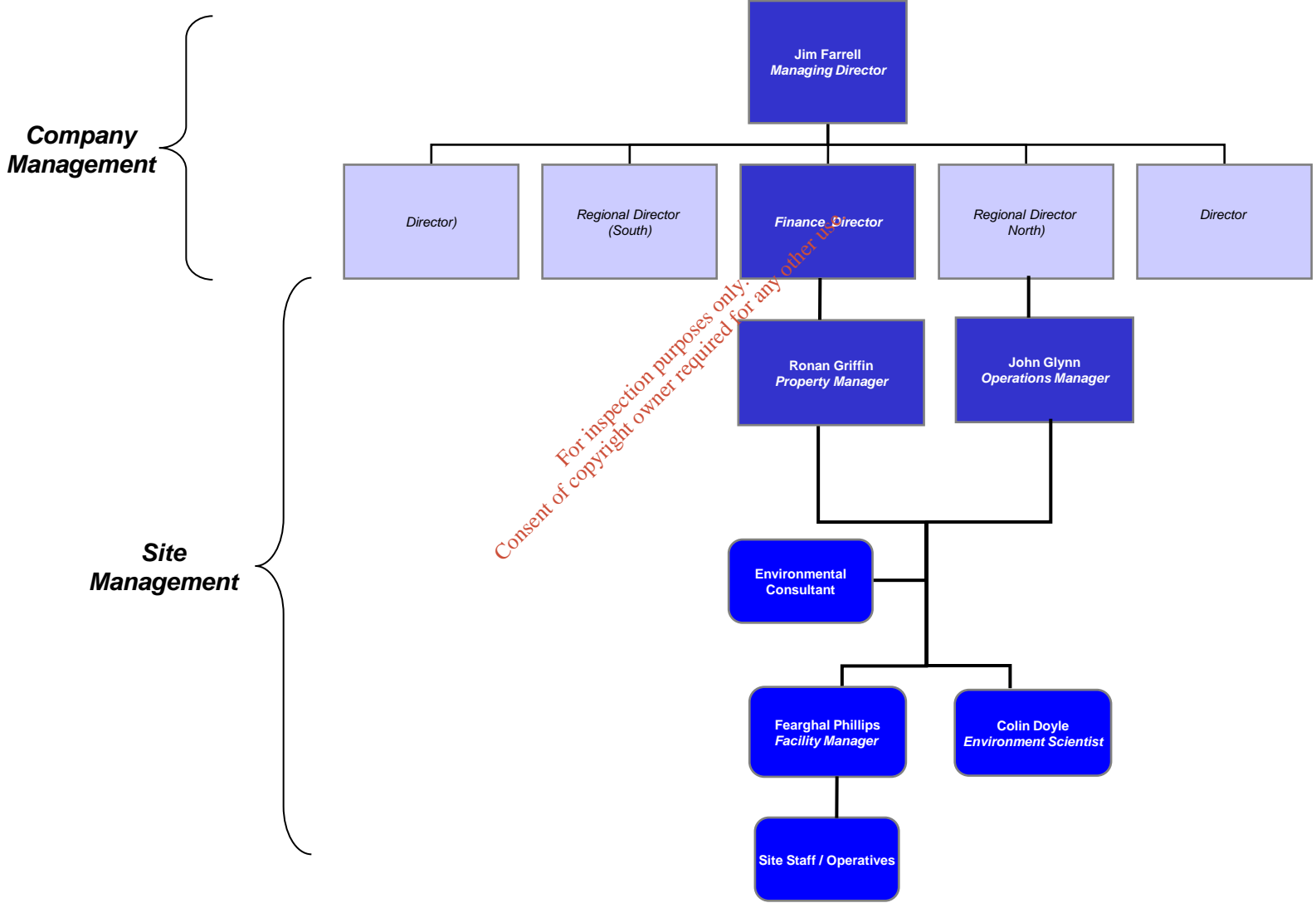


Huntstown Waste Recovery Facility Management Structure





**INERT WASTE RECOVERY FACILITY
HUNTSTOWN, DUBLIN 11**

ENVIRONMENTAL MANAGEMENT PLAN

February 2011



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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 Wood Ltd. on its lands at the North Quarry in Huntstown, Dublin 11. The principal waste activity at the site comprises restoration / backfilling of the North Quarry void 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 3109E 2420N. The facility will be known as Huntstown Inert Waste Recovery Facility.

2.2 Licence Holder

The Waste Licence in respect of waste recovery activities at Huntstown is held by Roadstone Wood 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 Wood Ltd.

Contact: Mr Ronan Griffin (Property Manager)
Telephone: (01) 401 1200

Contact: Mr Ciarán Greenan (Site / Quarry Manager)
Telephone: 086 818 9678

Contact: Mr Rearghal Phillips (Facility Manager)
Telephone: 087 820 7570

2.4 Site Description

The waste licence area comprises approximately 35.9 hectares (86.5 acres). The site is located within the northern quarry void within the Huntstown Quarry complex, known as the North Quarry. Some limited quarry backfilling or restoration works were commenced at the application site in 2002-2003.

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 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

EWC 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 or 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 3,840,000m³. Assuming an in-situ compacted density of 1.9t/m³, the estimated amount of material to be placed at the application site is approximately 7,295,000 tonnes. Of this, approximately 95,000tonnes 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 7,200,000 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
- Distance of construction projects from the facility (and scale or duration of same)
- Logistical and/or programming constraints at sites generating inert materials
- Climatic conditions (reduced construction activity in wet weather)
- 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. Over the short-to-medium term (the initial 5 years of operation), it is hoped that a large proportion of inert soil could be sourced from construction of Metro North, the Dart Underground, the Grangegorman redevelopment, Luas Broombridge and Metro West schemes.

At the present time, assuming 50 working weeks in each calendar year, 6 days per working week and 11 hours per working day, it is estimated that the rate of importation of inert materials to the quarry void could average around 400,000 tonnes per annum and increase to a maximum of 750,000 tonnes per annum should a large scale infrastructure or development project proceed at some stage within the surrounding catchment area during its operational life. If an average importation rate of 400,000 tonnes/year is assumed, the expected operational life of the facility would be 18 years.

In view of the difficult economic climate which exists at the present time, intake tonnages may be lower over the initial few years (2011-2014) and the over that time, the facility may only operate on an intermittent or 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
Ronan Griffin	Recycling Manager	Liaison with Regulatory Authorities; Ensuring Compliance with Waste Licence Conditions; Management of Staff (including consultants), Contractors, Plant and Human Resources,
Fearghal Philips	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, the Environmental Impact Statement submitted with the Waste Licence Application, 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 Wood 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 Wood's landholding at Huntstown is primarily via an access road on the eastern side which leads off the North Road (the former N2 National Primary Road) between the M50 interchange at Finglas and Kilshane Cross. Access can also be made via a local (county) road, known locally as the Kilshane Road, to the west of the landholding.

Access to the existing quarry and construction materials production facilities is controlled by security barriers along both the access roads leading off the North Road and Kilshane Road. These barriers are manned by security staff on a 24 hour, 7 day a week basis.

At the present time, Roadstone Wood's property boundary is closed off by post and wire fencing and/or hedgerow. Prior to commencement of the proposed quarry backfilling and restoration activities, a survey of the entire property boundary will be undertaken and where necessary, boundary fencing will be erected, existing fencing 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 waste 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 on Saturdays. No materials are accepted at any other time including Sundays and Public Holidays. These operating hours are consistent with the operational hours set by Condition 11 of the most recent (2004) planning permission for quarrying and production of construction materials at the Huntstown Quarry complex.

All heavy good vehicles (HGVs) importing inert soil and stone to the proposed recovery facility are required to pass over the existing weighbridge which is located at the infrastructure and production area in the centre of the Huntstown quarry complex. On arrival, HGV drivers carrying material to the waste recovery facility will identify themselves to the facility manager (or his assistant(s)) before proceeding to the active backfilling location within the former North Quarry. The facility manager (or his assistant(s)) 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 waste 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 travelling to the weighbridge will initially travel over paved road surfaces on the access road and across the central infrastructure and production area. After they have been weighed, trucks will travel eastward to join an unpaved access road which turns anticlockwise and toward a decline into the quarry area. Thereafter trucks will follow a network of temporary unpaved haul roads leading to the active backfilling area.

Provision for employee and visitor car parking is currently provided on a paved ground surrounding the existing office building at the central infrastructure and production area in the centre of the Huntstown quarry complex. Existing haul roads across the site are indicated on the site infrastructure drawing in Figure EMP3.

3.3 Hardstanding Areas

At the present time, within the waste licence application area, there are permanent concrete hardstanding areas located around the central infrastructure and production area. These hardstanding areas are sealed and any rain falling over them runs to the surface water drainage network.

In other areas within the application area, there are some unpaved hardstanding areas around the quarry void. Rain falling across these areas either percolates downwards into the underlying soil / bedrock or runs-off over the existing ground surface, toward the existing quarry void. It is envisaged that these unpaved hardstanding area will be used for the storage of any necessary site plant, equipment and/or materials required at the proposed waste facility.

3.4 Water Bath and Weighbridge

In order to prevent transport of soil across onto public roads, it is envisaged that the existing water bath facility along both of the roads which lead out of the site will be used by all traffic exiting the waste recovery facility.

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. Any separated non-inert construction and demolition waste dispatched (in skips) to other licensed waste disposal or recovery facilities will also be weighed out at the existing weighbridge. Records of imported soil tonnage will be maintained for waste auditing purposes.

3.5 Fuel and Oil Storage

Fuel for the proposed facility will be stored in existing fuel storage tanks within the Huntstown facility which are bunded to provide a storage volume equivalent to 110% of the tank storage volume. These tanks are constructed on a sealed concrete surface.

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 Huntstown facility. Oil and lubricant changes and servicing of wheeled or tracked plant will be undertaken at the existing maintenance sheds. Re-fuelling of HGV trucks will take place at the auto-diesel tank located over the concrete surface at the central infrastructure and production area (refer to Figure EMP3).

A small bunded area for waste oils is provided within the maintenance shed. Oil collected in tanks will be 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 structure which currently is unused / underused beyond the south-eastern corner of the North Quarry (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. If subsequently, there is any concern about the nature of the materials being placed, they will be re-loaded onto HGV trucks 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 or re-used in the 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.) 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 existing North Road (the former N2 National Primary Road). Traffic coming from Dublin City Centre, the nearby M50 motorway, Ashbourne and Kilshane Cross turns right (west), off a dedicated right-turning lane along the southbound carriageway, directly onto the access road leading into the Huntstown Quarry Complex. Existing notices along the North Road provide advance warning to drivers that there is an existing quarry facility ahead.

Internally, within the Huntstown Complex, warning notices, direction signs and speed restriction signs are in place along paved and/or unpaved roads leading to and from the central infrastructure and production area. Additional direction and speed restriction signs will be erected between this area and the active quarry restoration area and/or the waste inspection and quarantine area.

All HGV traffic entering and egressing the application site will be required to pass over the existing weighbridge and through the existing water bath facility, both of which are located along the access road.

3.8 Sewerage and Surface Water Drainage Infrastructure

Site staff at the Huntstown soil recovery facility will use toilet, hand washing and welfare facilities provided at the existing site offices or staff canteen. The location of these facilities and the septic tanks servicing them are shown on the site services drawing in Figure 2.3

The only surface water drainage infrastructure at the site at the site exists across the central infrastructure area where aggregate processing and concrete production activities are currently concentrated. Rain falling across the remainder of the application area either

- runs over unsealed ground into the existing quarry void and a small pond on the eastern side of the quarry floor
- percolates down through the existing soil / rock at the ground surface as recharge to groundwater, at which point it joins groundwater flow toward the quarry face.

At the present time, groundwater levels at the North Quarry are lowered by means of sumps in the quarry floor. Surface water and dewatered groundwater are collected in the pond on the quarry floor and pumped to the ground surface via an existing pipe network.

Surface Water Management at Waste Inspection and Quarantine Area

As previously outlined, any suspect contaminated waste imported to the proposed waste facility will be transferred to a covered shed in the south eastern corner of the application site. 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

During the infilling operations, the upper surface of the backfilled soil will be graded so as to ensure that surface water run-off falling over the quarry footprint falls to sumps at temporary low points within the quarry floor or backfilled material. These temporary sumps will effectively function as primary settlement ponds and water collecting in them will be pumped (causing minimum agitation to ponded water) to an existing drainage channel / watercourse on the eastern side of the quarry. Water pumped to this channel is routed via existing settlement lagoons to discharge to a tributary stream which runs northwards out of the Applicant's property holding toward the Ward River. The configuration of the existing drainage network is indicated on the site infrastructure layout in Figure EMP3.

In the longer term, toward the end of the quarry backfilling works, the final restoration surface within and around the backfilled quarry void will be modified to ensure that surface water run-off across the area falls eastward toward the tributary stream of the Ward River (refer to Figure EMP4).

3.9 Site Services

Electric power, lighting and heating are all currently provided via the electricity network to existing site offices and staff welfare facilities at Huntstown.

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.

There are currently a number of toilets, washbasins and sink units at the site offices in the central infrastructure area at Huntstown Quarry. There are further toilets, washbasins and sink units at the

canteen facility. Wastewater from both these locations is currently collected and fed via a sewerage pipe to the on-site wastewater treatment plant (septic tank) which services the Huntstown Quarry complex.

A potable water supply is provided to the site office, canteen via a Local Authority water main. Water used in production of construction materials is sourced from sumps in the floor of existing quarry voids.

High voltage overhead electricity transmission cables (38kV) run to the east of the application site, to and from the electricity substation at M50 / North Road junction. Lower voltage overhead cable and telephone cables run across the Huntstown Complex.

A gas pipeline runs to the nearby electricity generating plant operated by Huntstown Power (Viridian), though this does not cross the application site.

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 central infrastructure area.

3.10 Plant Sheds and Equipment Compounds

Plant and equipment used in the quarry backfilling and soil recovery activities will be stored at the application site or on the sealed hardstand area in the centre of the Huntstown Complex. Given the existing restriction on access into the Huntstown Complex, it is not considered necessary to provide a secure compound for plant and equipment servicing the waste recovery facility.

Any plant or equipment requiring specialist repair or overhaul will be taken to the existing maintenance sheds within the Huntstown Complex. Small items of mobile or hand-held plant and equipment will also be stored as required in the existing maintenance sheds.

3.11 Site Accommodation

The existing site office and canteen at Huntstown will also serve the proposed inert waste facility. All administration and management functions for the waste recovery facility will be based at the site office for the duration of site restoration and soil recovery activities. Staff changing, washing and cooking facilities will be provided at the separate canteen facility, located east of the site office and weighbridge.

3.12 Waste Recovery Infrastructure

Any intermixed and/or non-inert construction and demolition waste inadvertently imported to site with the inert soil will be segregated and stored at the waste quarantine facility. Any occasional concrete or bricks imported to site will be separated and re-used on site for temporary haul road construction. Excess quantities of concrete, brick or other inert construction and demolition waste will be transferred to the adjoining construction and demolition waste recovery facility which is operated by the Applicant in accordance with a waste permit issued by Fingal County Council.

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

Only operators and/or haulage firms holding valid current waste collection permits will be engaged to transfer these waste streams to other waste disposal or recovery facilities.

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 several phases working upwards from the existing quarry floor at 38mOD to 39mOD approximately. Final formation levels on completion of the backfilling and restoration works vary on account of the sloped nature of the restored landform, from approximately 65mOD on the eastern side up to 85mOD on the western side (refer to Figure EMP4).

During site restoration works the upper surface of the backfilled materials will be graded so as to ensure surface water run-off falls to sumps at temporary low points within the worked-out quarry. Water will be pumped from these temporary sumps to existing channels and settlement ponds at the original ground surface as and when required, and from there will be discharged into a tributary stream of the Ward River.

Temporary access ramps into and out of active backfilling areas will be at a gradient of approximately 1v:10h. Temporary side slopes in soil 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 be relatively 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 3,840,000m³. Of this, a relatively small volume, estimated at no more than 50,000m³ will be sourced from stockpiles, perimeter screening berms and general site levelling works required for the final restoration of the quarry. The remainder of the material will need to be imported.

The duration of backfilling activities at the quarry void will largely be dictated by the rate at which approximately 3,790,000m³ (7,200,000 tonnes) of externally sourced inert soil and stone is imported to the site. Over the short-to-medium term (the initial 5 years of operation), it is expected that a large proportion of inert soil could be sourced from construction of Metro North, Dart Underground, the Grangegorman redevelopment, Luas Broombridge and Metro West schemes.

At the present time, assuming 50 working weeks in each calendar year, 6 days per working week and 11 hours per working day, it is estimated that the rate of importation of inert materials to the quarry void could average around 400,000 tonnes per annum and increase to a maximum of 750,000 tonnes per annum should a large scale infrastructure or development project proceed at some stage within the surrounding catchment area during its operational life. If an average importation rate of 400,000 tonnes / year is assumed, the expected operational life of the facility would be 18 years.

In view of the difficult economic climate which exists at the present time, intake tonnages may be lower over the initial few years (2011-2015) and the over that time, the facility may only operate on an intermittent or project-specific basis.

4.4 Capping and Decommissioning

The application site will be restored on completion of backfilling operations and will merge better into the surrounding pastoral landscape.

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 toward the existing natural drainage network, falling eastward toward the tributary stream of the Ward River which runs northward out of the Applicant's landholding.

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. The proposed restoration scheme also

envisages that hedgerows will be planted across the restored area in an effort to re-establish field boundaries similar to those which pre-dated the development of the site as a quarry.

Topsoil and subsoil will be imported to the site on a continual basis and shall not be used immediately in general backfilling of the worked-out quarry. The topsoil and subsoil shall be stockpiled separately pending re-use toward the latter stages of the quarry backfilling works, when the top surface of backfilled ground approaches the finished ground levels envisaged by the restoration scheme. 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 or dust nuisance.

On completion of the quarry backfilling and restoration works, all mobile plant and equipment associated with the waste recovery activities will be removed off-site. Any dedicated temporary site accommodation, infrastructure and/or services will also be progressively decommissioned and/or removed off-site. Any elements of shared infrastructure used by adjacent aggregate processing or added-value activities will remain in place.

Wherever necessary, sealed concrete surfaces will be broken up using a hydraulic breaker and transferred-off site to a local permitted construction and demolition waste recovery facility.

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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 of this plan, are accepted at the site.

Inert materials are accepted at the site between 07.00 hours and 18.00hours each weekday and on Saturdays. 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 directed to leave the site.

All inert soils imported to the site will be unloaded (end-tipped) from trucks at the active backfilling area. It will be visually inspected by site personnel at that point to ensure that there is no intermixed construction or demolition, non-hazardous or hazardous waste placed within it.

If, following acceptance of waste, there is any subsequent grounds for concern about the nature of the wastes imported to site, it will be segregated and transferred to the waste inspection and quarantine area for closer inspection and classification. A detailed record will be kept of all such inspections.

Should detailed inspection and/or subsequent testing indicate that the segregated materials are non-inert and cannot be accepted and used for restoration purposes at this site, they will be removed off-site by permitted waste collectors to a suitably permitted (or licensed) waste disposal or recovery facility, as appropriate.

Any excessive quantities of inert construction and demolition wastes (most notably concrete and brick) imported to the site will be segregated and stockpiled at the waste quarantine area and either re-used in temporary haul road construction around the application site or removed off-site to a local permitted construction and demolition waste recovery facility.

Any non-inert construction and demolition waste (principally metal, timber, PVC pipes and plastic) inadvertently 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 permitted (or licensed) 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 a quarry void. Backfilling of the application site will progress upwards from the former quarry floor and on completion; the restored site will be returned to its original ground level and will merge back into the surrounding pastoral landscape.

An outline of the proposed restoration scheme and the final ground level contours are shown in Figure EMP4. In addition to imported materials, some soil in existing screening berms and/or stockpiles across the existing site will be used to backfill the quarry. Toward the end of the quarry backfilling works, the final restoration surface within and around the backfilled quarry void will be modified to ensure that surface water run-off across the area falls eastward toward the tributary stream of the Ward River (refer to Figure EMP4).

On final completion of the restoration, a cover layer of subsoil (approximately 350mm thick) and topsoil (approximately 150mm thick) will be placed and graded across the backfilled mineral soil. This will then be rolled and planted with grass in order to promote stability and minimise soil erosion and dust generation. The proposed restoration scheme also envisages that hedgerows will be planted across the restored area in an effort to re-establish some of the former field boundaries which pre-dated the development of the site as a quarry. The restored lands will be progressively returned to use as agricultural grassland.

Wherever necessary, hardstanding surfaces will be broken up using a hydraulic breaker and transferred-off site to a local permitted waste recovery facility.

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 will also be sprayed from a tractor drawn bowser on dry exposed surfaces (paved roads, unsealed haul roads and hardstand areas)
- (ii) dust blows will be partially screened by the quarry side walls as backfilling progresses upwards. As the level of the backfilled materials approaches final surface levels, the site will be seeded with grass on a phased basis, as soon as practicable after placement of cover soils (subsoil and topsoil). 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 and stockpiles pending backfilling and restoration to final ground levels;
- (iv) all HGV's exiting the site shall be routed through the existing water bath facility in order to minimise transport of fines by HGVs on the access road and public road network;
- (v) stockpiling of imported soil materials will be minimized. Soils will ideally be placed and compacted in-situ immediately after being imported to site and end tipped. If and when temporary stockpiling of soil is required, it will be placed as far as practicable from nearby residences.
- (vi) soil is required, it 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 roads.

7.3 Traffic Control

The proposed backfilling operations at the Huntstown waste recovery facility will require importation of 7,200,000 tonnes of material to backfill the existing quarry void. This is equivalent to approximately 360,000 HGV movements (at 20 tonnes per load) in order to completely backfill the quarry void. Roadstone Wood has defined a scenario where it would be possible to fill the void at the North Quarry over an 18 year period. Although it is likely that it could take longer to fill the quarry void, as a result of recent scaling back in construction activity, the 18 year scenario is considered sufficiently onerous for modelling and assessment of traffic impacts.

Assuming an annual average intake of up to 400,000 tonnes / year corresponds to an average hourly trip rate of 7 HGV movements into and 7 HGV movements out of the North Quarry per hour. Should the rate of backfilling accelerate to 750,000 tonnes / year on account of a large scale development or infrastructure project (such as Metro North or Dart Underground), the hourly HGV trip rate could increase to approximately 13 HGV movements into and 13 HGV movements out of the quarry per hour.

As indicated in Chapter 12 of the Environmental Impact Statement submitted with the Waste Licence Application, operation of the proposed waste facility will have no adverse impact on traffic flow along the existing North Road (the former N2 National Primary Road) *in an optimistic case scenario*.

Any roadside vegetation which could potentially impact on visibility splays will be cut back as required in order to maintain visibility for HGV traffic exiting the proposed waste facility. In order to minimise dirt and debris from being transferred from the waste facility onto the public road network, all traffic exiting the facility will be routed through the existing water bath facility located in the centre of the Huntstown Complex.

7.4 Road Cleansing

In order to prevent transport of mud and potential contaminants on internal and public roads, an existing self-contained water bath facility is provided along the road leading out of the waste recovery facility, 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 will be implemented in order to prevent fire at the application site:

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

In the unlikely event that a fire does occur, the local fire station in Finglas will be contacted and emergency response procedures will be implemented. Fire extinguishers (water and foam) will be provided at the 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 5 No. locations within the Huntstown Quarry complex, shown on Figure EMP5. These gauges are located at the limit of existing extraction activities, some distance inside the property boundary and away from the nearest sensitive receptors, which generally comprise private residential properties and/or commercial business premises.

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

8.3 Ecological Monitoring

Given the history of extractive industry at the proposed waste recovery facility and in the absence of any rare or protected species at the site, it is envisaged that there will be no requirement for ecological monitoring or reporting during the quarry backfilling and restoration operations.

8.4 Groundwater Monitoring

Groundwater sampling and testing is undertaken by external consultants on a bi-annual basis at 6 No. groundwater monitoring wells installed around the waste facility. 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 Chapter 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 3km east of the application site.

8.6 Noise Monitoring

Noise emissions from waste recovery activities are monitored on a quarterly basis (i.e. three monthly) basis at 5 No. noise sensitive sites within and around the waste site, at the limit of existing extraction activities, some distance inside the property boundary and away from the nearest sensitive receptors, which generally comprise private residential properties and/or commercial business premises. 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 on a bi-annual basis (i.e. six monthly) basis at any temporary surface water features which may either be created or form naturally at low points within the application site.

Surface water sampling and testing will also be undertaken immediately downstream of the existing settlement lagoons beyond the eastern face of the North Quarry and upstream of its discharge to the tributary stream of the Ward River. The proposed surface water monitoring locations across the application site are shown 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 this Environmental Impact Statement submitted with the Waste Licence Application.

It is currently envisaged that the surface water monitoring regime will remain in place for the duration of the quarry backfilling and restoration works and for a short period thereafter.

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

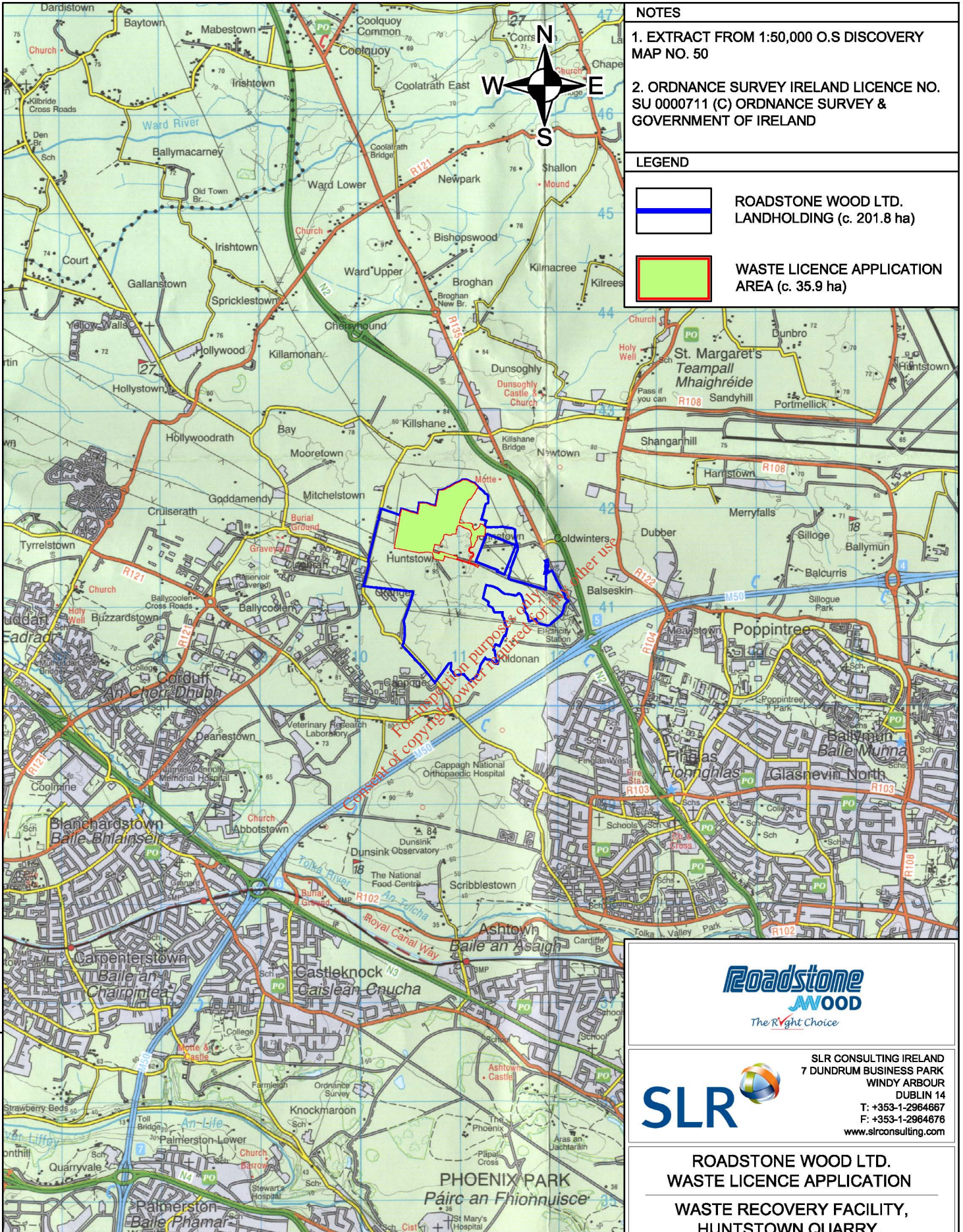
In an emergency situation, the 999 emergency call-out number is used. A record book of accidents is maintained by the Facility Manager. In the event of an accident, a written report is prepared and forwarded to the relevant agencies as required by law.

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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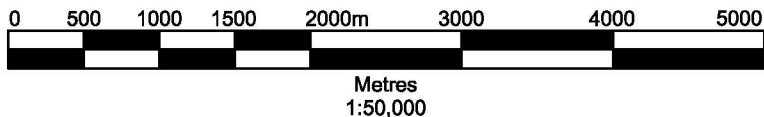
NOTES

1. EXTRACT FROM 1:50,000 O.S DISCOVERY MAP NO. 50
2. ORDNANCE SURVEY IRELAND LICENCE NO. SU 000711 (C) ORDNANCE SURVEY & GOVERNMENT OF IRELAND

LEGEND

-  ROADSTONE WOOD LTD. LANDHOLDING (c. 201.8 ha)
-  WASTE LICENCE APPLICATION AREA (c. 35.9 ha)

00180.00011.18.EMP 1.R0.SITE LOCATION MAP.dwg



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WASTE LICENCE APPLICATION**

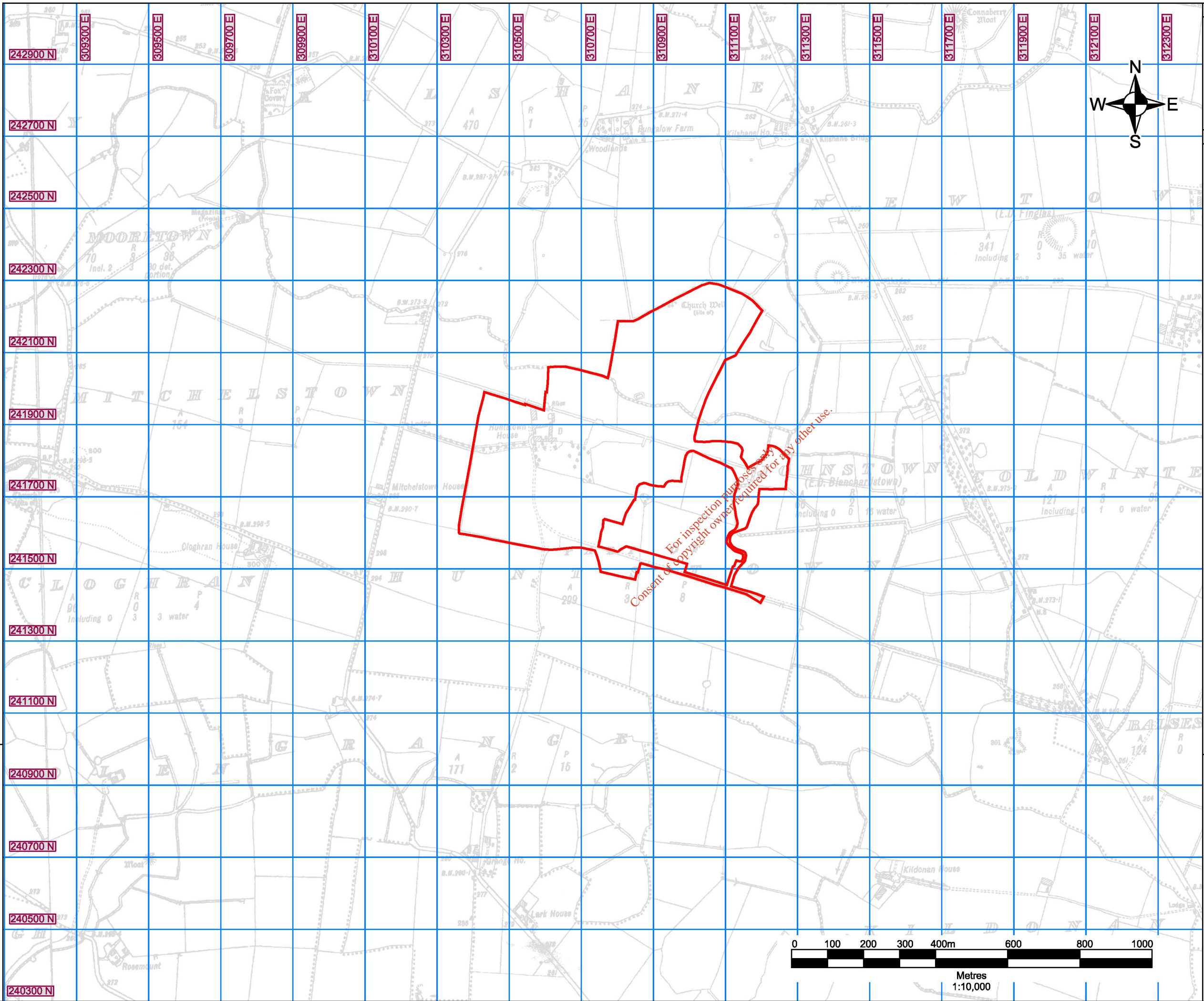
**WASTE RECOVERY FACILITY,
HUNTSTOWN QUARRY,
NORTH ROAD, FINGLAS, DUBLIN 11**

SITE LOCATION MAP

FIGURE EMP 1

Scale: 1:50,000 @ A4 Date: FEBRUARY 2011


00180.00015.18.EMP 2.R0.SITE LOCATION MAP.dwg

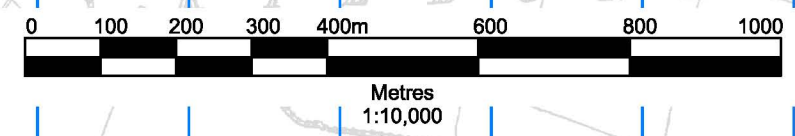
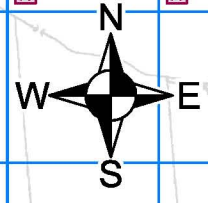


NOTES

1. EXTRACT FROM 1:2,500 ORDNANCE SURVEY DIGITAL SHEET NO'S. 3062-A, 3062-B, 3062-C, 3062-D, 3063-A, 3063-C, 3130-A, 3130-B,
2. ORDNANCE SURVEY IRELAND LICENCE NO. SU 000711 (C) ORDNANCE SURVEY & GOVERNMENT OF IRELAND

LEGEND

 WASTE LICENCE APPLICATION AREA (c. 35.9 ha)



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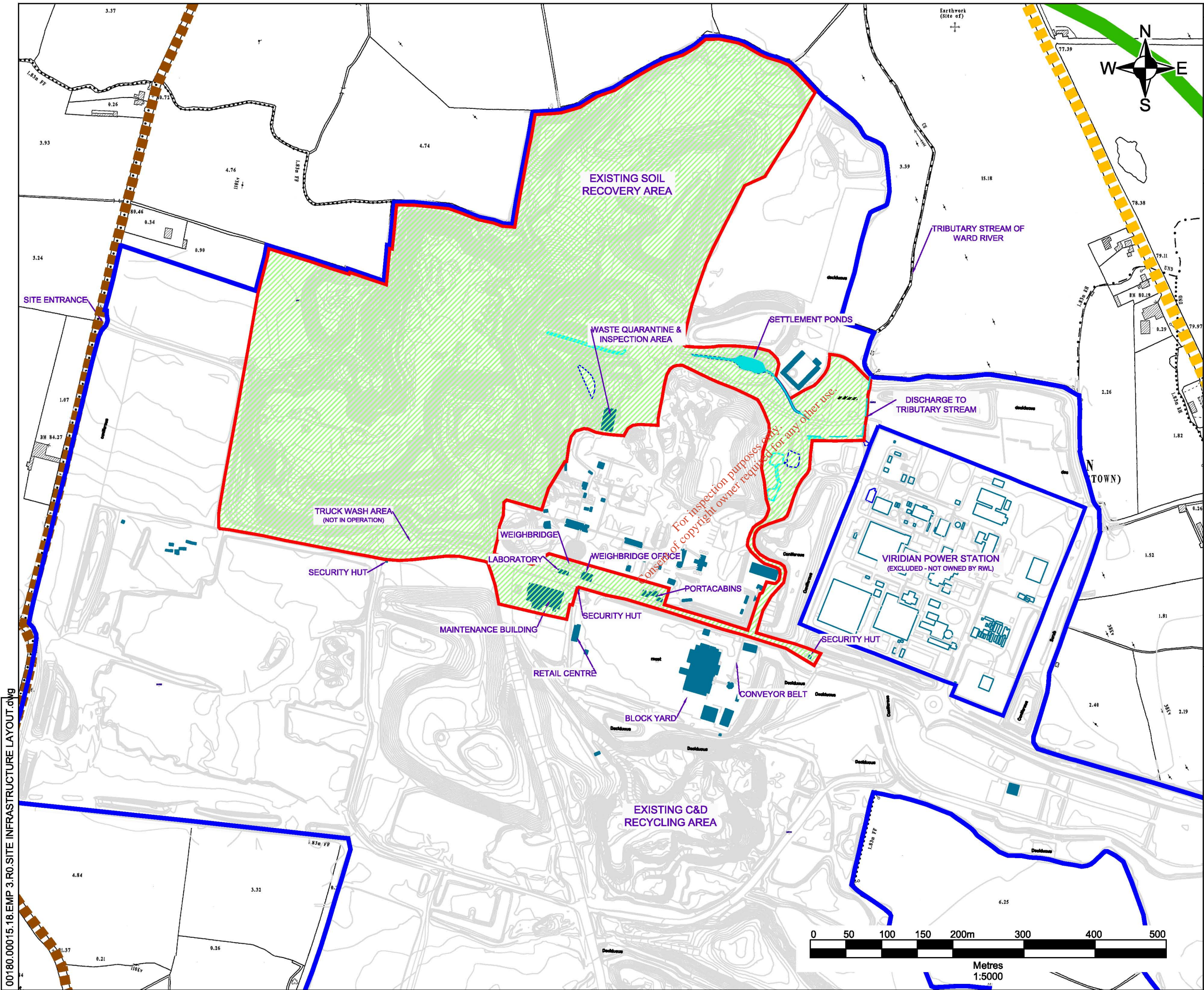
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WASTE LICENCE APPLICATION**

**WASTE RECOVERY FACILITY,
HUNTSTOWN QUARRY,
NORTH ROAD, FINGLAS, DUBLIN 11**

SITE LOCATION MAP

FIGURE EMP 2

Scale 1:10,000 @ A3 Date FEBRUARY 2011

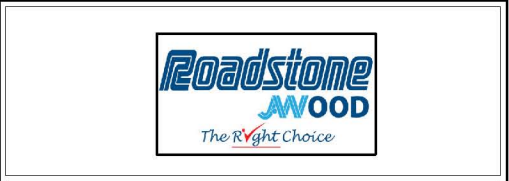


NOTES

1. EXTRACT FROM 1:2,500 ORDNANCE SURVEY DIGITAL SHEET NO'S. 3062-A, 3062-B, 3062-C, 3062-D, 3063-A, 3063-C, 3130-A & 3130-B
2. ORDNANCE SURVEY IRELAND LICENCE NO. SU 0000711 (C) ORDNANCE SURVEY & GOVERNMENT OF IRELAND
3. TOPOGRAPHIC SURVEY PREPARED BY FUGRO BKS BASED ON MAY 2009 AERIAL PHOTOGRAPHY

LEGEND

	ROADSTONE WOOD LTD. LANDHOLDING (c. 201.8 ha)
	WASTE LICENCE APPLICATION AREA (c. 35.9 ha)
	N2 DUAL CARRIAGEWAY
	NORTH ROAD (R135)
	LOCAL ROAD



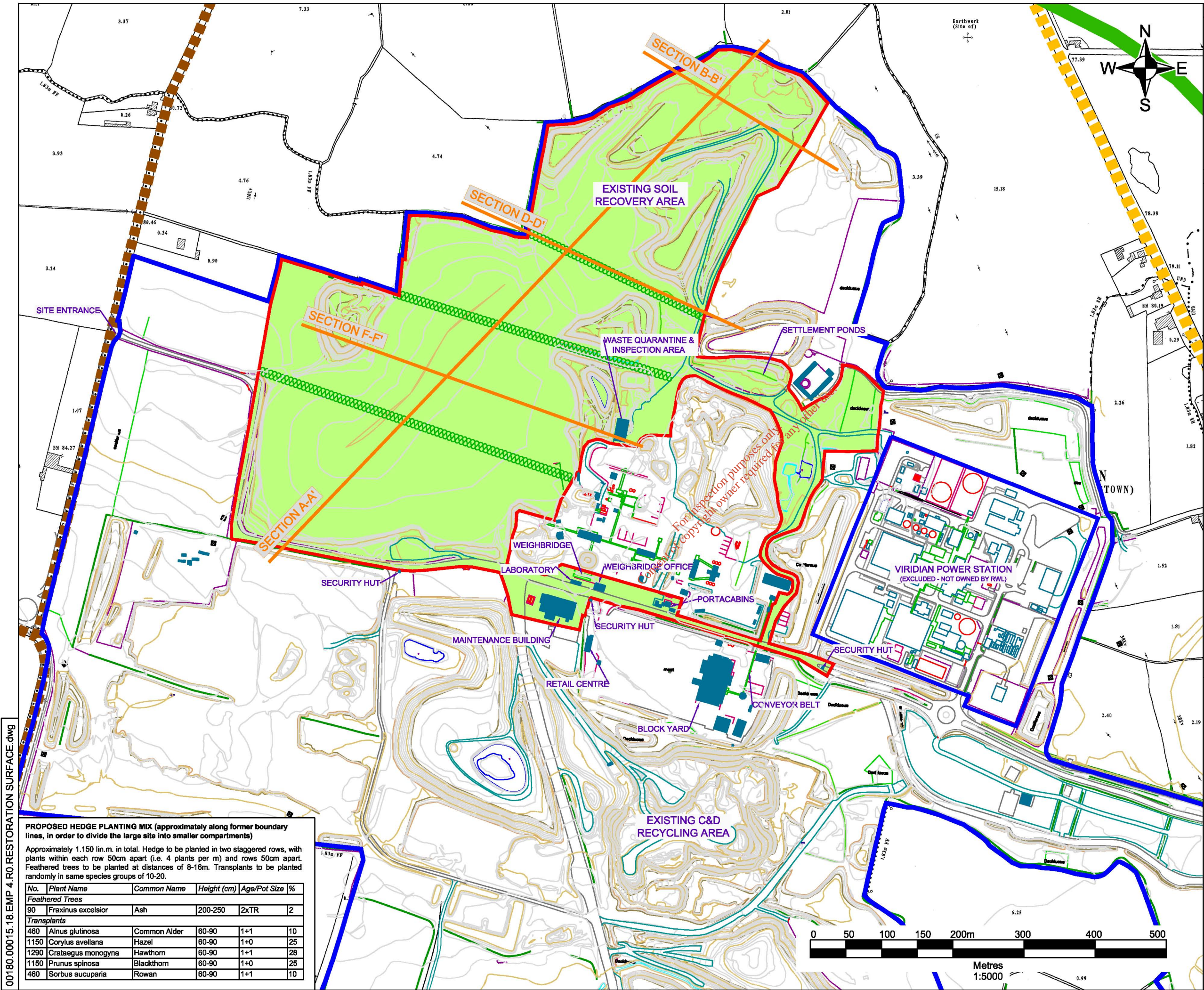
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 SITE INFRASTRUCTURE LAYOUT**

FIGURE EMP 3

Scale: 1:5,000 @ A3 Date: FEBRUARY 2011

00180.00015.18.EMP 3.R0.SITE INFRASTRUCTURE LAYOUT.dwg



NOTES

1. EXTRACT FROM 1:2,500 ORDNANCE SURVEY DIGITAL SHEET NO'S. 3062-A, 3062-B, 3062-C, 3062-D, 3063-A, 3063-C, 3130-A & 3130-B
2. ORDNANCE SURVEY IRELAND LICENCE NO. SU 0000711 (C) ORDNANCE SURVEY & GOVERNMENT OF IRELAND
3. TOPOGRAPHIC SURVEY PREPARED BY FUGRO BKS BASED ON MAY 2009 AERIAL PHOTOGRAPHY

LEGEND


	ROADSTONE WOOD LTD. LANDHOLDING (c. 201.8 ha)
	WASTE LICENCE APPLICATION AREA (c. 35.9 ha)
	N2 DUAL CARRIAGEWAY
	NORTH ROAD (R135)
	LOCAL ROAD
	PROPOSED NATIVE HEDGE PLANTING
	CROSS SECTION LOCATIONS

00180.00015.18.EMP 4.R0.RESTORATION SURFACE.dwg

PROPOSED HEDGE PLANTING MIX (approximately along former boundary lines, in order to divide the large site into smaller compartments)

Approximately 1.150 lin.m. in total. Hedge to be planted in two staggered rows, with plants within each row 50cm apart (i.e. 4 plants per m) and rows 50cm apart. Feathered trees to be planted at distances of 8-16m. Transplants to be planted randomly in same species groups of 10-20.

No.	Plant Name	Common Name	Height (cm)	Age/Pot Size	%
Feathered Trees					
90	Fraxinus excelsior	Ash	200-250	2xTR	2
Transplants					
460	Alnus glutinosa	Common Alder	60-90	1+1	10
1150	Corylus avellana	Hazel	60-90	1+0	25
1290	Crataegus monogyna	Hawthorn	60-90	1+1	28
1150	Prunus spinosa	Blackthorn	60-90	1+0	25
460	Sorbus aucuparia	Rowan	60-90	1+1	10



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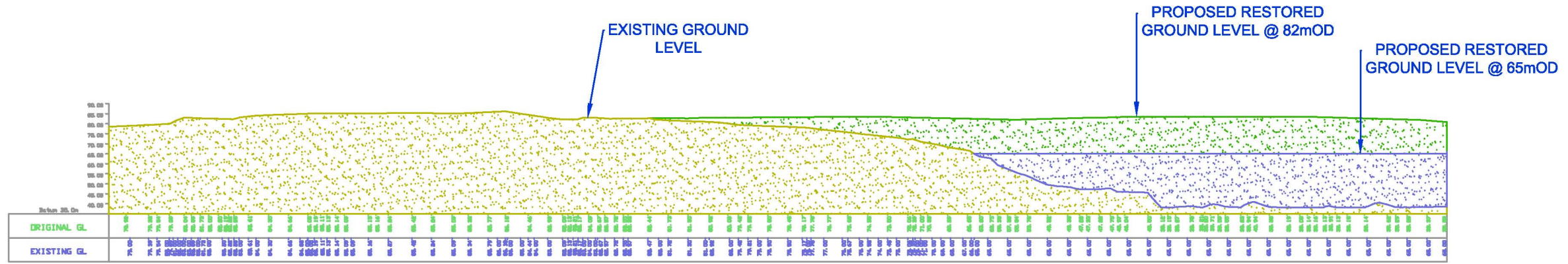
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NORTH ROAD, FINGLAS, DUBLIN 11**

RESTORATION SURFACE

FIGURE EMP 4

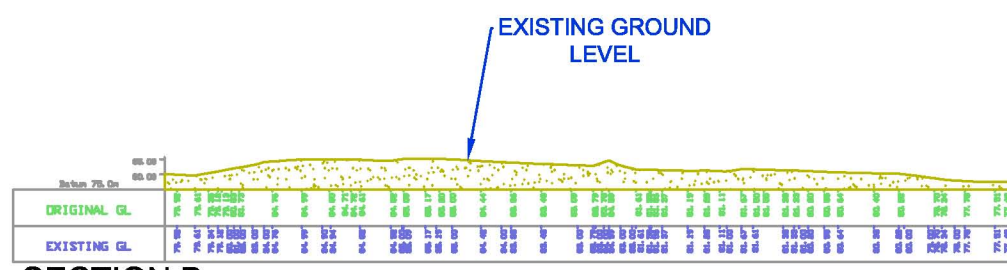
Scale: 1:5,000 @ A3 Date: FEBRUARY 2011



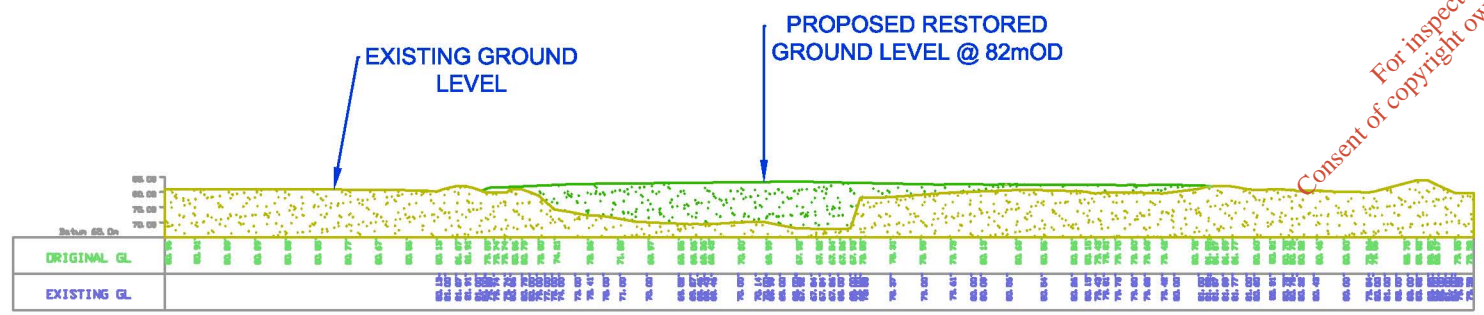
SECTION A



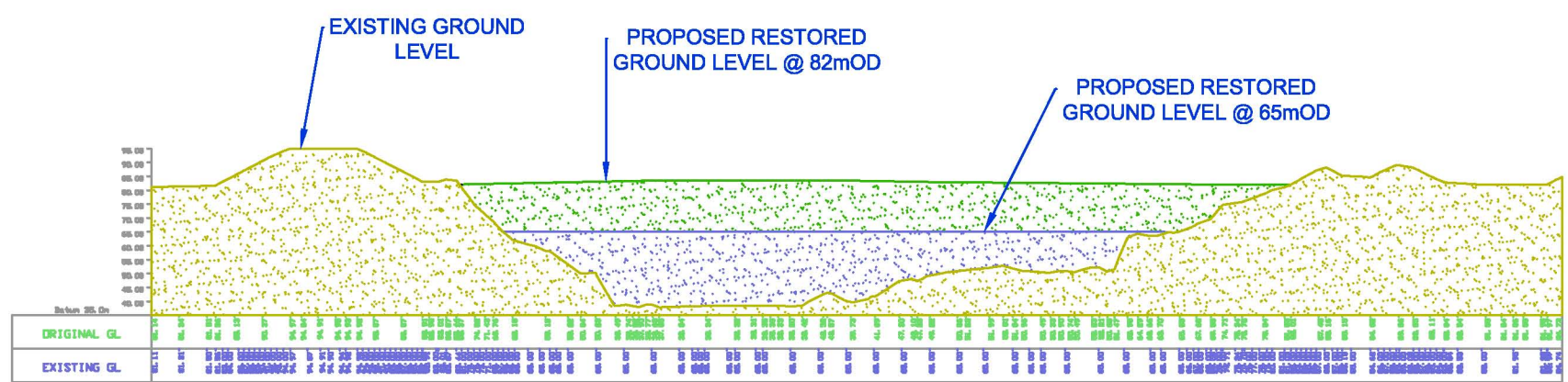
SECTION A Continued



SECTION B



SECTION C



SECTION D

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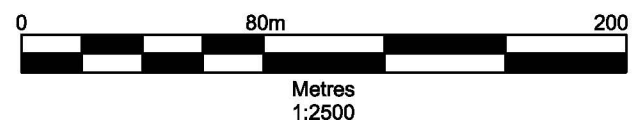
REFER TO FIGURE B2-4 FOR SECTION LOCATIONS



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RESTORATION CROSS SECTIONS

FIGURE EMP 5



Scale 1:2,500 @ A3

Date FEBRUARY 2011

00180.00015.18.EMP 5.RD.RESTORATION CROSS SECTIONS.dwg

ATTACHMENT C3 – HOURS OF OPERATION

The proposed waste recovery activities comprising importation, placement and compaction of inert soils and stones and minor quantities of inert recycled construction and demolition waste (for haul road construction) and will extend from

- 07.00 hours to 18.00 hours each weekday (Monday to Saturday).

No waste recovery activities will be undertaken on Sunday or on Bank / Public Holidays.

These operating hours are consistent with the operational hours set by Condition 11 of the most recent (2004) planning permission for quarrying and production of construction materials at the Huntstown Quarry complex.

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