OPERATIONAL REPORT

Existing Licenced Facility

Planning permission for the restoration all existing and planned future quarries at the Huntstown quarry complex was obtained in August 2014 (Fingal County Council Ref. No FW12A-0022, An Bord Pleanála Ref. No. 06F.241693). The permission provides for the importation and recovery of naturally occurring waste, principally excess soil, stones and/or broken rock from construction and development sites, to completely backfill and restore the voids created by the previous extraction of overburden soils and limestone bedrock.

The 2014 planning permission made provision for soil and stone to be imported and recovered by way of quarry backfilling at a maximum rate of 750,000 tonnes per annum across the Huntstown quarry complex. A significant increase in the demand for soil and stone recovery capacity at Huntstown emerged almost immediately following the opening of the recovery facility in October 2015. On foot of this, Roadstone sought planning permission from Fingal County Council to increase the annual soil and stone waste intake from 750,000 tonnes per annum to 1,500,000 million tonnes per annum to expedite the restoration of both the North Quarry and West Quarry at Huntstown which was ongoing at both quarries at that time. Permission for the increase in importation and recovery rate was granted in November 2016 (Planning Ref. FW16A/0120).

At Huntstown, the scale of the quarry backfilling activities is such that it also requires a waste licence from the Environmental Protection Agency (EPA). The original waste licence (Ref. W0277-01) issued by the EPA in February 2015 provided solely for soil waste recovery at the North Quarry. It also applied a restriction on the rate of soil and stone waste intake, limiting it to a maximum of 750,000 tonnes per (calendar) year, in line with the 2014 planning permission.

A revised waste licence (Ref. W0277-02) which provided for an increase in the waste intake limit to 1,500,000 tonnes per annum and an extension of the licensed waste facility to also include the West Quarry was issued by the EPA in September 2017, following granting of planning permission for the increased rate of soil importation and recovery by Fingal County Council.

The existing waste licence at Huntstown (Ref. No. W0277-03) was issued in October 2018 and, in addition to providing for the recovery of soil and stone through backfilling on land at the North Quarry and West Quarry, also provides for establishment of a construction and demolition (C&D) waste recovery facility in the north-eastern corner of the Roadstone landholding. The establishment and operation of the C&D recovery facility has been on hold pending a decision on End of Waste criteria for recycled aggregates from concrete.

The existing waste licence includes the following provisions in respect of the importation and recovery of soil and stone at the North Quarry and West Quarry:

- use of dedicated waste infrastructure and/or shared use of existing infrastructure with the established aggregate, concrete and asphalt production businesses which are co-located at the Huntstown quarry complex;
- separation of non-inert C&D waste (principally metal, timber, PVC pipes and plastic) unintentionally imported within consignments of soil and stone consignment and its transfer to appropriately licensed off-site waste disposal or recovery facilities;
- final restoration of the backfilled quarry voids (including placement of cover soils and seeding) and its return to agricultural grassland; and
- ongoing environmental monitoring of noise, dust, surface water and groundwater for the duration of the soil recovery / quarry backfilling works and for a short period thereafter.

At the present time, in addition to imported waste, minor quantities of virgin aggregate are used for quarry backfilling, principally in the construction of temporary haul roads across backfilled soils, as and when required. The current waste licence also includes provision for recycled aggregates complying with End of Waste criteria to replace virgin aggregate used for this purpose in due course.

Any overburden soils stripped in advance of rock extraction is currently stockpiled in overburden screening mounds around the perimeter of the Huntstown quarries. These soils will be placed over the imported / recovered materials and used to complete the backfill and restoration of quarry lands to agricultural grassland over time.

At the present time, the backfilling of the West Quarry is complete and grass cover has been established across the former quarry footprint. Backfilling of the North Quarry is continuing to progress rapidly. The current rate of soil and stone intake at the North Quarry is at, or close to, the current maximum permitted rate of 1,500,000 tonnes per annum. It is now expected that the North Quarry will be substantially backfilled by the end of 2022 and that final restoration works (levelling, contouring and seeding) will progress shortly thereafter. The existing site layout at Huntstown is shown on Figure4-8-1A.

PROPOSED LICENCE AMENDMENTS

In light of the sustained high level of demand for soil waste recovery capacity at Huntstown and the imminent cessation of rock extraction activity at the South Quarry, Roadstone is planning to commence restoration, backfilling and soil recovery activities at the South Quarry (at the approved intake rate of 750,000 tonnes per annum) early in 2023, following cessation of waste recovery activities at the North Quarry.

At the present time, it is intended that the South Quarry at Huntstown will be restored by backfilling with waste soils on its western side and with non-waste ('by-product') soils on its eastern side. The two areas will be separated by a berm constructed of natural soils and/or crushed rock which will be raised (in stages) as the levels of imported soil and stone placed in the quarry rise over time.

Backfilling at the South Quarry (using imported soil waste and/or by-product) already has the benefit of planning permission. No new infrastructure is required to facilitate transfer and re-location of established soil waste recovery operations to the western side of the South Quarry or the extension of the licensed site area to include this area.

All pre-existing site infrastructure including weighbridges, wheelwash, site offices, welfare facilities, quarantine shed, and workshop / maintenance shed will remain in service as quarry backfilling and soil recovery activities at Huntstown are transferred / re-located to the South Quarry. The only notable change arising as a result will be the re-routing of HGV lorries and articulated trucks across the quarry complex to the new recovery area at the South Quarry.

In order to facilitate the transfer and re-location of soil waste recovery activities to the South Quarry, this waste licence review application provides for the following:

- importation of soil and stone waste to the western side of Huntstown South Quarry at a maximum rate of 750,000 tonnes per annum (as permitted by Planning Ref. FW12A/0012);
- extension of the licensed site boundary to incorporate the proposed waste recovery area on the western side of the South Quarry and the pre-existing haul roads leading to / from it;
- an increase in the total permitted (lifetime) soil and stone waste intake to the (extended) waste facility to 18.76 million tonnes;
- use of pre-existing site infrastructure to support these activities; and

- re-routing of internal traffic flows to and from the backfilling / recovery area at the South Quarry across pre-existing haul roads within the quarry complex.

Details of the layout and the configuration of site infrastructure for the duration of the backfilling and soil recovery activities at the South Quarry, including the proposed routing of HGVs and articulated trucks through the quarry complex are shown in Figure 4-8-1B. Details of the overall restoration scheme for Huntstown, approved under the 2014 quarry permission, are provided in Figure 4-8-1C. Proposed final ground level contours at the South Quarry are shown separately in Figure 4-8-1D and cross-sections through the backfilled quarry are provided in Figure 4-8-1E.

As with the existing waste licence, it is envisaged that the following wastes (with their respective List of Waste (LoW) Codes) will be deposited on land and recovered at the quarry:

- 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 (garden and park wastes)

Surface Water Management

In the course of future backfilling and recovery operations at the South Quarry, 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. Dewatered groundwater and surface water run-off, which collects at sumps or at low points, will continue to be pumped to the existing permanent settlement ponds, which run in series and are located beyond the north-western corner of the South Quarry, as shown on the site layout plan in Figure 4-8-1B.

With the elapse of the required retention time in settlement ponds, the treated surface water run-off then flows north-east along (through) an open French drain which doubles as a silt trap before it is discharged to a surface water drainage channel. Thereafter it passes through a hydrocarbon interceptor) before being discharged off-site to the headwaters of the Finglas Stream.

Traffic Movements

Waste recovery activities at Huntstown South Quarry will require the importation of approximately 9.36 million tonnes of soil and stone waste in total order to backfill the western side of the quarry void to its original ground level. This is equivalent to approximately 468,000 HGV / truck return trips (at 20 tonnes per load) in order to completely backfill the western side of the quarry void.

Assuming soil waste intake for backfilling and recovery activities at the South Quarry is sustained at a permitted maximum rate of 750,000 tonnes per annum, this would correspond to an average of

- 37,500 HGV / truck return trips per year (assuming an average of 20 tonnes per load);
- 125 return trips per day (assuming 300 working days in a calendar year)
- 12 return trips per hour (assuming an 11-hour working day).

The backfilling and recovery activities at the South Quarry will generate an average of 12 movements to and 12 movements from the quarry every hour of every working day (and a total of 24 movements per hour). This compares with the current average rate of 23 movements per hour in each direction (or a total of 46 movements per hour) which is currently permitted for the ongoing backfilling and recovery operations at the North Quarry.

The transfer and re-location of soil waste recovery activities to Huntstown South Quarry will proceed at half the importation and recovery rate to that currently permitted for the same activities at the North Quarry. The reduction in traffic movements will therefore result in a significant reduction in traffic movements along the existing North Road (the former N2 National Primary Road) and through the existing quarry complex at Huntstown.

Working Hours

Soil waste intake will continue to be accepted at the waste recovery facility between 08.00hours and 18.00hours each weekday (Monday to Friday) and between 8.00hours and 13.00hours on Saturdays, in accordance with Condition 1.8 of the existing waste licence (Ref. W0277-03). No materials will be accepted or backfilling operations undertaken outside of those times including Sundays and Public Holidays.

Employment

Transfer and re-location of backfilling and recovery operations to Huntstown South Quarry will sustain existing employment of at least five full time personnel based at the existing licensed recovery facility at Huntstown.

The nominated site (facility) manager and two assistants are required to oversee and manage site operations and are specifically responsible for (i) checking that the soil and stone being brought to the facility has been pre-cleared and meets site acceptance criteria, and (ii) collating and maintaining all records of waste intake.

Two further individuals are required to (i) operate site plant and equipment such as a bulldozer or a mechanical excavator on a full-time basis as required, and (ii) visually inspect and monitor the suitability of the soil and stone being imported and accepted at the facility.

General Waste Management

Only soil and stone carried by authorised waste collectors will be accepted for backfill and recovery at the South Quarry under a strictly controlled approval and permitting system. It is envisaged that the majority of the HGV drivers will be employed by, or contracted to, authorised / approved hauliers.

Batteries, waste oils and lubricants, damaged parts and equipment, scrap metal etc. are stored centrally at the workshop at the central infrastructure area. All wastes are collected and recycled or disposed of at authorised off-site waste facilities by authorised waste contractors. General office and food waste produced at site offices and at staff welfare facilities are minimised insofar as possible and disposed of accordingly.

Management systems are in place at Huntstown to control and manage all potential waste streams, to avoid generation where possible, to maximise re-use or re-cycling opportunities thereafter and comply with any waste management responsibilities prescribed by EPA waste licence.

SITE INFRASTRUCTURE

Site Access

Existing vehicular access into the licensed waste recovery facility and other established businesses within the Huntstown quarry complex is made via an extended internal paved access road, which runs from east to west and leads directly off a junction with the R135 Regional Road, known locally as the North Road.

The proposed routing of HGV / truck traffic hauling soil and stone to backfill the South Quarry is shown in plan in Figure 4-8-1B. Waste hauliers importing soil and stone to the South Quarry will be directed in advance to the backfilling area on the western side of the quarry.

Site Security

Aside from the site access road referenced above, the Roadstone property boundary is completely closed off by post and wire fencing and/or hedgerows. There is no other public access into the quarry complex.

All access to the quarries, production facilities and backfilling / recovery areas at Huntstown is controlled by a manned security post along the access road into the quarry complex. The post is manned by security personnel on a 24-hour, 7 day a week basis.

Site Roads, Parking and Hardstanding Areas

Provision for employee and visitor car parking is currently provided on paved ground surrounding the existing waste facility office and/or around the main office building at the central infrastructure area.

The existing haul routes leading to the proposed backfill areas at the South Quarry comprise a mix of sealed (asphalt) surfaces and unsealed hardstanding. These route / surfaces will be maintained for the duration of the quarry backfilling and recovery activities at the South Quarry. Any surface water falling across these routes will either infiltrate to ground or drain to quarry voids. Water collecting in quarry sumps is pumped via existing treatment systems to the Finglas Stream which flows along Roadstone's eastern property boundary.

In other areas within the Huntstown complex, there are unpaved (i.e. hardstanding) areas around the quarry voids. Rain falling across these areas percolates downwards into the underlying soil and bedrock or runs-off over the existing ground surface into existing quarry voids. These hardstanding areas are occasionally used for the temporary storage of site plant, equipment and/or materials used for quarrying or backfilling / recovery activities.

Traffic Control

Internally, within the Huntstown quarry complex, direction signs, warning notices and speed restriction signs are in place along the paved roads leading to and from the working quarries, central infrastructure / concrete production area and the existing waste recovery facility at the North Quarry.

Once backfilling commences at the South Quarry, additional direction signs, warning notices and speed restriction signs will be erected, as required, to direct HGVs and trucks around the quarry complex to the appropriate backfill area at the South Quarry.

Weighbridges

The existing weighbridges at the recovery facility will remain in place, at the locations shown on the site layout plan in Figure 4-8-1B. All HGVs and trucks importing soil and stone waste for backfilling and recovery at the South Quarry, will be routed over one or other of the existing weighbridges before then turning south and travelling through the quarry complex to the backfilling / recovery area on the western side of the South Quarry.

Any rejected waste consignments or separated non-inert construction and demolition waste dispatched off-site (in skips) to other authorised waste disposal or recovery facilities will also be weighed out at the existing weighbridges.

Records of imported soil and stone intake must be maintained for waste and material auditing, as well as for commercial purposes. At the weighbridge offices, HGV/ truck drivers importing soil and stone to the assigned backfill area will identify themselves to weighbridge operators before proceeding. The weighbridge operators will take a copy of the weigh docket, record the time and date of arrival, the nature and origin of the imported soils, the customer / client, the licence plate number and the waste collection permit details (where appropriate).

CCTV cameras are installed around each of the weighbridges and used to inspect all soil and stone waste being imported for recovery purposes. The CCTV images are relayed to the weighbridge offices where they are viewed in real time by weighbridge operators and retained for record purposes.

Wheelwash

In order to prevent transport of soil out of the recovery facility onto public roads, all HGVs and trucks exiting the backfill areas at the South Quarry will be routed through the existing wheelwash facility along the paved main access road which leads out to the R135 Regional Road (North Road). The location of the wheelwash is shown on the site layout plan in Figure 4-8-1B.

Fuel and Oil Storage

Fuel for plant and equipment used for quarry backfilling and recovery operations will continue to be stored in existing fuel storage tanks at the central infrastructure and production area within the Huntstown quarry complex. These tanks are constructed on sealed concrete surfaces and bunded to provide a storage volume equivalent to 110% of the tank storage capacity. The mobile plant and equipment undertaking the backfilling works at the South Quarry will be refuelled over concrete surfaces around existing fuel storage tanks or from mobile, double skin fuel bowsers on hardstanding areas (Clause 804 sub-base materials) with use of drip trays to contain any leaks or spills as appropriate.

Plant used for backfilling and recovery operations principally comprises mechanical excavators and/or bulldozers. Oil and lubricant changes and servicing of wheeled or tracked plant employed at the South Quarry will continue to be undertaken at the existing maintenance sheds. A small bunded area for waste oils is provided within the maintenance shed. Oil collected in tanks is emptied at intervals by a licensed waste contractor and disposed of off-site at an authorised waste facility.

Waste Inspection and Quarantine Facility

Any imported waste which, it is suspected, is contaminated or may not comply with waste acceptance criteria for soil recovery activities will be transferred to the existing waste inspection and quarantine facility (comprising a roofed shed), at the location indicated on the site layout plan in Figure 4-8-1A.

As with the existing waste recovery operations, in-situ monitoring and testing of imported waste materials will be undertaken by site personnel in accordance with waste licence requirements as imported waste is end-tipped at the recovery area on the western side of the South Quarry. Suspect waste will be identified on the basis of visual inspection (unusual colour, intermixed wastes etc) or by smell. Detailed records will be kept of all inspections and testing of suspect wastes.

In the unlikely event that suspected contamination of the soil matrix is subsequently identified during the spreading, placement and compaction operations, it will be segregated from the main waste body and transferred to the waste inspection and quarantine facility for closer inspection and testing to establish whether or not it can be accepted at the facility.

Should subsequent inspections and/or testing of suspect soil and stone waste held within the inspection and quarantine facility indicate is non-inert and/or cannot be accepted and used for restoration and backfilling purposes, it will be covered pending removal off-site by permitted waste collectors to appropriately authorised waste disposal or recovery facilities.

Provision will also be made for temporary storage of any separated non-inert construction and demolition waste (including metal, timber, plastic etc.) in skips prior to transfer off-site to an appropriate authorised waste disposal or recovery facility.

Site Offices and Welfare Facilities

All administration and management functions for the existing waste recovery facility are based at a dedicated waste facility office which is located adjacent to the existing weighbridges along the access road to the backfill / recovery area at the North Quarry. Staff changing, washing and cooking facilities are provided separately at the main canteen facility at Huntstown.

Plant Sheds and Equipment Compounds

Plant and equipment used in quarry backfilling and soil recovery activities is stored at the recovery areas or on the sealed hardstand area in the centre of the Huntstown Quarry complex. Given the existing restriction on access into the quarry complex, it is not considered necessary to provide a secure compound for plant and equipment serving 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.

Utilities / 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 personnel overseeing backfilling and recovery operations at the recovery facility are contactable by mobile phone. Site personnel are also contactable by fixed line telephone, fax and email facilities available at the existing waste facility office.

Site based personnel at the soil and stone waste recovery facility use toilet, hand washing and welfare facilities at existing site offices and the staff canteen located around the central infrastructure area at Huntstown and will continue to do so for the duration of backfilling and recovery activities at the South Quarry. Wastewater from these locations is collected and fed via a sewerage pipe to an on-site wastewater treatment plant (septic tank).

Irish Water provides a potable water supply to existing site offices and the canteen via an existing water main which runs beneath the main quarry access road.

Several high voltage overhead electricity transmission cables (110kV and 220KV) traverse a corridor to the north of the South Quarry and run broadly west to east toward the Huntstown substation. Lower voltage overhead cables and telephone cables also traverse the quarry complex.

A gas pipeline runs to the electricity generating plant operated by Huntstown Power (Energia). This pipeline runs to the north-east of Roadstone's landholding and does not impact any pre-existing or permitted future quarry development or backfilling / restoration activities.

Lighting

It is not proposed to provide any fixed or permanent external lighting across the South Quarry or along the internal haul roads leading to them. Some low-level external lighting may be fixed to weighbridge offices to illuminate the areas around them and the materials being imported for backfilling and recovery.

Mobile lighting will be provided as required around active backfill areas at the quarry. Such lighting will be sufficient to permit safe operation of plant and machinery during early morning and late evening periods over winter months.

PREPARATORY / INITIAL WORKS

No site infrastructure construction and/or preparatory site works will be required prior to commencement of the backfilling and recovery activities at the South Quarry.

Some minor works will be undertaken at the outset of the operational phase to facilitate soil waste intake and recovery activities. These will principally comprise:

- Upgrading and/or maintenance of existing haul roads and hardstanding areas as required to facilitate routing of HGV / trucks across the quarry complex;
- Construction of temporary access ramps (if required) to access initial backfill areas on the western side of the South Quarry; and
- Establishment of any additional environmental control and monitoring infrastructure required by the EPA waste licence in respect of backfilling / recovery activities.

WASTE OPERATIONS AND PROCEDURES

Overview of Quarry Restoration / Backfilling Scheme

Backfilling of the Huntstown North, West and South Quarries using imported soil and stone extends from the quarry floor level up to their original (former) ground level. In addition to imported materials, some soil and stone in existing screening berms and/or stockpiles across the quarry complex site will also be used to complete the final restoration of the quarries. On completion; the backfilled quarries will be returned to agricultural grassland, in keeping with some of the surrounding landscape.

Details of the previously approved restoration scheme and the final ground level contours at the South Quarry are provided in Figure 4-8-1C and Figure 4-8-1D respectively. Cross-section details through the final backfilled landform at the South Quarry are provided in Figure 4-8-1E.

Given the need to manage soil and stone imported as non-waste by-product separately to that managed as waste, two separate backfill areas will be established at the South Quarry, one for non-waste by-product on the eastern side and one for waste on the western side. The proposed demarcation line between the two zones will be delineated by the proposed waste licence boundary through the South Quarry, as indicated in Figure 4-8-1B and Figure 4-8-1E.

The demarcation line between waste and by-product materials will be established using physical on-site markers across the quarry floor initially and thereafter by a dividing berm which will be raised (in stages) as the levels of imported soil and stone placed in the quarry rise over time. The dividing berms will be constructed solely of uncontaminated natural soils and/or crushed rock sourced from the quarry complex at Huntstown. No imported materials will be used to construct the separation berm.

Currently, rock extraction on the eastern side of the quarry is to extend locally deeper from -10mOD to a final level of -17mOD along a relatively narrow strip (approximately 25m wide). On the western side, the quarry is to be deepened by another bench down to -17mOD. The floor of the existing (working) bench is approximately 80m wide at 0mOD, while that of the bench below it, at -17mOD, will be approximately 65m wide.

Some proven / permitted limestone reserves have yet to be extracted at the South Quarry. Extraction activities on the eastern side of the South Quarry will continue until proven reserves are fully extracted, expected to be some time before the end of 2022. Extraction activities at the western end of the quarry will continue until reserves there are fully depleted, expected to be sometime around the end of 2023 or early 2024. Subject to successful waste licence review, it is expected that the importation, placement and recovery of imported soil and stone on the western side of the quarry will commence in early 2023, while some rock reserves continue to be extracted at the deeper bench (to-17mOD) in the north-western corner of the quarry.

It is not however expected that there will be significant time overlap between quarrying and backfilling activities, and that there is adequate space available on the western side of the quarry for remaining rock reserves to be worked out at the deeper benches in the north-western corner while backfilling and recovery activities are commenced in the south-western corner.

Backfilling of the existing void at the South Quarry will progress separately, in phases on both sides of the quarry. Backfilling on the eastern side with (non-waste) by-product will progress upward in a series of benches (or 'lifts') from the final quarry level of -17mOD, with working platform levels at approximately 15m vertical intervals, the overall effect of which will be to create a stepped west facing fill slope. This slope will advance progressively westwards and upwards. As the lowest bench is filled westwards, the benches above it will be progressively filled and will advance westward in turn behind it.

In a similar manner, backfilling with waste on the western side of the quarry will also progress upward in a series of benches. Backfilling will progress from the final quarry level of -17mOD, with working platform levels at approximately 15m vertical intervals, the overall effect of which will be to create a stepped east facing fill slope. This slope will advance progressively east and upwards. As the lowest bench is filled eastwards, the benches above it will be progressively filled and advanced eastward in turn behind it.

A schematic cross-section illustrating how backfilling / recovery activities will progress in stages at the South Quarry is provided in Figure 4-8-1F. Final formation levels on completion of the backfilling and recovery operations will vary on account of the gently sloping nature of the restored landform, from approximately 79mOD to 81mOD on the western side to approximately 75mOD to 78mOD on the eastern side (refer to cross-sections in Figure 4-8-1E).

On final completion of the backfilling activities at the South Quarry, the upper surface of imported and backfilled mineral soil will be levelled and contoured and a cover layer of subsoil (approximately 150mm deep) and topsoil (approximately 150mm deep) will be placed across it as part of the final restoration works. The upper surface will then be harrowed and seeded in order to establish grass cover, promote stability and minimise soil erosion and dust generation. The approved restoration scheme also provides for planting of hedgerows across the restored area in an effort to re-establish some of the former field boundaries which pre-dated quarry development.

Capacity and Lifespan

The estimated volume of soil and stone material to be placed at the South Quarry to backfill it to former ground level is approximately 12.4 million m^3 (equivalent to approximately 22.32 million tonnes). Of this, approximately 5.2 million m^3 (or 9.36 million tonnes) will comprise soil and stone imported managed as waste which will be placed and recovered on the western side of the quarry. The balance 7.2 million m^3 (or 12.96 million tonnes) will comprise natural soil and stone imported and managed as (non-waste) by-product which will be placed on the eastern side of the quarry and natural soils / crushed rock used to construct the dividing berm.

The duration of backfilling activities at the South Quarry will largely be dictated by the rate at which approximately 12.4 million m^3 (or 22.32 million tonnes) of externally sourced soil and stone is imported to site, both as waste and as by-product.

This waste licence review application provides for importation of soil and stone waste at a maximum rate of 750,000 tonnes per annum, and it is expected, based on the current high level of demand for soil waste recovery at Huntstown, that this maximum intake limit will be achieved each year as recovery activities continue on the western side of the South Quarry.

Assuming that the rate of soil and stone waste intake to the western side of the South Quarry is at the maximum limit of 750,000 tonnes per annum, it would be expected that the full complement of soil and stone waste intake on the western side of the South Quarry would be backfilled and recovered in 12½ years from commencement of operations early in 2023 (i.e. by mid-2035).

As noted previously, separate provision is made for the importation and backfill of soil and stone (non-waste) by-product at the eastern side of the South Quarry. At the current point in time, Roadstone has provided undertakings to reserve some void space at the South Quarry to facilitate prospective large-scale development / infrastructure projects being planned and promoted by a number of State bodies. As the timing, scale, rate and likely duration of any by-product importation from these projects is uncertain, no definitive detail can be provided around the timing of backfill and restoration activities on the eastern side of the quarry.

Should the planning and funding of any large-scale State backed project advance sufficiently in coming years, Roadstone envisages that the planning and regulatory aspects around the management of any excess soil and stone by-product and its potential consignment for backfilling of the South Quarry at Huntstown will be addressed by way of the project-specific planning consent submitted by the project promoter, or by way of a separate planning application submitted by Roadstone acting as agent on its behalf and at its behest.

Material Requirements

The only material requirements in respect of the approved restoration scheme at the Huntstown quarries are the naturally occurring soil, stone and rock to be used in backfilling them.

The total volume of backfilled soil required to create the restored landform at the South Quarry is estimated to be approximately 12.4 million m^3. The backfilled materials will be subject to a degree of compactive effort in order maximise the overall capacity of the proposed recovery facility. An average target compaction density of 1.8t/m^3 assumed for tonnage assessment purposes, gives the overall requirement for approximately 22.32 million tonnes of soil and stone / subsoil.

No construction and demolition waste (intermixed concrete, brick, pipes, metal, timber etc.) is imported for quarry backfilling purposes. At the present time, it is expected that minor quantities of virgin aggregate will be used as, and when, required to facilitate construction of temporary haul roads and movement of HGVs across any backfilled areas within the South Quarry.

A relatively small volume, estimated at no more than 50,000m^3 (90,000 tonnes) will be sourced from on-site stockpiles and/or perimeter screening berms for use in construction of the dividing berm between waste and by-product backfill areas and for final site levelling works required for the quarry restoration. An estimated 60,000 tonnes of crushed rock sourced on-site will also be required for construction of temporary haul roads and the dividing berm. All other materials required to backfill the quarry will need to be imported.

Much of the soil and stone is expected to be sourced either from greenfield development sites or from deeper (basement) excavations into undisturbed and uncontaminated soils at previously developed sites.

An estimate of the material quantities required to complete backfilling at the South Quarry is provided below: -

Table 4-8-1
Material Requirements

Material	Quantity (tonnes)	Source
Subsoil, stones and rock Of which *waste* *non-waste by-product*	22,320,000 tonnes *9,360,000 tonnes* *12,750,000 tonnes*	Imported
Stockpiled soil (subsoil)	90,000 tonnes	In-situ
Aggregate / Crushed Rock	60,000 tonnes	In-situ (adjoining quarry)
Topsoil	60,000 tonnes	In-situ / Imported

Licensed Waste Activities

The backfilling of existing quarry voids with soil and stone waste is deemed to constitute waste recovery through deposition for the purposes of land improvement or restoration. The approved restoration and backfilling scheme for the Huntstown quarries provides for direct use of imported soil and stone, without any further processing.

As at the North and West Quarry, the restoration / backfilling of the South Quarry using imported soil and stone waste will comprise the following classes of waste activity in accordance with the Waste Management Acts 1996 – 2020:

- Class No. R3 : *Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)*. This activity applies to proposed importation and use of topsoil for use in the final restoration of the landform.
- Class No. R5 - *Recycling and reclamation of other inorganic materials, which includes soil cleaning resulting in recovery of the soil and recycling of inorganic construction materials* (Principal Activity). This activity is limited to the recovery of soil and stone through deposition, for the purposes of improvement or development of land.
- Class No. R13 - *Storage of waste pending any of the operations R1 to R12*. This activity will be limited to the temporary storage of imported waste for recovery purposes at the facility (e.g. stockpiling of topsoil, mineral soil and stone or fragmented rock).

The western side of the South Quarry (within the licensed site area) will be backfilled using only pre-approved natural soil materials imported from external, pre-approved development sites which

comply with the facility's waste acceptance criteria. No peat, contaminated soils or non-hazardous waste will be accepted for backfilling purposes.

Waste Acceptance and Handling

Waste intake and acceptance at the South Quarry will be in line with established procedures at the existing facility and/or any waste acceptance plan approved by the EPA under the pre-existing licence, details of which are summarised below.

The source of each large consignment of soil and stone waste imported to the facility for backfilling and recovery purposes is identified in advance and subject to basic characterisation testing to confirm that soils at the source site are inert and comply with the facility's waste acceptance criteria. Characterisation testing is typically undertaken in advance by customers / clients / contractors intending to forward soil to the facility.

Operating procedures at the licensed recovery facility require all soil and stones forwarded for backfilling / recovery purposes to be pre-sorted at source and free of construction or demolition waste or any non-hazardous / hazardous domestic, commercial or industrial wastes.

CCTV cameras mounted around weighbridges and weighbridge offices are used to inspect all consignments being imported for backfilling and recovery. Any waste materials that are deemed to be unacceptable for recovery at the facility based on a visual inspection at the weighbridge are rejected and directed to an alternative authorised waste facility.

All soils imported to the facility are unloaded (end-tipped) from HGVs / trucks at the designated backfilling areas. Waste consignments are visually inspected by site personnel at that point to confirm that there is no intermixed construction or demolition, non-hazardous or hazardous waste placed within it.

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

A representative sample is taken from one in every 2000 tonnes of soil and stone accepted at the recovery facility and subjected to compliance testing by Roadstone (as required by the existing waste licence). These data are used to confirm that the accepted waste soils are inert and conform with site waste acceptance criteria.

Removal of Materials Off-Site

Any non-conforming, non-hazardous or hazardous wastes identified within the soil and stone wastes imported for recovery are separated and transferred to the waste inspection and quarantine facility, pending subsequent removal off-site to authorised waste disposal or recovery facilities by permitted waste collectors. On the basis of experience gained to date in operating the waste recovery facility at the North Quarry and West Quarry, Roadstone anticipates that future quantities of such wastes requiring removal off-site are likely to be very low.

It is envisaged that small volumes of virgin aggregate will be used for construction of temporary haul roads to facilitate backfilling and recovery activities at the South Quarry. Any excess aggregates / construction materials or inactive plant / equipment around the western side of the South Quarry will be transferred to an appropriate location or facility within the wider quarry complex prior to commencement of backfilling and recovery activities. Any existing scrub vegetation will also be removed in advance for recovery at an authorised facility.

Any construction and demolition waste inadvertently brought to site in the course of the recovery operations is separated using mechanical plant and stockpiled at the waste quarantine facility pending transfer off-site to an authorised construction and demolition waste recovery facility.

Any occasional metal waste encountered on site is separated and placed in a skip pending removal off site to an authorised waste recovery facility. Other non-inert waste (timber, plastic etc.) is also separated and placed in a skip pending removal to an authorised waste 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.

Stability and Drainage of Backfilled Materials

The areas of the South Quarry to be backfilled are underlain by slightly weathered to fresh intact, competent bedrock. Backfilling using in-situ and imported soil and stone will not therefore induce failure within the underlying ground. The application of loading to the underlying rock will not exceed that which existed prior to extraction and, as such, no deep-seated foundation failure is anticipated.

Temporary side slopes in backfilled soils are graded locally to minimise risk of any instability arising in the imported backfill materials. Temporary access ramps into and out of active backfilling areas are / will be constructed at a gradient of 1v:10h or shallower to facilitate HGV / truck access. Ongoing inspection and assessment of stability will be undertaken as backfilling operations progress.

During the quarry restoration / backfilling works, the upper surface of the backfilled materials is graded to ensure any surface water run-off falls to sumps at temporary low points on the quarry floor or within the backfilled materials. As previously noted, water will be pumped from temporary sumps to existing settlement ponds at original ground surface level, and from there is discharged via water treatment infrastructure to the Finglas Stream.

In the longer-term, once restoration works are complete, there will be no risk of instability as the final ground surfaces will be relatively flat or graded to form very shallow slopes. Surface gradients on completion of the site restoration activities will be everywhere less than 1v:2h (26°) and, over much of the restored area, will be considerably shallower than this.

Given that the bulk of the soil materials to be imported to site for restoration purposes are likely to be relatively competent glacial tills, no long-term slope instability is anticipated to occur.

ENVIRONMENTAL CONTROLS

Restoration and backfilling activities at Huntstown require a number of environmental controls to eliminate or minimise the potential nuisance to the public arising from the importation, placement and compaction of soil and stones. The environmental control measures outlined in the following sections are already in place at the North Quarry and West Quarry and will continue in operation, being extended to the South Quarry where necessary once backfilling and recovery of soil and stone intake commences.

The quarry restoration and backfilling activities at the North Quarry and West Quarry at Huntstown are regulated by conditions attached to the current soil waste recovery licence (Ref. W0277-03) issued by the EPA. Any additional control measures, over and above those already in place and/or outlined below, which may be required on foot of an EPA waste licence review to provide for the projected increase in waste intake, will also be implemented.

Dust Control

In dry, windy weather conditions, the restoration / backfilling activities at Huntstown may give rise to dust blows across and beyond the quarries / waste recovery facility. In order to control dust emissions, the following measures are / will be implemented :-

- water is sprayed from a tractor drawn bowser on dry exposed surfaces (paved roads, unsealed haul roads and hardstand areas) to dampen dust and minimise emissions;
- dust blows are partially screened by the quarry side walls as backfilling progresses upwards from the quarry floor;
- as the level of backfilled material approaches final (original) surface levels, it will be seeded with grass on a phased basis, as soon as practicable after placement of cover soils (subsoil and topsoil) to minimise soil erosion and potential dust emissions;
- all HGV's / trucks exiting the recovery facility are routed through the existing wheelwash facility along the egress route to the R135 Regional Road (refer to Figure 4-8-1B). This minimises the transport of fines by HGVs / trucks over the access / egress road and the public road network;
- stockpiling of imported soil materials will be minimized. Soils will ideally be placed and compacted in-situ immediately after being imported. If and when temporary stockpiling of soil is required, it will be placed as far as practicable from any nearby residences or business premises; and
- the area of bare or exposed soils will, insofar as practicable, be kept to a minimum. If excessive dust emissions arise, consideration will be given to establishing temporary vegetation cover over exposed soil surfaces and/or stockpiles pending final restoration to original ground level.

The amount of dust or fines carried onto the public road network is further reduced by periodic sweeping of internal paved site roads and surrounding public roads as required. Increased road cleaning effort is typically required when potentially adverse (dry, windy) weather conditions arise.

Invasive Species

The existing invasive species management plan prepared in respect of ongoing backfilling and recovery activities at Huntstown will be updated and extended to cover future operations at the South Quarry. The updated plan will set out how Roadstone will establish, maintain and implement an invasive species prevention and eradication programme, to cover specific invasive species including, but not limited to, Japanese Knotweed, Giant Knotweed and Bohemian Knotweed.

The invasive species plan identifies specific actions for the prevention of acceptance of invasive species in consignments of imported soil and stone, as well as requirements for periodic surveys of backfilled areas for the detection of invasive species. The plan describes methods of plant detection and identification, identifies remedial actions for eradication of invasive species (if necessary) and sets out requirements for staff training on plant identification and eradication. It also sets out validation requirements to confirm the absence of invasive species on completion of restoration.

Litter Control

As the soil and stones being placed / recovered at the Huntstown Quarry Complex are largely free of litter, the backfilling and recovery activities are unlikely to give rise to problems with windblown litter. Accordingly, there is no requirement to implement any specific litter control measures at the facility.

In the unlikely event that any litter waste is identified among the imported materials, it will be immediately removed to the waste inspection and quarantine facility pending removal off-site to an authorised waste disposal or recovery facility.

Fire Control

As the soil and stones being placed / recovered at the Huntstown Quarry Complex are free of flammable materials and biodegradable waste which could create a fire or explosion risk, on-site backfilling and recovery activities will not present a fire risk. Accordingly, there is no requirement to implement specific fire control measures in respect of these activities.

Notwithstanding this, the following operational practices are / will continue to be implemented in order to prevent any fire outbreak:

- smoking in the facility offices, weighbridge office and canteen is prohibited;
- any biodegradable or flammable waste included in materials imported to site will be immediately transferred to the waste quarantine facility pending removal off-site to an authorised waste disposal or recovery facility; and
- 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 stations in Finglas and Swords will be contacted, and emergency response procedures will be implemented. Appropriate fire extinguishers are provided at all offices and around the quarry complex to deal with any small outbreaks which may occur.

ENVIRONMENTAL MONITORING

There is an established programme of environmental monitoring in connection with ongoing rock extraction, aggregate processing, concrete production and waste recovery activities across the Huntstown quarry complex. This environmental monitoring programme complies with the requirements of existing planning permissions and the effluent discharge licences issued by Fingal County Council in respect of non-waste activities. The monitoring programme also complies with the requirements of the current EPA waste licence (Ref. W0277-03).

Roadstone operates an environmental management programme to monitor and manage emissions from its established on-site operations. Limit values for environmental emissions arising from these activities are identified by the EPA waste licence and other consents (as appropriate).

Environmental sampling, monitoring and testing is generally undertaken by Roadstone's in-house personnel, with support from independent external consultants as and when required. Records of environmental monitoring and testing are held on-site and forwarded to the EPA and/or Local Authority as required under the terms of the waste licence and various consents.

Dust Monitoring

Dust emissions associated with established rock extraction, aggregate processing, concrete production and soil waste recovery activities within the Roadstone landholding at Huntstown are monitored on a monthly basis using Bergerhoff dust gauges at 8 No. locations (designated D1 to D7 and D10) shown on Figure 4-8-1G. These gauges are located close to emission sources or potentially sensitive receptors located beyond Roadstone's property boundary.

It is envisaged that the existing dust monitoring stations will remain in place and that two additional dedicated monitoring stations (D11 and D12) will be established prior to commencement of backfilling and recovery activities at the South Quarry (subject to EPA review). These monitoring

stations will remain in place for the duration of the quarry restoration / backfilling activities and will also continue for a short period thereafter, as required by the waste facility closure and aftercare plan.

Ecological Monitoring

The current waste licence in respect of soil recovery activity at Huntstown (Ref. W0277-03) includes a requirement for an annual bird survey, principally on foot of a historic record / sighting of a peregrine falcon at the North Quarry.

Otherwise, given the history of extractive activity at the South Quarry and the absence of any rare or protected species (refer to Chapter 5 of this EIA Report), it is envisaged that there will be no requirement for any additional ecological monitoring or reporting during backfilling and recovery operations at the South Quarry.

Surface Water Monitoring

The existing waste licence requires surface water sampling to be undertaken on a weekly basis at monitoring location DP, at a compliance point immediately downstream of the settlement ponds which treat water pumped from the backfilling and recovery area at the North Quarry. The treated water is then discharged to the Ballystruhan Stream (within the Ward River catchment). Testing of key chemical parameters is undertaken on collected samples on a weekly basis, while testing of additional parameters is undertaken on either a quarterly or bi-annual basis (depending on the parameter).

At the present time, surface water run-off and dewatered groundwater from the South Quarry is monitored at monitoring location W3, downstream of the settlement ponds which treat waters emanating from the South Quarry, immediately upstream of its discharge to the Finglas Stream (within the River Tolka catchment). Sampling and testing is undertaken on a monthly basis, as required by the existing effluent discharge licence issued by Fingal County Council (Ref WPW/F/075). The locations of the existing monitoring / compliance points are shown on Figure 4-8-1G. Further information on surface water quality and testing is presented in Chapter 7 of this EIA Report.

For the purposes of any future (amended) EPA waste licence, it is envisaged that a new surface water monitoring location (DP2), will be established immediately downstream of the discharge to the pond on the western side of the main access road to the South Quarry, refer to Figure 4-8-1G. This monitoring point, together with monitoring location W3, downstream of the hydrocarbon interceptor, will be adopted as compliance points for future off-site discharge of treated water associated with backfilling and recovery activities at the South Quarry.

In addition to the off-site discharge, occasional sampling and testing is / will also be undertaken on samples taken from any temporary surface water features which may either be created or form naturally at low points within the South Quarry as it is backfilled.

The principle objective of surface water monitoring is to assess water quality and to confirm there is no contamination associated with backfilling and recovery activities on-site. Surface waters will be monitored for the duration of the quarry backfilling and recovery activities and will also continue for a short period thereafter, as may be required by the facility closure and aftercare plan.

Groundwater Monitoring

At the present time, there are 9 No. groundwater monitoring wells installed around the Huntstown Quarry complex. Of these 4 No. are located in the vicinity of the North and West Quarries (GW3, GW4, GW5 and GW7), while 3 No. others are located to the south and east, around the South Quarry (GW6B , GW8 and GW9). The locations of the existing monitoring wells are shown in Figure 4-8-1G.

The principle objective of groundwater testing is to assess ground water quality and to confirm that the on-site activities are having no detrimental impact on groundwater quality. The current waste licence requires testing of physical parameters to be undertaken on collected samples on a quarterly basis, while testing of selected chemical parameters is undertaken on either a bi-annual or annual basis (depending on the test parameter). Further detail on groundwater quality and testing is presented in Chapter 7 of this Environmental Impact Assessment Report.

It is envisaged that the 3 No. existing groundwater monitoring wells around the South Quarry will continue to be monitored for groundwater quality and groundwater level on a quarterly basis for the duration of the quarry restoration / backfilling activities and for a short period thereafter, as required by the waste facility closure and aftercare plan.

Meteorological Monitoring

No meteorological monitoring is undertaken at the existing waste recovery facility. However, given that it is located 6km west of Dublin Airport, it is considered reasonable to refer to temperature, rainfall, sunshine, wind speed and direction records obtained at the Met Éireann weather station at Dublin Airport, as and if required.

Noise Monitoring

Noise emissions associated with ongoing rock extraction, aggregate processing, concrete production and waste recovery activities within Roadstone's landholding at Huntstown are currently monitored on a bi-annual basis at 4 No. locations (designated N1 to N4), all of which are close to the Roadstone property boundary. Noise monitoring locations are indicated in Figure 4-8-1G.

Noise monitoring will remain in place for the duration of the quarry restoration / backfilling activities at the South Quarry and will also continue for a short period thereafter, as required by the waste facility closure and aftercare plan.

PLANNED FINAL RESTORATION AND AFTERCARE

The principal recovery activity undertaken at the Huntstown Quarry Complex is the importation of soil and stone waste to fill existing quarry voids back to their original ground level and to restore the lands to agricultural grassland (refer to the overall site restoration plan provided in Figure 4-8-1C).

Topsoil will only be imported to the South Quarry on occasion, as and when it is available. It will not be used immediately in general backfilling of the quarry void but rather will be stockpiled separately pending re-use toward the latter stages of the works at the quarry, when the top surface of the backfilled ground approaches the planned final ground level envisaged by the restoration scheme.

Any topsoil will be stored separately within the quarry, away from the active backfilling areas and in such location and manner as not to create any temporary adverse visual impact or potential dust nuisance.

On completion of the backfilling activities at the quarry, a cover layer comprising 150mm of topsoil and approximately 150mm of subsoil will be placed over the imported backfill materials. The final landform of the backfilled South Quarry will be modified as necessary to ensure that any surface water run-off falls northward toward the drainage channel / tributary which flows off-site to the headwaters of the Finglas Stream (or is otherwise intercepted and channelled toward it). The upper surface will then be harrowed and seeded to establish grass cover, promote stability and minimise soil erosion and dust generation.

The overall restoration scheme also envisages that hedgerows will be planted across the restored land in an effort to re-establish field boundaries similar to those which pre-dated the development of the South Quarry.

On completion, all mobile plant and equipment associated with the quarry backfilling, recovery and restoration activities will be removed off-site. Any dedicated site accommodation, site 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 concrete production activities (including settlement ponds) will likely remain in place.

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

Following final 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.

FIGURES

Figure 4-8-1A
EXISTING SITE LAYOUT

Figure 4-8-1B
PROPOSED SITE LAYOUT

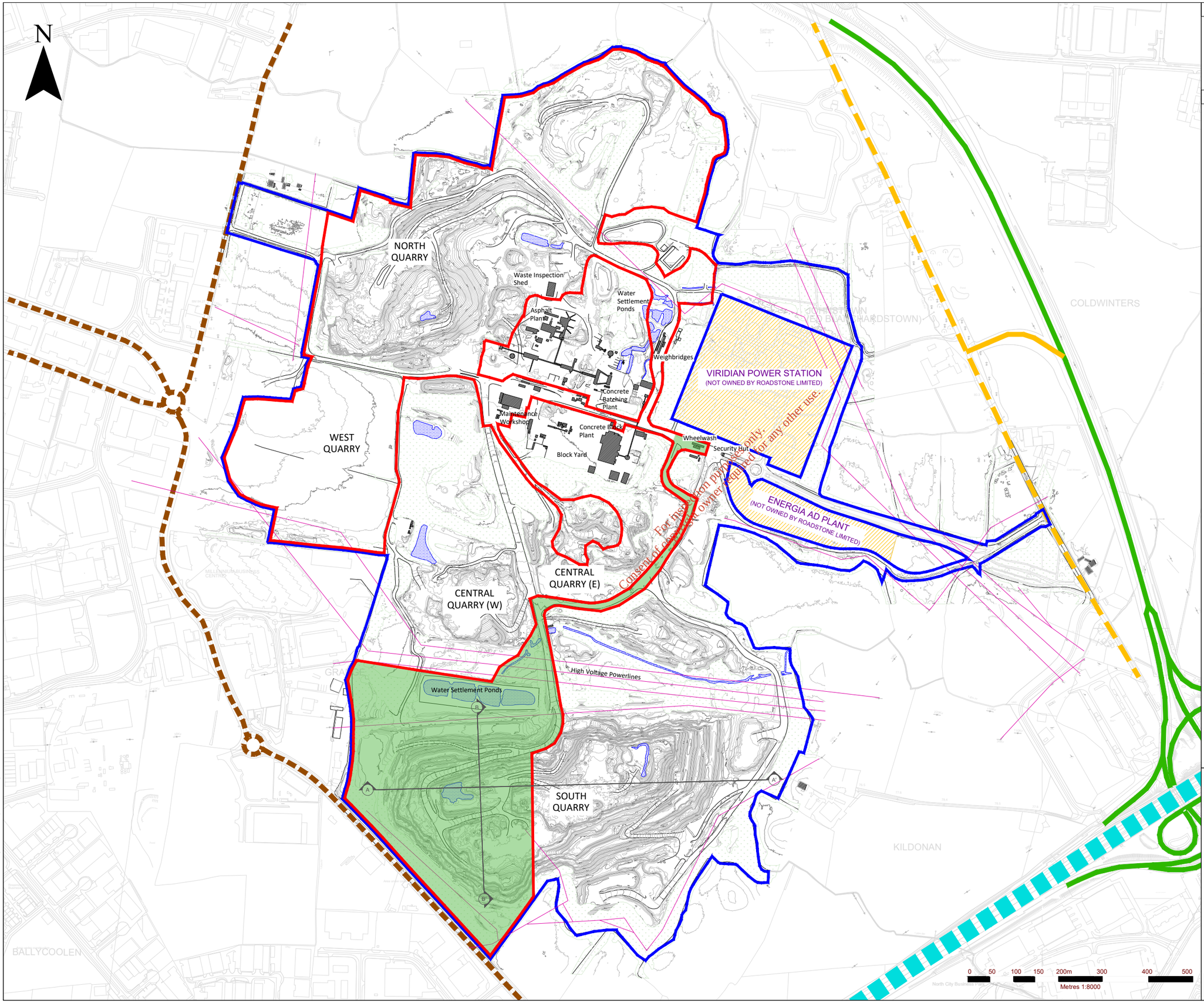
Figure 4-8-1C
APPROVED RESTORATION PLAN

Figure 4-8-1D
PROPOSED FINAL GROUND LEVEL CONTOURS

Figure 4-8-1E
PROPOSED CROSS-SECTIONS

Figure 4-8-1F
PROGRESSIVE BACKFILLING OF SOUTH QUARRY

Figure 4-8-1G
ENVIRONMENTAL MONITORING LOCATIONS



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. **CYAL50167032** (C) ORDNANCE SURVEY IRELAND / GOVERNMENT OF IRELAND

LEGEND

- ROADSTONE LIMITED LAND INTEREST **(C. 171.8 HA)**
- AMENDED WASTE LICENCE AREA (COMPRISING EXISTING LICENCE AREA AND PROPOSED EXTENSION) **(C. 77.5 HA)**
- PROPOSED EXTENSION TO CURRENT WASTE LICENCE AREA
- N2 DUAL CARRIAGEWAY
- R135 REGIONAL ROAD (NORTH ROAD)
- LOCAL ROAD
- M50 MOTORWAY
- OVERHEAD POWER LINES

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

ROADSTONE LTD.

WASTE LICENCE REVIEW APPLICATION

WASTE LICENCE REVIEW APPLICATION
NORTH ROAD, FINGLAS, DUBLIN 11

EXISTING SITE LAYOUT

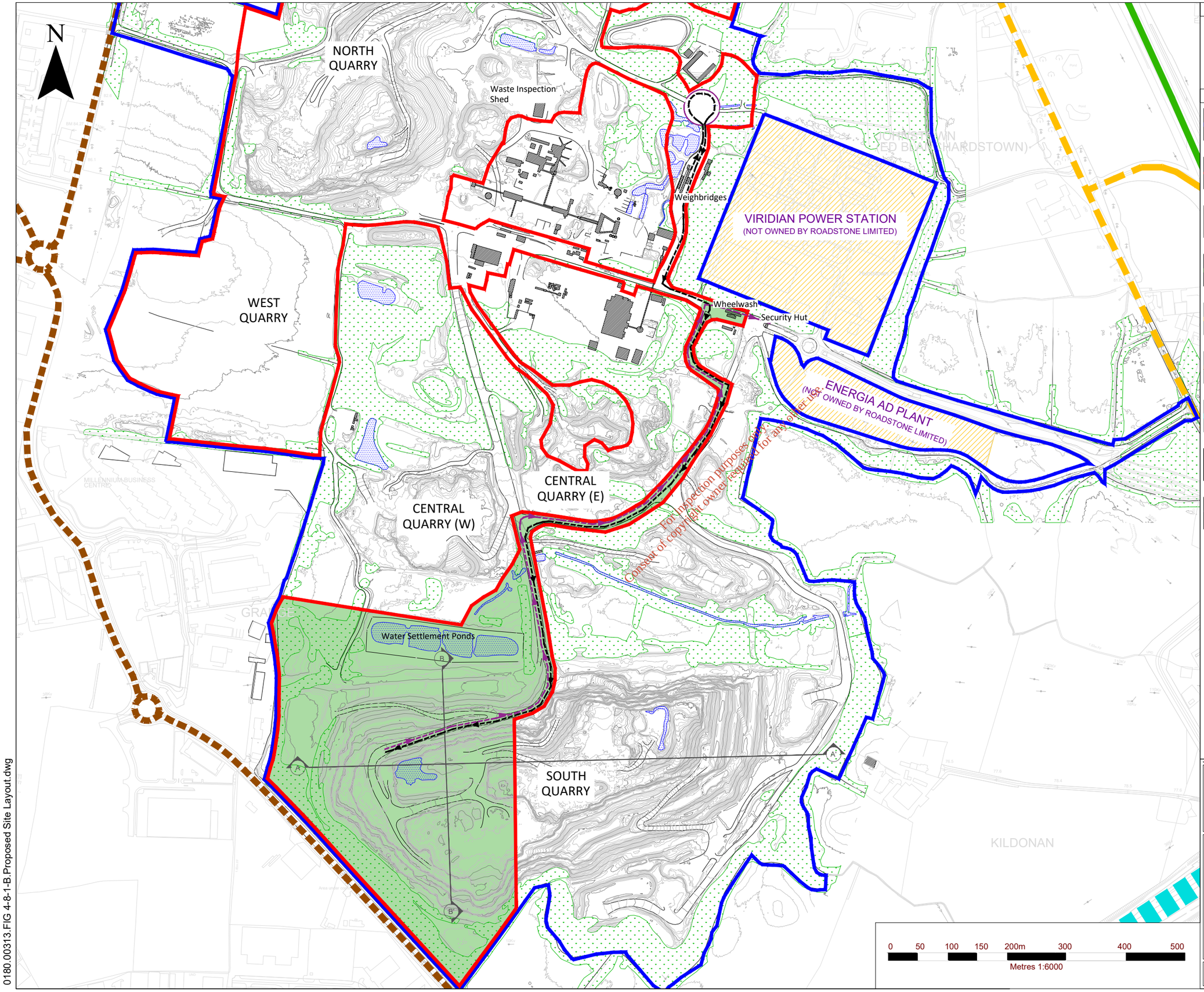
FIGURE 4-8-1A

Scale: 1:8,000 @ A3

Date: DECEMBER 2021

0 50 100 150 200m 300 400 500
Metres 1:8000

0180.00313.FIG 4-8-1-A.Existing Site 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. **CYAL50167032** (C) ORDNANCE SURVEY IRELAND / GOVERNMENT OF IRELAND

LEGEND

- ROADSTONE LIMITED LAND INTEREST **(C. 171.8 HA)**
- AMENDED WASTE LICENCE AREA (COMPRISING EXISTING LICENCE AREA AND PROPOSED EXTENSION) **(C. 77.5 HA)**
- PROPOSED EXTENSION TO CURRENT WASTE LICENCE AREA
- N2 DUAL CARRIAGEWAY
- R135 REGIONAL ROAD (NORTH ROAD)
- LOCAL ROAD
- M50 MOTORWAY
- INWARD HAUL ROUTE
- OUTWARD HAUL ROUTE

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

ROADSTONE LTD.

WASTE LICENCE REVIEW APPLICATION

WASTE LICENCE REVIEW APPLICATION
NORTH ROAD, FINGLAS, DUBLIN 11

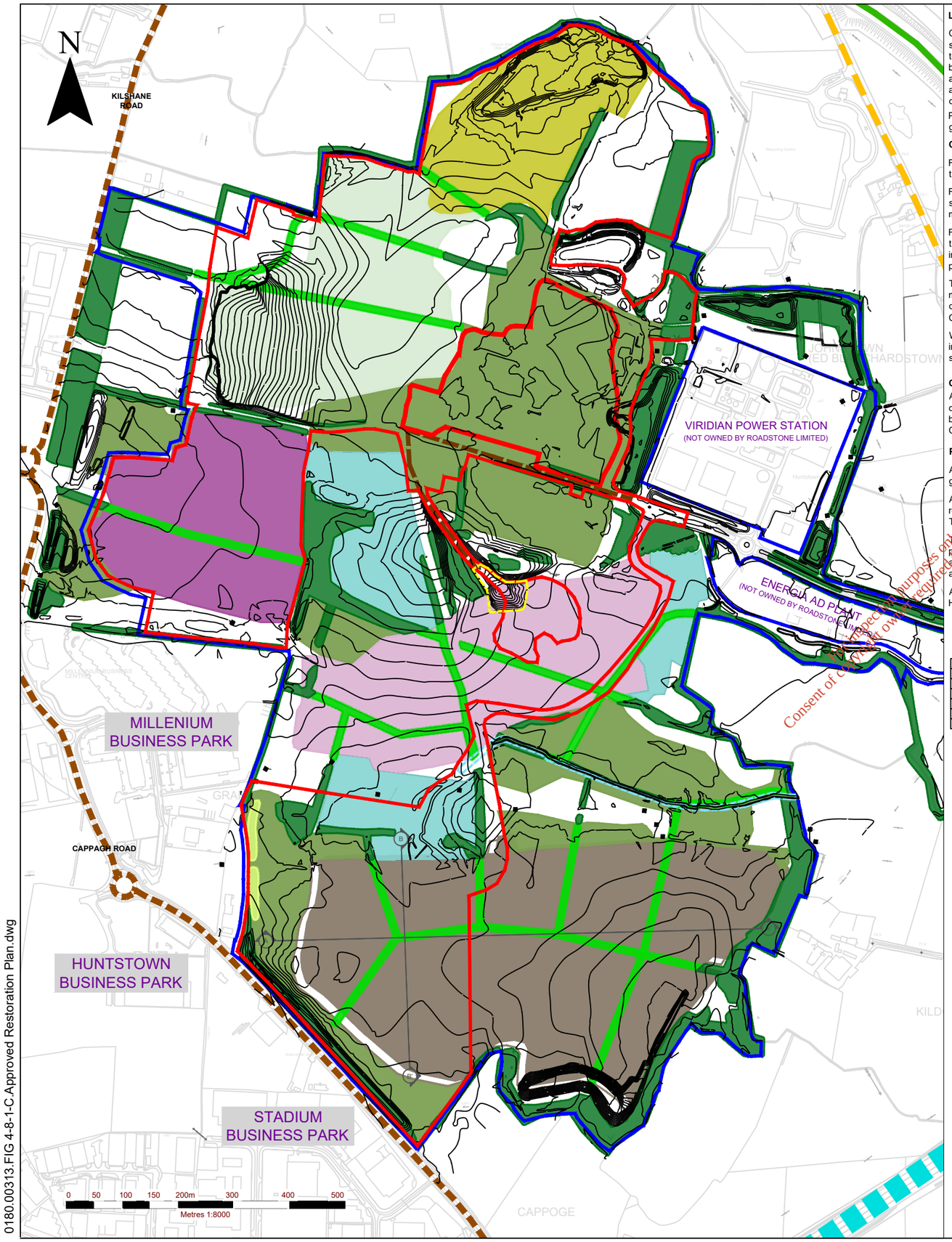
PROPOSED SITE LAYOUT

FIGURE 4-8-1B

Scale: 1:6,000 @ A3

Date: DECEMBER 2021

0180.00313.FIG 4-8-1-B.Proposed Site Layout.dwg



LANDSCAPE AND RESTORATION SCHEME

On completion of the extraction works, it is proposed to fill the quarry voids using imported inert soils and overburden and topsoil stored on site. The western quarry was restored without having been quarried for rock. The remaining quarry areas will be returned to agricultural after-use, with the exception of the Central Quarry which will be restored to calcareous grassland, to increase the biodiversity of the site and connect the existing wildlife areas. The final restored levels will be similar to the previous levels, prior to any extraction works taking place. Restoration will take place in a phased manner, as extraction operations cease in a given area and are subject to waste licenses being granted. In order to divide the large sites into smaller compartments, it is proposed to carry out native hedge planting in the location of former boundary lines, as indicated on the plan.

Please note that Roadstone Ltd are committed to pump all of the worked out quarry voids until such time that waste licenses are granted and the voids are filled to above the ground water level, in order to avoid large water bodies forming.

CULTIVATION, GRASS SEEDING AND ESTABLISHMENT (AGRICULTURAL GRASSLAND)

Following cessation of landform construction, topsoil and soil forming materials, from storage mounds on site, are to be spread over the areas to be restored to grassland. All soil handling to be carried out in accordance with current best pactice guidance.

Final cultivations will include raking the seeding area with a chain harrow or drag mat to form a true, even surface, suitable for subsequent maintenance by mechanical blade trimming and extending the cultivation into any adjacent existing areas to ensure full marrying in of levels and to achieve a fine tilth.

For all areas, an agricultural seed mix suitable for the intended land use will be evenly sown, in calm weather, at an appropriate time of year (for example September) at the rate recommended by the manufacturer. The seed to be used is to be fresh and for use in the season of seeding. A certificate is to be provided in respect of each consignment of seed mix giving the supplier's name, the proportions of constituents of the mixture and a signature of the representative of the supplier.

The contractor shall mix the seed well with bulking agent, e.g. dry sand, in order to assist an even distribution. The seed will be mixed well before application and frequently during application. The seed will be divided into two equal sowings in two transverse directions at the specified rates. After seeding, the soil will be lightly harrowed or surface raked and rolled lightly, for example with a Cambridge roller, to ensure a good contact between soil and seed.

When the grass is between 40mm and 75mm high, the contractor will remove debris and all stones and clay balls larger than 40mm in any dimensions and roll the area with a light roller. The area will be cut to approximately 35mm high. Spot treatment using a selective herbicide shall be applied to pernicious agricultural weeds, such as thistle, docks and ragworth.

CALCAREOUS GRASSLAND

As far as practically possible, the in-filled Central Quarry will be restored to fields supporting calcareous grassland. As the landform construction is nearing completion, guidance will be sought from an experienced ecological consultant. It is envisaged that it should be possible to collect seed and/or take hay cuts for seeding from the existing fields along the eastern boundary of the Central Quarry. In any case no fertiliser will be applied to this area, to ensure the best chance of developing a species rich sward.

PROPOSED NATIVE WOODLAND SCREEN AND HEDGE PLANTING

Approximately 3,000 sq.m. of woodland screen planting is to be carried out and it to be planted at 1.5m centres, in same species groups of 20-30. Groups are to be randomly spread throughout the planting blocks.

Approximately 4,800 lin.m. of hedge will be planted in total. Hedges are 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 and staked. Transplants to be planted randomly in same species groups of 10-20.

Trees shall conform to BS3936 for nursery stock and shall be supplied true to size and species name, as per the tables below. All proposed plant species are native and will be sourced locally. The percentage of berry producing trees is low, in order not to attract a large amount of birds, which could result in a hazard for Dublin Airport. Planting is to take place between the months of November and March.

All plant handling, planting works and aftercare will be carried out in accordance with the CPSE Recommendations for Plant Handling. Establishment maintenance to be carried out for 24 months following the completion of each planting phase.

Native Woodland Screen Planting Mix

No.	Plant Name	Common Name	Height (cm)	Age/Pot Size	%
Transplants					
390	Alnus glutinosa	Common Alder	60-90	1+1	30
260	Corylus avellana	Hazel	60-90	1+0	20
390	Euonymus europaeus	Spindle Tree	60-90	1+1	30
130	Quercus robur	Pedunculate Oak	60-90	1+1	10
130	Salix caprea	Goat Willow	60-120	0+1	10

Native Hedge Planting Mix

No.	Plant Name	Common Name	Height (cm)	Age/Pot Size	%
Feathered Trees					
190	Alnus glutinosa	Common Alder	150-175	2xTR	1
190	Quercus robur	Pedunculate Oak	150-175	2xTR	1
Transplants					
3450	Alnus glutinosa	Common Alder	60-90	1+1	18
4800	Corylus avellana	Hazel	60-90	1+0	25
2880	Crataegus monogyna	Hawthorn	60-90	1+1	15
4800	Euonymus europaeus	Spindle Tree	60-90	1+1	25
1920	Prunus spinosa	Blackthorn	60-90	1+0	10
960	Sorbus aucuparia	Rowan	60-90	1+1	5

PROPOSED RESTORATION FEATURES

- PROCESSING AREA, DISTURBED GROUND & OVERBURDEN AREAS TO BE LEVELLED AND RESTORED TO AGRICULTURAL LAND
- CENTRAL QUARRY AREA TO BE BACK-FILLED AND RESTORED TO CALCAREOUS GRASSLAND SUBJECT TO FUTURE WASTE LICENCE APPLICATION
- PROPOSED HEDGEROWS IN THE APPROXIMATE LOCATIONS OF FORMER BOUNDARY LINES
- RETAINED QUARRY FACE FOR FUTURE ACCESS TO VIEW TOBER COLLEEN FORMATION OVERLAYING WAULSORTIAN LIMESTONE
- RETAINED INTERNAL ACCESS ROAD TO VIEW QUARRY FACE

NOTES

Extraction form OSI Discovery Series Map No. 50
CYAL50167032 (C) Ordnance Survey Ireland / Government of Ireland

TOPOGRAPHIC SURVEY PREPARED BY FUGRO BKS BASED ON MAY 2009 AERIAL PHOTOGRAPHY

ALSO REFER TO FIGURE 2-5: RESTORATION SECTIONS (SOUTHERN QUARRY)

LEGEND

- ROADSTONE LIMITED LAND INTEREST **(C. 171.8 HA)**
- AMENDED WASTE LICENCE AREA (COMPRISING EXISTING LICENCE AREA AND PROPOSED EXTENSION) **(C. 77.5 HA)**
- HEDGEROWS AND SCREEN PLANTING BELTS
- WILDLIFE AREAS
- AREA PREVIOUSLY BACK-FILLED UNDER WASTE FACILITY PERMITS
- STREAM CORRIDOR FROM WILDLIFE AREA TO EASTERN BOUNDARY OF SITE

PROPOSED LANDSCAPE FEATURES

- PROPOSED WOODLAND SCREEN PLANTING ALONG PARTS OF WESTERN BOUNDARY

PROPOSED RESTORATION FEATURES

- PROPOSED RESTORATION CONTOURS
- NORTH QUARRY AREA CURRENTLY BEING BACK-FILLED AND RESTORED TO AGRICULTURAL LAND (UNDER EXISTING WASTE LICENCE REF: W0277-03)
- RECENTLY BACKFILLED WESTERN QUARRY AREA, RESTORED TO AGRICULTURAL LAND (UNDER EXISTING WASTE LICENCE REF: W0277-03)
- SOUTH QUARRY AREA TO BE BACKFILLED AND RESTORED TO AGRICULTURAL LAND (SUBJECT TO WASTE LICENCE REVIEW APPLICATION)

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

ROADSTONE LTD.
WASTE LICENCE REVIEW APPLICATION

WASTE LICENCE REVIEW APPLICATION
NORTH ROAD, FINGLAS, DUBLIN 11

RESTORATION PLAN
HUNTSTOWN QUARRY COMPLEX

FIGURE 4-8-1C

Scale: 1:8,000 @ A3
Date: DECEMBER 2021

0180.00313.FIG 4-8-1-C.Approved Restoration Plan.dwg

WEST QUARRY

CENTRAL QUARRY (W)

CENTRAL QUARRY (E)

SOUTH QUARRY

Concrete Batching Plant

Maintenance Workshop

Concrete Block Plant

Block Yard

Wheelwash

Security Hut

ENERGIA AD PLANT
(NOT OWNED BY ROADSTONE LIMITED)

Perimeter Screening Berm

A

A'

B

B'

GRANGE

KILDONAN

CAPPOGE

0 50 100 150 200m 300 400 500

Metres 1:5000

0180.00313.FIG 4-8-1-D.Proposed Final Ground Level Contours.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. **CYAL50167032** (C) ORDNANCE SURVEY IRELAND / GOVERNMENT OF IRELAND

LEGEND

- ROADSTONE LIMITED LAND INTEREST **(C. 171.8 HA)**
- AMENDED WASTE LICENCE AREA (COMPRISING EXISTING LICENCE AREA AND PROPOSED EXTENSION) **(C. 77.5 HA)**
- PROPOSED EXTENSION TO CURRENT WASTE LICENCE AREA
- N2 DUAL CARRIAGEWAY
- R135 REGIONAL ROAD (NORTH ROAD)
- LOCAL ROAD
- M50 MOTORWAY
- PROPOSED FINAL CONTOURS FOR EXTENSION TO CURRENT WASTE LICENSE AREA

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

ROADSTONE LTD.

WASTE LICENCE REVIEW APPLICATION

WASTE LICENCE REVIEW APPLICATION
NORTH ROAD, FINGLAS, DUBLIN 11

PROPOSED FINAL GROUND LEVEL CONTOURS

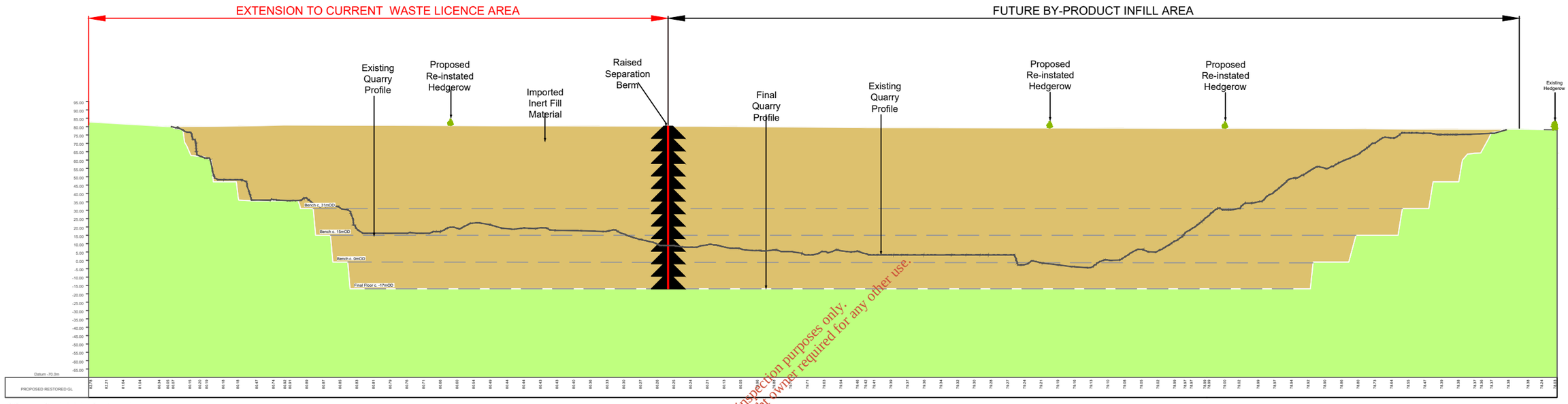
FIGURE 4-8-1D

Scale: 1:5,000 @ A3

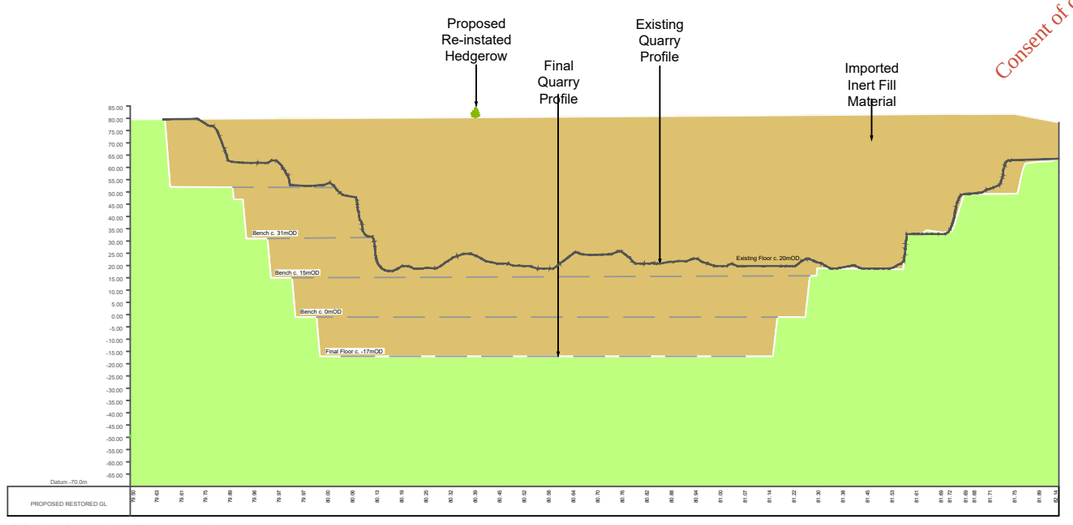
Date: DECEMBER 2021

NOTES

Refer to Fig 4-8-1A and Fig 4-8-1B for the Cross Section Locations



SOUTH QUARRY - Section A - A'



SOUTH QUARRY - Section B - B'

0 80m 200

Metres 1:2500

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

ROADSTONE LTD.

WASTE LICENCE REVIEW APPLICATION

WASTE LICENCE REVIEW APPLICATION
NORTH ROAD, FINGLAS, DUBLIN 11

PROPOSED CROSS SECTIONS

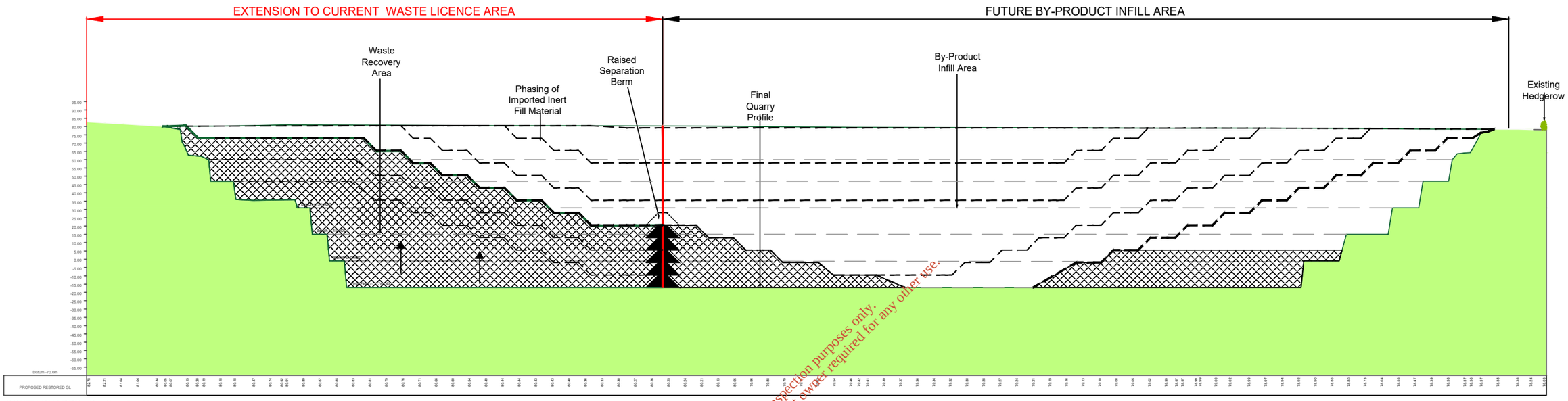
FIGURE 4-8-1E

Scale	Date
1:2,500 @ A3	DECEMBER 2021

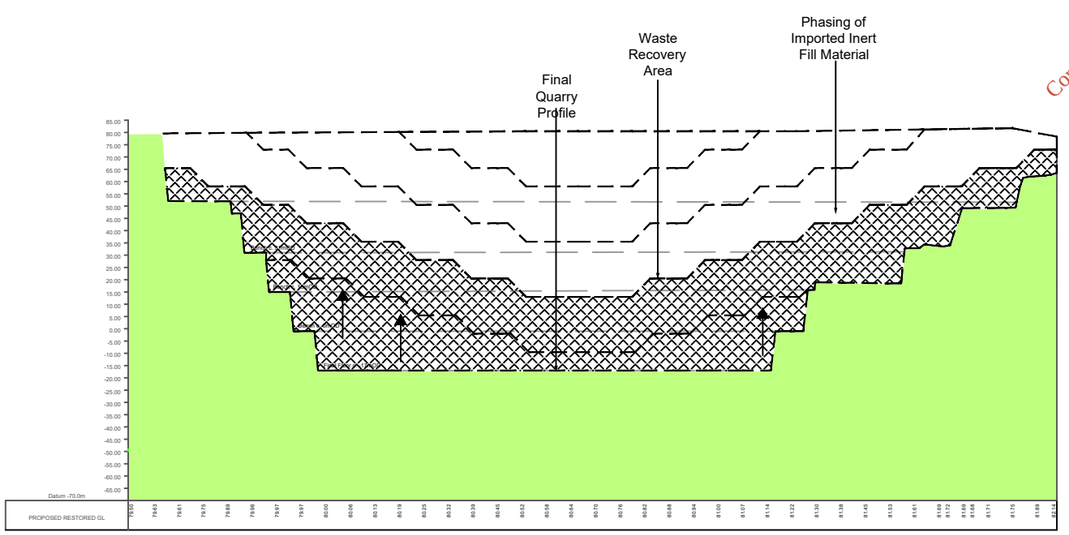
0180.00313.FIG 4-8-1-E.Proposed Cross Section.dwg

NOTES

Refer to Fig 4-8-1A and Fig 4-8-1B for the Cross Section Locations



SOUTH QUARRY - Section A - A'



SOUTH QUARRY - Section B - B'

0 80m 200

Metres 1:2500

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

ROADSTONE LTD.

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

WASTE LICENCE REVIEW APPLICATION
NORTH ROAD, FINGLAS, DUBLIN 11

PROGRESSIVE BACKFILL OF SOUTH QUARRY

FIGURE 4-8-1F

Scale: 1:2,500 @ A3

Date: DECEMBER 2021

0180.00313.FIG 4-8-1-F.Progressive Backfilling of South Quarry.dwg

N

D2
GW07
D4
GW04
N4
DP
GW03
W4
VIRIDIAN POWER STATION
(NOT OWNED BY ROADSTONE LIMITED)
D6
GW05
D10
D3
N3
ENERGIA AD PLANT
(NOT OWNED BY ROADSTONE LIMITED)
GW02A
D1
GW01A
N1
GW09
DP2
W3
D5
D12
PROPOSED FUTURE
DUST MONITORING LOCATION
N2
PBH-1
GW08
D11
PROPOSED FUTURE
DUST MONITORING LOCATION
GW06A
GW06B

COLDWINTERS
KILDONAN

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. **CYAL50167032** (C) ORDNANCE SURVEY IRELAND / GOVERNMENT OF IRELAND

LEGEND

- ROADSTONE LIMITED LAND INTEREST **(C. 171.8 HA)**
- AMENDED WASTE LICENCE AREA (COMPRISING EXISTING LICENCE AREA AND PROPOSED EXTENSION) **(C. 77.5 HA)**
- PROPOSED EXTENSION TO CURRENT WASTE LICENCE AREA
- N2 DUAL CARRIAGEWAY
- R135 REGIONAL ROAD (NORTH ROAD)
- LOCAL ROAD
- ON-SITE GROUNDWATER WELL LOCATIONS
- PRIVATE WELLS
- HUNTSTOWN POWER STATION WELL LOCATIONS
- N1 — NOISE MONITORING LOCATION
- D1 — DUST MONITORING LOCATION
- W3 — SURFACE WATER MONITORING LOCATION

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

ROADSTONE LTD.

WASTE LICENCE REVIEW APPLICATION

WASTE LICENCE REVIEW APPLICATION
NORTH ROAD, FINGLAS, DUBLIN 11

ENVIRONMENTAL MONITORING LOCATION

FIGURE 4-8-1G

Scale	Date
1:8,000 @ A3	DECEMBER 2021

0180.00313.FIG 4-8-1-G.Environmental Monitoring Locations.dwg