as inert. Limit values for inert soils are in accordance with those set by *Council Decision 2003/33 of 19 December 2002 establishing criteria for the acceptance of waste at landfills*. Characterisation testing is generally undertaken by Clients and/or Contractor's forwarding soil to the site.

All soil and stones forwarded for backfilling / recovery purposes should be pre-sorted at source, inert and largely free of any construction or demolition waste or any non-hazardous / hazardous domestic, commercial or industrial wastes. Any consignments forwarded to site with these materials intermixed in them will be immediately rejected and moved off site.

All inert soils imported to the site are unloaded (end-tipped) from trucks at the active backfilling face. They are visually inspected by site personnel at that point to ensure that there is no intermixed non-hazardous or hazardous waste placed within it. Should there be any concern about the nature of the waste being end-tipped, the suspect material is segregated (if required), re-loaded onto the truck and directed to the waste inspection and quarantine area for closer inspection and classification. A detailed record is kept of all such inspections.

Should inspections and/or subsequent testing indicate that the materials are non-inert and cannot be accepted and recovered at this site, they will be placed in skips and covered pending removal off-site by permitted waste collectors to a suitably licensed / permitted waste disposal or recovery facility.

If minor quantities of inert construction and demolition wastes are inadvertently imported to the site, they will be stockpiled at the waste quarantine area and removed off-site to the Applicants permitted construction and demolition waste recovery facility at Huntstown Quarry, as and when required.

Any non-inert construction and demolition waste (principally metal, timber, PVC pipes and plastic) imported to the site will be separated out and temporarily stored in skips at the waste quarantine area prior to removal off-site to appropriately licensed or permitted waste disposal or recovery facilities.

In addition to the above, a representative sample is taken from one in every 500 loads of inert soil accepted at the facility and subjected to a less extensive scope of testing (compliance testing) focusing on key contaminant indicators. These data shall be used to confirm that the accepted soils are inert and comply with acceptance criteria. Compliance testing is undertaken by the Licensee.

6 FINAL RESTORATION AND AFTERCARE

The main waste activity undertaken at the application site is the recovery of inert soils through backfilling and restoration of lands within a limestone quarry. The application site will be restored to give a landform which is more in keeping with the surrounding undulating landscape, refer to final site contour map in Figure EMP4.

On completion, the final landform will be profiled to ensure surface water run-off over the ground surface is directed to boundary ditches, site drainage infrastructure or to the proposed closed depression in front of the eastern quarry face. The closed depression will be permanently drained by installing a buried pipeline which will provide for gravity drainage via settlement ponds and existing site drainage infrastructure to the stream which runs immediately north of the site.

The final landform will be planted with grass in order to promote stability and minimise soil erosion and dust generation and the lands will be progressively restored to use as agricultural grassland.

Wherever necessary, hardstanding surfaces will be broken up using a hydraulic breaker and transferred-off site to a permitted waste recovery facility, most likely that operated by the Applicant at Huntstown Quarry.

Following completion of the restoration and site decommissioning works, provision will be made for further, short-term (<1year) environmental monitoring of air, surface water and groundwater.

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7 ENVIRONMENTAL CONTROLS

7.1 General

Waste recovery activities at the site require a number of environmental controls to eliminate or minimise nuisance and risks to the public arising from the importation, placement and compaction of inert soils. Controls to be implemented to address a number of identified nuisances and risks are outlined in the following sections.

7.2 Dust Control

In dry, windy weather conditions, the quarry backfilling and restoration activities may give rise to dust blows across, and possibly beyond the application site. In order to control dust emissions, the following measures will be implemented:-

- (i) water from a tractor drawn bowser will be sprayed on dry exposed soil surfaces (including unpaved road surfaces) as and when required;
- (ii) dust blows will be partially screened by the quarry sides walls as backfilling progresses upwards. As the level of the backfilled materials approaches final surface levels, the site will be grassed on a phased basis as soon as practicable after placement of cover soils. This will help to minimise soil erosion and potential dust emissions;
- (iii) the area of bare or exposed soils will, insofar as practicable, be kept to a minimum. Consideration will be given to establishing temporary vegetation cover over temporary exposed soil surfaces pending final backfilling and restoration to restored ground level;
- (iv) all HGV's exiting the site shall be routed through a temporary wheelwash facility (refer to Figure 2.2) in order to minimise transport of fines by HGVs on paved internal site roads and the public road network;
- (v) Stockpiling of imported soils will be minimized. Soils will ideally be placed and compacted in-situ immediately after being unloaded. If and when temporary stockpiling of soils is required, they will be placed as far as practicable from nearby residences.

The amount of dust or fines carried onto the public road network will be further reduced by periodic sweeping of internal paved site roads and the existing public road.

7.3 Traffic Control

Backfilling operations at the Milverton facility will entail importation of 1,900,000 tonnes of material required to fill the void. This translates to a total of 95,000 HGV movements (at 20 tonnes per load) to fill the quarry void. Roadstone Dublin Ltd has defined an optimistic scenario where it would be possible to fill the void at Milverton in a seven year period. Although it is likely that it will take longer to fill this void, as a result of depressed market demand at the present time, the seven year scenario has been adopted as the worst case traffic impact scenario.

Assuming an annual intake of up to 250,000 tonnes / year corresponds to an average hourly HGV trip rate of four HGV movements into and four HGV movements out of the quarry per hour.

Traffic studies indicate that backfilling inert waste at the proposed Milverton recovery facility will have no adverse impact on traffic flow along the existing R127 Regional Road. In order to improve visibility for traffic exiting the application site, it is necessary to

- (i) remove the existing sign immediately beyond the site entrance and
- (ii) maintain any roadside vegetation which could potentially impact on visibility splays

In addition to this, it is intended to erect advanced warning signage approximately 300m east and west of the site entrance to inform motorists of their approach to the site and to advise them to slow down.

In order to minimise dirt and debris from being transferred from the quarry onto the public road network, a wheel wash facility is to be provided on site.

7.4 Road Cleansing

In order to prevent transport of mud and potential contaminants on internal and public roads, a temporary self-contained wheelwash facility is provided along the paved road leading out of the waste recovery area, refer to the site infrastructure layout in Figure EMP3.

The amount of mud carried onto the public road network is further reduced by periodic sweeping of the paved internal access road and the existing local road in front of the site.

7.5 Fire Control

As the materials being placed or recovered at this site are free of flammable materials and biodegradable waste which could create a fire or explosion risk, site activities will not present a fire risk. Accordingly, no specific fire control measures shall be implemented at the site.

Notwithstanding this, the following operational practices are implemented in order to prevent fires at the site:

- (i) smoking at the site and at the temporary dedicated site office is prohibited
- (ii) any biodegradable or flammable waste included in materials imported to site is immediately transferred to the waste quarantine area pending removal off-site to a licensed waste disposal or recovery facility
- (iii) plant and equipment is removed if they exhibit signs of overheating etc.

In the unlikely event that a fire does occur, the local fire stations in Skerries and Balbriggan will be contacted and emergency response procedures will be implemented. Fire extinguishers (water and foam) will be provided at the temporary dedicated site office to deal with any small outbreaks which may occur.

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8 ENVIRONMENTAL MONITORING

8.1 General

The programme of environmental monitoring at the site complies with the requirements of the waste licence issued by the Environmental Protection Agency.

Environmental sampling, monitoring and testing will largely be undertaken by in-house and independent external consultants as required. Records of environmental monitoring and testing will be maintained on-site and will be forwarded to the EPA as required under the terms of the waste licence.

Monitoring locations are shown on Figure EMP5.

8.2 Dust Monitoring

Dust emissions from activities at the site are measured using Bergerhoff dust gauges at 2 No. locations across the site, shown on Figure EMP5. These gauges are located along the boundary of the site, close to the nearest sensitive receptors, both of which are private residential properties.

The dust monitoring regime will remain in place for the duration of waste recovery activities at the site.

8.3 Ecological Monitoring

Given the presence of a falcon nesting site at the application site, it is envisaged that an annual inspection of the proposed waste recovery facility will be undertaken by an ecological specialist in order to assess the impact of ongoing quarry backfilling activities on nesting falcons and identify what, if any, additional mitigation measures may be necessary to ensure that the existing habitat is protected.

8.4 Groundwater Monitoring

Groundwater sampling and testing is undertaken by external consultants on a bi-annual basis at 3 No. groundwater monitoring wells installed within the waste site. Groundwater levels are also recorded on a bi-annual basis. The location of existing groundwater monitoring wells is indicated in Figure EMP5.

Groundwater samples are tested for a wide range of physical and chemical parameters in order to assess water quality and detect possible contamination at the site. Further detail on these data is presented in Section 6 of the Environmental Impact Statement submitted with the Waste Licence Application.

The groundwater monitoring regime will remain in place for the duration of waste recovery activities at the site.

8.5 Meteorological Monitoring

No meteorological monitoring is undertaken at the site. Temperature, rainfall, sunshine, wind speed and direction and other climatic data are recorded at the synoptic weather station at Dublin Airport, approximately 20km south-west of the site.

8.6 Noise Monitoring

Noise emissions from waste recovery activities are monitored on a quarterly basis (i.e. three monthly) basis at 3 No. noise sensitive sites within and around the waste site, close to the nearest sensitive receptors, all of which are private residential property. The noise monitoring locations are indicated in Figure EMP5.

The noise monitoring regime will remain in place for the duration of waste recovery activities at the site. Noise monitoring will be undertaken using a Larson Davis Model 824 Sound Level Meter, calibrated using a Larson Davies Acoustic Calibrator CAL 200 (or equivalent).

8.7 Surface Water Monitoring

Surface water sampling and testing is undertaken by external consultants on a bi-annual basis (i.e. six monthly) basis at 2 No. locations along the stream which flows along the northern site boundary, one upstream of the water intake, the other downstream of the site discharge. The location of the surface water monitoring locations are indicated on Figure EMP5.

Surface water samples will be tested for a wide range of physical and chemical parameters in order to assess water quality and detect possible contamination at the site. Further detail is presented in Section 6 of the Environmental Impact Statement submitted with the Waste Licence Application.

The surface water monitoring regime will remain in place for the duration of waste recovery activities at the site.

8.8 Stability and Settlement Monitoring

Temporary slopes developed in the backfilled soils are visually inspected on an ongoing basis, at least once a month by site staff and a record is kept of same. Should these inspections give cause for concern, an inspection of the affected area will be undertaken by an appropriately qualified engineer and measures will be implemented to address any instability identified.

Following completion of quarry backfilling works, monitoring will be undertaken as required by the waste licence.

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9 HEALTH AND SAFETY

Details of Health and Safety Procedures implemented are contained in the Health and Safety Plan.

This plan is subject to ongoing development, revision and updating while the waste recovery facility is operational. A copy of the Health and Safety Plan and any additions thereto is provided to all key staff and to sub-contractors. A copy is also available for inspection at the site office.

The Facility Manager is responsible for the on-site implementation of the Health and Safety Plan. Staff are fully briefed on the safety risks and responsibilities associated with ongoing backfilling and recovery activities and shall attend relevant courses on waste management and operations as required. The need for additional training is kept under review.

Safety meetings and briefings shall be held on site at regular intervals. Particular attention is paid to the risks presented by

- moving plant and equipment
- working beneath overhead cables
- slope instability.

All site staff, sub-contractors and hauliers (either site-based or delivering materials to site) are issued with instructions to wear high visibility safety gear, helmets, steel cap boots etc. while on site. Where instructions are not obeyed, a written warning is sent to the relevant employee / sub-contractor / haulier. In the event of further breaches, the employee / sub-contractor / haulier is removed off site.

Site staff, sub-contractors and hauliers are issued with, or required to have, the following personal protective equipment

- High visibility vests
- Necessary safety boots with steel caps and soles – rubbers and leathers.
- Necessary safety hats (with anti-dust visors if necessary)
- Necessary coats / overalls
- Masks
- Goggles
- Wet Gear

In an emergency situation, the 999 emergency call-out number is used. A record book of accidents is maintained by the Facility Manager. In the event of an accident, a written report is prepared and forwarded to the relevant agencies as required by law.

A first aid box is provided on site at the temporary site office at the entrance to / egress from the site.

All personnel involved in waste recovery activities will be offered injections for both Hepatitis and Tetanus.

FIGURES

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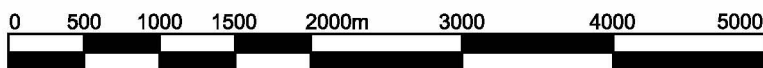


LEGEND

— Applicant's Land Interest (c.8.6 ha)


NOTES

1. Extract from Ordnance Survey Discovery Map No. 43
2. Ordnance Survey Ireland Licence No. SU 0000709 (c)
Ordnance Survey Ireland / Government of Ireland



Metres
1:50,000

0059.00015.18.FIG EMP1.0.SITE LOC PLAN



SLR CONSULTING IRELAND
7 DUNDUM BUSINESS PARK
WINDY ARBOUR
DUBLIN 14
T: +353-1-2964667
F: +353-1-2964676
www.slrconsulting.com

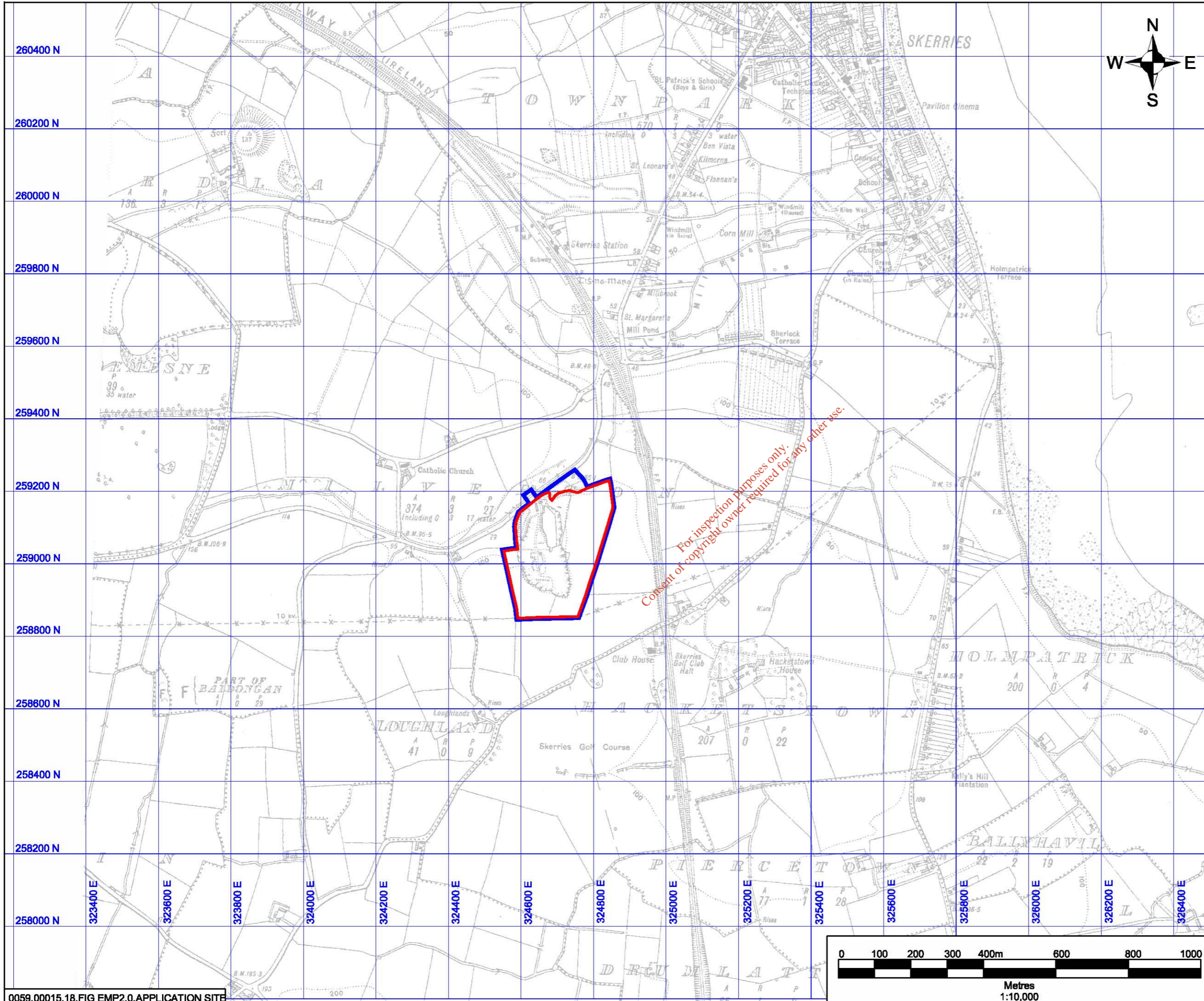
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WASTE LICENCE APPLICATION**

**WASTE RECOVERY FACILITY,
MILVERTON, SKERRIES, CO. DUBLIN**

SITE LOCATION PLAN

FIGURE EMP1

Scale 1:50,000 @ A4	Date AUGUST 2009
------------------------	---------------------



NOTES

1. Based on OSi 25inch Dublin Sheet No. 5 & 5a
2. Ordnance Survey of Ireland Licence No. SU 0000709 (c) Ordnance Survey of Ireland & Government of Ireland

LEGEND

- Original Landholding (c. 8.6ha)
- Waste Licence Application Area (c. 7.9ha)

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0059.00015.18.FIG EMP2.0.APPLICATION SITE

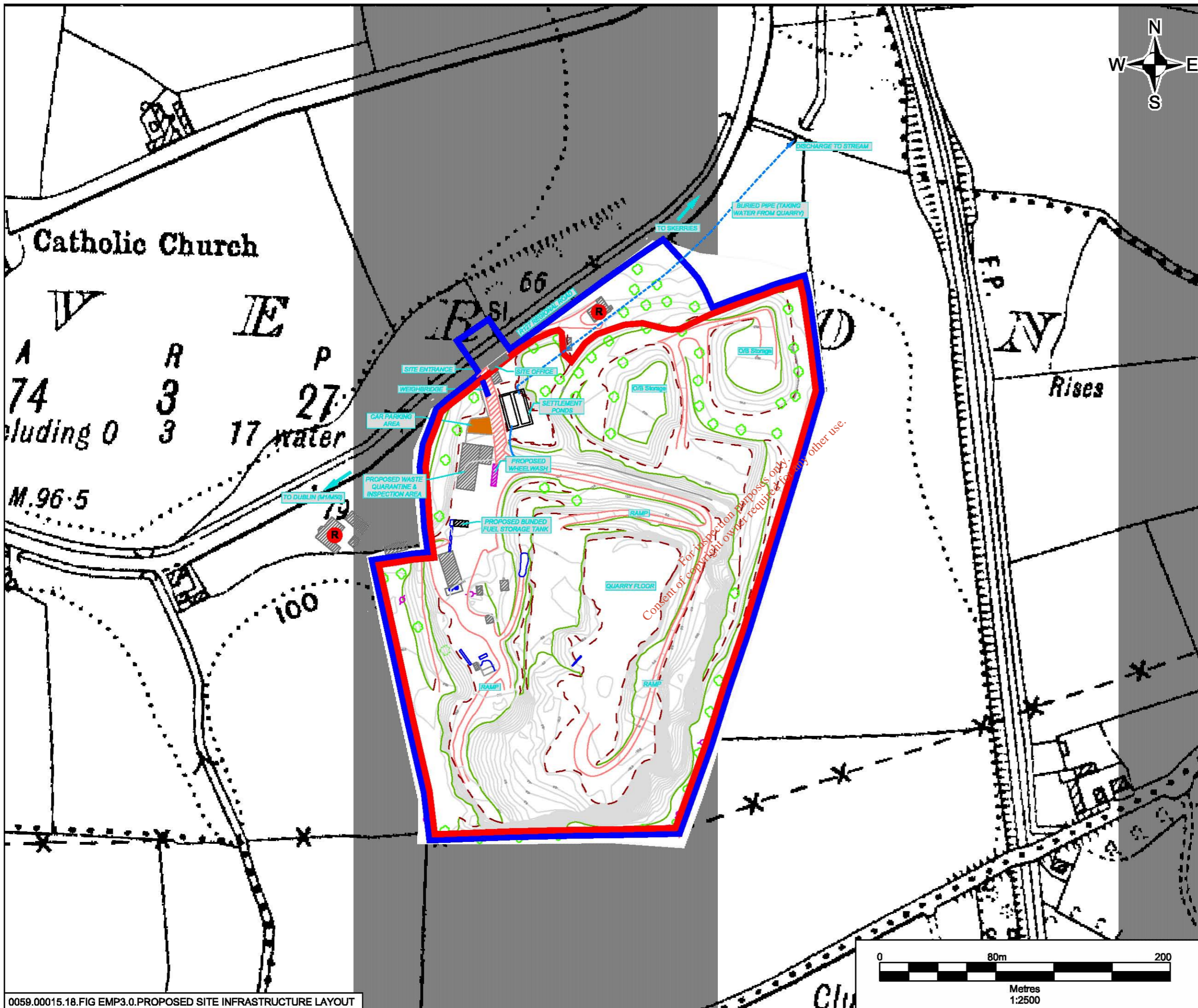
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ROADSTONE DUBLIN LTD.
FORTUNESTOWN
TALLAGHT
DUBLIN 24

SLR
SLR CONSULTING IRELAND
7 DUNDRUM BUSINESS PARK
WINDY ARBOUR
DUBLIN 14
T: +353-1-2984687
F: +353-1-2984678
www.slrconsulting.com

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APPLICATION SITE

FIGURE EMP2

Scale: 1:10,000 @ A3 Date: AUGUST 2009



NOTES

1. Based on OSI 25inch Dublin Sheet No. 5 & 5a
2. Ordnance Survey of Ireland Licence No. SU 0000709 (c) Ordnance Survey of Ireland & Government of Ireland

LEGEND

	Applicant's Land Interest (c. 8.6ha)
	Waste Licence Application Area (c. 7.9ha)
	Buried Pipe
	Top of Bank
	Bottom of Bank
	Road
	Contour Line
	Building
	Internal Unpaved Road
	Internal Paved Road
	Location of Residence

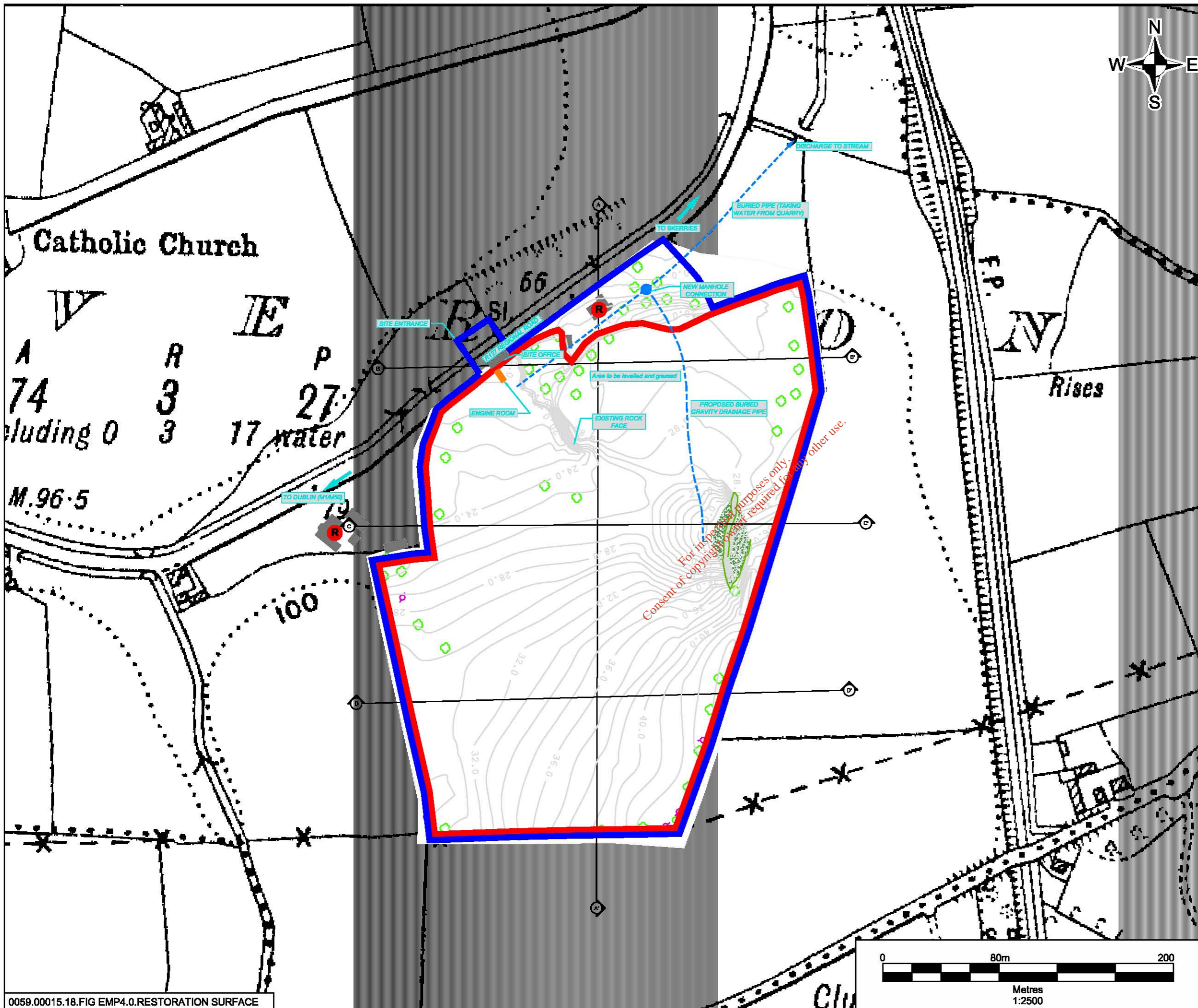
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 TALLAGHT
 DUBLIN 24

SLR
 SLR CONSULTING IRELAND
 7 DUNDUM BUSINESS PARK
 WINDY ARBOUR
 DUBLIN 14
 T: +353-1-2984667
 F: +353-1-2954676
 www.slrconsulting.com

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 MILVERTON, SKERRIES, CO. DUBLIN
 PROPOSED SITE
 INFRASTRUCTURE LAYOUT

FIGURE EMP3

Scale 1:2,500 @ A3 Date AUGUST 2009



NOTES

1. Based on OSI 25inch Dublin Sheet No. 5 & 5a
2. Ordnance Survey of Ireland Licence No. SU 0000709 (c) Ordnance Survey of Ireland & Government of Ireland

- LEGEND**
- Applicant's Land Interest (c. 8.6ha)
 - Waste Licence Application Area (c. 7.9ha)
 - A Cross Sections
 - Buried Pipe
 - Top of Bank
 - Bottom of Bank
 - Road
 - Contour Line
 - / / / / Building
 - R Location of Residence
 - Engine Room

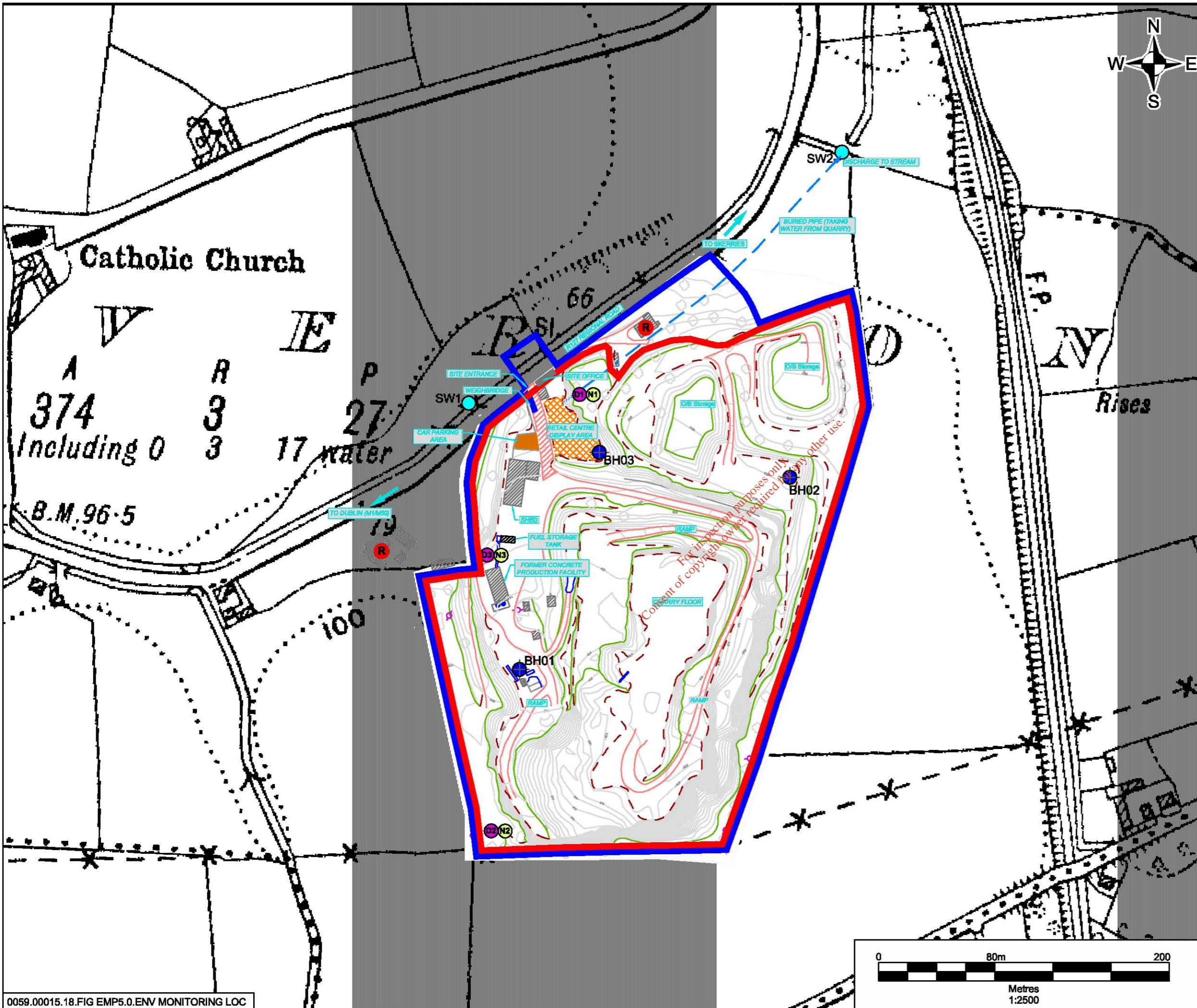
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 DUBLIN 24

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 SLR CONSULTING IRELAND
 7 DUNDRUM BUSINESS PARK
 WINDY ARBOUR
 DUBLIN 14
 T: +353-1-2984667
 F: +353-1-2984676
 www.slrconsulting.com

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 RESTORATION SURFACE

FIGURE EMP4

Scale 1:2,500 @ A3 Date AUGUST 2009



NOTES

- Based on OSI 25inch Dublin Sheet No. 5 & 5a
- Ordnance Survey of Ireland Licence No. SU 0000709 (c) Ordnance Survey of Ireland & Government of Ireland

LEGEND

- Applicant's Land Interest (c. 8.6ha)
- Waste Licence Application Area (c. 7.9ha)
- Location of Residence (R)
- Groundwater Monitoring Well (BH02)
- Surface Water Monitoring Well (SW1)
- Dust Monitoring Location (D2)
- Noise Monitoring Location (N2)

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 TALLAGHT
 DUBLIN 24

SLR CONSULTING IRELAND
 7 DUNDUM BUSINESS PARK
 WINDY ARBOUR
 DUBLIN 14
 T: +353-1-2984667
 F: +353-1-2984676
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ENVIRONMENTAL MONITORING
LOCATIONS

FIGURE EMP5

Scale: 1:2,500 @ A3 Date: AUGUST 2009