

OPERATIONAL REPORT

EXISTING DEVELOPMENT

The application site is accessed through the existing Kilsaran Concrete Facility entrance located on the western side of the R448 Regional Road (the old N9 National Primary Road). The plan extent of the application site is indicated on the site location map in Figure 4-8-1A and the existing site plan in Figure 4-8-1B.

The plan area of the proposed licensed waste facility comprises lands previously used for sand and gravel extraction (in the western part of the application area) and lands currently in agricultural use (in the north-eastern part of the application area) – refer to Figure 4-8-1B.

The application site adjoins Kilsaran's existing concrete manufacturing facility to the north, which will continue to operate for the foreseeable future. A restored sand and gravel pit, previously operated by Kilsaran, is located to the north-west of the application site (Kildare Co. Co. Planning Ref. No. 02/850 and ABP Ref. PL09/203493) – refer to Figure 4-8-1B.

Sand and gravel extraction was first established at the application site at Halverstown in the early 1940's, pre-dating the enactment of the first Planning and Development Act in 1964. This pre-1964 authorised area was fully exhausted of sand and gravel reserves prior to 1988. The northern area continues to be used for concrete block manufacturing activities. The southern area, where it is proposed to locate the licensed waste facility, was previously used for sand and gravel extraction, was used as a storage area and holds former silt settlement ponds.

It is proposed to infill over the former silt settlement lagoon area as part of this licence application in addition to infilling some lands currently in agricultural use – refer to the proposed site layout plan in Figure 4-8-1C and the existing / proposed cross sections in Figure 4-8-1D.

Planning Permission and a Waste Facility Permit for a smaller scale recovery facility was granted by Kildare County Council in 2016 (Planning Ref. No. 15/189 and Waste Permit Ref. No. WFP KE 16 0085 01). This permission provides for partial infilling of the lands previously used for sand and gravel extraction. This development has commenced and associated infrastructure, including a wheelwash and weighbridge with office, has been constructed in accordance with the requirements of the planning permission / waste facility permit.

PROPOSED DEVELOPMENT

Development Overview

The planned restoration scheme for the former sand and gravel pit and operation of an inert soil recovery facility at Halverstown, Kilcullen, Co. Kildare provides for:

- Use of approximately 1,200,000 tonnes of imported inert natural materials, principally excess soil, stones and/or broken rock to fill and restore the disturbed landform created by previous extraction of sand and gravel and to improve lands currently in agricultural use – refer to Figure 4-8-1C.
- Use of existing and/or previously approved site and services infrastructure including, site office, staff welfare facilities, weighbridge (with dedicated office), wheelwash, hardstand areas, fuel storage tanks, waste inspection and quarantine facility and covered shed;
- Separation of any construction and demolition waste (principally concrete, metal, timber, PVC pipes and plastic) inadvertently imported to site prior to removal off-site to authorised waste disposal or recovery facilities;

- Temporary stockpiling of topsoil and subsoil pending re-use as cover material for final restoration of the site;
- Restoration of the excavated landform (including placement of cover soils and seeding) to its natural habitat, rough grazing and tillage;
- Environmental monitoring of noise, dust and groundwater for the duration of the site restoration works and for a short period thereafter.

The lands will be filled using only inert soil materials imported from external, pre-approved development sites. No peat, contaminated soils or non-hazardous waste will be accepted at the proposed recovery facility. The layout of the existing site is shown on Figure 4-8-1A and Figure 4-8-1B.

It is envisaged that the following wastes (EWC codes) will be deposited (or recovered) at the facility:

- 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 stone from municipal facilities.

Site Screening

There are minimal views of the licence application area from locations to the east, south and west of the site, with the exception of views of the site entrance from the R448 Regional Road. This is due to the dense vegetation along all of the western, southern and the majority of the eastern boundary of the application site, as well as the flat topography of the site and surrounding lands (refer to Chapter 13 of the accompanying EIAR : Landscape).

Additional planting of native tree species is proposed as part of the restoration plan for the site as shown on the landscape and restoration plan in Figure 4-8-1E.

Site Drainage

All rain which falls across the application site recharges to ground and the underlying groundwater table. The groundwater recharge is largely diffuse and there is no point recharge to the underlying groundwater table. There are no surface water bodies within the vicinity of the application site.

Working Hours

It is intended that the licensed waste recovery facility will operate between the hours of 08:00 and 18:00 hours Monday to Friday, and between 08:00 and 13:00 hours on Saturday (as per Condition No. 7 of Kildare Co. Co. Planning Ref. No. 15/189). No operations will be carried out outside of these times.

Employment

The proposed backfilling / restoration scheme at Halverstown Pit will require at least one individual to be present at the application site while soil / stone recovery operations are ongoing, principally to operate a full time dozer and/or single hydraulic excavator and to monitor and inspect the quality and suitability of inert waste being imported to / accepted at the facility.

Only materials carried by authorised waste collectors will be accepted at the recovery facility. HGV drivers will either be directly employed by Kilsaran, by sub-contract hauliers working on its behalf or by a number of approved haulage contractors operating under a strictly enforced approval and permitting system.

It is envisaged that operatives and drivers working at the waste recovery facility will share the existing facilities provided by the Applicant for staff employed at the established concrete production facilities – refer to Figure 4-8-1B.

General Waste Management

Waste oils, batteries, tyres, domestic waste and scrap metal will be stored on site in designated areas and collected and recycled or disposed of by an authorised waste contractor.

Waste produced at / by the development will be minimised. Systems will be put in place as part of the overall development to control and manage waste materials either through re-use or re-cycling.

The development will comply with the requirements prescribed by conditions attaching to the relevant grant of planning permission and EPA waste licence.

Employees will share the established staff welfare facilities which are already in place at the neighbouring concrete block yard.

Surface Water and Groundwater Management

During the backfilling operations, the upper surface of the imported soil will be graded so as to ensure that surface water run-off falling over the development footprint falls to sumps at temporary low points and allowed to percolate to ground.

The water supply at the existing Halverstown facility for the staff welfare facilities and concrete / block production facilities is from an onsite groundwater borehole (refer to Chapter 7 of the accompanying EIAR for further detail). Concrete block production at the adjoining facility does not consume large amounts of water as the concrete mix is semi dry.

Traffic Movements

Based upon the proposed total import of 300,000 tonnes of material per annum and based upon 5½ working days per week and 46 working weeks and assuming the lower value payload of 20t per vehicle, the proposed waste recovery operation is likely to give rise to an average of 59 No. HGV trips per day. Accounting for the current 4 - 5No. HGV trips per day associated with the permitted waste importation, the licenced facility is forecast to generate an additional 55 HGV trips per day on average – refer to Chapter 14 of the accompanying EIAR.

SITE INFRASTRUCTURE

Site Access

The existing concrete works at Halverstown is located approximately 4.5km south of the centre of Kilcullen. The site is accessed directly from the R448 Regional Road running from Naas in the north to Kilcullen, Carlow and Waterford in the south. The existing site access is located on the west side of the R448, approximately 3km south of the M9 Junction 2 interchange immediately south of Kilcullen.

Site Security

Vehicular access to Kilsaran's property at Halverstown and the application site is directly off the R448 Regional Road which runs along the eastern site perimeter. There is no other vehicular access to the concrete manufacturing facilities or licence application site.

At the present time, the pit / property boundary is secured by post and wire fencing and/or hedgerow. At the outset of backfilling and restoration activities, a survey of the entire property

boundary will be undertaken and where necessary, new boundary fencing will be erected, existing fencing will be repaired and/or replaced and hedgerows will be strengthened or fortified by additional planting.

All heavy good vehicles (HGVs) importing inert soil and stone to the recovery facility will be required to pass over the existing weighbridge located along the access road leading into the licenced waste recovery facility.

Entry to the existing facility is controlled by an automated barrier with intercom system. CCTV cameras will be installed around the weighbridge and used to inspect all soil and stone waste being imported for recovery at the facility.

On arrival, HGV drivers will identify themselves to the facility manager (or his authorised assistant(s)) at the weighbridge office before proceeding to the active filling location. 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 customer / client, the truck licence plate number and relevant waste collection permit details.

Site Roads, Parking and Hardstanding Areas

All trucks delivering inert soil will be confined within the Applicant's landholding. Trucks will turn into the site from the R448 Regional Road and travel north over a short section of paved roadway within the application site towards the existing weighbridge. After being weighed, the HGV's will turn westwards (or eastwards, depending on the works phasing) to travel over a section of existing unpaved internal road, after which they will travel over a network of temporary haul roads leading to active filling areas.

Adequate provision for car parking by employees and visitors is provided at the existing concrete manufacturing facility, as indicated in Figure 4-8-1c.

Traffic Control

Traffic to and from the proposed waste recovery facility will generally travel south along the existing M9 Motorway from Newbridge / Naas direction, or north along the same road from Carlow / Castledermott direction. It will turn off the dual carriageway at the existing grade separated junction at Kilcullen and onto the R448 Regional Road, before travelling southwest to the application site.

Where appropriate, roadside notices will be replaced or reinstated as part of the overall development plan for a soil recovery facility at the application site.

Internally, within the waste recovery facility, warning notices, direction signs and speed restriction signs will be erected where appropriate along paved and/or unpaved roads leading to and from the active restoration area and/or the waste inspection and quarantine area.

All HGV traffic entering the application site will be required to pass over the existing weighbridge, while all egressing HGV traffic will be routed through the existing wheelwash facility.

Wheelwash

In order to prevent transport of clay and dust onto the public road network, a wheelwash has been installed along the access road to the site (in compliance with Condition No. 30 of Kildare Co. Co. Planing Ref. No. 15/189). All HGV and tipper trucks exiting the proposed facility will be required to pass through the existing wheelwash, the location of which is indicated on the site infrastructure layout in Figure 4-8-1c.

Weighbridge

In order to track and record the amount of material entering the application site, all HGV traffic importing soil and stones to the waste recovery facility will be directed across the existing weighbridge, the location of which is also indicated on the site infrastructure layout in Figure 4-8-1C.

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

Offices and Ancillary Facilities

The development will share existing site office and staff welfare facilities at the adjoining concrete plant to the north – refer to Figure 4-8-1C.

Utilities and Services

Electrical power is currently provided to the application site via mains supply. Electricity will provide the principal source of energy for office lighting and heating.

It is envisaged that site-based staff overseeing backfilling and recovery operations at the application site will be contactable by mobile phone only and that email and broadband connections to the site office will be provided via a mobile (4G) network.

An existing septic tank is located to the west of the existing site office. Effluent from the tank is discharged to ground via a percolation area.

The site welfare facilities are supplied from the onsite borehole. Bottled water for personal consumption is brought to site by an external supplier on an as-needs basis.

Given the lack of combustible waste materials at this site, it is considered 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 can be provided by storing water in a mobile bowser on unsealed hardstand areas around the infrastructure area.

Lighting

Sufficient lighting will be provided within the development area to operate machinery to ensure safe operations during darker early morning and late evening periods in winter.

Fuel and Oil Storage

Fuel will be stored in existing bunded tanks at the existing concrete production facility to the north of the site. Oils and lubricants are stored on suitable spill pallets within the existing workshop.

All refuelling of plant and machinery will take place over a hardstanding area at the bunded fuel tanks in the existing concrete production facility located to the north of the application site.

Waste Inspection and Quarantine Shed

Any imported waste which is accepted at the facility but subsequently suspected to be non-compliant with waste acceptance criteria for the facility will be re-loaded onto HGV trucks and transferred across the application site to the proposed waste inspection and quarantine facility for closer examination and/or testing.

The proposed waste inspection facility, which essentially comprises a covered shed over a sealed concrete slab, is at the location shown on Figure 4-8-1C.

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

Should any subsequent inspection or testing of suspect soil waste at the inspection and quarantine facility identify any non-inert material which cannot be accepted or reused in the backfilling and restoration of the former pit at this site, it will be segregated and temporarily stockpiled (quarantined) pending removal off site by permitted waste collectors to an authorised 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.) in skips prior to removal off site to an authorised recovery / disposal facility.

Equipment Storage Areas

Mobile plant and equipment used in the recovery operations will be stored on hardstand areas within the application site. As access into the site can be restricted outside of working hours, it is not considered necessary to provide a secure compound for plant and equipment within the waste recovery facility.

Maintenance of plant and machinery will be undertaken over paved surfaces in the existing covered maintenance workshop.

Sewerage and Surface Water Drainage

Site staff at the proposed waste recovery facility will use established toilet, hand washing and welfare facilities which are provided at the existing concrete manufacturing facility. The location of these facilities and the existing on-site septic tank servicing them are shown in Figure 4-8-1C.

There will be no off-site discharge of water from the application site to a surface water course. Due to the high permeability of the subsoils at the application site, little or no rainwater run-off is expected to arise within the application site, as rainfall will infiltrate rapidly to permeable ground surrounding / beneath the application site. Consequently, no specific surface water management plan is required for the site.

SITE PREPARATION WORKS

The following site development works are required for the recovery facility t Halverstown:

Table 1
Proposed Development Works (refer to Figure 4-8-1C)

Years	Development Description
1	Remove Scrub and Vegetation from the western infill area
1	Placement of hardstanding materials for the proposed internal temporary haul roads to allow access to the active infill areas
2	Topsoil stripping from the northern infill area in preparation for placement of inert soil and stone materials

WASTE OPERATIONS AND PROCEDURES

The filling and restoration of the former landform using inert soils and stone is deemed to constitute inert waste recovery through deposition for the purposes of land improvement or restoration. The backfilling and restoration scheme provides for direct use of the imported soil and stone, without further processing.

The proposed filling and restoration of the former pit using inert soil comprises the following classes of waste activity in accordance with the Waste Management Acts 1996 – 2015:

- *Class 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 inert 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 storage of imported wastes for recovery purposes at the facility (e.g. stockpiles of inert soil).

It is envisaged that the following wastes (EWC codes) will be deposited (or recovered) at the facility:

- 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 stone from municipal facilities.

Following cessation of backfilling and recovery activities, the application site will be restored to natural habitat, rough grazing and agricultural use using natural subsoils and topsoil imported during the recovery operations. Surface water will be allowed to percolate to ground. There is no requirement for any active long term surface water or groundwater management at the site.

The following activities will be carried out upon cessation of recovery activities;

- Removal of all plant and machinery;
- Spreading of topsoil / overburden materials over hardstand areas;
- Planting of proposed woodland areas.

Backfilling of the application site will progress upwards from the former pit floor and on completion, the restored landform will merge into the surrounding landscape. An outline of the proposed restoration scheme and the final ground level contours is shown in Figure 4-8-1E. Cross-sections through the final landform are shown in Figure 4-8-1D.

Table 2
Proposed Phasing Plan-(refer to Figure 4-8-1C)

Phase	Years (est.)	Development Description
1	1	<ul style="list-style-type: none"> • Remove Scrub and Vegetation from the Western Infill Area; • Placement of hardstanding materials for the proposed internal temporary haul roads to allow access to the active infill areas.

Phase	Years (est.)	Development Description
2	1-2	Infill of Area 1 : Southern part of pit workings
3	2	Topsoil stripping from the northern infill area in preparation for placement of imported inert material
4	2-3	Infill Area 2: Field to the north-east
5	3-4	Infill Area 3: Northern part of pit workings
6	5	Site landscaping and restoration

Capacity and Lifespan

The only material requirements in respect of the scheme are the inert soil, stone and rock to be used in filling and restoring the application site. At the present time, it is considered that the principal sources of such materials over the lifetime of the waste recovery facility will be construction and development related activities surrounding region, including the Greater Dublin area.

The total volume of inert soil required to create the restored landform is approximately 800,000m³. The filled materials will be subject to a degree of compactive effort (by tracked bulldozer) and materials placed at the bottom of the pit will be further compacted by the weight of overlying material. An average target compaction density of 1.5t/m³ is assumed for tonnage assessment purposes, giving an overall import requirement for approximately 1,200,000 tonnes of inert soil and/or subsoil.

An estimate of the material quantities required to complete filling of the application site is provided below:

Table 3
Material Quantities

Material	Quantity	Source
Inert subsoil, stones and rock	Approx. 1,200,000 tonnes Main Pit Area: 720,000 m ³ North Western Field: 80,000 m ³	Imported
Northern Field: Topsoil (150mm)	5,500 m ³	On site: Topsoil stripped prior to infill operations
Western Infill Area: Topsoil (150 mm)	18,000 m ³	Imported

The duration of filling activities at the application site will largely be dictated by the rate at which approximately 800,000m³ (1,200,000 tonnes) of externally sourced inert soil and stone is imported to the site. There are many factors which will influence this, including, but not limited to the:

- Availability of acceptable inert materials at construction sites;
- Prevailing economic climate and related construction industry output;
- Distance of construction projects from the facility (and scale of activity);
- Logistical / programming constraints at sites generating inert materials;
- Climatic conditions (reduced construction activity in wet weather) and
- Disruptions along the existing local and national road network.

In light of these and other variables, calculation of intake rates and duration is not an exact science. At the present time, assuming 50 working weeks in each calendar year, 5.5 days per working week and 10 hours per working day, it is estimated that the rate of importation of inert materials to the application site could average around 300,000 tonnes per annum.

If an average importation rate was 300,000 tonnes per annum, the expected operational life of the facility would be between 4 and 5 years. If however the rate of filling is less than anticipated, the waste recovery facility could be operational for up to 8 years.

Laboratory Testing

Laboratory testing of soil, surface water, groundwater and soil water percolate will be undertaken off-site at an ILAB / UKAS accredited geo-environmental laboratory. Any validation testing and laboratory testing, required to confirm inert classification of waste soil, will also be undertaken by the same laboratory. All samples taken on-site will be forwarded to the laboratory and test results will typically be forwarded to the facility / site within seven to ten working days.

It is not intended to store environmental monitoring equipment such as pH and temperature meters, conductivity meters, flow meters and dissolved oxygen meters at the site office. Any such equipment will be brought to site by an in-house environmental scientist and/or independent environmental consultant as and when required.

Formation Levels and Gradients

The **former pit** at Halverstown will be restored to its previous landform in several phases working upwards from the existing floor level at c. 116mOD. Final formation levels on completion of the filling and restoration works vary on account of the sloped nature of the restored landform, from approximately 122 mOD to 128mOD, as indicated on Figure 4-8-1C and Figure 4-8-1D.

Existing ground levels in the field to the **north-east** range from 118mOD to 124mOD. Final formation levels on completion of the filling and restoration works will vary from 119mOD to 125 mOD, as indicated on Figure 4-8-1C.

Temporary access ramps in and out of active filling 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:5v or less.

Stability

Temporary side slopes in filled soils will be graded at an angle no steeper than 35° (approximately 1v:1.5h), sufficient to ensure no large scale instability arises over the short-term. Ongoing assessment of slope stability will be undertaken at the application site as filling progresses.

In the longer-term, once filling and restoration works are complete, there will be no risk of instability, as the final ground surface will be graded to a relatively flat, shallow slope. Permanent restored slopes on completion of the filling and restoration activities will be comparable to those on surrounding lands, generally shallower than 1v:5h (11°) and everywhere shallower than 1v:2h (26°).

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. This assertion is made in view of the fact that glacial till slopes of 1v:2h are routinely constructed for infrastructure projects across Ireland and are demonstrably stable.

Bund and Liner Design

Given the inert nature of the materials being used to restore the application site, no provision is made in the restoration scheme for construction of perimeter / containment bunds at the base or sides of the filled area, nor is any provision made for the installation of a basal liner or side slope liners or a drainage blanket at the base of the fill materials.

Leachate and Landfill Gas Management Systems

Given the inert nature of the materials being used to restore the application site, no provision is made for either a leachate management system or a landfill gas management system at this facility.

Capping and Decommissioning

The application site will be fully restored to approximate original ground level on completion of filling operations, thereby merging the application site back into the surrounding natural landscape.

A cover layer comprising 150mm of topsoil and approximately 300mm of subsoil shall be placed over the inert filled materials on completion of the filling activities. This will initially be seeded with a native grass mix in order to promote stability and minimise soil erosion and dust generation.

The proposed woodland areas will be planted as per the planting scheme identified on Figure 4-8-1E.

Topsoil and subsoil will be imported to the site on a continual basis and shall not be used immediately in the backfilling and restoration of the worked-out pit. The topsoil and subsoil shall be stockpiled separately pending re-use toward the latter stages of the infilling works, when the top surface of filled 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 filling area and in such location and manner as not to create any temporary adverse visual impact or dust nuisance.

On completion of the filling and restoration works, all mobile plant and equipment associated with the waste recovery activities will be removed off-site. Any dedicated site accommodation, infrastructure and/or services will also be progressively decommissioned and/or removed off-site.

Waste Acceptance and Handling

All materials will be transported to the proposed recovery facility using heavy goods vehicles (HGVs). All (HGVs) importing the approved inert waste to the facility will be required to pass over the existing weighbridge located along the access road to the facility. The proposed route to be taken through the Kilsaran property by traffic travelling to and from the proposed facility is shown in Figure 4-8-1C.

On arrival, HGV drivers carrying materials to the waste recovery facility will identify themselves to the facility manager (or his authorised assistant(s)) before proceeding to the recovery facility. 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 waste, the customer, the truck licence plate number and relevant waste collection permit details.

Insofar as practicable, the source of each large consignment of soil imported to site for filling and restoration purposes shall be identified in advance and subject to basic characterisation testing to confirm that soils originating at that location can be classified as inert. Ideally, characterisation testing will be undertaken in advance by customers / clients / contractors forwarding soil to the application site.

Operating procedures at the waste recovery facility will require all soil and stones forwarded for filling / recovery purposes to be pre-sorted at source, inert and largely free of 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 rejected and directed to leave the site.

Any waste materials that are deemed unacceptable for recovery at the facility on the basis of a visual inspection at the weighbridge will be rejected and directed to an alternative authorised waste facility.

All inert soils imported to the site will be unloaded (end-tipped) from trucks at the active filling 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 quarantined 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 appropriately authorised waste disposal or recovery facilities.

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 authorised waste disposal or recovery facilities.

A representative sample shall be taken from one in every 250 loads of inert soil accepted at the facility (or as may otherwise be required by waste licence conditions) and subjected to compliance testing which is less extensive than characterisation testing and focuses on key contaminant indicators. These data shall be used to confirm that the accepted soils are inert and comply with the facility acceptance criteria. Compliance testing will be undertaken by the facility operator / applicant.

PROPOSED ENVIRONMENTAL CONTROLS

General

Safeguards to ensure that only acceptable material is received and handled on site include;

- Materials are pre-cleared / pre -approved for importation insofar as possible, particularly from larger source sites;
- All material arriving on site is subject to a visual inspection on site prior to and during unloading;
- Any unacceptable materials identified at the facility at the time of delivery are immediately returned to the source site or forwarded to an authorised waste disposal or recovery facility;
- Any Contractor who persistently carries unacceptable waste to the recovery facility will be denied further use of the facility.

Noise Generation and Control

Once operational, the principal noise sources at the application site will arise from intermittent grading and compaction of soil and stone using a bulldozed and/or mechanical excavator and movement of a front end loader and HGV lorries around the facility.

The nearest noise sensitive properties to the proposed waste recovery facility occur along the local road approximately 50m to the south of the application site – refer to Chapters 4 and 10 of the accompanying EIAR.

The operation of the waste recovery facility will include a number of mitigation measures with respect to noise, including:

- Retaining existing boundary vegetation and boundary hedgerows to provide acoustic screening;
- Working below surrounding ground level and stockpiled materials where practicable to provide further acoustic screening;
- Infill operations will commence in the southern part of the former pit to ensure that the lands adjoining neighbouring residential property are restored as early as possible.

Noise levels attributable to the establishment and operation of the waste recovery facility will not exceed those set out in the EPA's *Guidance Note for Noise In Relation to Scheduled Activities* which states that "the noise level at sensitive locations should be kept below an L(AR, T) value of 55 dB(A) by daytime" when measured at the nearest noise sensitive location or site boundary.

Landscape and Boundary Treatment

At the outset of backfilling and restoration activities, a survey of the entire property boundary will be undertaken and where necessary, new boundary fencing will be erected, existing fencing will be repaired and/or replaced and hedgerows will be strengthened or fortified by additional planting.

Bird Control

As the soil and stones being placed / recovered at the application site are free of putrescible (food / kitchen) waste, site activities are unlikely to attract scavenging birds such as gulls and crows for the duration of the restoration works. Accordingly, it is not intended to implement any specific bird control measures at the site.

In the unlikely event that any putrescible waste is identified among imported materials, it shall be immediately removed to the waste quarantine area pending removal off-site to a licenced waste disposal or recovery facility.

Dust Control

In dry, windy weather conditions, the infilling 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:

- water will be sprayed from a tractor drawn bowser on any dry exposed surfaces (roads and hardstand areas)
- dust blows will be partially screened on some sides by the existing pit side walls as filling progresses upwards.
- as the level of the filled 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;

- 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 stockpiles pending subsequent filling and restoration to final ground levels;
- all HGV's exiting the site shall be routed through the existing wheelwash facility in order to minimise transport of mud and/or fines by HGVs onto 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 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.

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, if required.

Litter Control

As the materials being placed or recovered at the application site will be largely free of litter, the site restoration activities are unlikely to give rise to problems with windblown litter. Accordingly, it is not intended to implement any specific litter control measures at the site.

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

Odour Control

As the soil and stones being placed / recovered at the application site are not biodegradable and do not therefore emit odourous gases, site activities will not give rise to odour nuisance. Accordingly, it is not intended to implement any specific odour control measures at the site.

In the unlikely event that any biodegradable waste is identified among imported materials, it shall be immediately removed to the waste quarantine area pending removal off-site to an appropriately authorised waste disposal or recovery facility.

Invasive Species

A dedicated invasive species management plan will be prepared to comply with the requirements prescribed by condition attached to any grant of planning permission and/or EPA waste licence.

Vermin Control

As the soils and stones being placed / recovered at the application site are free of putrescible (food / kitchen) waste, site activities are unlikely to attract vermin (rats) for the duration of the restoration works. Accordingly, no specific vermin control measures shall be implemented at the site.

In the unlikely event that any putrescible waste is identified among imported materials, it shall be immediately transferred to the waste quarantine area pending removal off-site to an appropriately authorised waste disposal or recovery facility.

Fire Control

The soil and stones being placed / recovered at this site are free of flammable materials and biodegradable waste which could create a fire or explosion risk. Site activities will not therefore present a fire risk for the duration of the restoration works. 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 identified or suspected in waste 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 stations at Naas and /or Newbridge will be contacted and emergency response procedures will be implemented. Fire extinguishers (water and foam) are provided at the site office to deal with any small outbreaks which may occur.

ENVIRONMENTAL MONITORING

General

Kilsaran operates an environmental management programme to monitor and manage emissions from established waste recovery operations at other facilities. It is anticipated that limit values for environmental emissions arising from waste recovery activities at the application site will be similar to those applying at its other operational facilities and that these will be reviewed and confirmed / amended by the EPA in the event that it decides to issue a waste licence in respect of the proposed waste recovery activities.

Environmental sampling, monitoring and testing will generally be undertaken by the Applicant as required. Records of environmental monitoring and testing will be maintained on-site and forwarded to the EPA / Kildare County Council as required under the terms of any planning permission / EPA waste licence.

Dust Monitoring

Dust deposition monitoring will be undertaken at the application site. Dust monitoring locations shall be reviewed and revised where and as and when necessary. The results of the dust monitoring shall be submitted to Kildare County Council and/or EPA on a regular basis (as required) for review and record purposes.

Ecological Monitoring

Mitigation measures are proposed for the protection of breeding birds, common frog and smooth newt – refer to Chapter 5 (Biodiversity) of the accompanying EIAR. It is considered likely that any mitigation actions carried out under any derogation licences issued by the National Parks and Wildlife Service (NPWS) is likely to require post-action monitoring.

Groundwater Monitoring

Three groundwater monitoring wells have recently been installed at the application site – refer to Chapter 7 (Water) of the accompanying EIAR.

The following programme of groundwater water monitoring will be implemented at the site by Kilsaran:

- Groundwater levels at GW1, GW2, GW3 and GW4 will continue to be monitored on a monthly basis;
- Groundwater quality monitoring at the four monitoring wells on an annual basis.

Groundwater samples will be tested for a range of physical and chemical parameters in order to assess water quality and detect possible contamination arising from proposed recovery activities.

The groundwater monitoring regime will remain in place for the duration of the backfilling and restoration works. Regular groundwater sampling and monitoring will be undertaken for as long as filling / recovery activities continue and for a short period thereafter.

Leachate, Landfill Gas and Odour Monitoring

In the absence of biodegradable waste amongst the inert materials used to restore the application site, no leachate or odorous landfill gas can be generated and accordingly no provision has been made for leachate, landfill gas or odour monitoring at this facility.

Meteorological Monitoring

At the present time, no meteorological monitoring is undertaken at the application site. It is understood that temperature, rainfall, sunshine, wind speed and direction are recorded at the weather station at Casement Aerodrome, at Baldonnell in south County Dublin, located approximately 30km north-east of the application site or from Dublin Airport Meteorological Station, located approximately 50 km to the north east.

It is currently envisaged that representative meteorological data will be acquired from the existing weather station at Casement Aerodrome or Dublin Airport, if required.

Noise Monitoring

Noise monitoring will be undertaken at the application site. Noise monitoring locations shall be reviewed and revised where and as/when necessary. The results of the noise monitoring shall be submitted to Kildare County Council and/or EPA (as required) on a regular basis for review and record purposes.

Surface Water Monitoring

There are no surface water courses in the vicinity of the site and there are no discharges to any surface water courses from the application site; therefore, no surface water monitoring is proposed as part of the planned development.

Stability and Settlement Monitoring

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

Following completion of restoration works, and closure of the facility, the application lands will be returned to use as grassland and will either be let to a local farmer for grazing/tillage purposes or left largely unattended, to be naturally recolonised by native vegetation. Considering the proposed afteruse it is considered that stability and settlement monitoring of the infill lands is not required.

PROPOSED FINAL RESTORATION

Proposed Restoration Scheme

The principal activity which will be undertaken at the application site is backfilling and restoration of lands within an existing sand pit and neighbouring agricultural field. As previously noted, the application site will be restored to give a landform which merges into the surrounding agricultural landscape, refer to the proposed site restoration plan and sections provided in Figure 4-8-1D and Figure 4-8-1E.

A cover layer comprising 150mm of topsoil and approximately 300mm of subsoil shall be placed over the inert filled materials on completion of the filling activities. This will then be seeded with grass in order to promote stability and minimise soil erosion and dust generation. Woodland planting is proposed for a number of areas across the site.

On completion, the application lands will be returned to use as grassland and will either be let to a local farmer for grazing/tillage purposes or left largely unattended, to be naturally recolonised by native vegetation.

Site Management and Supervision

The Applicant will clearly define the management responsibility for the site restoration work and will ensure that this person has the necessary information and authority to manage the whole restoration process. Relevant staff will be briefed on the scheme and will be adequately supervised / controlled. A system of record keeping for the key restoration activities will be put in place.

Long Term Safety and Security

All components of the site security system will remain in place. Existing hedges surrounding the development will be gapped up and thickened where required. These, combined with the secure and locked entrance gates to the development will prevent unauthorised third-party access.

Long Term Surface Water and Groundwater

Surface water will be allowed to percolate to underlying / surrounding ground. There is no requirement for any active long-term surface water or groundwater management at the site.

Decommissioning of Plant and Machinery

On completion, all mobile plant and equipment associated with the waste recovery activities will be removed off-site. Any dedicated site accommodation, infrastructure and/or services will also be progressively decommissioned and/or removed off-site.

Aftercare and Monitoring

Establishment maintenance will be carried out for 3 years following the planting works (minimum 3 maintenance visits per year; i.e. spring, summer and autumn). This will include weed control, replacement planting where required and the adjustment/removal of tree ties and spiral guards.

Thereafter, the restored lands will either be let to a local farmer for grazing/tillage purposes or will be left largely unattended, to be naturally recolonised by native vegetation. It is expected that over time, the backfilled site will return to a woodland / grassland habitat, similar to that which originally existed prior to sand and gravel extraction, and that the restored landform will ultimately merge into the surrounding local landscape which comprises a woodland / grassland mosaic.

FIGURES

Figure 4-8-1A EIAR 1-2
SITE LOCATION MAP

Figure 4-8-1B EIAR 1-3
EXISTING SITE CONTOURS

Figure 4-8-1C EIAR 2-1
PROPOSED SITE LAYOUT

Figure 4-8-1D EIAR 2-2
EXISTING AND PROPOSED CROSS SECTIONS

Figure 4-8-1E EIAR 2-3
PROPOSED LANDSCAPE AND RESTORATION PLAN

Lands previously used for sand and gravel extraction since been restored for agricultural uses (planning ref. 02/850 & ABP ref. PL-203493⁰⁹)

SITE OFFICE
STAFF WELFARE FACILITIES
FUEL STORAGE TANKS

PROPOSED QUARANTINE AREA

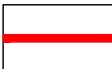

EXISTING WHEELWASH

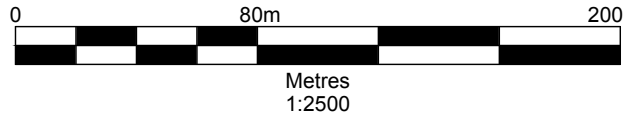
EXISTING WEIGHBRIDGE WITH DEDICATED OFFICE


EXISTING SITE ENTRANCE

*For inspection purposes only
Consent of copyright owner required for any other use*

NOTES
Orthomosaic produced from Aerial Photography flown **November 2016** by SLR Consulting Ireland (IAA Permit No. 150052) www.slrconsulting.com Tel. +353-1-2964667.
Orthomosaic produced using Ground Control Points; Related to Irish Transverse Mercator Coordinate System and OS Malin Head Level Datum.
All Dimensions and Levels are to be checked on site.
Copyright Reserved.

LEGEND
 LICENCE APPLICATION AREA (c. 17.5 Ha.)
 CROSS SECTION LOCATION



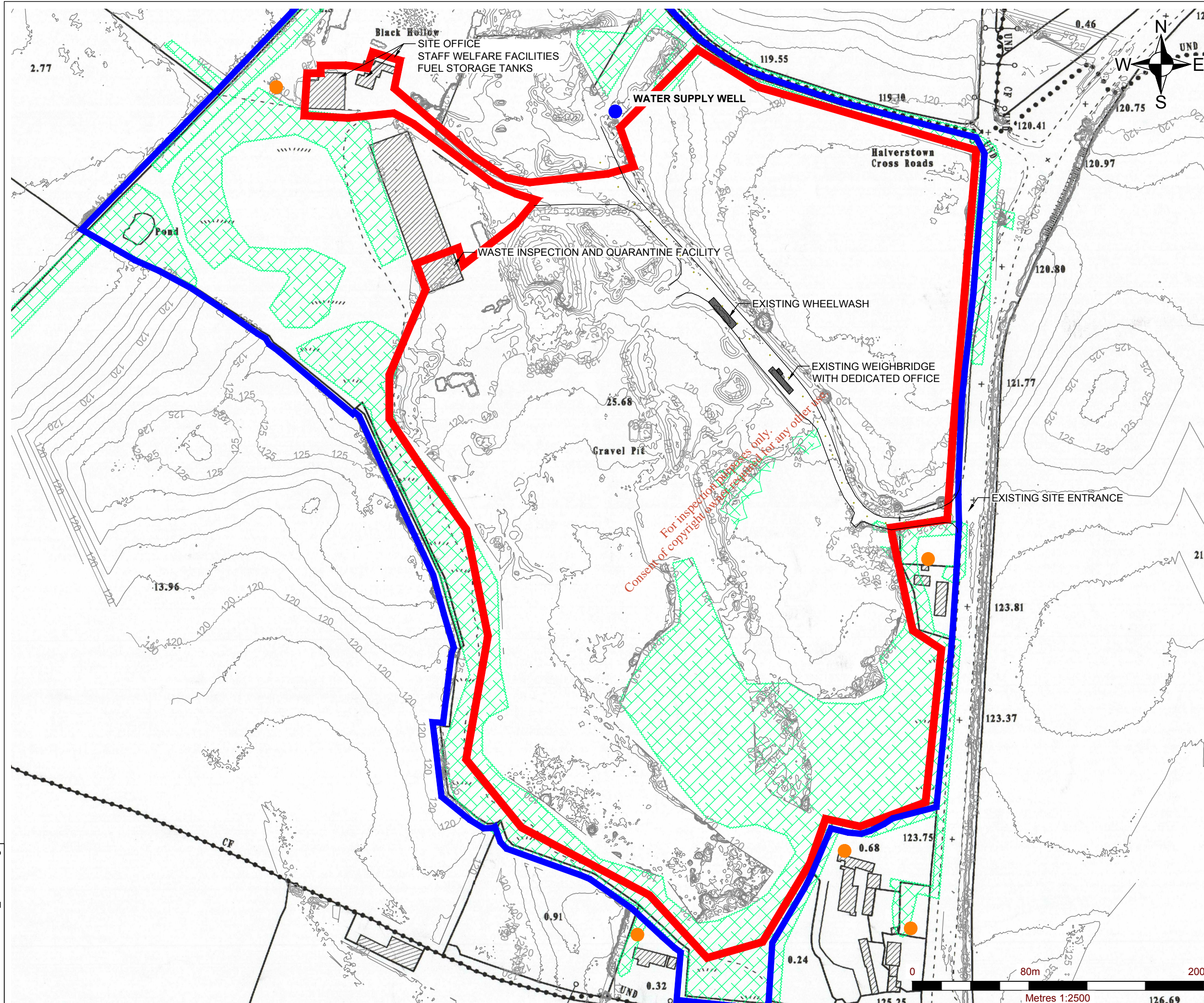
SLR 
SLR CONSULTING IRELAND
7 DUNDUM BUSINESS PARK
WINDY ARBOUR
DUBLIN 14
T: +353-1-2964667
F: +353-1-2964676
www.slrconsulting.com

KILSARAN CONCRETE
Proposed Waste Recovery Facility
Halverstown, Kilcullen, Co. Kildare

EXISTING SITE LAYOUT
FIGURE 4-8-1A

Scale 1:2,500 @ A3 Date JANUARY 2019

501.00036.00054.FIG_4-8-1A.dwg



NOTES

1. ORDNANCE SURVEY IRELAND LICENCE NO. SU 0000718 (C) ORDNANCE SURVEY & GOVERNMENT OF IRELAND
2. BASED ON ORDNANCE SURVEY MAPPING : KE028-15 (25 Inch); 3778-C; 3778-D and 3836-B (1:2,500).

LEGEND

	KILSARAN LAND OWNERSHIP BOUNDARY (c. 26.5 Ha)
	LICENCE APPLICATION AREA (c. 17.5 Ha.)
	SEPTIC TANK LOCATION
	WATER SUPPLY WELL

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

KILSARAN CONCRETE
 Proposed Waste Recovery Facility
 Halverstown, Co. Kildare
EXISTING SITE CONTOURS
FIGURE 4-8-1B

Scale 1:2,500 @ A3 Date JANUARY 2019

501.00036.00054.FIG_4-8-1B.dwg

501.00036.00054.FIG_4-8-1C.dwg



- NOTES**
- PHASE 1: (YEAR 1) REMOVE SCRUB / VEGETATION FROM WESTERN INFILL AREA.
 - PHASE 2: (YEAR 1 - 2) INFILL OF AREA 1
 - PHASE 3: (YEAR 2) TOPSOIL STRIPPING NORTHERN INFILL AREA
 - PHASE 4: (YEAR 2 - 3) INFILL AREA 2
 - PHASE 5: (YEAR 3 - 4) INFILL AREA 3
 - PHASE 6: SITE LANDSCAPING AND RESTORATION

LEGEND

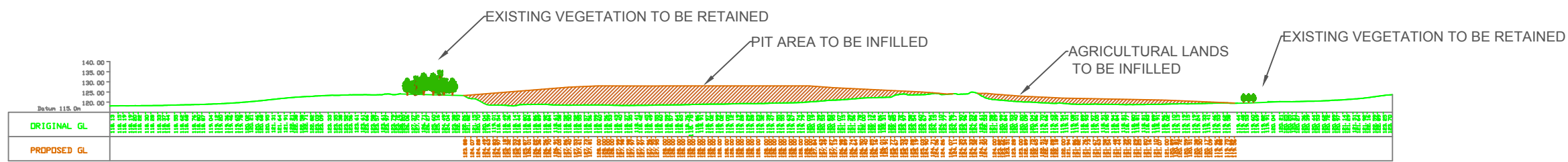
	KILSARAN LAND OWNERSHIP BOUNDARY (c. 26.5 Ha)
	LICENCE APPLICATION AREA (c. 17.5 Ha.)
	CROSS SECTION LOCATION - Refer to Figure 2.2
	INFILL AREA 1
	INFILL AREA 2
	INFILL AREA 3
	AREA USED FOR TEMPORARY STOCKPILING OF TOPSOIL
	SEPTIC TANK LOCATION
	WATER SUPPLY WELL

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

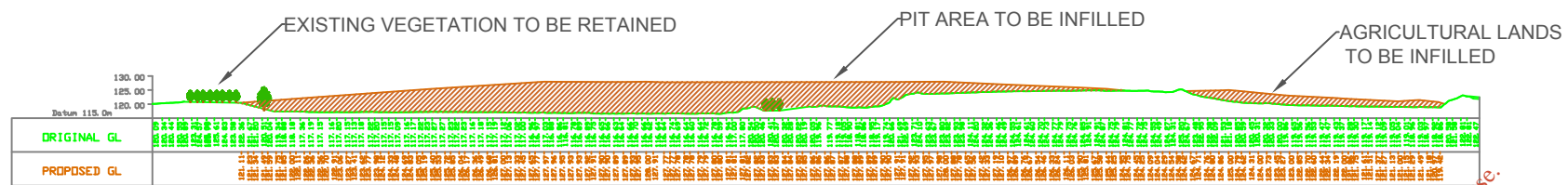
KILSARAN CONCRETE
 Proposed Waste Recovery Facility
 Halverstown, Kilcullen, Co. Kildare
PROPOSED SITE LAYOUT AND PHASING PLAN

FIGURE 4-8-1C

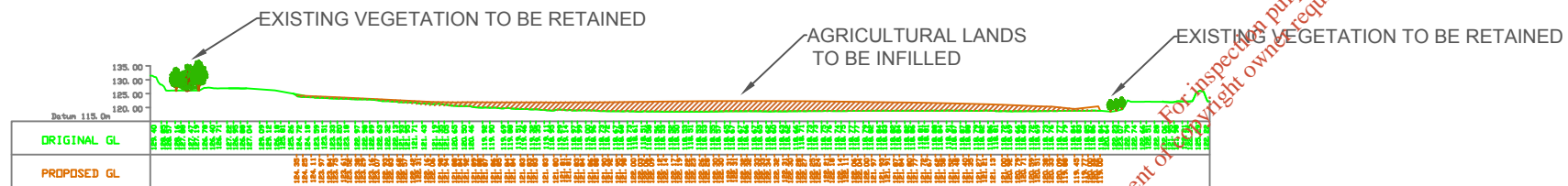
Scale: 1:2,500 @ A3 Date: JANUARY 2019



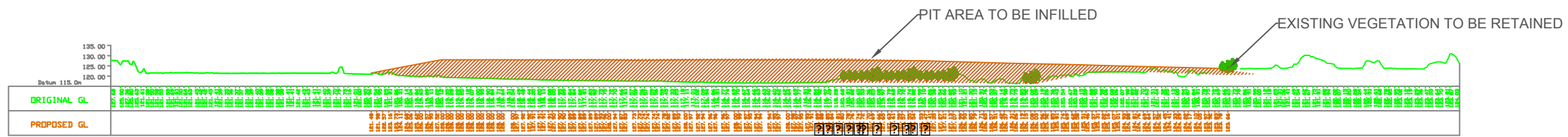
115.00 116.00 A A



115.00 116.00 B B



115.00 116.00 C C

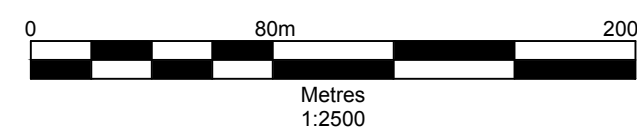


115.00 116.00 D D

Consent of copyright owner required for any other use.

- NOTES**
1. PHASE 1: (YEAR 1) REMOVE SCRUB VEGETATION FROM WESTERN INFILL AREA
 2. PHASE 2: (YEAR 1 - 2) INFILL OF AREA 1
 3. PHASE 3: (YEAR 2) TOPSOIL STRIPPING NORTHERN INFILL AREA
 4. PHASE 4: (YEAR 2 - 3) INFILL AREA 2
 5. PHASE 5: (YEAR 3 - 4) INFILL AREA 3
 6. PHASE 6: SITE LANDSCAPING AND RESTORATION
- REFER TO FIGURES 1.2, 1.3, 2.1 and 2.3 FOR CROSS SECTION LOCATIONS

LEGEND



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

KILSARAN CONCRETE

Proposed Waste Recovery Facility
 Halverstown, Kilcullen, Co. Kildare

**EXISTING AND PROPOSED
 CROSS SECTIONS**

FIGURE 4-8-1D

Scale 1:2,500 @ A3	Date JANUARY 2019
-----------------------	----------------------



LANDSCAPE AND RESTORATION PROPOSALS

The proposed landscape and restoration works at the Halverstown waste recovery site will be carried out in 2 phases, as described below:

LANDSCAPE PHASE - to be carried out on commencement of development:

Hedge Protection Fence: A sturdy 1.5m high post & wire or post & rail fence (to fulfill the barrier requirements of BS 5837:2012) will be constructed along the canopy line of the existing vegetation to be retained along the boundaries of the fill area, to protect the existing vegetation.

Native Enhancement Planting to Existing Hedgerows: The existing vegetation along the site boundary will be augmented in locations, where it is gappy or missing, as indicated on the plan. The *Native Enhancement Planting Mix to Existing Hedgerows* and plant numbers will be as per the table below.

RESTORATION PHASE - to be carried out on completion of all filling works:

Agricultural Land: That part of the fill area to be restored to agricultural land, as indicated on the plan, will be covered with topsoil, from stockpiles within the site, to a depth of 15cm topsoil and grass seeded.

Native Woodland Planting with Shrub Understorey: That part of the fill area to be planted, as indicated on the plan, will be covered with topsoil (from stockpiles within the site) to a depth of ca. 15cm and planted, as per the *Native Woodland Planting Mix with Shrub Understorey* and plant numbers in the table below. This planting will provide ecological enhancement on completion of the extraction works and will compensate for the loss of scrub vegetation due to the waste recovery works.

GENERAL NOTES - LANDSCAPE WORKS:

Grass Seeding: As soon as the topsoil is placed on the fill area, the areas will be seeded with a suitable grass and/or wildflower seed mix, whilst suitable weather conditions prevail. The surface preparation and the sowing specifications will be as per the manufacturer's instructions.

Woodland Planting: Both plant mixes contain locally occurring native species. All stock is proposed to be supplied as transplants at the specified heights, as this type of stock is known to establish more successfully compared to larger stock. All plant handling, planting and establishment works will be carried out in accordance with current best practice and will take place in the appropriate planting season (e.g. bareroot planting: November to March only) and in favourable weather conditions. The planting will be carried out by a suitably qualified landscape contractor. Establishment maintenance will be carried out for 3 years following the planting works (minimum 3 maintenance visits per year; i.e. spring, summer and autumn). This will include weed control, replacement planting where required and the adjustment/removal of tree ties and spiral guards.

NATIVE ENHANCEMENT PLANTING MIX TO EXISTING HEDGEROWS

Planting to be carried out in locations where the existing boundary vegetation is sparse, as indicated on the plan. Approximately 2,450m² in total. To be planted at 2m centres (i.e. 1 plant per 4m² = 610 plants in total). Transplants to be planted in random same species groups of 5-8 plants. All plants to be protected with spiral guards.

No.	Plant Name	Common Name	Height (cm)	Age	%
<i>Transplants</i>					
215	Crataegus monogyna	Hawthorn	60-90	1+1	35
215	Prunus spinosa	Blackthorn	60-90	1+0	35
30	Quercus robur	Pedunculate oak	60-90	2+0	5
90	Rosa canina	Dog rose	40-60	1+1	15
60	Sambucus nigra	Elder	60-90	1+1	10

NATIVE WOODLAND PLANTING MIX WITH SHRUB UNDERSTOREY

Woodland planting to be carried out at 3m centres (i.e. 1 plant every 9m²) in a number of areas within the site, as indicated on the plan. Approximately 39,600 m² in total (i.e. 4400 plants). Main tree species (i.e. birch, wild cherry and oak) to be planted in groups of 5-8 towards the centre of the planting blocks. Shrub/small tree species to be planted in random same species groups of 8-10. All plants to be protected with spiral guards or alternatively the entire planting block to be enclosed with stock and rabbit proof fencing.

No.	Plant Name	Common Name	Height (cm)	Age/Pot Size	%
<i>Transplants</i>					
220	Betula pendula	Silver birch	60-90	1+1	5
1540	Corylus avellana	Hazel	60-90	1+0	35
660	Malus sylvestris	Crap Apple	60-90	1+1	15
220	Prunus avium	Wild Cherry	60-90	1+0	5
220	Quercus robur	Pedunculate oak	60-90	2+0	5
880	Rosa canina	Dog rose	40-60	1+1	20
<i>Container Grown Shrubs</i>					
660	Ilex aquifolium	Holly	60-80	2 Lt	15

NOTES

'Orthomosaic produced from Aerial Photography flown October 2016 by SLR Consulting Ireland (IAA Permit No. 150052) www.slrconsulting.com Tel. +353-1-2964667.
Orthomosaic produced using Ground Control Points; Related to Irish Transverse Mercator Coordinate System and OS Malin Head Level Datum.
All Dimensions and Levels are to be checked on site.
Copyright Reserved.'

Refer to Figure 4-8-1D for the Existing and Proposed Cross Sections.

LEGEND

- LICENCE APPLICATION AREA
- LANDSCAPE PHASE:**
WORKS TO BE CARRIED OUT ON COMMENCEMENT OF THE FILLING OPERATIONS
- EXISTING VEGETATION TO BE RETAINED AND PROTECTED WITH FENCING (IN ACCORDANCE WITH BS 5837:2012) WHERE IT ADJOINS THE FILL AREA
- NATIVE ENHANCEMENT PLANTING TO EXISTING HEDGEROWS
- RESTORATION PHASE:**
WORKS TO BE CARRIED OUT ON COMPLETION OF ALL FILLING ACTIVITIES
- FILL AREA TO BE RE-GRADED, COVERED WITH TOPSOIL AND GRASS SEEDED
- PROPOSED NATIVE WOODLAND PLANTING WITH SHRUB UNDERSTOREY

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

KILSARAN CONCRETE
PROPOSED WASTE RECOVERY FACILITY
HALVERSTOWN, KILCULLEN, CO. KILDARE
PROPOSED LANDSCAPE AND RESTORATION PLAN

FIGURE 4-8-1E

Scale 1:2,500 @ A3 Date JANUARY 2019

501.00036.00054.FIG_4-8-1E.dwg