Ms. Caroline Murphy – Inspector
Office of Climate, Licensing Research and Resources
Environmental Protection Agency
PO Box 3000
Johnstown Castle Estate
County Wexford
Ireland.

Waste Licence Reg. No. W0260-01
Our Ref: FI Letter EPA-Pat Murphy-16.4.2015

Date: 16th April 2015

RE: Agency's Letter dated 29/9/2014 – Article 14(2)(b)(ii) Notice – Request for Article 12 and 13 Compliance.

Dear Ms. Murphy,

We refer to your letter dated 29/9/2014 concerning our Waste Licence application – W0260-01 for our existing inert soil and stone recovery facility and inert construction and demolition (C&D) materials recycling facility at The Quarry at Grannagh, Kilmacow, Co. Kilkenny.

We also refer to our correspondence dated 19/11/2014, concerning this notice and to our subsequent meeting where the matters pertaining to the historic Kilkenny County Council landfill were discussed.

We hereby provide a written response to the Article 14(2)(b)(ii) Notice:

Article 12 Responses

Point 1:

As per Licence Application 2008, Crystalhill Inns Ltd is the applicant for Waste Licence W0260-01. CHI Environmental is the trading name of the company. Both are registered with the CRO.

Point 2:

The activity is not for the purposes of an establishment to which the European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2000, as amended, apply.

Point 3:

See updated section F3-F7 below. Monitoring points are shown on the drawing attached to this response.

ATTACHMENT F3 – AIR MONITORING AND SAMPLING

Details of the air monitoring and sampling to be undertaken as part of the proposed restoration scheme are provided in Section 3.4 of the Environmental Impact Statement. Current dust monitoring locations are shown in Figure 7.1 of the Environmental Impact Statement.

Monitoring Reference no.	Parameter	Monitoring Frequency	Location (Grid Co-ordinates)	Accessibility of Sampling Points
D1	Dust	From March to October	S 57878 14881	Easy – along site boundary
D2	Dust	From March to October	S 57838 14797	Easy – along site boundary

Table F2.1 Dust Monitoring and Sampling Points

ATTACHMENT F4 – SURFACE WATER MONITORING AND SAMPLING

Not Applicable

ATTACHMENT F6 – GROUNDWATER MONITORING AND SAMPLING

Details of the groundwater monitoring and sampling to be undertaken as part of the proposed restoration scheme are provided in Section 3.3 of the Environmental Impact Statement. Proposed monitoring locations at existing groundwater wells are shown in Figure 6.5 of the Environmental Impact Statement.

Monitoring Reference no.	Parameter	Monitoring Frequency	Location (Grid Co-ordinates)	Accessibility of Sampling Points
Water sample PT.1	Note.1	Annual	S57736 15008	Easy : close to site boundary
Water sample PT.2	Note.1	Annual	S57682 14713	Easy : close to site boundary

Note 1 : Groundwater test parameters to include Temperature, pH, Dissolved Oxygen, Conductivity, Sodium, Potassium, Chloride, Ammoniacal Nitrogen, Sulphate, Dissolved Metals (Ca, Cu, Fe, Pb, Mg, Mn, Ni and Zn) and Total Alkalinity

ATTACHMENT F7 – NOISE MONITORING

Details of the noise monitoring to be undertaken are included as part of Section 3.5 of the Environmental Impact Statement.

Article 13 Responses

Point 1:

We can confirm that the site boundary outlined in red and shown in Figure 4.2.1.3 of the EIS is the site boundary of the waste facility. This facility is not a proposed facility but an existing permitted facility.

In support of the other requests for drawings we hereby provide three drawings showing the following:

i) The site boundary of the historic former Kilkenny County Council landfill
ii) The site boundary of the existing waste facility with the boundary of the historic former Kilkenny County Council landfill shown
iii). The groundwater monitoring points around the site together with their grid reference. Also shown are any other environmental monitoring points.

Point 2:

To date there has been 650,000 tonnes recovered to land. There will be another 550,000 tonnes recovered to complete phase 1 and 2.

Point 3:

On completion of the quarry restoration works, the final landform will be profiled to give a domed shape in order to facilitate surface water run-off into the in-situ sand and gravels along the site boundary, refer to final site contour map in Figure EMP5. It will then be planted with grass in order to

promote stability and minimise soil erosion and dust generation and the lands will be progressively returned to their former use as agricultural grassland. The dome shape is to ensure adequate drainage of the finished land.

The volume of material required to complete the recovery of Phase 1 and 2 will not exceed the stated amount of 550,000 tonnes. This was calculated by means of a topographical survey conducted by a surveyor, and the total volume required to be recovered is 220,000 cubic meters. Using an accurate conversion factor of 2.5 tonnes each cubic meter of soil and stone, this equates to 550,000 tonnes.

Point 4:

We are firmly of the position that the "Historic Landfill" area and the associated historic waste disposal activity is the responsibility of Kilkenny County Council, to be addressed through the correct channels under the Waste Management (Certification of Historic Unlicenced Waste Disposal and Recovery Activity) Regulations 2008, S.I. No. 524 of 2008. This matter has been discussed with the Agency and we have elaborated on this point in our submission of 19/11/2014.

We undertook at our last meeting with the Agency to arrange to sample a third party borehole downgradient of former landfill, to form a triangulation. We can confirm that a borehole was selected and permission was given to take a water sample. These results are back from the laboratory but we are awaiting their interpretation from a hydrogeolgist. This information and the position of this borehole will be submitted to the Agency as soon as possible.

Point 5 & Point 6:

See attached Natura Impact Statement from Roger Goodwin & Associates.

Point 7:

Fit and Proper person

ATTACHMENT L2 – STATUTORY REQUIREMENTS SECTION 40(7) OF WASTE MANAGEMENT ACTS 1996-2007

Crystalhill Inns Ltd. considers that it is a fit and proper person to hold a Waste Licence and has provided the requisite information required by Section 40(7) of the Waste Management Acts 1996-2007 to demonstrate same below :

a) Indicate whether the applicant or other relevant person has been convicted under the Waste Management Acts 1996 to 2003, the EPA Act 1992 and 2003, the Local Government (Water Pollution) Acts 1977 and 1990 or the Air Pollution Act 1987.

Crystalhill Inns Ltd. as not been convicted of any offence under the Waste Management Acts 1996 -2007, the Local Government (Water Pollution) Acts 1977-1990, the Environmental Protection Agency Act 2003 or the Air Pollution Act 1987.

b) *Provide details of the applicant's technical knowledge and/or qualifications, along with that of other relevant employees.*

The manager of Crystalhill Inns Ltd, Richard Murphy, has been responsible for all aspects of site management from the outset of the restoration works at the application site in 2004 including planning, operational, environmental, legal and financial aspects. He is in attendance at the site on a permanent, full time basis.

The managing Director Robert Murphy has completed the FAS waste management course and is also on site on a permanent full time basis. As freehold owner of much of the application site, he has a

vested interest in ensuring the restoration works are executed in a controlled and timely fashion and that no environmental risk arises. The effectiveness of his role to date is demonstrated by:

(i) an absence of complaints from local residents
(ii) consistency in water quality up and down hydraulic gradient of the site.

At the present time, it is envisaged that Richard Murphy will remain in attendance at the application site on a permanent, full time basis until such time as the restoration works are completed. In overseeing the remainder of the works, he will be assisted by appropriately qualified external consultants as and when required.

c) Provide information to show that the person is likely to be in a position to meet any financial commitments or liabilities that may have been or will be entered into or incurred in carrying on the activity to which the application relates or in consequence of ceasing to carry out that activity.

Crystalhill Inns Ltd. will meet the cost of any ongoing or future legal and/or environmental responsibilities from within its own resources and due allowance for same has been made in the company's business plan. No available source of external funding will be required. The company and/or its directors can provide such guarantees and undertakings as the Agency considers to be necessary to meet any future financial obligations incurred in undertaking the proposed waste activities at the application site.

Point 8:

It is envisaged that the processing and/or recovery of construction and demolition waste activities at the application site will be restricted to stones, granular fill, concrete, blocks, bricks, ceramic tiles. Metal will be stored on site on impermeable concrete slab with interceptor to collect any run off the material. Should any non-inert construction and demolition waste (principally metal, plastic pipes, timber and plastic) occur amongst the waste imported to site it shall be separated out and temporarily stored in skips prior to removal off site to appropriately licensed waste facilities.

It is a requirement of the existing operation that all construction and demolition waste forwarded to the site for recovery purposes has been pre-sorted at source, that it is inert and largely free of any domestic, commercial or industrial wastes. Any consignments of construction and demolition waste which have such materials intermixed in them will be immediately rejected and removed off site. They will be recorded as rejected.

Point 9:

The existing recovery and recycling activity does not and will not give rise to an emission into an aquifer containing List I and List II substances. Any matter relating to the historic landfill should be addressed to Kilkenny County Council who are responsible for this former historic waste activity.

Yours sincerely,

_____
Pat Murphy
For Chrystalhill Inns Ltd.

C H I E n v i r o n m e n t a l

W a s t e R e c o v e r y O p e r a t i o n

G r a n n a g h , C o K i l k e n n y

N a t u r a I m p a c t S t a t e m e n t

R e p o r t f o r C H I E n v i r o n m e n t a l

A p r i l 2 0 1 5

R o g e r G o o d w i l l i e & A s s o c i a t e s , L a v i s t o w n H o u s e , K i l k e n n y . P h / F a x 0 5 6 - 7 7 6 5 1 4 5

1. INTRODUCTION

The purpose of this report is to examine the development for possible ecological impacts on the Natura 2000 network, in particular the nearest candidate SAC – the Lower Suir River (Site Code 2137).

The analysis was requested to accompany a Waste Licence application to the EPA and has been carried out by Roger Goodwillie, a Member of the Chartered Institute of Ecology and Environmental Management.

The site was visited in May 2014 and the report prepared as part of the appropriate assessment procedure, following the outline of the NPWS Guidance document (DoEHLG 2009). A site description is given at the outset to put the area in its ecological context.

2. DESCRIPTION OF SITE

The quarry at Grannagh is divided into two narrow sections which are linked by a passage about 100m from the road (see OS map, Figure 1 at end). The eastern excavation extends in a north-east direction to the N9 while the western is aligned N-S. This latter has been modified by the construction of the M9 which terminates in a large roundabout beside it. The N24 leading to the Suir bridge cuts the western quarry in two, inserting a high embankment across it to maintain levels.

2.1 Vegetation

The two quarries differs considerably in their level of use and therefore in their vegetation. The eastern one is taken up with the waste reclamation works (see Figure 3 at end) so that the major part of it consists of disturbed ground, most closely approaching active quarries and mines ED4 in Fossitt (2000) with piles of stone, concrete and soil and no plant life. Around the edges and along paths recolonising bare ground (ED3) takes over with a mixture of wild and garden plants usually derived from old walls. Butterfly bush *Buddleja davidii*, ivy-leaved toadflax *Cymbalaria muralis*, shining cranesbill *Geranium lucidum* and snapdragon *Antirrhinum majus* are noticeable and there is also

Reseda luteola	dyer's rocket
Rumex obtusifolius	broad-leaved dock
Brassica rapa	wild turnip
Barbarea vulgaris	common wintercress
Verbascum thapsus	mullein
Tripleurospermum inodorum	scentless mayweed
Cirsium vulgare	spear thistle
Valerianella locusta	lamb's lettuce
Vicia sativa	early vetch

Strips of hawthorn *Crataegus monogyna* and other shrubs occur on the western side of this quarry and towards the southern end there are some small patches of pre-existing rocky ground. Calcareous grassland here contains some red fescue *Festuca rubra*, marjoram *Origanum vulgare*, field woodrush *Luzula campestris*, lady's bedstraw *Galium verum* and rest harrow *Ononis repens*.

Recovery of soil is now just extending into the western quarry but otherwise it has been left to natural succession. On the base of the southern part there is still some tussocky grass (dry meadows and grassy verges GS2), grazed now only by rabbits. Cocksfoot *Dactylis glomerata*, scutch *Elytrigia repens* and sweet vernal grass *Anthoxanthum odoratum* are the main grasses and share the ground with creeping thistle *Cirsium arvense*, fragrant agrimony *Agrimonia procera*, hogweed *Heracleum sphondylium* and great willowherb *Epilobium hirsutum*. Low thickets of bramble *Rubus fruticosus*, gorse *Ulex europaeus* and hawthorn line the edges leading into taller bushes and trees on the sloping walls of the quarry. Ash *Fraxinus excelsior* is the main tree though there is some scattered willow *Salix cinerea* and, at the southern end, sycamore *Acer pseudoplatanus*.

Ground level drops towards the N24 embankment, leading to a low point which since the construction of the Granny Roundabout and the new N24, has caused some rain water to collect in response to road drainage during extreme rainfall events. This area is predominantly dry and will be reinstated with the site restoration work. Any rainwater which does collect in this area percolates into ground to groundwater. In this area is a suite of grassland species including:

Potentilla anserina	silverweed
Carex flacca	glaucous sedge
Centaurea nigra	knapweed
Lotus corniculatus	birdsfoot trefoil
Ranunculus repens	creeping buttercup
Anthoxanthum odoratum	sweet vernal grass
Veronica chamaedrys	germander speedwell
Dipsacus fullonum	teasel

The embankments of the N24 which are off-site are grassed and have a small number of gorse bushes. The land falls again into the northern part of the western quarry where there is an expanse of subsoil related to the road building. This is poorly drained and supports much moss *Calliergonella cuspidata* as well as

Prunella vulgaris	self-heal
Veronica serpyllifolia	thyme-leaved speedwell
Leucanthemum vulgare	dog daisy
Medicago lupulina	black medick
Centaurium erythraea	centaury
Epilobium parviflorum	hoary willowherb
Linum catharticum	fairy flax
Pulicaria dysenterica	fleabane
Blackstonia perfoliata	yellow wort

West of the road the original quarry vegetation re-appears with limestone grassland and taller species amongst a scrub of hawthorn and blackthorn *Prunus spinosa*. Rose-bay

Chamerion angustifolium, great willowherb *Epilobium hirsutum* and square-stemmed St John's wort *Hypericum tetrapterum* are conspicuous, together with

Teucrium scorodonia	wood sage
Brachypodium sylvaticum	false brome
Vicia cracca	tufted vetch
Polygala vulgaris	common milkwort
Plantago lanceolata	ribwort plantain
Hypericum perforatum	perforate St John's wort

The western quarry is notable for its scrub and woodland which covers the sides of the southern section but fills much of the excavations north of the N24. Formed of hawthorn, blackthorn, bramble, gorse, field rose *Rosa arvensis* and a little privet *Ligustrum vulgare*, it also contains some young ash which reach medium size against the old quarry walls. In the most shaded places ivy *Hedera helix*, shield fern *Polystichum setiferum*, hartstongue *Asplenium scolopendrium*, wood dock *Rumex sanguineus* and celandine *Ranunculus ficaria* are widespread but there are also a few more woodland species, e.g.

Primula vulgaris	primrose
Veronica chamaedrys	germander speedwell
Glechoma hederacea	ground ivy
Potentilla sterilis	barren strawberry
Fragaria vesca	wild strawberry
Brachypodium sylvaticum	false brome
Arum maculatum	lords-and-ladies
Moehringia trinervia	three-veined sandwort
Veronica montana	wood speedwell
Viola riviniana	common violet
Listera ovata	twayblade

The lowest point of the excavation is damp but never flooded. It is marked only by a little hard rush *Juncus inflexus*, marsh thistle *Cirsium palustre* and lady's smock *Cardamine pratensis*, a single grey willow *Salix cinerea* and some nettle *Urtica dioica*. Occasional paths and open places also occur because of rabbit grazing. Here grow additional species such as glaucous sedge *Carex flacca*, daisy *Bellis perennis* and common mouse-ear *Cerastium fontanum* and there is the suggestion of infrequent disturbance from species like coltsfoot *Tussilago farfara*, yellow wort *Blackstonia perfoliata* and common centaury *Centaurium erythraea*. A feature of the edges of scrub is water figwort *Scrophularia auriculata*, creeping thistle *Cirsium arvense*, field rose *Rosa arvensis* and common gorse *Ulex europaeus*.

2.2 Fauna

Rabbits are the most frequent mammal and occur throughout the area, most numerously in the western quarry. There was no evidence of badger and only occasional fox droppings. Other species to be expected are stoat, wood mouse and hedgehog. The

habitat is also suitable as feeding grounds for bats but the lack of old buildings (for roosting) and the barrier of the road makes it unlikely to support significant numbers.

The birds seen were hooded crow, swallow, blackbird, song thrush, robin, dunnock, wren, blackcap, chiffchaff, goldfinch and chaffinch. Most of these (except the swallow) would nest on site but there were no colonies of rooks etc.

The insect life is closely related to the vegetation and includes speckled wood and common blue butterflies, the latter using birdsfoot trefoil as a foodplant. Three species of bumble bee were also seen – *Bombus hortorum*, *B.pascuorum* and *B.lapidarius*.

2.3 Evaluation

The area has developed significant biodiversity through a lack of use for so long. This is concentrated in the western quarry where the woodland and grassland are relatively species-rich in contrast to the surrounding agricultural land.

There are no rare or protected species present (cf. McGrath 2006, Green 2008, Preston *et al* 2002) but several plant species are local in distribution such as twayblade *Listera ovata*, water crowfoot *Ranunculus baudotii* and fragrant agrimony *Agrimonia procera*.

3. APPROPRIATE ASSESSMENT

3.1 Introduction

Appropriate assessment was introduced by the EU Habitats Directive as a way of determining during the planning process whether a project is likely to have a significant effect on one of the Natura 2000 sites so far designated (i.e. the candidate SAC's and SPA's), or their conservation objectives. In this case the nearest site is the Lower River Suir cSAC (Site Code 2137), a river system of European interest for the number of rare habitats and species it supports. The only other site within 15km is the River Barrow & River Nore (Site Code 2162) which joins the Suir at Cheekpoint.

Article 6(3) states

Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives… .

In the Irish context this has been interpreted as a four stage process. Firstly a screening exercise (Stage 1) determines if a project could have significant effects on a Natura site. The project should be screened without the inclusion of special mitigation measures unless potential impacts can clearly be avoided through design (or re-design). If impacts are identified or the situation is unclear a Natura Impact Statement (Stage 2) is provided to the planning or regulatory authority which then conducts an Assessment of the information supplied. Examples of significant effects are loss of habitat area,

fragmentation of the habitat, disturbance to species using the site and changes in water resources or quality. If such negative effects come to light in the assessment, alternative solutions are investigated by the proponent (Stage 3) and modifications made unless the project is deemed to be driven by 'imperative reasons of overriding public interest' in its current form. If this is the case, Stage 4 then deals with compensatory action.

3.2 Project description

The proposal is to continue the waste recovery activity which is one of very few in the Region. Inert C&D waste is brought in by truck and sorted and recycled into useful products. There is the restoration of the former quarry void using inert soil and stone material with the eventual goal of restoration of the site to farm land.

There are separate waste inspection and waste quarantine areas at the facility and an impervious concrete base is provided for the waste quarantine area. Both areas are clearly identified and segregated from each other. All waste deposited at the waste quarantine area is stored in a covered skip to minimize potential contamination of surface water run-off. The covered skip is maintained for the off-site disposal/recovery of unsuitable material or items found in loads of inert material delivered to the site.

Once the haulage trucks deposit their material along the perimeter of the restoration area, the bulldozer shifts the inert material over the area of the deposition site, in compliance with the Waste Permit and the Waste Licence when issued. If waste objects are identified within the inert material, which are not compliant with the Waste Permit or Waste Licence (e.g. pieces of wood, plastic, metal) they will be removed and transported to the Waste Quarantine skips.

A record is maintained of all material arriving at the facility, including the following information:

- Date;
- Time;
- Owner ruck;
- Truck Licence Plate No.;
- Waste Collection Permit number;
- Type of Material;
- Origin of Material;
- Weight of Material.

This then forms the basis of the Annual Environmental Report (AER)

The unloading of material from the haulage trucks, and the subsequent movement and spreading of the inert material may produce dust on the site during periods of dry weather. However, site restoration take place within a depression in the topography of the surrounding area which helps mitigate any dust moving off-site. This depression is also surrounded by a mature tree line, as is the C&D recycling operation.

It is proposed that during extended periods of dry weather, a tractor with water bowser will sprinkle water over hardcore areas and the access road, to dampen down any dust.

This presently occurs under the Waste Permit. A site wheel wash also helps to prevent fugitive dust by ensuring no mud or dust is carried onto the public road. Also paved roads on site are cleaned with the on-site mechanical road sweeper.

Dust emissions from established restoration activities at the application site and the C & D recycling operations are measured using Bergerhoff dust gauges at 2 No. locations across the site, as described in the EIS. These gauges are located along the boundary of the application site, close to the nearest sensitive receptors, all of which are private residential properties.

It is currently envisaged that the existing dust monitoring regime will remain in place for the duration of the site restoration works and will continue for during the on-going C & D materials recycling operation thereafter.

There is no discharge of trade effluent or other matter, to sewer (existing or proposed) from the site and no surface water discharges on site. All rainwater percolates naturally into the ground and to groundwater.

3.3 Natura site

The boundary of the cSAC is along the river shoreline below the road and therefore about 30m from the entrance to the quarry (see Figure 2 at end).

The site synopsis below describes the Lower River Suir as having excellent examples of a number of habitats listed in Annex I of the EU Habitats Directive, including the priority habitat Alluvial Forest. The site also supports populations of several Annex II animal species and a number of Red Data Book animal species. Two legally protected plants (Flora (Protection) Order, 1999) occur and there is a high bird population in places, for example the Cabragh Marshes and Coolfin.

The most important features of the site (the qualifying interests) are shown in the next section.

3.4 Conservation objectives

To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:

[1029] Freshwater pearl mussel *Margaritifera margaritifera*
[1092] Freshwater crayfish *Austropotamobius pallipes*
[1095] Sea lamprey *Petromyzon marinus*
[1096] Brook lamprey *Lampetra planeri*
[1099] River lamprey *Lampetra fluviatilis*
[1103] Twaite shad *Alosa fallax*
[1106] Atlantic salmon *Salmo salar* (only in fresh water)
[1330] Atlantic salt meadows (*Glauco-Puccinellietalia* maritimae)
[1355] Otter *Lutra lutra*
[1410] Mediterranean salt meadows (*Juncetalia maritimi*)

[3260] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

[6430] Hydrophilous tall herb fringe communities of plains or at montane to alpine levels

[91A0] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

[91E0] *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)

[91J0] *Taxus baccata* woods of the British Isles

The favourable conservation condition of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future
- the conservation status of its typical species is favourable.

The favourable conservation condition of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

3.5 Likely effects

The site does not contain any of the habitats or species that are the special interests of the cSAC and therefore it cannot act as a reservoir to replenish the Natura 2000 site in the event of loss. The only possible impact would be through site drainage reaching the estuary in significant quantities and carrying some kind of detrimental matter. The organisms that occur in the nearest section of river are sea lamprey, river lamprey, the Atlantic salmon, Twaite shad and otter. The fish migrate through the estuary to breed upstream while the otter is resident, feeding on many species of fish and on frogs.

There is no surface water on site and no surface water features leaving the site and therefore there is no direct surface water link to the River Suir., Groundwater is many metres below ground level and does not appear regularly (if at all) in the base of the quarry. Any water leaving the site does so through groundwater and is subject to dilution there and when it reaches the estuary.

Part of the site contains a former Kilkenny County Council operated historic landfill. It covered an area of 1.2ha and at the nearest point was located 225m from the riverbank. The landfill was closed in 1995 and capped with subsoil. A subsequent risk assessment

(2010) carried out by Kilkenny CC found no evidence of residual waste or decomposition products and no signs of impact on the environment.

Two groundwater monitoring wells have been installed on-site by CHI Environmental to monitor groundwater quality up-gradient and down-gradient of the existing waste recovery and recycling facility. A third private borehole has been selected down gradient from the former historic landfill as part of a triangulation exercise. A sample has been taken and the analysis and reporting of the results of this sample will be shortly available.

It is important to state that no earthmoving or filling activities occur within the area of the historic landfill and therefore the present activities at the site cannot and will not impact upon this part of the overall site.

4. CONCLUSION

The protective measures built into the design and operation of the facility will prevent this project having any significant effect on the Natura 2000 site – the Lower River Suir (Site Code 2137) – or its conservation objectives. This applies both to the on-going operation phase and final restoration.

Potential leachate from the Kilkenny County Council historic landfill could occur regardless of the recycling and recovery activities of the current project. Any leachate that may be released by the former Kilkenny County Council landfill would be subject to huge dilution in the estuary and very small in comparison to those released from Waterford (Waterford City Council 2012). They do not show up in any of the monitoring of shellfish from lower down the estuary.

It is concluded that the current project will have no significant effect on the estuary ecosystem. Since this is the case there is no likelihood of 'in combination' effects on the Natura site network.

References

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SITE SYNOPSIS

SITE NAME : LOWER RIVER SUIR **SITE CODE : 002137**

This site consists of the freshwater stretches of the River Suir immediately south of Thurles, the tidal stretches as far as the confluence with the Barrow/Nore immediately east of Cheekpoint in Co. Waterford and many tributaries including the Clodiagh in Co. Waterford, the Lingaun, Anner, Nier, Tar, Aherlow, Multeen and Clodiagh in Co. Tipperary. The Suir and its tributaries flows through the counties of Tipperary, Kilkenny and Waterford. Upstream of Waterford city, the swinging meanders of the Suir crisscross the Devonian sandstone rim of hard rocks no less than three times as they leave the limestone-floored downfold below Carrick In the vicinity of Carrick-on-Suir the river follows the limestone floor of the Carrick Syncline. Upstream of Clonmel the river and its tributaries traverse Upper Palaeozoic Rocks, mainly the Lower Carboniferous Visean and Tournaisian. The freshwater stretches of the Clodiagh River in Co. Waterford traverse Silurian rocks, through narrow bands of Old Red Sandstone and Lower Avonian Shales before reaching the carboniferous limestone close to its confluence with the Suir. The Aherlow River flows through a Carboniferous limestone valley, with outcrops of Old Red Sandstone forming the Galtee Mountains to the south and the Slievenamuck range to the north. Glacial deposits of sands and gravels are common along the valley bottom, flanking the present-day river course.

The site is a candidate SAC selected for the presence of the priority habitats on Annex I of the E.U. Habitats Directive - alluvial wet woodlands and Yew Wood. The site is also selected as a candidate SAC for floating river vegetation, Atlantic salt meadows, Mediterranean salt meadows, old oak woodlands and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon and Otter. Alluvial wet woodland is declining habitat in Europe as a result of drainage and reclamation. The best examples of this type of woodland in the site are found on the islands just below Carrick-on-Suir and at Fiddown Island. Species occurring here include Almond Willow (*Salix triandra*), White Willow (*S. alba*), Grey Willow (*S. cinerea*), Osier (*S. viminalis*), with Iris (*Iris pseudacorus*), Hemlock Water-dropwort (*Oenanthe crocata*), Angelica (*Angelica sylvestris*), Pendulus Sedge (*Carex pendula*), Meadowsweet (*Filipendula ulmaria*) and Valerian (*Valeriana officinalis*). The terrain is littered with dead trunks and branches and intersected with small channels which carry small streams to the river. The bryophyte and lichen floras appear to be rich and require further investigation. A small plot is currently being coppiced and managed by National Parks and Wildlife. In the drier areas the wet woodland species merge with other tree and shrub species including Ash (*Fraxinus excelsior*), Hazel (*Corylus avellana*), Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*). This adds further to the ecological interest of this site

Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the flood-plain of the river is intact. Characteristic species of the habitat include Meadowsweet (*Filipendula ulmaria*), Purple Loosestrife (*Lythrum salicaria*), Marsh Ragwort (*Senecio aquaticus*), Ground Ivy (*Glechoma hederacea*) and Hedge Bindweed (*Calystegia sepium*).

Old oak woodlands are also of importance at the site. The best examples are seen in Portlaw Wood which lies on both sides of the Clodiagh River. On the south-facing side the stand is more open and the Oaks (mainly *Quercus robur)* are well grown and spreading. Ivy (*Hedera helix*) and Bramble (*Rubus fruticosus*) are common on the ground, indicating relatively high light conditions. Oak regeneration is dense, varying in age from 0-40 years and Holly (*Ilex aquifolium*) is fairly common but mostly quite young. Across the valley, by contrast, the trees are much more closely spaced and though taller are poorly grown on average. There are no clearings; large Oaks extend to the boundary wall. In the darker conditions, Ivy is much rarer and Holly much more frequent, forming a closed canopy in places. Oak regeneration is uncommon since there are as yet few natural clearings. The shallowness of the soil on the northfacing slope probably contributes to the poor tree growth there. The acid nature of the substrate has induced a "mountain" type Oakwood community to develop. There is an extensive species list present throughout including an abundance of mosses, liverworts and lichens. The rare lichen *Lobaria pulmonaria*, an indicator of ancient woodlands, is found.

Inchinsquillib Wood consists of three small separate sloping blocks of woodland in a valley cut by the young Multeen River and its tributaries through acidic Old Red Sandstone, and Silurian rocks. Two blocks, both with an eastern aspect, located to the north of the road, are predominantly of Sessile oak (*Quercus petraea*) and Hazel, with Downy Birch (*Betula pubescens*), Ash and Holly. The ground flora is quite mixed with for example Wood sedge (*Carex sylvatica*), Bluebell (*Hyacinthoides non-scriptus*),Primrose (*Primula vulgaris*), Wood-sorrel (*Oxalis acetosella*), Pignut (*Conopodium majus*) and Hard fern (*Blechnum spicant*). The base poor nature of the underlying rock is, to some extent masked by the overlying drift. The third block, to the south of the road, and with a northern aspect, is a similar although less mature mixture of Sessile Oak, Birch and Holly, the influence of the drift is more marked, with the occurrence of Wood anemone (*Anemone nemorosa*) amongst the ground flora.

Floating river vegetation is evident in the freshwater stretches of the River Suir and along many of its tributaries. Typical species found include Canadian Pondweed (*Elodea canadensis*), Milfoil (*Myriophyllum* spp.), Fennel Pondweed (*Potamogeton pectinatus*), Curled Pondweed (*P. crispus*), Perfoliate Pondweed (*P. perfoliatus*), Pond Water-crowfoot (*Ranunculus peltatus*), other Crowfoots (*Ranunculus* spp.) and the moss *Fontinalis antipyretica*. At a couple of locations along the river, Oppositeleaved Pondweed (*Groenlandia densa*) occurs. This species is protected under the Flora (Protection) Order, 1999.

The Aherlow River is fast-flowing and mostly follows a natural unmodified river channel. Submerged vegetation includes the aquatic moss *Fontinalis antipyretica* and Stream Water-crowfoot (*Ranunculus pencillatus*), while shallow areas support species such as Reed Canary-grass (*Phalaris arundinacea*), Brooklime (*Veronica beccabunga*) and Water Mint (*Mentha aquatica*). The river bank is fringed in places with Alder (*Alnus glutinosa*) and Willows (*Salix* spp.). The Multeen River is fast flowing, mostly gravel-bottomed and appears to follow a natural unmodified river channel. Water Crowfoots occur in abundance and the aquatic moss *Fontinalis antipyretica* is also common. In sheltered shallows, species such as Water-cress (*Rorippa nasturtium-aquaticum*) and Water-starworts (*Callitriche* spp.) occur. The river channel is fringed for most of its length with Alder, Willow and a narrow strip of marshy vegetation. Salt meadows occur below Waterford City in old meadow where the embankment is absent, or has been breached, and along the tidal stretches of some of the in-flowing rivers below Little Island. There are very narrow, non-continuous bands of this habitat along both banks. More extensive areas are also seen along the south bank at Ballynakill, the east side of Little Island, and in three large salt meadows between Ballynakill and Cheekpoint. The Atlantic and Mediterranean sub types are generally intermixed. The species list is extensive and includes Red Fescue (*Festuca rubra*), Oraches (*Atriplex* spp.), Sea Aster (*Aster tripolium*), Sea Couch Grass (*Elymus pycnanthus*), frequent Sea Milkwort (*Glaux maritima*), occasional Wild Celery (*Apium graveolens*), Parsley Water-dropwort (*Oenanthe lachenalii*), English Scurvygrass (*Cochlearia anglica*) and Sea Arrowgrass (*Triglochin maritima*). These species are more representative of the

Atlantic sub-type of the habitat. Common Cord-grass (*Spartina anglica*), is rather frequent along the main channel edge and up the internal channels. The legally protected (Flora (Protection) Order, 1999) Meadow Barley (*Hordeum secalinum*) grows at the landward transition of the saltmarsh. Sea Rush (*Juncus maritimus*), an indicator of the Mediterranean salt meadows, also occurs.

Other habitats at the site include wet and dry grassland, marsh, reed swamp, improved grassland, coniferous plantations, deciduous woodland, scrub, tidal river, stony shore and mudflats. The most dominant habitat adjoining the river is improved grassland, although there are wet fields with species such as Yellow Flag (*Iris pseudacorus*), Meadow Sweet (*Filipendula ulmaria*), Rushes (*Juncus* spp.), Meadow Buttercup (*Ranunculus acris*) and Cuckoo Flower (*Cardamine pratensis*). Cabragh marshes, just below Thurles, lie in a low-lying tributary valley into which the main river floods in winter. Here there is an extensive area of Common Reed (*Phragmites australis*) with associated marshland and peaty fen. The transition between vegetation types is often well displayed. A number of wetland plants of interest occur, in particular the Narrow-leaved Bulrush (*Typha angustifolia*), Bottle Sedge (*Carex rostrata*) and Blunt-flowered Rush (*Juncus subnodulosus*). The marsh is naturally eutrophic but it has also the nutritional legacy of the former sugar factory which discharged into it through a number of holding lagoons, now removed. Production is high which is seen in the size of such species as Celery-leaved Buttercup (*Ranunculus sceleratus*) as well as in the reeds themselves.

Throughout the Lower River Suir site are small areas of woodland other than those described above. These tend to be a mixture of native and non-native species, although there are some areas of semi-natural wet woodland with species such as Ash and Willow. Cahir Park Woodlands is a narrow tract of mixed deciduous woodland lying on the flat lying floodplain of the River Suir. This estate woodland was planted over one hundred years ago and it contains a large component of exotic tree species. However, due to original planting and natural regeneration there is now a good mix of native and exotic species. About 5km north west of Cashel, Ardmayle pond is a long, possibly artificial water body running parallel to the River Suir. It is partly shaded by planted Lime (*Tilia* hybrids), Sycamore (*Acer pseudoplatanus*) and the native Alder. Growing beneath the trees are shade tolerant species such as Remote sedge (*Carex remota*).

The site is of particular conservation interest for the presence of a number of Annex II animal species, including Freshwater Pearl Mussel (*Margaritifera margaritifera* and *M. m. durrovensis*), Freshwater Crayfish (*Austropotamobius pallipes*), Salmon (*Salmo salar*), Twaite Shad (*Alosa fallax fallax*), three species of Lampreys - Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*) and River Lamprey (*Lampetra fluviatilis*) and Otter (*Lutra lutra*). This is one of only three known spawning grounds in the country for Twaite Shad.
The site also supports populations of several other animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat (*Myotis daubentoni*), Natterer's Bat (*M. nattereri*), Pipistrelle (*Pipistrellus pipistrellus*), Pine Marten (*Martes martes*), Badger (*Meles meles*), the Irish Hare (*Lepus timidus hibernicus*), Smelt (*Osmerus eperlanus*) and the Frog (*Rana temporaria*). Breeding stocks of Carp are found in Kilsheelan Lake. This is one of only two lakes in the country which is known to have supported breeding Carp. Carp require unusually high summer water temperatures to breed in Ireland and the site may therefore support interesting invertebrate populations.

Parts of the site have also been identified as of ornithological importance for a number of Annex I (EU Birds Directive) bird species, including Greenland White-fronted Goose (10), Golden Plover (1490), Whooper Swan (7) and Kingfisher. Figures given in brackets are the average maximum counts from 4 count areas within the site for the three winters between 1994 and 1997. Wintering populations of migratory birds use the site. Flocks are seen in Coolfinn Marsh and also along the reedbeds and saltmarsh areas of the Suir. Coolfinn supports nationally important numbers of Greylag Geese on a regular basis. Numbers between 600 and 700 are recorded. Other species occurring include Mallard (21), Teal (159), Wigeon (26), Tufted Duck (60), Pintail (4),

Pochard (2), Little Grebe (2), Black-tailed Godwit (20), Oystercatcher (16), Lapwing (993), Dunlin (101), Curlew (195), Redshank (28), Greenshank (4) and Green Sandpiper (1). Nationally important numbers of Lapwing (2750) were recorded at Faithlegg in the winter of 1996/97. In Cabragh marshes there is abundant food for surface feeding wildfowl which total at 1,000 or so in winter. Widgeon, Teal and Mallard are numerous and the latter has a large breeding population - with up to 400 in summer. In addition, less frequent species like Shoveler and Pintail occur and there are records for both Whooper and Bewick's swans. Kingfisher, a species that is listed on Annex I of the EU Birds Directive, occurs along some of the many tributaries throughout the site.

Landuse at the site consists mainly of agricultural activities including grazing, silage production, fertilising and land reclamation. The grassland is intensively managed and the rivers are therefore vulnerable to pollution from run-off of fertilisers and slurry. Arable crops are also grown. Fishing is a main tourist attraction on stretches of the Suir and some of its tributaries and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. The Aherlow River is a designated Salmonid Water under the EU Freshwater Fish Directive. Other recreational activities such as boating, golfing and walking are also popular. Several industrial developments, which discharge into the river, border the site including three dairy related operations and a tannery.

The Lower River Suir contains excellent examples of a number of Annex I habitats, including the priority habitat Alluvial Forest. The site also supports populations of several Annex II animal species and a number of Red Data Book animal species. The presence of two legally protected plants (Flora (Protection) Order, 1999) and the ornithological importance of the river adds further to the ecological interest of this site. 6.10.2006

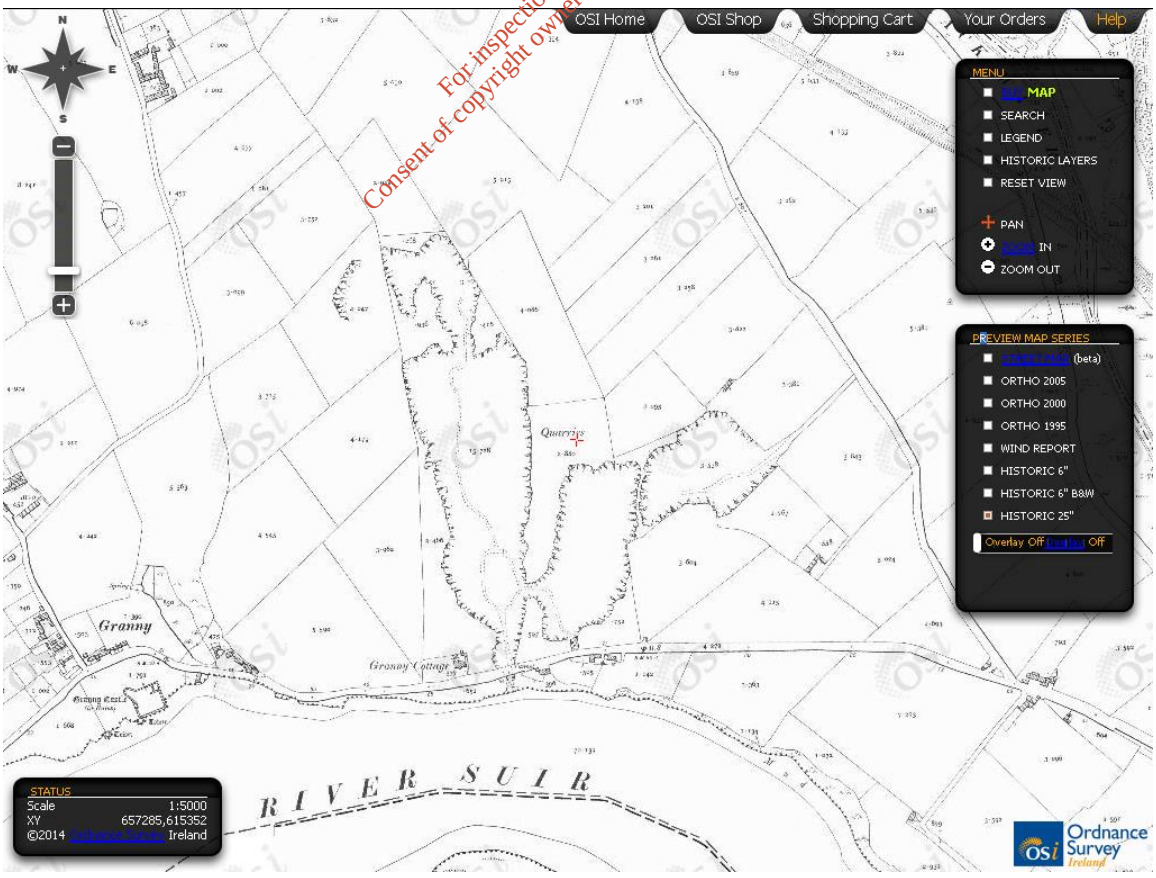


Fig. 1. O.S. map of quarry (1903?)

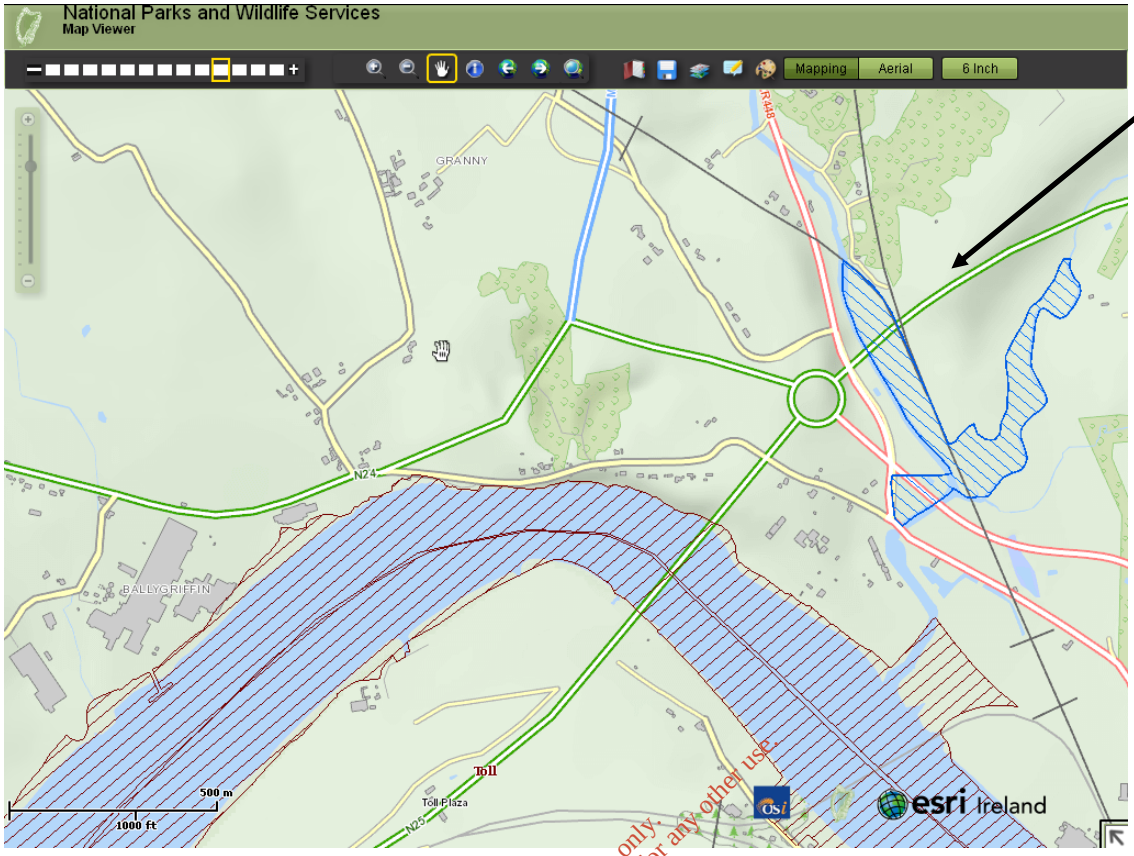


Fig 2. Location of quarry (arrowed) in relation to Lower River Suir cSAC (hatched). Blue hatching is a pNHA.

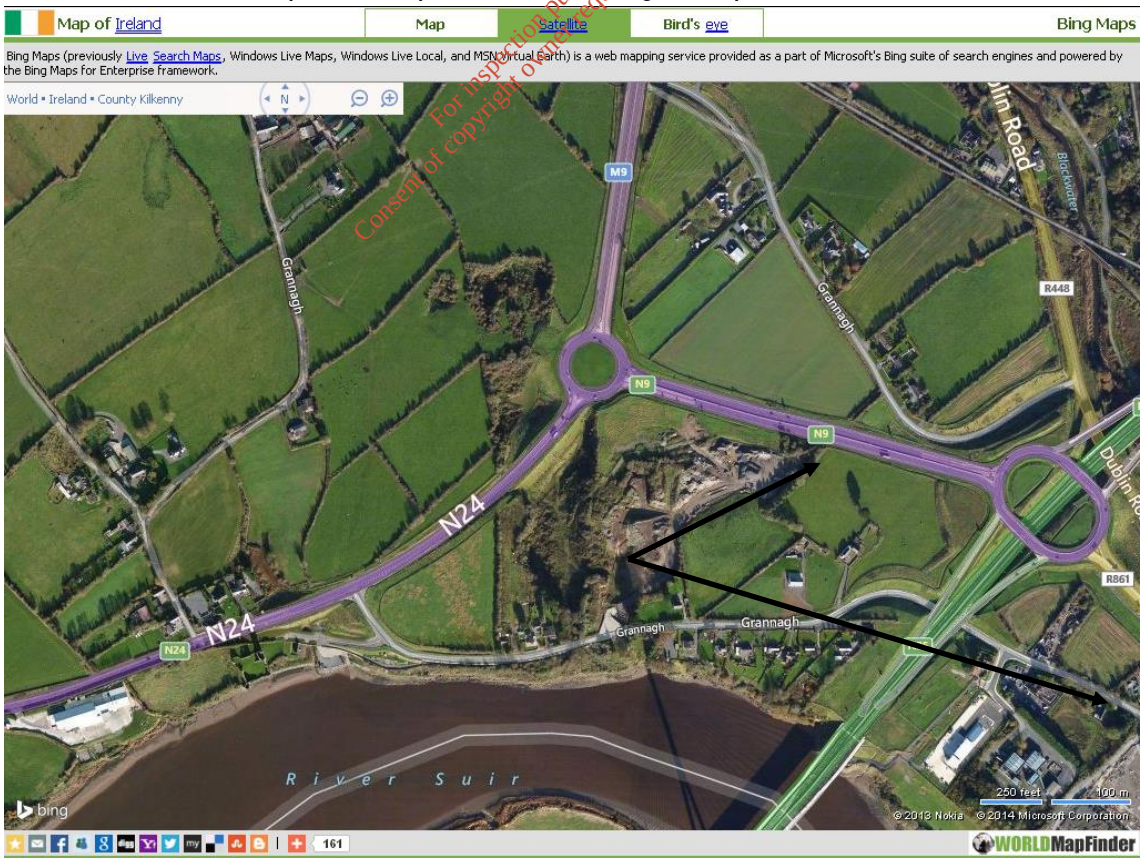


Fig 3. Habitats in the quarry (arrowed) and the surrounding countryside. Reclamation activity visible in eastern section.

Ground water sample point .1
Grid Reference S57736 15008

Additional land owned by Mr. Bob Murphy outlined in blue.

PROPOSED LICENCE

Site area outlined in red

PHASE 2

PHASE1

PHASE1

HISTORIC LANDFILL AREA

Proposed Quarry Link

Dust monitoring point .2

Personnel Welfare Cabins

Car Parking

Dust monitoring point .1

Ground water sample point .2
Grid Reference S57682 14713

Notes

Revisions
G /
F /
E /
D /
C /
B /
A /

CHI Enviromental Ph: 051-830788

Job/Client CHI Enviromental / Richie Murphy

Drawing Site Layout - Ground Water Monitoring Wells

Scales NTS Date Mar '15 Drawn PC Checked Drg.No. 14/01/04

Notes

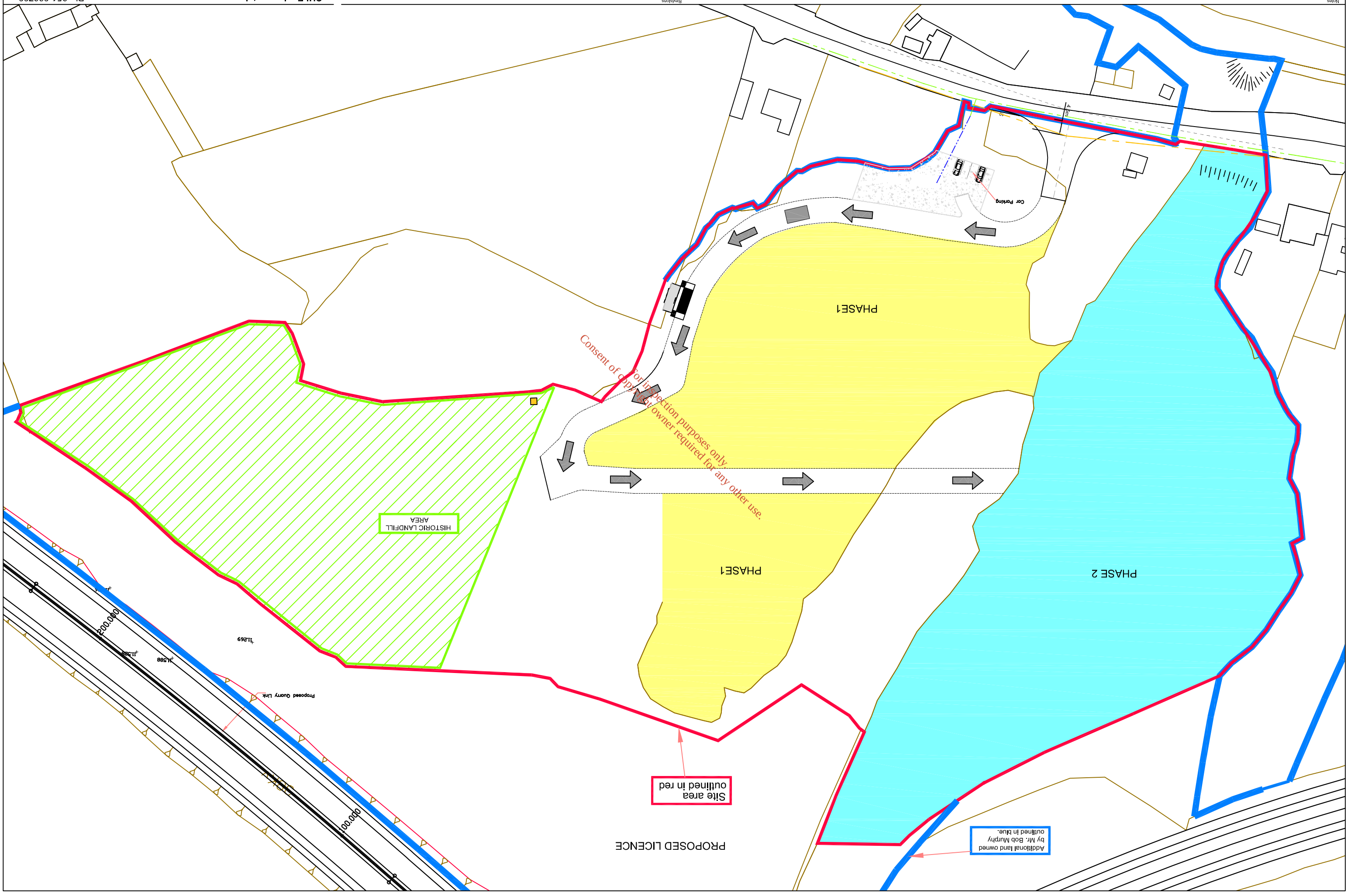
Revisions
G /
F /
E /
D /
C /
B /
A /

CHI Environmental Ph: 051-8307788

Job/Client CHI Environmental / Richie Murphy

Drawing Waste Facility Site Boundary with Historic Landfill Boundary

Scales NTS Date Mar '15 Drawn PC Checked Dig.No. 14/01/03



Proposed Quarry Link

11.588

11.588

11.269

P00.000

HISTORIC LANDFILL AREA

Notes

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Revisions
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Drawing Site Boundary - Historic Landfill

Scales NTS Date Mar '15 Drawn PC Checked Drg.No. 14/01/02