

Calary Quarry, Kilmacanogue, Co. Wicklow

**Proposed Inert Soil Recovery Facility
Restoration and Backfilling of Calary Quarry**

**ENVIRONMENTAL IMPACT STATEMENT
NON-TECHNICAL SUMMARY**

SLR Ref: 501.00180.00109.3

May 2016



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1.0 INTRODUCTION

- 1.1 This Non-Technical Summary provides supporting information to accompany an application) by Roadstone Ltd for planning permission to Wicklow County Council for restoration of Calary Quarry at Killough Upper and Glencap Commons Upper, Kilmacanogue, Co. Wicklow, on the lower western slopes of the Great Sugar Loaf Mountain. The quarry is to be restored by backfilling it to former ground level using imported inert soil and stone waste and establishing a heathland / grassland habitat, similar to that which existed prior to quarrying.
- 1.2 As the importation and placement of the inert soil and stone waste is classified as a waste recovery activity under national waste management legislation and is of significant scale and duration, a waste licence application in respect of the proposed activity must also be submitted to the Environmental Protection Agency.
- 1.3 The total volume of inert soil and stone waste required to backfill and restore the quarry is estimated to be of the order of 1,830,000m³ (1.83 million cubic metres), equivalent to approximately 3,300,000 tonnes, of which 3,280,000 tonnes will be imported. The inert soil and stone to be imported, placed and recovered at the facility will be sourced from construction and development sites where prior testing has indicated that no soil contamination is present. When fully operational, the proposed facility at Calary Quarry will be the only dedicated inert soil and stone waste recovery facility licenced by the EPA on the southern side of Dublin City or along the strategic N11 road / development corridor through County Wicklow.
- 1.4 The proposed recovery of inert soil and stone at Calary Quarry will provide for the restoration of an existing quarry void on western slope of the Great Sugar Loaf and improve the protection of the underlying groundwater resource, which is currently classified as 'extremely vulnerable' due to the absence of any protective soil cover at the site.

Site Location and Surrounding Land Use

- 1.5 The application site is located entirely within the townlands of Killough Upper, and Glencap Commons Upper, approximately 2.3km south-west of Kilmacanogue, Co, Wicklow and the junction of the R755 Regional Road and the N11 National Primary Road. It also lies approximately 4.4km south of the village of Enniskerry and approximately 7km south-west of Bray, Co. Wicklow. Its location is shown on an extract from a 1:50,000 scale map of the area in Figure NTS-1.
- 1.6 The application area comprises an existing quarry void and surrounding land covering an area of approximately 9.1hectares (21.9acres). It lies within a larger landholding extending to 25.4 hectares (61.2 acres) occupied by Roadstone Ltd. The extent of the application site and Roadstone's land interest are outlined in red and blue respectively on Figure NTS 2.
- 1.7 The application site is bound to the west by the R755 Regional Road, to the north by scrubland, to the east by commonage / grazing land across the western slope of the Great Sugar Loaf and to the south by more scrubland. Lands immediately west of the R755 Regional Road comprise a mix of agricultural grassland and scrubland.

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- 1.8 The Great Sugar Loaf is an isolated conical shaped hill of erosion resistant metamorphic rock (quartzite) which extends up to 501m above sea level. Given its distinctive conical shape, its isolation from other hills and its steep slopes, it forms a locally prominent landscape feature and is of some local historical and cultural significance. The established walking paths around the Great Sugar Loaf and the Wicklow Way are notable public amenities in the local area.
- 1.9 The wider area surrounding the application site is largely rural in nature and typically comprises agricultural enterprises or small rural based enterprises interspersed with occasional isolated residential properties or small residential clusters, principally along the local road network. The closest residential properties to the site are Kilmac Farm, Bellevue Cottage and Sugar Loaf Farm, all of which occur immediately to the south of the application site. Existing land use around the proposed recovery facility is shown in Figure NTS-2.

Road Access

- 1.10 Road access to Calary Quarry is made by way of the N11 National Primary Road, a grade separated interchange at Kilmacanogue village and a section of the R755 Regional Road which runs approximately 3.8km west of the N11 junction, through Kilmacanogue village. The configuration of the public road network in the area is shown on Figure NTS-1.
- 1.11 The R755 Regional Road is of single carriageway construction and climbs west of Kilmacanogue village, before turning south to run along the western flank of the Great Sugar Loaf and continuing on to the villages of Roundwood and Laragh, Co. Wicklow.

Site History

- 1.12 The existing quarry at Calary was originally opened and operated by Wicklow County Council. Roadstone commenced quarrying at the site in 1973. Quarry operations were suspended in 2010 in response to the sharp downturn in activity in the construction sector at that time. Extraction and aggregate production rates at Calary Quarry averaged approximately 300,000 tonnes / annum in the years immediately prior to the suspension of quarrying.
- 1.13 Since quarrying activities were suspended in 2010, dewatering has been discontinued at Calary Quarry. Natural drainage (principally surface run-off from surrounding sloping ground and rainfall) has caused water levels in the quarry void to gradually rise, from a floor level of approximately 220mOD to approximately 244mOD. A recent aerial photograph showing the partially flooded quarry workings is provided in Figure NTS-3.
- 1.14 Existing or former quarry facilities and infrastructure, including a site office, canteen, changing room, toilets, stores, lunch room, ESB substation, fuel storage area, settlement tanks, wheelwash, effluent disposal system and site entrance, are all currently permitted by Planning Permission Ref. No. 06/6189 (An Bord Pleanála Ref. PL.27.224400). It is envisaged that much of the existing or former quarry infrastructure will be re-used, replaced, re-instated and/or upgraded for the purposes of the proposed quarry backfilling and restoration activities.

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2.0 PROPOSED WASTE RECOVERY FACILITY

Principal Elements

- 2.1 The proposed inert waste recovery facility at Calary Quarry provides for
- (i) Use of approximately 3,280,000 tonnes (1,820,000m³) of imported inert natural materials, principally excess soil, stones and/or broken rock to restore a large existing quarry by backfilling it to former ground level;
 - (ii) Construction of temporary site infrastructure including, site office and staff welfare facilities, weighbridge, wheelwash, hardstand areas, fuel storage facilities, waste inspection and quarantine area and storage sheds;
 - (iii) Separation of any construction and demolition waste (principally concrete, metal, timber, PVC pipes and plastic) unintentionally imported to site prior to removal off-site to licensed waste disposal or recovery facilities;
 - (iv) Temporary stockpiling of topsoil pending re-use as cover material for final restoration of the site;
 - (v) Restoration of the backfilled void (including placement of cover soils and seeding) and establishment of a heathland / grassland habitat similar to that which existed prior to quarrying;
 - (vi) Environmental monitoring of noise, dust, surface water and groundwater for the duration of the site restoration works and for a short period thereafter.

Site Infrastructure

- 2.2 Inert soil waste will be accepted at the application site between 07.00 hours and 18.00 hours each weekday and 08.00 hours to 14.00 hours on Saturday. No soil will be accepted outside of these hours, including Sundays and Public Holidays. Vehicular access into the site is directly off the R755 Regional Road which runs immediately west of and along the western property boundary of Calary Quarry.
- 2.3 Staff employed at the waste recovery facility will use office and canteen facilities which will be erected on the western side of the proposed site infrastructure area at the upper quarry level, close to the site entrance. The location and layout of the proposed infrastructure area is indicated in Figure NTS 4.
- 2.4 Before gaining access to the recovery facility, all HGV trucks will be required to stop at a weighbridge / weighbridge office to be constructed at the proposed site infrastructure area at the upper quarry level, close to the site entrance. Within the application site, trucks will travel to and from the active restoration and recycling areas over unpaved roads. In order to prevent transport of mud and dust onto the public road network, all HGV trucks will be directed through a wheelwash facility before they exit the site (refer to Figure NTS-4).
- 2.5 Temporary haul roads across backfilled areas in the quarry void will be constructed using small quantities of virgin aggregate imported to the facility from local quarries.
- 2.6 Fuel for site plant and equipment will be stored at proposed replacement storage tanks to be constructed at the site infrastructure area and/or in mobile double skinned bowsers. The fuel storage tanks will be constructed on a sealed concrete surface and bunded to provide a retention capacity of 110% of the storage volume. HGV trucks will refuel over an impermeable concrete slab to be constructed adjacent to the fuel storage tanks. Oil and lubricant changes for both wheeled and tracked plant will be undertaken over the concrete slab.

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- 2.7 All oils and lubricants will be stored over bunded / spill pallets and under cover in a large storage container which will be brought to site and placed over a concrete slab at the infrastructure area. Waste oils collected in tanks and drums will also be stored in the container and will be emptied at intervals by a licensed waste contractor and recovered / disposed off-site at authorised waste facilities.
- 2.8 A waste inspection and quarantine area will also be constructed at the infrastructure area over a sealed concrete slab. Visual inspection, in-situ monitoring and testing of imported waste materials will be undertaken by Roadstone staff as inert waste materials are end-tipped, spread and placed at the active backfilling area. Should there be any concern about the nature of soil material after it has been accepted at the facility, it will be re-loaded onto a truck and directed to the waste inspection and quarantine area for visual inspection and testing. Any suspect waste materials identified will be removed off-site as required once filled.
- 2.9 Prior to commencement of soil backfilling / recovery activities, ponded water in the quarry will be pumped up to the proposed infrastructure area at the top of the quarry via flexible piping. All waters discharged off site will comply with quality standards and emission limits set by the existing discharge licence (or any waste licence issued by the EPA which may supersede it).
- 2.10 During backfilling operations, surface water run-off at the recovery facility will be collected in sumps at temporary low points within the quarry void. These temporary sumps will effectively function as primary settlement ponds. The water collecting in the lower level ponds will be pumped (with minimum agitation) to proposed new settlement ponds and will be retained there for sufficient time to allow sediments / suspended solids to fall out of solution.
- 2.11 Thereafter run-off will be passed through a hydrocarbon interceptor (fitted with a silt trap) before being discharged off-site to the existing surface water drainage network and the Killough River. Details of site drainage infrastructure at the application site is shown in Figure NTS-4.

Waste Recovery Activities

- 2.12 Backfilling of the application site will progress upwards from the quarry 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 NTS-5. Cross-sections through the restoration landform are provided in Figure NTS-6. In addition to imported materials, some soil in existing screening berms and/or stockpiles across the existing site will be used to backfill the quarry. Any additional or replacement infrastructure required to facilitate operation of the proposed waste recovery facility will be constructed and/or installed at the outset of backfilling.
- 2.13 It is estimated that the rate of importation of inert materials to the recovery facility void will average around 250,000 tonnes per annum and that the maximum annual import rate will not exceed 300,000 tonnes. At the estimated average rate of infilling, the duration of backfilling activities would be approximately 13 years. If the rate of infilling was less than anticipated, the facility could operate for up to 20 years.
- 2.14 Topsoil will be imported to the site on a continual basis and will not be used immediately in general backfilling of the quarry void. The topsoil will be stockpiled separately pending re-use toward the latter stages of the backfilling works, when the top surface of backfilled ground approaches the finished

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ground levels envisaged by the restoration scheme. This material will be stored separately within the application site, away from the active backfilling area and in such location and manner as not to create any temporary adverse visual impact or dust nuisance.

- 2.15 The final restoration works will entail placement and grading of subsoil and topsoil layers over the backfilled soil mass. This will then be rolled and initially seeded with a native grass mix in order to promote stability and minimise soil erosion and dust generation. A short aftercare period of between 12 and 24 months will follow in order to ensure that vegetation becomes well established and that any bare or exposed soils are re-seeded.
- 2.16 Thereafter, the restored lands will be left largely unattended, to be naturally recolonised by native vegetation. It is expected that over time, the infilled site will return to a heathland / grassland habitat, similar to that which originally existed prior to quarrying, and that the restored landform will ultimately merge into the surrounding local landscape
- 2.17 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. Where necessary, sealed concrete surfaces will be broken up using a hydraulic breaker and transferred-off site to an authorised permitted construction and demolition waste recovery facility.

Environmental Monitoring

- 2.18 A programme of environmental monitoring was previously in place to record air, noise and water emissions at Calary Quarry. It is envisaged that the previous monitoring regime will be reinstated and will form the basis of the programme to be established if the proposed recovery facility is approved. This monitoring programme will comply with requirements set by any planning permission issued by Wicklow County Council and/or waste licence issued by the Environmental Protection Agency.
- 2.19 Environmental sampling, monitoring and testing for noise, dust, surface water and groundwater will be undertaken by Roadstone in-house staff and/or independent external consultants as required. Records of environmental monitoring and testing will be maintained on-site and will be duly forwarded to the EPA / Wicklow County Council as required.

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3.0 HUMAN BEINGS

- 3.1 Quarrying activities were previously established across Roadstone's landholding at Calary Quarry for approximately 40 years. The impact of the proposed waste recovery activities on human beings, principally those arising from importation of soil and stone waste and backfilling of the quarry void, will be similar to, and possibly less than, those which existed previously, when rock was being excavated at the quarry.
- 3.2 Noise or dust emissions will have negligible or no impact on much of the local residential housing around the application site. Notwithstanding this, a number of mitigation measures will be implemented to minimise / ameliorate the effects of noise or dust emissions from the recovery facility.
- 3.3 The impact of traffic movements on the residential amenity of properties along the R755 Regional Road leading to the facility will not be any greater than that which previously existed when the quarry was fully operational, at the peak of the pre-2007 construction boom.
- 3.4 A number of measures are to be implemented to enhance traffic safety around the existing site entrance, including localised road widening works where the requisite forward visibility cannot be achieved, increased signage and regular trimming of vegetation. These measures will ensure that traffic movements generated by the proposed development will not result in any significant adverse impacts on traffic safety along the local road network.
- 3.5 The proposed recovery facility will have little or no impact on existing amenity enjoyed at many of the social, tourist and community facilities identified in the surrounding local area, largely because it is too distant from them and/or are screened from view.
- 3.6 At the present time hill walkers, and to a lesser extent road users driving along scenic routes, also enjoy views into and around the Great Sugar Loaf, in which the existing quarry is only barely perceptible. An assessment of the likely visual impact of the proposed recovery on amenity hillwalkers and road users concluded that there may be some slight impact during the waste recovery activities, reducing to negligible on completion of the works.
- 3.7 The principal long-term impact of backfilling the existing quarry void will be the restoration of the ground level to above the groundwater table, substantial improvement to disturbed ground in a scenic landscape and return of the quarried site to its former land use. Once waste recovery activities at the site are complete, there will be a reduction in traffic movement over the R755 Regional Road, with consequent improvements for the human environment.

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4.0 FLORA AND FAUNA

- 4.1 There are no designated or proposed Special Areas of Conservation (SACs) or Special Protection Areas (SPAs) within or contiguous to the application site and Roadstone's wider landholding. The Great Sugar Loaf and its environs are designated as a proposed Natural Heritage Area (pNHA) under the Wildlife (Amendment) Act of 2000. The western boundary of the proposed NHA extends up to and runs along the eastern boundary of the Roadstone property at Calary Quarry.
- 4.2 The application site comprises an existing quarry void that, at the current time, supports habitats which are ubiquitous, anthropogenic (human origin) and of intrinsically low nature conservation value and which are considered to be of low ecological value. The proposed backfilling of the quarry void using imported inert soil and stone will result in the loss of 9.1 ha of such habitats, an impact which is not predicted to be significant. In the longer term, the proposed development will facilitate re-establishment of habitat previously removed by quarrying.
- 4.3 Outside of the existing / proposed development footprint, there would be no direct habitat loss, damage or fragmentation of any designated sites including that of the Great Sugar Loaf pNHA immediately to the east.
- 4.4 The application site provides limited opportunities for fauna (insects, birds and animals) and is unlikely to be important or critical for any particular species or population given the availability of extensive similar habitats in the wider surrounding area.
- 4.5 The habitats within the Great Sugar Loaf pNHA immediately adjacent to the application site have been subject to varying levels of impact from quarrying operations. No significant impacts are predicted on any individual or groups of species that may be present within the Great Sugar Loaf pNHA by virtue of noise or dust emissions from the proposed recovery facility.
- 4.6 Although the quarry is likely to form part of a territory used by peregrine falcon, it is not currently being used for breeding purposes. Any peregrine falcons with territories extending across the quarry, adjoining Great Sugar Loaf pNHA and wider surrounding areas will already be somewhat habituated to a degree of human disturbance. The proposed backfilling operations are not predicted to have any significant impact in the behaviour, distribution or local population status of peregrine falcon in the immediate and wider surrounding area.
- 4.7 When the recovery facility is operational, surface water run-off including incidental rainfall will be discharged to the tributary of the Killough River which is located upstream of the Dargle River and the Dargle River pNHA, a valued ecological receptor. Any water discharges from Calary Quarry will be compliant with the conditions and emission limits set by the discharge licence previously issued by Wicklow County Council (Ref. No. WPL87), which are likely to be subsumed into any EPA waste licence issued in respect of recovery activity at this location.
- 4.8 No significant deterioration of water quality in the Killough and Dargle Rivers is predicted as a result of dewatering operations at Calary Quarry or any subsequent backfilling activity, nor are any significant effects likely on the Dargle River Valley pNHA.

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5.0 SOILS AND GEOLOGY

- 5.1 Topsoil (the upper layer of soil capable of sustaining vegetation and crop growth) was previously stripped from the site in order to facilitate the development of the quarry and is currently stockpiled (with subsoil) in mounds across and around the application site. Soils in the vicinity of the site are generally shallow, rocky and/or peaty, have variable drainage characteristics and are of limited agricultural value.
- 5.2 Published geological maps indicate that rock outcrop or subcrop occurs everywhere around the application site, which is consistent with rock exposures visible in adjoining fields. The natural subsoils surrounding the application site include glacial till to the west which most likely thins as it extends upslope toward the application site.
- 5.3 Regional geological maps indicate that the bedrock underlying much of the application site comprises a sequence of greywackes, sandstones and shales overlain by quartzites from the Bray Head Formation. The quartzites form the higher ground in the area, typified by the Great Sugar Loaf.
- 5.4 The Irish Geological Heritage (IGH) Programme of the Geological Survey of Ireland (GSI) has confirmed that there are no proposed geological Natural Heritage Areas (pNHA) or County Geological Sites (CGS) within the application site. The backfilling and restoration of the quarry void will largely eliminate existing rock exposures, though these are not considered to be of any significant geological value or interest.
- 5.5 The Great Sugar Loaf, located immediately east of the application site, is designated a proposed Natural Heritage Area on geological / geomorphological grounds by virtue of two significant features, its scree slopes and its physical weathering features. The proposed development will have no direct or indirect impact on any geological or physical features for which the adjoining site was designated a pNHA and no related activity or emission will adversely affect the existence, presentation or interpretation of these features.
- 5.6 The importation of soil and stones introduces a risk of potential soil contamination at the application site. Assuming best practice management procedures are employed in operating the proposed recovery facility, the potential risk of soil contamination from imported material is considered to be low.
- 5.7 Backfilling and restoration of the quarry void will improve the visual appearance of the local landscape and facilitate re-establishment of the heathland / grassland habitat which originally existed at the site.
- 5.8 The restored site will ultimately merge into the surrounding local landscape, thereby improving the overall visual quality and amenity of the landscape around the Great Sugar Loaf, a prominent geological feature of local historical and cultural significance (and a designated pNHA).

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6.0 WATER

- 6.1 The bedrocks underlying the application site generally have very low permeability and are categorised as Poor Aquifers (PI) by the Geological Survey of Ireland. These are bedrocks which are generally unproductive except in local (fractured) zones. Maps published by the EPA indicate that the site is located in an area with high to extreme groundwater vulnerability status. This reflects the potential for rapid groundwater movement through thin (or non-existent) soil cover into the underlying (poor) bedrock aquifer.
- 6.2 Previous sampling and testing of groundwater from monitoring wells at Calary Quarry indicates that groundwater quality at the application site is generally good and that quarry operations had no significant impact on local groundwater quality.
- 6.3 The proposed inert waste recovery facility is located upslope, up-gradient and east of the Killough River, which flows northwards to a confluence with the River Dargle to the south of Enniskerry. Currently almost all rain falling around the application site runs-off into the flooded quarry void. The Killough River receives all discharge water from the quarry via a drainage ditch which runs along the R755 Regional Road and the western quarry boundary.
- 6.4 Prior to suspension of quarry operations, the water management system at the quarry comprised collection of rainfall run-off and groundwater in the sumps on the quarry floor and pumping it to a series of settlement tanks at a higher level for treatment, from whence it was discharged off-site to the Killough River.
- 6.5 Potential impacts of backfilling and restoring the quarry using inert materials have been assessed and it is considered that in the absence of mitigation measures, the development could have the potential to negatively impact groundwater and surface water quality, particularly if contaminated soils were placed at the site, fuel or chemical spillages occurred or discharges to the Killough River had high levels of suspended solids, organic contaminants or nutrients.
- 6.6 It is therefore proposed that, as part of the proposed development, a number of mitigation measures will be incorporated into the proposed restoration and backfilling scheme to protect groundwater quality, including site management protocols in respect of plant refuelling and maintenance activities and soil waste acceptance and handling procedures.
- 6.7 The proposed backfilling of the quarry void is unlikely to have any adverse long term impact on the local groundwater flow regime; it will not create any barrier to groundwater flow, nor will it reduce groundwater recharge nor lead to a reduction in groundwater levels at off-site supply wells.
- 6.8 The proposed backfilling activities could also have a negative impact on surface water quality, most notably, discharge of sediment laden run-off to the Killough River. It is therefore proposed that as part of this development and prior to commencement of backfilling activities at the recovery facility, the former surface water management system will be upgraded to provide settlement ponds, a grit trap and hydrocarbon interceptor to remove sediment and any potential hydrocarbon contamination prior to off-site discharge.

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7.0 AIR QUALITY

- 7.1 Given the inert nature of the materials being used to restore the application site and the absence of biodegradable (organic) wastes, no landfill gas emissions will arise from the proposed waste recovery operations at Calary Quarry.
- 7.2 The principal air quality impact associated with the operation of the inert waste recycling facility is fugitive dust emission. Emissions are likely to arise during dry periods from
- (i) trafficking by HGVs over unpaved soil surfaces;
 - (ii) end-tipping of inert soil and stone; and
 - (iii) handling / compaction of inert soil.
- 7.3 In order to control potential dust rise and dust emissions, a number of measures will be implemented, principally
- (i) spraying of water from a tractor drawn bowser on unpaved haul roads and/or exposed soil surfaces, particularly during windy periods and/or dry spells;
 - (ii) placing and compacting soils immediately after being unloaded and minimising the amount of soil being stockpiled (if temporary stockpiling is required, they should be formed against quarry faces, as far as possible from nearby residences);
 - (iii) routing all HGVs leaving site through a proposed wheelwash facility in order to remove and/or dampen any dust / mud material attaching to the undercarriage and to prevent transport of fine particulates off-site, onto the local public road network;
 - (iv) construction of internal haul roads across backfilled ground using minor quantities of imported aggregate and
 - (v) planting the upper restored surface with grass as soon as possible after placing cover soil in order to minimise soil erosion and dust emissions.
- 7.4 The amount of dust or fines carried onto the public road network will be further reduced by periodic sweeping of paved internal roads and the existing local road in front of the application site.
- 7.5 In the unlikely event that future dust monitoring were to indicate that dust emissions are excessive or problematic, consideration could also be given to installing an automated sprinkler system along site roads to dampen any lying dust.
- 7.6 Habitats and supporting flora surrounding the application site and/or within the Great Sugar Loaf pNHA immediately to the east are likely to have been subject to varying levels of dust deposition from past quarrying operations and, as such, they are likely to be relatively tolerant and resilient to any dust deposition from the application site.
- 7.7 As dust emissions levels will ultimately be controlled by way of any EPA waste licence issued in respect of the proposed recovery facility, and as none of the habitats present within the potential zone of influence are considered to be particularly sensitive, it is concluded that there will be no significant impact on nearby ecological receptors (or on the Great Sugar Loaf pNHA) as a result of any fugitive dust emissions from the proposed recovery facility.

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8.0 NOISE

- 8.1 Noise monitoring in and around the application site indicates that average ambient noise levels across the application site typically range between 45dBA L_{Aeq} and 64dBA L_{Aeq} , depending on location and proximity to the R755 Regional Road and time of day. These noise levels are consistent with daytime levels in rural areas close to a busy regional road.
- 8.2 Noise prediction assessments indicate that there will be minimal, if any, increase in noise levels arising at nearby residences under a worst case scenario when both a bulldozer and HGV trucks are generating noise 100% of the time at the application site boundary (rather than intermittently, some distance inside it, as will most likely be the case in reality).
- 8.3 The resultant predicted (maximum) future noise levels at nearby sensitive receptors are comparable to, and only slightly elevated above, existing ambient levels, making it highly unlikely that any adverse noise impacts will be noticed or experienced by nearby residents. It is therefore considered that mitigation measures to reduce the noise impacts of plant associated with the planned recovery facility are not strictly necessary.
- 8.4 Notwithstanding this, a number of measures are to be implemented at the proposed recovery facility to further mitigate the potential noise impacts. These include retention and reinforcement of existing perimeter screening berms, maintenance of plant, fitting of plant silencers, maintenance of road surfaces, control of traffic speed and unloading activities within the facility.

9.0 LANDSCAPE

- 9.1 The proposed inert waste recovery facility at Calary Quarry is located within a rural landscape which is designated the 'Mountain and Lakeshore Area of Outstanding Natural Beauty' (ML-AONB) by the current Wicklow County Development Plan 2011-2017. The area immediately to the west and south of the application site which surrounds Long Hill and the source of the Vartry River is considered less sensitive and/or vulnerable to landscape change and is designated an Area of Special Amenity.
- 9.2 There are several listed views and prospects within a 5km radius of Calary Quarry and the quarry is visible within a number of them. There are also several Special Areas of Conservation (SAC), Special Protection Areas (SPA) and proposed Natural Heritage Areas (pNHA) with a 5km radius, most notably the Great Sugar Loaf pNHA.
- 9.3 The application site is potentially visible from sections of the Wicklow Way approximately 3km to the west, although intervening conifer plantations and other wooded areas along the route, restrict the number of available views significantly. There are a number of other popular walking routes around the application site, most notably the ascent to the Great Sugar Loaf from the local road (L1031) to the south. Parts of the application site are currently visible from a section of this path.
- 9.4 The upper section of the existing eastern quarry face at Calary Quarry is visible in some views from Powerscourt House and Gardens an important tourist attraction and amenity located in Enniskerry, approximately 4km to the northwest of the application site.

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- 9.5 A detailed assessment of the potential impact of the proposed waste recovery facility on the local landscape character and on designated views and prospects which took account of their sensitivity and the magnitude and significance of change, concluded there will be no permanent negative impact on the surrounding landscape, nor will there be any interference with any protected view or prospect or important tourist site. Specifically the proposed development will neither obstruct, nor form an obtrusive feature in any views of the Great Sugar Loaf.
- 9.6 The visual impact assessment indicated that given the high sensitivity of the landscape, there could be some temporary major / moderate negative visual impact on the landscape character and established views for a small number of local residents to the west of the application site.
- 9.7 It is nonetheless considered that such impact is acceptable in view of the long-term positive visual impact which will result on completion of waste recovery activities. The final landform will be restored to a heathland / grassland habitat and will better integrate into, and be more in keeping with, the surrounding landscape.

10.0 CULTURAL HERITAGE

- 10.1 The cultural heritage study in respect of the waste recovery facility at Calary Quarry comprising a paper study and fieldwork was carried out in April 2015. A wide variety of paper, cartographic, photographic and archival sources was consulted. All the lands impacted by the proposed development were visually inspected.
- 10.2 The closest Recorded Monument to the application site is an enclosure in Ballyremon Commons townland (Ref. No. WI007-045), approximately 600m south-west of the application area. It is identified as a deserted, possibly medieval settlement. There are several other monuments identified nearby, within the same townland, including a mound (Ref. No. WI070-042), a barrow (Ref. No. WI070-043) and another deserted settlement (Ref. No. WI007-044).
- 10.3 There are two hilltop cairns (Ref. No WI007-070 and WI070-07001) of approximately 7m and 15m diameter respectively, located 800m north and east of the application site boundary, at an elevation of approximately 400-450mOD, on the north-eastern shoulder of the Sugar Loaf. These monuments provide commanding views of the coastline to the east and Bray Head to the north-east.
- 10.4 There are no protected structures identified in the current Wicklow County Development Plan within or immediately adjacent to the application site at Calary Quarry. The closest protected structures to the site are located along the R755 Regional Road and in Kilmacanogue village and comprise
- (i) a hexagonal post-box in Rocky Valley, in Glencormick South townland (CDP Ref. No. 07-03, National Inventory of Architectural Heritage (NIAH) Ref. No. 16400710);
 - (ii) a ruined church, known as Kilmacanogue Old Church, located in Kilmacanogue village (CDP Ref. No. 07-08) and
 - (iii) St Mochoemog's Catholic Church in Kilmacanogue village (CDP Ref. No. 07-09 and NIAH Ref. No. 16400708).

NON TECHNICAL SUMMARY

- 10.5 Both the post-box in Rocky Valley and St Mochoemog's Catholic Church are classified by the NIAH as being of regional significance and importance. The nearest Architectural Conservation Area is Enniskerry village, located approximately 4.4km to the north of the application site.
- 10.6 Given the history of quarrying and aggregate processing at the application site, it is considered that the proposed recovery of inert soils in backfilling and restoration of the quarry void will have no direct or indirect impact on any items of cultural heritage, including archaeological resources and architectural heritage.

11.0 MATERIAL ASSETS

- 11.1 The application site at Calary Quarry is well located in terms of access to the strategic national and regional road networks. Access to the proposed waste recovery facility at the application site is made via the N11 National Primary Road, a grade separated interchange at Kilmacanogue village and a section of the R755 Regional Road which runs approximately 3.8km west of the N11 junction, through Kilmacanogue village. This is the same, established route which had been used for many years up to relatively recently, when the application site operated as a quarry.
- 11.2 The R755 Regional Road is of single carriageway construction and climbs west of Kilmacanogue village, before turning south to run along the western flank of the Great Sugar Loaf and continuing on to the Wicklow Mountains National Park and the villages of Roundwood and Laragh, Co. Wicklow.
- 11.3 As the access route to be used by HGVs is well established and previously accommodated comparable traffic levels without significant adverse impact, it is considered unlikely that the resumption of HGV traffic movements to and from the application site will generate any significant adverse effects on local residents and/or local settlements.
- 11.4 Notwithstanding this, some minor modification and improvement of the entrance to the proposed recovery facility local will be undertaken in order to ensure that all HGV traffic accessing and exiting the facility will benefit from improved sightlines.
- 11.5 There are a number of residential properties and farm enterprises in the vicinity of the application site, principally to the south. These structures would not be directly impacted by the proposed development and any noise or dust impacts are expected to be minimal.
- 11.6 In the long-term, backfilling and restoration of the quarry with inert soil and stones will increase protection to, and reduce the vulnerability of, the existing groundwater aquifer. Over the long-term, the infilling an open void and the associated reduction of ground disturbance within a scenic landscape will also have a neutral, though possibly positive, impact on land values and/or residential property values.

NON TECHNICAL SUMMARY

12.0 TRAFFIC

- 12.1 The proposed waste recovery activities at Calary Quarry entail backfilling the existing quarry void using imported inert soils and stones. HGV trucks carrying soil and stones to the waste recovery facility will all travel to the waste recovery facility along the existing N11 National Primary Road and R755 Regional Road.
- 12.2 Assuming an average rate of quarry infilling of 250,000 tonnes/year, this could result in an average of 5 additional HGV movements per hour in each direction along the R755, over and above that which exists at the present time. Were the rate to increase temporarily to a maximum 300,000 tonnes/year, this could increase slightly to 6 additional HGV movements per hour in each direction.
- 12.3 An increase in HGV movements of between 5 and 6 per hour in each direction would approximate to the total number of number of hourly HGV movements to and from Calary Quarry in the past, specifically during the pre-2007 construction boom, when output from the quarry was at a maximum.
- 12.4 As comparable levels of HGV traffic to and from the application site occurred in the past, the existing road network has demonstrated its ability to safely and effectively carry any likely increase in future traffic level likely to be generated by the proposed waste recovery facility at Calary Quarry.
- 12.5 A number of previously approved measures are to be implemented to enhance traffic safety around the existing site entrance. These works are necessary to achieve the requisite forward visibility and principally comprise road widening and some minor excavation and re-grading works beyond the road verge and within the Applicant's property.

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FIGURES

Figure NTS-1
Site Location Map

Figure NTS-2
Application Site, Land Interest and Land Use Map

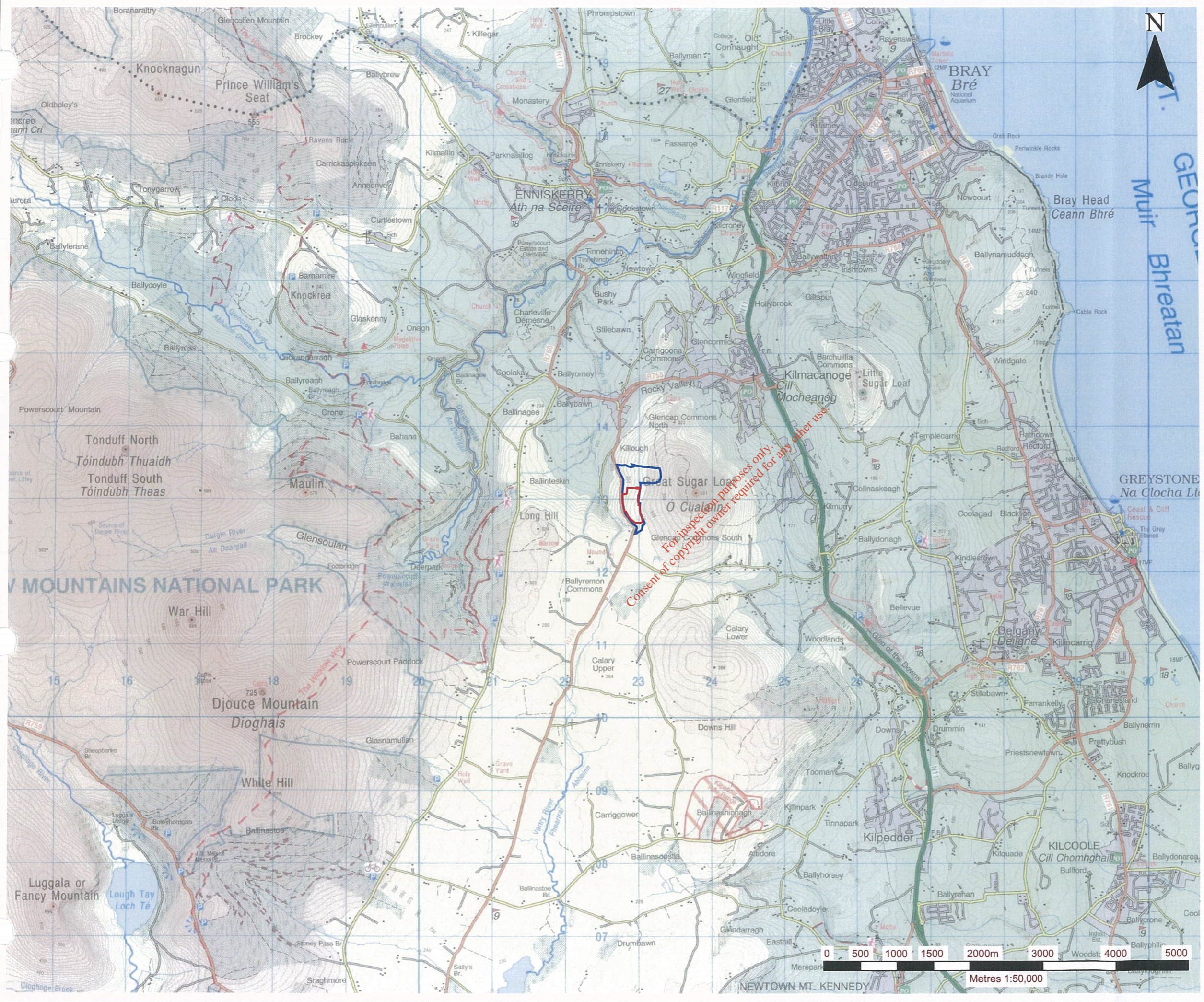
Figure NTS-3
Aerial Image of Calary Quarry

Figure NTS-4
Proposed Site Layout

Figure NTS-5
Restoration Layout Plan

Figure NTS-6
Restoration Cross Sections

00180.00109^FIG_NTS_1.Site Location Map.dwg



NOTES

1. ORDNANCE SURVEY IRELAND LICENCE NO. SU 0000716 (C) ORDNANCE SURVEY IRELAND & GOVERNMENT OF IRELAND
2. MAPPING FROM ORDNANCE SURVEY DISCOVERY SERIES MAPPING - MAP NO'S 68, 69, 76 & 77

LEGEND

- ROADSTONE LIMITED LAND INTEREST (c.25.4 Hectares)
- PLANNING APPLICATION AREA (c.9.1 Hectares)

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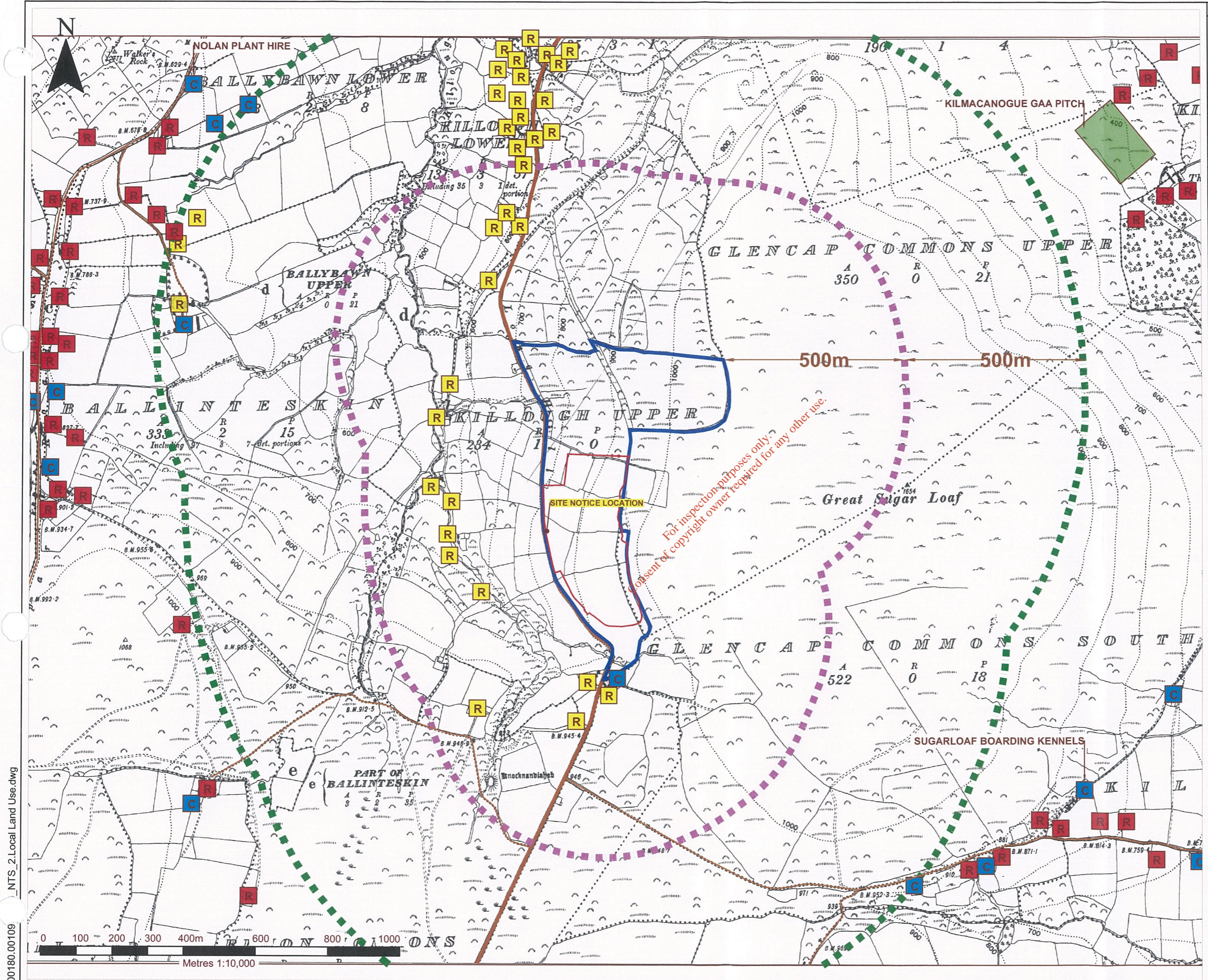
**ROADSTONE LIMITED
 NON TECHNICAL SUMMARY**

**INERT SOIL WASTE RECOVERY FACILITY
 CALARY QUARRY,
 KILMACANOGE, CO. WICKLOW**

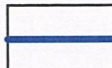




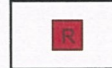


SITE LOCATION MAP

FIGURE NTS_1

Scale: 1:50,000 @ A3 Date: MAY 2016



- NOTES**
1. ORDNANCE SURVEY IRELAND LICENCE NO. SU 0000716 (C) ORDNANCE SURVEY IRELAND & GOVERNMENT OF IRELAND
 2. EXTRACT FROM ORDNANCE SURVEY IRELAND 6 INCH DIGITAL MAPPING MAP NO. WW007

- LEGEND**
-  ROADSTONE LIMITED LAND INTEREST (c.25.4 Hectares)
 -  PLANNING APPLICATION AREA (c.9.1 Hectares)
 -  1km BUFFER FROM LAND INTEREST BOUNDARY
 -  500m BUFFER FROM LAND INTEREST BOUNDARY
 -  RESIDENTIAL PROPERTIES WITHIN 1km OF THE APPLICATION SITE
 -  RESIDENTIAL PROPERTIES OUTSIDE 1km OF THE APPLICATION SITE
 -  COMMERCIAL PROPERTIES / FARM YARDS ETC.
 -  LOCAL ROAD NETWORK

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**ROADSTONE LIMITED
 NON TECHNICAL SUMMARY**

**INERT SOIL WASTE RECOVERY FACILITY
 CALARY QUARRY,
 KILMACANOGUE, CO. WICKLOW**

**APPLICATION SITE, LAND HOLDING
 & LAND USE MAP**

FIGURE NTS_2

Scale 1:10,000 @ A3 Date MAY 2016

00180.00109 NTS_2.Local Land Use.dwg

NOTES

1. Orthomosaic produced from Aerial Photography flown February 2015 by SLR Consulting Ireland (IA Permit No. 04/2015) 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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2. Ordnance Survey Ireland Licence No. SU 0000719(C) Ordnance Survey Ireland & Government of Ireland

LEGEND



ROADSTONE LIMITED LAND INTEREST (c.25.4 Hectares)



PLANNING APPLICATION AREA (c.9.1 Hectares)



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Metres 1:2000



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ROADSTONE LIMITED
NON TECHNICAL SUMMARY

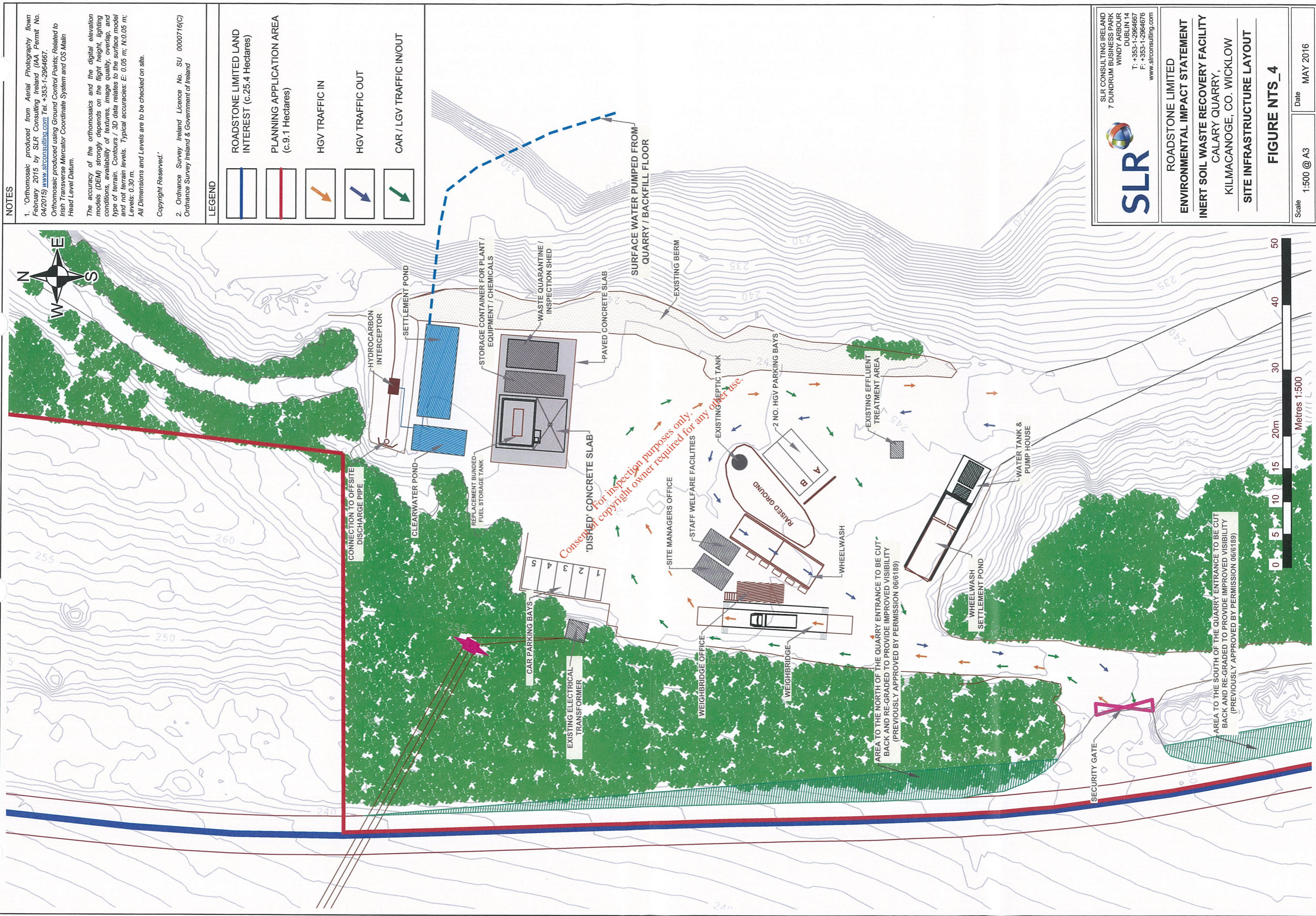
INERT SOIL WASTE RECOVERY FACILITY
CALARY QUARRY,
KILMACANOGE, CO. WICKLOW

AERIAL PHOTOGRAPH - FEB 2015

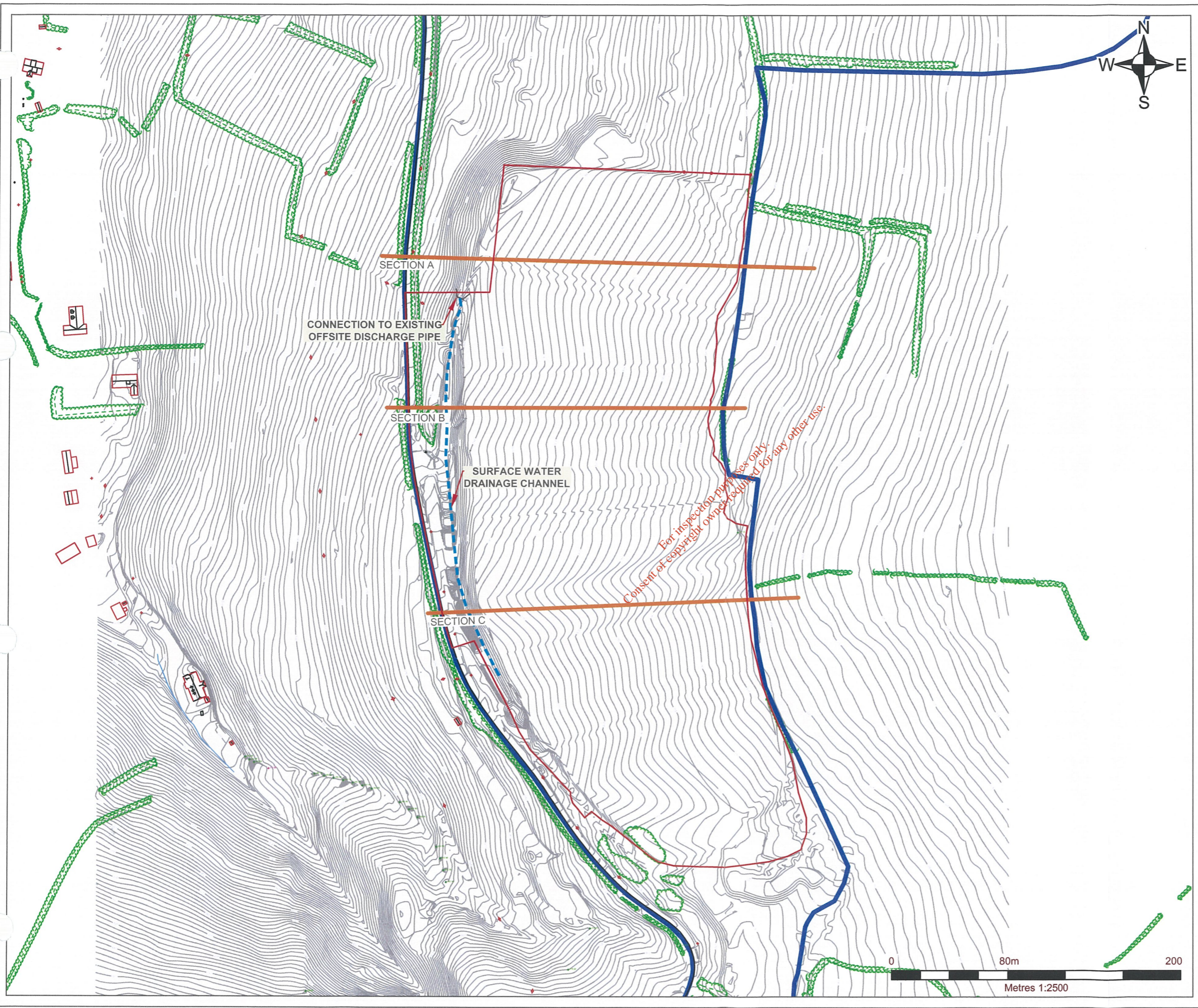
FIGURE NTS_3

Scale 1:2,000 @ A3

Date MAY 2016



00180.00109.0-NTS_5.Final Restoration Surface.dwg

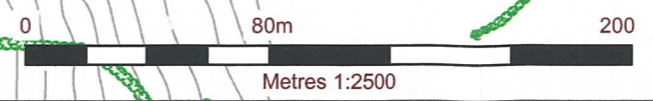


NOTES

1. ORDNANCE SURVEY IRELAND LICENCE NO. SU 0000716 (C) ORDNANCE SURVEY IRELAND & GOVERNMENT OF IRELAND
2. TOPOGRAPHIC SURVEY SUPPLIED BY EUROPEAN AIR SURVEYS

LEGEND

	ROADSTONE LIMITED LAND INTEREST (c.25.4 Hectares)
	PLANNING APPLICATION AREA (c.9.1 Hectares)
	PROPOSED SURFACE WATER DRAINAGE CHANNEL



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**ROADSTONE LIMITED
 NON TECHNICAL SUMMARY**

**INERT SOIL WASTE RECOVERY FACILITY
 CALARY QUARRY,
 KILMACANOGE, CO. WICKLOW**

FINAL RESTORATION SURFACE



FIGURE NTS_5

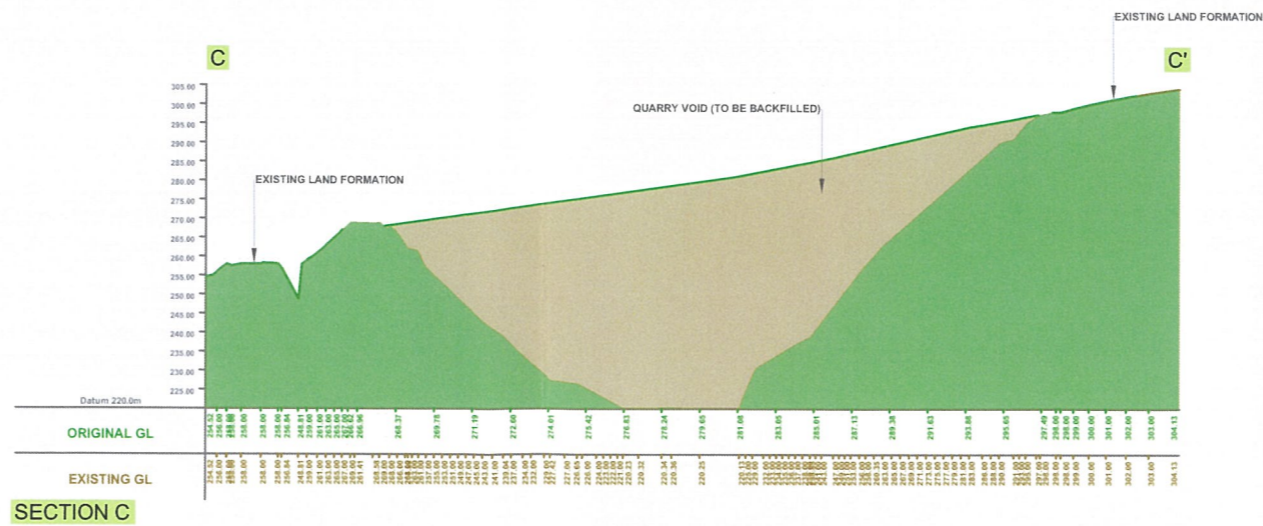
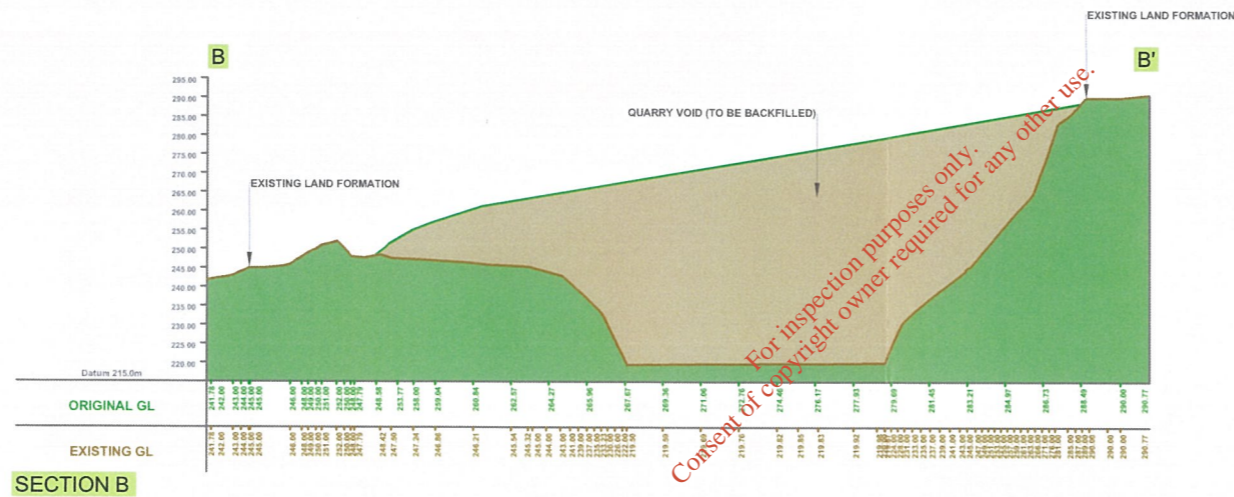
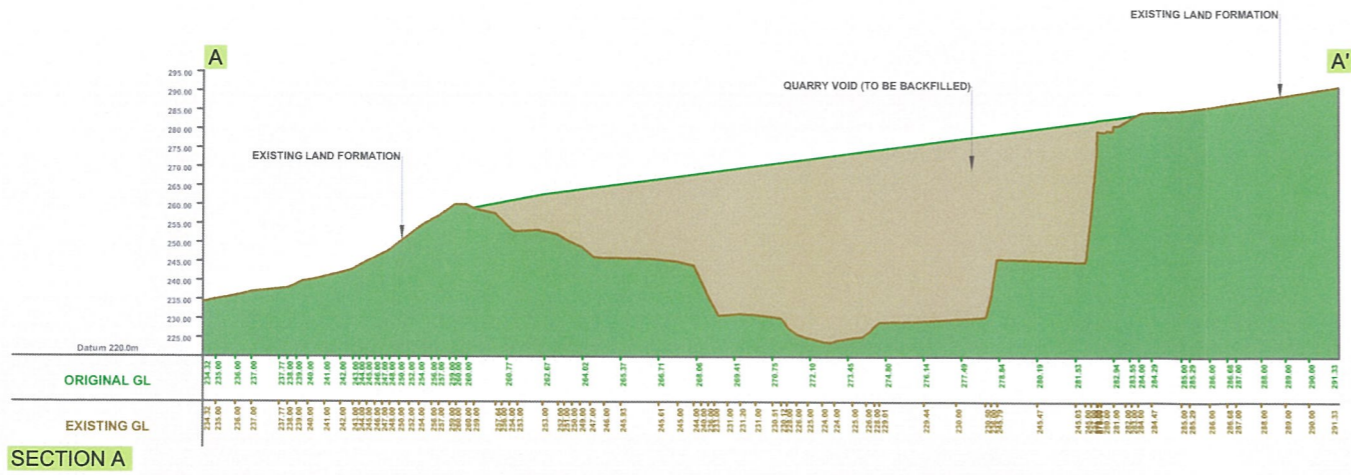
Scale 1:2,500 @ A3	Date MAY 2016
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NOTES

1. REFER TO FIGURE NTS_5 FOR CROSS SECTION LOCATIONS

LEGEND

-  QUARRY VOID
-  PROPOSED INFILL LEVEL



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ROADSTONE LIMITED
ENVIRONMENTAL IMPACT STATEMENT
INERT SOIL WASTE RECOVERY FACILITY
CALARY QUARRY,
KILMACANOGE, CO. WICKLOW
RESTORATION CROSS SECTIONS

FIGURE NTS_6

Scale 1:2,000 @ A3 Date MAY 2016