

OPERATIONAL REPORT

EXISTING DEVELOPMENT

The application site comprises a former sand and gravel pit located in the townland of Usk, Co. Kildare. The site principally comprises two extraction areas separated by an internal access 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 longest established extraction area lies to the east of the access road and comprises a relatively deep (10m) excavation at the northern end, adjacent to the existing site entrance, which follows the contours of surrounding sloping ground and tapers down and opens out to a wider, shallower excavation (typically 5m-8m deep) at its eastern and southern end. A perimeter screening berm runs along the length of a local road along the northern site boundary, an adjoining property and the channel of the River Greese along the eastern site boundary. There are a number of groundwater ponds across this area where excavations have extended below the groundwater table.

It is understood that sand and gravel processing (wet screening) activities previously took place at the pit and that the waste (silt-sized) fines from sand processing activities were transferred to settlement lagoons immediately west of the internal access road through the site, to the south of an existing retained farmyard area, refer to Figure 4-8-1B.

More recently, sand and gravel extraction activities took place to the west of the internal access road. The depth of excavation in this area increases from 2m to 4m immediately west of the access road to a maximum of around 18m along the western limit of the excavation. The excavations follow the contours of the surrounding sloping ground and taper gently southwards to an open agricultural field which is currently used for tillage. As with workings on the eastern side of the internal access road, these excavations have extended locally below the groundwater table, giving rise to a number of groundwater ponds.

There is a former infrastructure area located immediately north of the existing site access, although most plant and structures which were located here previously have been removed and essentially all that remains in this area is an agricultural type shed, a fuel storage bund (along the southern wall of the shed), a wheelwash facility and an area of paved ground immediately inside the site gates.

PROPOSED DEVELOPMENT

Development Overview

The proposed backfilling of the former sand and gravel pit and the operation of an inert soil waste recover facility at Usk provides for the following:

- Backfilling of a former sand and gravel pit to its former ground level using approximately 1,240,000 tonnes of imported natural inert waste materials and/or suitable by-product materials, principally soil and stone generated by construction and development projects;
- Establishment and operation of an inert soil waste recovery facility to provide for the recovery through backfilling, of natural inert soil and stone waste;
- Installation of site infrastructure including site offices, staff welfare facilities, weighbridge (with dedicated office), wheelwash facility, hardstand areas, fuel storage tanks and site access roads;

- Use of an existing storage shed as a waste inspection and quarantine facility and for storage of plant and equipment;
- Separation of any intermixed 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 imported topsoil pending re-use as cover material for the final restoration of the site;
- Restoration of the final backfilled landform to long-term grassland / agricultural use.

The application site will essentially be filled in two phases, working progressively from the western limit across to the eastern boundary, up to the perimeter screening berm along the existing local road and the channel of the River Greese. The lands will be backfilled 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 existing site layout is shown in 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

Given the presence of pre-existing screening berms around the site perimeter and/or intervening hedgerows, there are currently minimal views from the local road network or nearby residential properties into the application site. The only near distance views into the application site are from a section of the local road immediately to the east of the site, for traffic travelling west from Dunlavin. There are also more distant views looking across open countryside from higher ground on Brewel Hill.

Although the proposed backfilling and restoration works will address much of the existing visual impact, additional planting of native tree / hedgerow species and restoration of former field boundaries is also proposed as part of the overall restoration plan, refer to the Proposed Restoration and Landscaping Plan in Figure 4-8-1D (and also to Chapter 13 of this EIAR - Landscape).

Surface Water Management

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 a number of surface water bodies within the application site. These are essentially groundwater ponds and were formed by former extraction operations, when excavations extended down to the groundwater table.

It is envisaged that at site establishment stage, prior to commencement of site backfilling and restoration activities, most of the existing groundwater ponds, with the exception of that in the south-eastern corner, will be backfilled using the sand and gravel material stockpiled on-site, and if necessary, in-situ sand and gravel which remains unexcavated.

During backfilling operations, the upper surface of backfilled soil will be graded to ensure that any rainfall which does not infiltrate the soil and gives rise to surface water run-off will be directed to

- (i) areas beyond the perimeter of the working area, where backfilling and restoration has yet to commence and sand and gravel is exposed at the ground surface (these areas will act as effective soakaways for the surface water run-off) or
- (ii) to collector drainage channels excavated in natural soils (sand and gravel) immediately beyond the working area which will transport it to the groundwater pond which is to remain in place in the south-eastern corner of the site, at which point, it will recharge to ground.

There will be no off-site discharge of water from the application site to nearby surface watercourses. Due to the high permeability of the underlying subsoils, rainfall is expected to infiltrate rapidly to the underlying ground and no significant overground flows of surface water run-off are likely to arise from paved or hardstanding areas. As a consequence, no provision is made in this application for surface water drainage or discharge infrastructure.

General Waste Management

Only soil and stone waste carried by authorised waste collectors will be accepted at the proposed soil recovery facility under a strictly controlled pre-approval and permitting system.

Waste oils, batteries, tyres, domestic waste and scrap metal will be stored on site in designated (bunded) storage areas and will be collected and recycled or disposed of at authorised off-site waste facilities by authorised waste contractors.

General office and food waste produced at the proposed site offices development will be minimised insofar as possible. Management systems will be established and implemented to control and manage all potential waste streams, to avoid generation where possible and to maximise re-use or re-cycling opportunities thereafter.

The proposed recovery facility development will comply with all waste management responsibilities prescribed by conditions attached to any future EPA waste licence.

Traffic Movements

On the basis of a maximum proposed importation rate of 300,000t of soil and stone waste per annum, and assuming 48 working weeks per annum, 5½ working days per week and a minimum payload of 20t per HGV vehicle, the proposed waste recovery operation would give rise to an average of 58 No. HGV return trips per working day. This equates to between 5 and 6 return trips (or a total of 10 to 12 one-way movements in or out of the site) per hour.

Working Hours

The operating hours for the proposed development will be those set by the recent grant of planning permission for the proposed development (Condition No. 5 of Planning Ref. 019/979). Proposed working hours are between 07:00 and 17.30 hours on Monday to Friday. No waste intake will be accepted or backfilling operations undertaken outside of these hours.

Employment

The proposed backfilling operations will require a minimum of two personnel to be based at the facility at all times during working hours. One individual will be nominated as site manager and will be required to (i) check that the soil and stone being brought to the facility has been pre-cleared and meets site acceptance criteria and (ii) collate and maintain all records of waste intake.

A second individual will be required to (i) operate the site plant and equipment (bulldozer or mechanical excavator) on a full-time basis or as may be required and (ii) visually inspect and monitor the suitability of the soil and stone waste being consigned and accepted at the facility.

SITE INFRASTRUCTURE

Site Access

The application site at Usk is accessed along the local road network which runs for approximately 2.9km from a T-junction with the R448 Regional Road (the former N9 National Primary Road). Traffic initially runs north-east of the junction for 1.3km along the L6096 local road, before turning right and south-east at another T-junction and travelling for 1.6km along the L6094 local road up to the application site at Usk. The existing site access and entrance has been in place since 2008 when it was established on foot of planning permission for the former sand and gravel pit (Ref. 07/795).

Site Security

Vehicular access to the application site at Usk is made from the existing L6094 local road which runs along the north-eastern site perimeter. There is no other vehicular access to the site. At the present time, the former pit / site boundary is secured by a combination of metal gates across the site access road, by 6m high screening berms along the local road and eastern site boundary (some of which are inside retained hedgerows) and by established hedgerows and fencing along pre-existing field boundaries.

Prior to commencement of the proposed backfilling and restoration activities, a survey of the entire site boundary will be undertaken and where necessary, new post and wire fencing will be erected where required, existing fencing be repaired and/or replaced as necessary and hedgerows will be strengthened or fortified by additional planting.

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

CCTV cameras will be installed around the weighbridge and weighbridge office and used to inspect all soil and stone waste being imported for recovery at the facility.

Weighbridge

In order to track and record the amount of material entering the application site, all HGV traffic importing soil and stone for recovery will be directed across a new weighbridge located immediately inside the site security gates, as shown on the proposed site layout plan in Figure 4-8-1C. A weighbridge office will be installed on elevated supports immediately alongside the weighbridge and at a height similar level to that of HGV driver cabins.

Any separated non-inert construction and demolition waste inadvertently brought to the recovery facility will be dispatched off-site (in skips) to other licensed waste disposal or recovery facilities and will be weighed out at the weighbridge.

Wheelwash

In order to prevent transport of clay and dust onto the public road network, a wheelwash will be installed along the egress road leading out of the application site. All HGV and articulated trucks exiting the proposed facility will be required to pass through the proposed wheelwash facility, the location of which is indicated on the site layout plan in Figure 4-8-1C.

Site Roads, Parking and Hardstanding Areas

All trucks delivering inert soil and stone will be confined within the application site. Trucks will turn into the site from the local road and travel across the weighbridge before then turning left and

either (i) turning immediately right to the Phase 1 backfilling area at the western end of the site or (ii) proceeding straight on to the Phase 2 backfilling area at the eastern / southern area of the site.

All areas around the site access / egress and weighbridge will be paved with concrete or asphaltic road surfaces to minimise the pick-up and transfer of mud or soil off-site. As traffic moves within the application site, it will travel to and from backfilling areas over an internal network of unpaved haul roads constructed of crushed stone / hardcore fill.

Provision for HGV and employee / visitor car parking will be made across the existing (unpaved) hardstanding area immediately to the north of the site access, as shown in Figure 4-8-1C.

Traffic Control

Where appropriate, and subject to agreement with the local authority, roadside notices will be placed along existing local roads leading to the application site to advise of HGV's turning in and out of the proposed waste recovery facility.

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

Internally, within the recovery facility, warning notices, direction signs and speed restriction signs will be erected where appropriate along the internal road network leading to and from the active backfilling areas and/or the waste inspection and quarantine area.

Offices and Ancillary Facilities

Site offices and site welfare facilities will be provided at the proposed site infrastructure area to be located over the existing hardstanding area immediately north of the access road leading into the application site. Offices and welfare facilities will be portacabin-type structures and will comprise a site office / meeting room, a staff changing room, a kitchen / canteen facility and staff toilets. The location of the proposed office and welfare facilities are shown in Figure 4-8-1C.

Utilities and Services

Site staff at the proposed waste recovery facility will use toilet, hand washing and welfare facilities to be established prior to commencement of waste intake activity. Potable water will be supplied to these facilities from an existing water main which services the application site and is understood to be part of the Gormanstown Usk Group Water Scheme (GWS) operated by Kildare County Council. In addition to the existing potable water supply, surface water for wheelwashing and dust suppression activities may be sourced from surface water ponds when required.

It is envisaged that a new proprietary effluent treatment system (approved under Planning Ref. 19/949) will be installed and commissioned (as required) for the purposes of this development. Wastewater from sinks and toilets will initially be discharged to a Tricell Novo wastewater treatment system (or similar) and treated effluent will be discharged thereafter to ground via a sand polishing filter.

There are two electrical power lines crossing the site from north to south and west to east. Any electrical power supply required at the proposed recovery facility will be stepped down at a transformer and supplied to site offices / plant as required. Electricity will provide the principal source of energy for office lighting and heating at the facility.

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.

Given the lack of combustible waste materials at this site, it is considered highly unlikely that a fire will break out during backfilling and recovery operations. A range of fire extinguishers (water, foam and CO₂) will be kept at the site office / welfare facilities 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 surrounding the site offices / facilities.

Lighting

Mobile lighting will be provided around the site offices / facilities close to the site entrance and around proposed backfilling areas to facilitate safe operation of plant and machinery during darker mornings and late evening periods over winter months.

Fuel and Oil Storage

Fuel will be stored in bunded storage tanks placed along the southern wall of the existing shed at the northern end of the site infrastructure area. The bund, which is part extant, will have an overall retention capacity equivalent to 1.1 times the total storage capacity of the fuel tank(s).

All refuelling of plant and machinery will take place over a concrete hardstanding area in front (south) of the fuel tanks. Surface water run-off from the concrete hardstand area will be captured by sub-surface drainage pipes and passed through a hydrocarbon interceptor before being discharged to ground via a soakaway / infiltration area.

Oils and lubricants required for site plant and machinery will be stored on suitable spill pallets in a designated storage container to be located at the northern end of the site infrastructure area.

Waste Inspection and Quarantine Facility

It is proposed to designate the existing shed at the northern end of the site infrastructure area, shown in Figure 4-8-1C, as the on-site waste inspection and quarantine facility. The shed is roofed, closed on all four sides and has a concrete floor, thereby protecting any suspect waste from incident rainfall and avoiding the potential to generate (suspect) contaminated surface water run-off (and a requirement for separate wastewater collection and storage infrastructure).

Equipment Storage

Mobile plant and equipment used in soil and stone 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.

Storage for small items of plant and equipment, replacement parts, minor quantities of hydraulic oil and/or lubricants, storage of minor quantities of liquid (oil) waste, safety clothing and equipment will be provided in a container located along the northern site boundary, as shown in Figure 4-8-1C.

In addition to providing for storage of potentially hazardous oils / waste liquids over spill pallets within the storage container, internal bunding may also be provided internally to contain any potential leaks or spills of potentially hazardous oils or waste liquid.

Plant Maintenance

Routine maintenance of plant and machinery will be undertaken over the paved concrete slab in front (south) of the fuel storage tanks or within the waste inspection and quarantine facility (provided circumstances allow). More extensive or non-routine maintenance of plant and machinery will take place at off-site locations.

SITE PREPARATION WORKS

Prior to commencement of the backfilling and recovery activities at Usk, the following site preparation works will be required :

- Securing existing site perimeter with additional fencing / planting required;
- Cutting and off-site removal of all existing scrub and vegetation from pit floors and side slopes to authorised waste facilities (undertaken in phases immediately prior to commencement of backfilling works in designated areas);
- Removal of any waste from prior development to authorised waste facilities off-site;
- Establishment of site offices, weighbridge office and staff welfare facilities at site infrastructure area;
- Installation of weighbridge and wheelwash;
- Construction of bunded fuel storage area and concrete slab with sub-surface drainage to hydrocarbon interceptor and soakaway area;
- Installation and commissioning of septic tank and wastewater treatment facilities;
- Additional paving works around the site access / entrance;
- Connection of power and water supplies;
- Upgrading of internal access roads using imported rockfill aggregate where required to provide access to backfill areas within application site;
- Establishment of environmental control and monitoring infrastructure;
- Backfilling of existing shallow ponds using existing sand and in-situ overburden soils stockpiled on site.

It is likely that some or all of the proposed site establishment / pre-commencement works outlined above will be subject to prior agreement and oversight of the EPA, in accordance with standard conditions attaching to a prospective future waste licence.

WASTE OPERATIONS AND PROCEDURES

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

The proposed backfilling and restoration of the pit using imported 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 temporary storage of imported waste for recovery purposes at the facility (e.g. stockpiling of topsoil, mineral soil and stone or fragmented rock).

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 recovery activities the proposed facility will be restored to grassland or other agricultural use by placing natural subsoil and topsoil over the backfilled soil and stone. The soils and/or subsoils used for final restoration will be stockpiled on site or imported / accumulated over the period of the backfilling and recovery operations. On completion, any rainfall over the backfilled ground will either

- percolate directly into the backfilled soil mass (depending on the permeability and/or degree of saturation of the soil at the ground surface);
- run-off over the ground surface to percolate into the more permeable ground immediately beyond the backfilled / restored areas or
- run-off over the ground surface toward the groundwater pond which will be left in-situ in the south-eastern corner of the application site.

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

- Removal of all offices structures, tanks, stores, plant and machinery from site;
- Decommissioning and/or removal of all on-site infrastructure;
- Final spreading of overburden soils / topsoil over haul roads and hardstand areas and subsequent seeding with grass;
- Planting of hedgerows and re-establishment of former field boundaries in line with the final site contouring and landscape plan (shown in Figure 4-8-1D).

As previously noted, backfilling and restoration of the former pit will progress eastwards and downslope from the highest point on the application site along the western boundary toward the local road and the perimeter screening berms along the eastern site boundary and parallel to the River Greese. An outline of the proposed restoration scheme and the final ground level contours is shown in Figure 4-8-1D. Cross-sections through the final landform are shown in Figure 4-8-1E.

Capacity and Lifespan

The only material requirements in respect of the proposed restoration scheme are the inert soil, stone and rock to be used in filling and restoring the application site. At the present time, it is anticipated that the principal sources of such materials over the lifetime of the waste recovery facility will be construction and development related activities surrounding region, specifically Counties Kildare, Wicklow, Dublin and Carlow.

The total volume of inert soil required to create the restored landform is approximately 690,000m³. 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 1.8tonnes/m³ assumed for tonnage assessment purposes, gives an import requirement for approximately 1,240,000 tonnes of inert soil and stones.

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

**Table -1
Material Quantities**

Material	Quantity	Source
Inert subsoil, stones and rock	Approx. 1,225,000 tonnes Western Pit Area: 340,000 m ³ Eastern Pit Area: 340,000 m ³	Imported
Topsoil (150mm depth)	15,000 tonnes	On site / Imported

The duration of filling activities at the application site will largely be dictated by the rate at which approximately 690,000m³ (1,240,000 tonnes) of externally sourced inert soil and stone is imported. There are many factors which will influence this, including, but not limited to the:

- Availability of acceptable inert materials at construction / development 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, prediction of intake rates and volumes and timing of activities is not an exact science. It is anticipated that the maximum rate of soil and stone waste importation to the proposed backfill / recovery facility at Usk will be of the order of 300,000 tonnes per annum.

Assuming that the average rate of backfilling is ultimately between 200,000 and 300,000 tonnes per annum, the expected operational life of the proposed facility will be between 4 and 6 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 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 Usk will be restored to its previous landform in two principal phases working eastwards and downslope from the western slope toward the lower ground along the north-eastern and eastern site boundaries.

In the first phase, the pit to the west of the internal access road will be backfilled from existing pit floor levels of approximately 130mOD to 135mOD to final restored levels of between 145mOD and 135mOD. Given that the final restored surface slopes eastwards, the depth of backfilling will typically vary between 5m and 15m.

In the second phase, the pit to the east of the internal access road will be backfilled from existing pit floor levels of approximately 120mOD to 125mOD to final restored levels of between 130mOD and 125mOD. Typical depth of backfill in this phase will range from 5m to 10m in the deeper pit in the north-eastern area to between 2m and 5m in the south-eastern area, with only minimal depth of backfilling and ground levelling in and around the pond in the south-eastern corner.

Final formation levels on completion of the filling and restoration works vary on account of the sloped nature of the restored landform, from approximately 145mOD to 120mD, as indicated in the final restoration plan in Figure 4-8-1D and in cross-sections in Figure 4-8-1E.

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:2h 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 Analyses

Temporary side slopes in filled soils will be graded at an angle no steeper than 26° (approximately 1v:2h), 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, similar to the natural slope which existed prior to the pit development. 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°).

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.

Facility Design

Given the inert nature of the soil and stone which will be used to backfill and restore the application site, no provision is made in the planned scheme for the construction of perimeter berms, installation of basal or side slope liners or installation of a drainage blanket at the base of the fill materials. In view of the inert nature of the soil and stone, no provision is made for either a leachate management system or a landfill gas management system at the proposed recovery facility.

Site Restoration 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 150mm to 300mm of subsoil will be placed over the inert soil and stone at the end of the backfilling operations. The soil cover will be seeded with a grass mix in order to promote stability and minimise soil erosion and dust generation. The proposed restoration contours and planting scheme is indicated in Figure 4-8-1D.

Topsoil and subsoil will be imported to the site on a continual basis and shall not be used immediately in backfilling the former pit. The topsoil and subsoil shall be stockpiled separately pending re-use toward the latter stages of the works, when the top surface of filled ground approaches proposed final ground levels. These materials shall be stored separately within the

application site, away from the active filling areas and in such location and manner as not to create any temporary adverse visual impact or dust nuisance.

On completion of the backfilling 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 waste recovery facility using heavy goods vehicles (HGVs). All (HGVs) importing the approved inert soil and stone waste to the facility will be required to pass over the weighbridge to be located along the access road leading into the facility. Internal haul routes to be taken by HGV traffic through the application site are shown in Figure 4-8-1C.

On arrival, HGV drivers carrying materials to the recovery facility will identify themselves to the facility manager (or an authorised assistant) before proceeding to the active backfilling area. Staff will take a copy of the delivery docket, record the time and date of arrival, the nature, origin and weight of the imported soil and stone, the customer / client name, the truck licence plate number, the relevant waste collection permit details and any further details which may be required by the EPA waste licence. All records of waste intake will be maintained on site for waste tracking and auditing purposes.

Insofar as practicable, the source of each large consignment of soil imported to site for backfilling 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 or sub-contractors forwarding soil and stone backfill materials to the application site.

Operating procedures at the 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 deemed unacceptable for recovery at the facility as a result of 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 based 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 shed for closer inspection and classification testing. 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 backfilling purposes at the application site, they will be transferred 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 application 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 will be taken from one in every 250 loads of inert soil accepted at the facility 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 acceptance criteria. Compliance testing shall be undertaken by the Applicant.

PROPOSED ENVIRONMENTAL CONTROLS

General

Several safeguards will be established to ensure that only acceptable soil and stone materials are received and handled at the recovery facility. These will include the following;

- Ensuring all materials arriving on site are subject to a visual inspection both prior to and during unloading;
- Ensuring that any unacceptable materials identified at the facility at the time of delivery are immediately returned to the source site and that any materials identified subsequently are separated and transferred off-site to an authorised waste disposal or recovery facility;
- Restricting or denying further use of the facility to any sub-contractor who persistently directs or carries unacceptable soil and stone waste to the recovery 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 public road which runs immediately beyond the north-eastern and eastern site boundary – refer to Chapters 4 and 10 of the accompanying EIA. The operation of the proposed recovery facility will include a number of mitigation measures with respect to noise, including:

- Retaining existing boundary screening berms and boundary hedgerows for the duration of the backfilling operations to provide acoustic screening;
- Working behind and below perimeter screening berms for the longest practicable duration;

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

Prior to commencement of the backfilling and restoration activities, a survey of the site 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 stone waste being imported, placed and recovered at the application site is 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 inspection and quarantine shed pending removal off-site to an authorised waste disposal or recovery facility.

Dust Control

In dry, windy weather conditions, the backfilling and restoration operations may give rise to dust blows across, and possibly beyond the application site. In order to control dust emissions, the following control 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 by the existing pit side walls and/or perimeter screening berms as filling progresses eastwards and upwards;
- any established ground vegetation will remain in place until such time as backfilling and restoration operations are about to commence (thereby minimising potential for dust blows);
- 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) 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 backfilling and restoration to final ground level;
- all HGV's exiting the site shall be routed through the proposed wheelwash facility in order to minimise transport of mud and/or soil 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 public roads, if required.

Litter Control

As the soil and stones being placed or recovered at the application site will be largely free of litter, the site backfilling and 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 inspection and quarantine shed pending removal off-site to an authorised waste disposal or recovery facility.

Odour Control

Recovery activities at the application site will not give rise to odour nuisance as the soil and stones being placed / recovered at the site are inert and not biodegradable and as such will not emit any odourous gases. 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 inspection and quarantine area pending removal off-site to an authorised waste disposal or recovery facility.

Invasive Species

A invasive species management plan in respect of the proposed facility will outline how the Applicant will establish, maintain and implement an invasive species prevention and eradication plan, to cover specific invasive species, including but not limited to Japanese Knotweed, Giant Knotweed and Bohemian Knotweed.

Vermin Control

As the soils and stones being placed / recovered at this site are inert and free of putrescible (food / kitchen) waste, site activities are unlikely to attract vermin (rats) for the duration of the backfilling and restoration activities. Accordingly, no specific vermin control measures will 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 inspection and quarantine shed pending removal off-site to a licenced waste disposal or recovery facility.

Fire Control

The soil and stones being placed / recovered at the application 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 backfilling and restoration works. Accordingly, no specific fire control measures will 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, at the site office or staff welfare facilities 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 inspection and quarantine shed pending removal off-site to an authorised waste facility; and
- (iii) plant and equipment will be removed if they exhibit signs of overheating etc.

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

PROPOSED ENVIRONMENTAL MONITORING

General

The Applicant will establish an environmental management programme to monitor and manage emissions from the proposed backfilling and recovery operations at the application site.

It is anticipated that limit values for environmental emissions arising from waste recovery activities at the site will be similar to those applying at other EPA licenced 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 inert waste recovery facility at Usk.

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

Dust Monitoring

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

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 the EPA and/or Kildare County Council on a regular basis for review and record purposes.

Groundwater Monitoring

Four groundwater monitoring wells have recently been installed across the application site – refer to Chapter 7 (Water) of the accompanying EIAR. 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 following programme of groundwater water monitoring will be implemented by the Applicant at the proposed recovery facility (subject to review and approval by the EPA in its determination of an application for a waste licence):

- Groundwater levels will be monitored at each of the four wells (designated GW1, GW2, GW3 and GW4) and the existing groundwater pond in the south-eastern corner of the application site on a monthly basis;
- Limited groundwater quality testing will be undertaken on samples recovered from the four groundwater monitoring wells on a quarterly basis;
- More detailed groundwater quality testing (to include metals and a number of specified hazardous substances) will be undertaken on an annual basis.

The groundwater monitoring regime will remain in place for the life of the proposed backfilling and restoration works and for a limited closure and aftercare period thereafter.

Surface Water Monitoring

Although there is no off-site discharge to any surface watercourse within the application site, it is proposed to monitor surface water quality in the surface water channel immediately beyond the eastern site boundary of the application site as it is likely that this channel is fed by groundwater flowing beneath the application site.

Ecological Monitoring

Mitigation measures are proposed for the protection of breeding birds, common frog and smooth newt at the application site, refer to Chapter 5 (Biodiversity) of the accompanying EIAR. It is expected that any mitigation activities undertaken by way of derogation licences issued by the National Parks and Wildlife Service (NPWS) will require some level of post-completion monitoring.

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 backfilling and restoration works, and the closure of the recovery facility, the application site will be returned to use as grassland. Considering the proposed afteruse it is considered that stability and settlement monitoring of the infill lands is not required.

Meteorological Monitoring

No site specific meteorological monitoring is undertaken at the application site. Temperature, rainfall, sunshine, wind speed and direction are all recorded at the weather station at Casement Aerodrome, at Baldonnel in South County Dublin, approximately 30km north-east of the application site. It is currently envisaged that representative meteorological data will be acquired from the existing weather station at Casement Aerodrome, as and if required.

Leachate and Landfill Gas Monitoring

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

Odour Monitoring

As the materials being placed or recovered at this site are not biodegradable and do not therefore emit odorous gases, the backfilling and restoration activities will not give rise to odour nuisance. Accordingly, no provision has been made for odour monitoring at the proposed recovery facility.

Site staff will report and record any odour emissions at the site in the highly unlikely event that a complaint is made about odours emanating from the site.

FINAL RESTORATION WORKS

Restoration Scheme

The principal activity which will be undertaken at the application site is backfilling and restoration of lands within a former sand and gravel pit. As previously noted, the application site will be restored to a landform which merges into the surrounding agricultural landscape, refer to the proposed restoration contours and long term restoration plan provided in Figure 4-8-1D.

A cover layer comprising 150mm of topsoil and approximately 150mm to 300mm of subsoil will be placed over the imported inert soil and stone materials at the end of the backfilling operations. The soil cover will initially be seeded with a grass mix in order to promote stability and minimise soil erosion and dust generation.

Some hedgerows will also be planted to re-establish former field boundaries which were lost in order to facilitate the development of the sand and gravel pit. On completion, the application lands will be returned to grassland or other agricultural use.

Site Management and Supervision

The Applicant will delegate responsibility for management of site restoration works to a nominated individual / staff member and will ensure that this person has the necessary information (from the EIAR / planning application) and authority to direct and oversee final site restoration works, site closure and decommissioning activities and required aftercare activities (principally environmental monitoring and site maintenance works).

Long Term Safety and Security

All existing perimeter security features and site access will remain in place following facility closure and expiry of the aftercare period. Existing perimeter berms, fencing and hedgerows will be surveyed again post facility closure and upgraded / enhanced where required. These works, combined with the securing and locking of the existing entrance gates will prevent any unauthorised third party access to the application site.

Long Term Surface Water and Groundwater

As previously outlined, it is expected that following completion of the backfilling and restoration works, most rainfall over the application site will either infiltrate immediately to ground or will run-over the ground surface to infiltrate the permeable sand and gravel immediately beyond the backfilled soil mass.

Any run-off which fails to infiltrate to ground will fall toward, or be directed via perimeter channels and land drains to, the groundwater pond which will remain in place in the south-eastern corner of the application site. This pond will then effectively serve as a long-term soakaway or settlement lagoon for any surface water run-off prior to its discharge to groundwater. Aside from this, there will be no requirement for any active long term surface water or groundwater management at the application site.

Decommissioning of Plant and Machinery

On completion of site operations, all mobile plant and equipment associated with backfilling and waste recovery activity at the Usk facility will be removed off-site. Any dedicated site accommodation, infrastructure and/or services will also be progressively removed off-site and/or decommissioned.

Aftercare and Monitoring

Establishment maintenance will be carried out for a period of up to 3 years following the seeding and hedgerow establishment 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 returned to a local farmer for agricultural use. It is expected that over time, the restored landform will ultimately merge into the surrounding local rural agricultural landscape.

FIGURES

**Figure 4-8-1A
SITE LOCATION MAP**

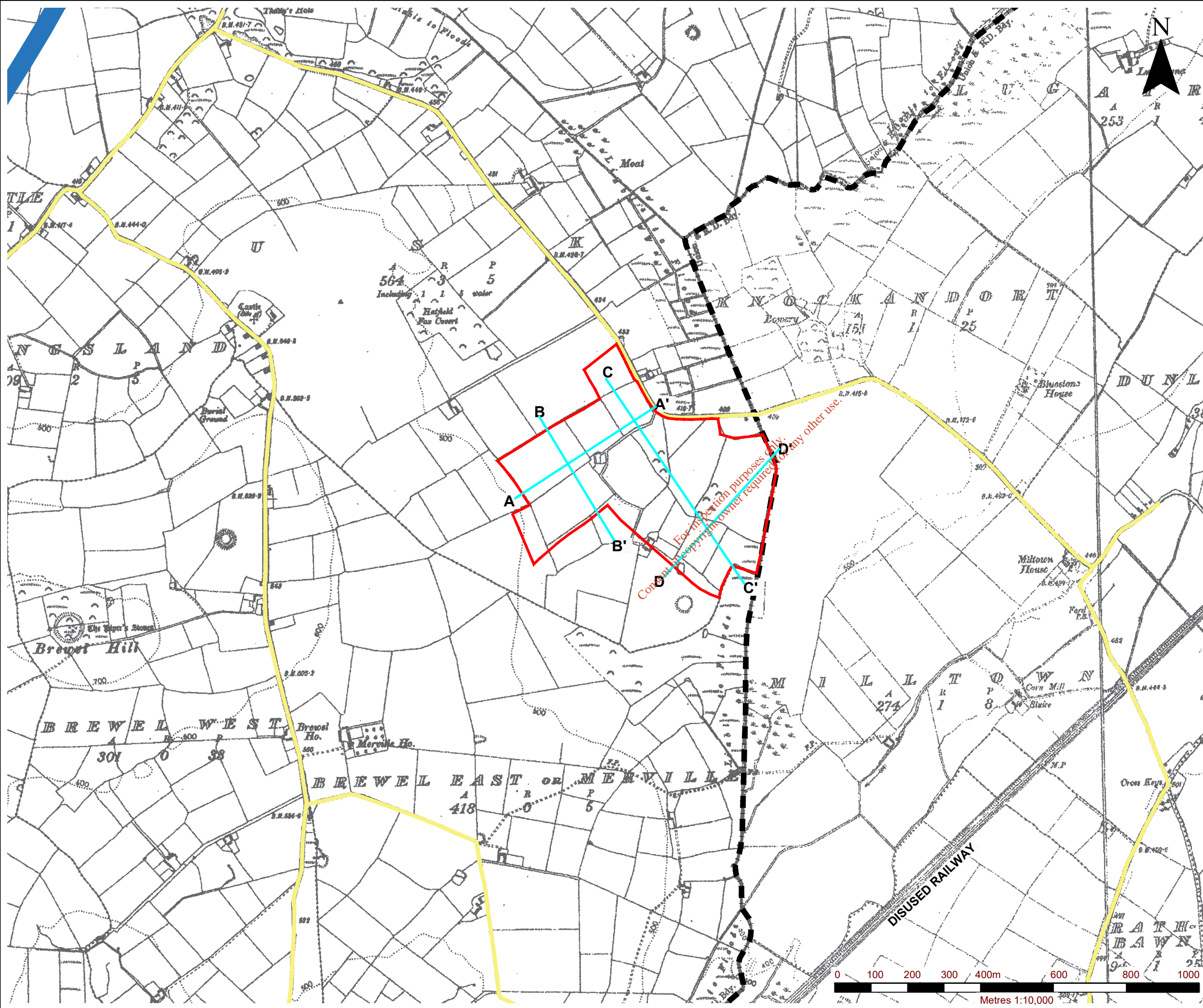
**Figure 4-8-1B
EXISTING SITE CONTOURS**

**Figure 4-8-1C
PROPOSED SITE LAYOUT – OPERATIONAL PHASE**

**Figure 4-8-1D
PROPOSED RESTORATION AND LANDSCAPE PLAN**

**Figure 4-8-1E
EXISTING AND PROPOSED CROSS SECTIONS**

501.00507.00001.FIG_4-8-1A.Site Location Map.dwg



NOTES

1. EXTRACT FROM 6 INCH ORDNANCE SURVEY MAP NO.s WW013, WW014, KE032 & KE033.
2. ORDNANCE SURVEY IRELAND LICENCE NO. SU 0000720 (C) ORDNANCE SURVEY & GOVERNMENT OF IRELAND.

LEGEND

	PLANNING APPLICATION AREA (c. 26.6 Hectares)
	M9 MOTORWAY
	LOCAL ROAD NETWORK
	COUNTY BOUNDARY
	CROSS SECTIONS

SLR global environmental solutions

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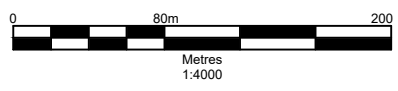
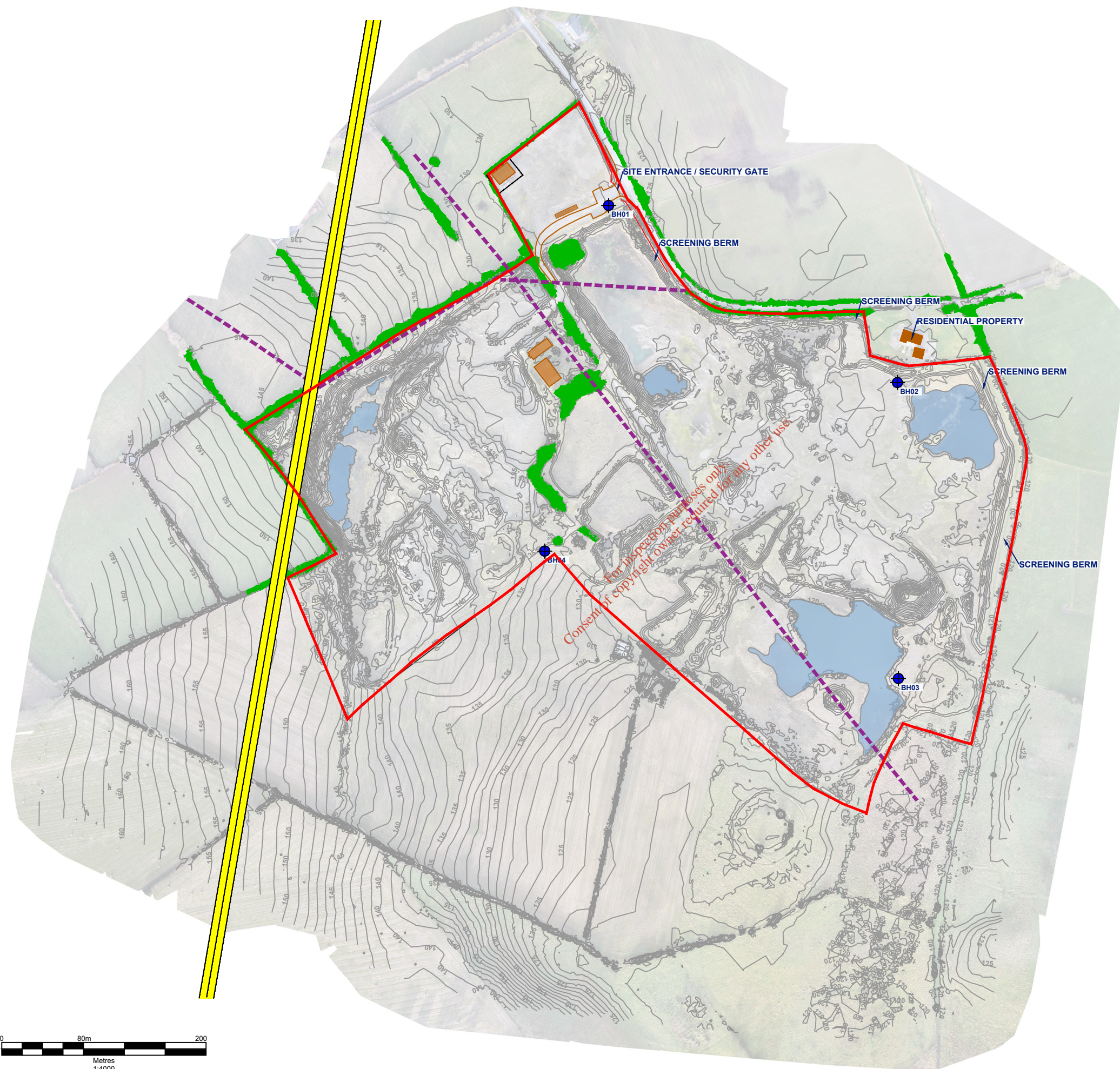
LANDS AT USK TOWNLAND,
KILCULLEN, CO. KILDARE

SITE LOCATION MAP

FIGURE 4-8-1A

Scale: 1:10,000 @ A3 Date: SEPTEMBER 2020

501.00607.00001.FIG_4-8-1B.Existing Site Contour.dwg



NOTES

1. Extract from Map Scale 1:5,000 Ordnance Survey No. 3895 & 3837
2. Ordnance Survey Ireland Licence No. SU 0000720
(c) Ordnance Survey Ireland and Government of Ireland

LEGEND

	PLANNING APPLICATION AREA (c. 26.6 Hectares)
	VEGETATION
	OVERHEAD POWERLINE
	EXISTING SURFACE WATER PONDS
	GAS PIPELINE
	GROUNDWATER BOREHOLE LOCATIONS (2018)

**Orthomosaic produced from Aerial Photography flown January 2018 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.

The accuracy of the orthomosaics and the digital elevation models (DEM) strongly depends on the flight height, lighting conditions, availability of textures, image quality, overlap, and type of terrain. Contours / 3D data relates to the surface model and not terrain levels. Typical accuracies: E: 0.05 m; N:0.05 m; Levels: 0.30 m. All Dimensions and Levels are to be checked on site.

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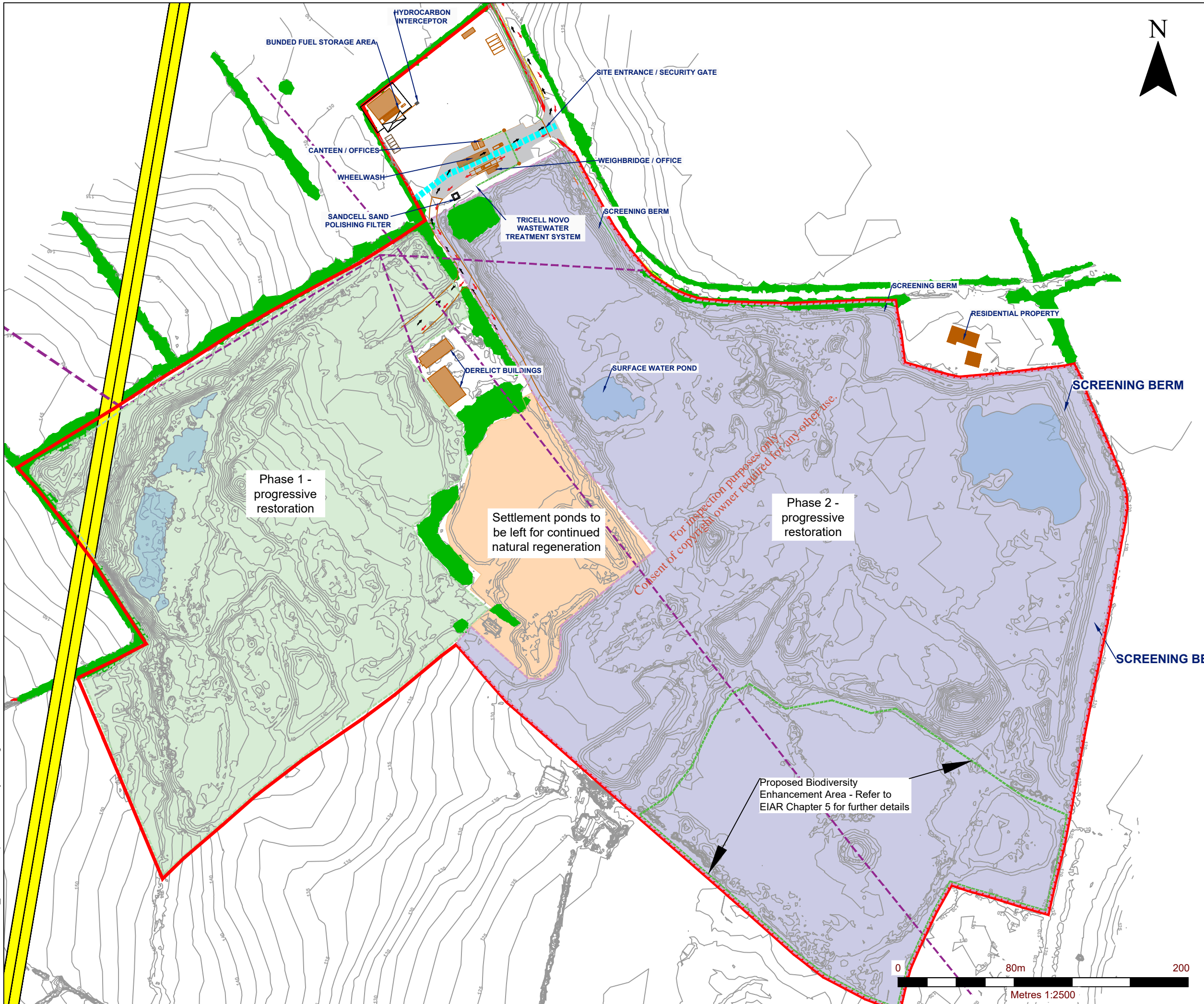
LANDS AT USK TOWNLAND,
KILCULLEN, CO. KILDARE

EXISTING SITE CONTOURS

FIGURE 4-8-1B

Scale 1:4,000 @ A3	Date SEPTEMBER 2020
-----------------------	------------------------

501.00507.00001.FIG_4-8-1C:Proposed Site Layout.dwg



NOTES

- Extract from Map Scale 1:5,000 Ordnance Survey No. 3895 & 3837
- Ordnance Survey Ireland Licence No. SU 0000720
(c) Ordnance Survey Ireland and Government of Ireland

LEGEND

	PLANNING APPLICATION AREA (c. 26.6 Hectares)
	HGV TRAFFIC IN
	HGV TRAFFIC OUT
	VEGETATION
	EXISTING SURFACE WATER PONDS
	PAVED AREA
	BUILDINGS
	OVERHEAD POWERLINE
	BGE GAS PIPELINE
	WASTEWATER DRAIN

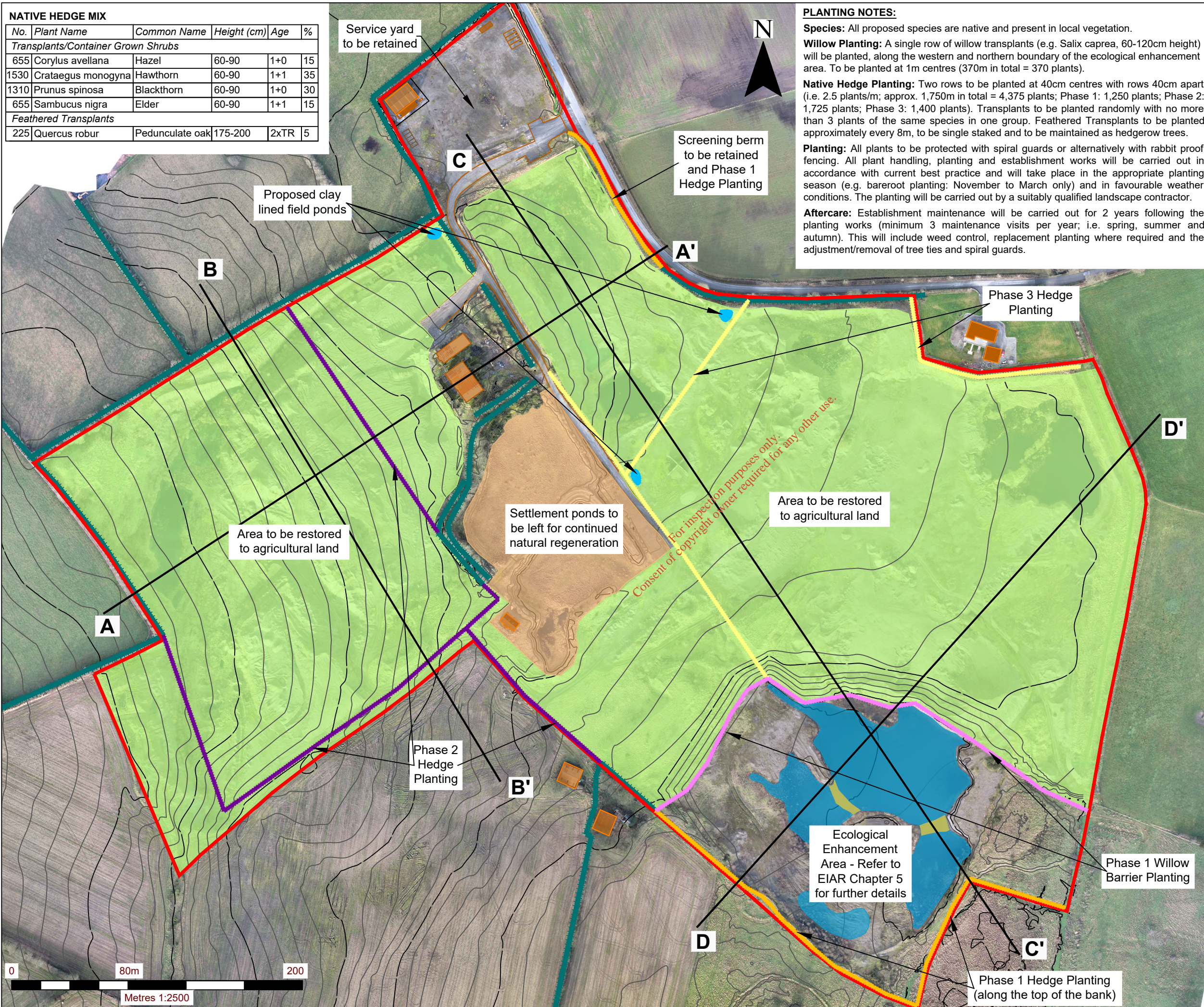
*Orthomosaic produced from Aerial Photography flown January 2018 by SLR Consulting Ireland (IAA Permit No. 150052) www.slrconsulting.com Tel. +353-1-2964667.
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DUNLAVIN LAND RESTORATION LTD.
WASTE LICENCE APPLICATION
LANDS AT USK TOWNLAND,
KILCULLEN, CO. KILDARE
PROPOSED SITE LAYOUT
FIGURE 4-8-1C

Scale: 1:2,500 @ A3 Date: SEPTEMBER 2020

NATIVE HEDGE MIX					
No.	Plant Name	Common Name	Height (cm)	Age	%
Transplants/Container Grown Shrubs					
655	Corylus avellana	Hazel	60-90	1+0	15
1530	Crataegus monogyna	Hawthorn	60-90	1+1	35
1310	Prunus spinosa	Blackthorn	60-90	1+0	30
655	Sambucus nigra	Elder	60-90	1+1	15
Feathered Transplants					
225	Quercus robur	Pedunculate oak	175-200	2xTR	5



PLANTING NOTES:

Species: All proposed species are native and present in local vegetation.

Willow Planting: A single row of willow transplants (e.g. Salix caprea, 60-120cm height) will be planted, along the western and northern boundary of the ecological enhancement area. To be planted at 1m centres (370m in total = 370 plants).

Native Hedge Planting: Two rows to be planted at 40cm centres with rows 40cm apart (i.e. 2.5 plants/m; approx. 1,750m in total = 4,375 plants; Phase 1: 1,250 plants; Phase 2: 1,725 plants; Phase 3: 1,400 plants). Transplants to be planted randomly with no more than 3 plants of the same species in one group. Feathered Transplants to be planted approximately every 8m, to be single staked and to be maintained as hedgerow trees.

Planting: All plants to be protected with spiral guards or alternatively with rabbit proof fencing. 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.

Aftercare: Establishment maintenance will be carried out for 2 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.

NOTES

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- LEGEND**
- PLANNING APPLICATION AREA
 - EXISTING HEDGEROWS TO BE RETAINED
 - SETTLEMENT LAGOONS TO BE LEFT FOR CONTINUED NATURAL REGENERATION
 - ECOLOGICAL ENHANCEMENT AREA (REFER TO EIA CHAPTER 5 FOR FURTHER DETAILS)
 - AREAS TO BE RESTORED TO AGRICULTURAL LAND (AS SOON AS SUITABLY LARGE SECTIONS BECOME AVAILABLE)
 - FIELD PONDS (TO BE INSTALLED AS PART OF FINAL RESTORATION, CLAY LINED, APPROX. 5M DIAMETER, WITH SHALLOW MARGINS AND UP TO 1.5M DEEP AT THE CENTRE)
 - PHASE 1 WILLOW PLANTING (TO BE PLANTED ON COMMENCEMENT OF THE DEVELOPMENT TO PROTECT THE NORTHERN AND WESTERN BOUNDARY OF THE ECOLOGICAL ENHANCEMENT AREA)
 - PHASE 1 NATIVE HEDGE PLANTING (TO BE PLANTED ON COMMENCEMENT OF THE DEVELOPMENT AT THE SITE ENTRANCE AND TO PROTECT THE SOUTHERN BOUNDARY OF THE ECOLOGICAL ENHANCEMENT AREA)
 - PHASE 2 NATIVE HEDGE PLANTING (TO BE PLANTED AS SOON AS THE FILLING OF THE WESTERN/ELEVATED PART OF THE SITE IS COMPLETED)
 - PHASE 3 NATIVE HEDGE PLANTING (TO BE PLANTED ON COMPLETION OF ALL FILLING WORKS)

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DUNLAVIN LAND RESTORATION LTD.
WASTE LICENCE APPLICATION
LANDS AT USK TOWNLAND,
KILCULLEN, CO. KILDARE
FINAL RESTORATION SURFACE


FIGURE 4-8-1D

Scale: 1:2,500 @ A3 Date: SEPTEMBER 2020

501.00507.00001.FIG_4-8-1D.Proposed Restoration & Landscape Plan.dwg

NOTES
 1. REFER TO FIGURE 2-1 & 2-2 FOR LOCATION OF CROSS SECTIONS

LEGEND

 AREA OF FILL

