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Screening for Appropriate Assessment

Tellus G7 soil sampling survey,
Wicklow, Kildare, Laois, Offaly,
Carlow, Kilkenny and Tipperary

2020/21

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Foreword

This screening assessment to determine the need for an appropriate assessment has been made in respect of the Tellus soil sampling survey in line with the requirements of Article 6(3) and (4) of the Habitats Directive 92/43/EEC

The soil sampling is to take place in counties Wicklow, Kildare, Laois, Offaly, Carlow, Kilkenny and Tipperary. Soil sampling involves the removal of approximately 1 kg of soil by hand auguring down to c. 0.5m from a single site within a grid square 2 km x 2 km. Sites within each grid square are not determined but decided on by samplers based on a number of conditions.

Verdict

The survey area encompasses numerous SAC and SPA's, however, in most cases sample locations can be chosen for the shallow soil samples that lie outside each SAC & SPA. In large extensive areas, such as the Wicklow Mountains, soil samples will be taken at selected location which poses minimal risk to the sites.

The collection of shallow soil samples is deemed not to pose any significant risk to any of the SAC's and SPA listed within the survey area.

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1 Introduction

Tellus is a national programme to gather geochemical and geophysical data across the island of Ireland. The survey examines the chemical and physical properties of our soils, rocks and waters to inform the management of Ireland's environment and natural resources. The project is managed by Geological Survey Ireland which is a line division of the Department of the Environment, Climate and Communications (DECC).

For more information on the Tellus Project please visit www.gsi.ie/tellus

2 Survey Area

The survey area for the G7 soil sampling block lies to the south of Dublin city and consists of most of County Wicklow, plus parts of counties Kildare, Laois, Carlow, Kilkenny, Tipperary and Offaly. The survey includes coastal areas, bog covered mountains and rolling pasture. The main towns in the area are Portlaoise, Carlow, Arklow, Wicklow and Athy. The area is crossed by the M7 motorway in the west, the M8 through the centre and the M11 along the east coast.

The survey area is shown in Figure 1.

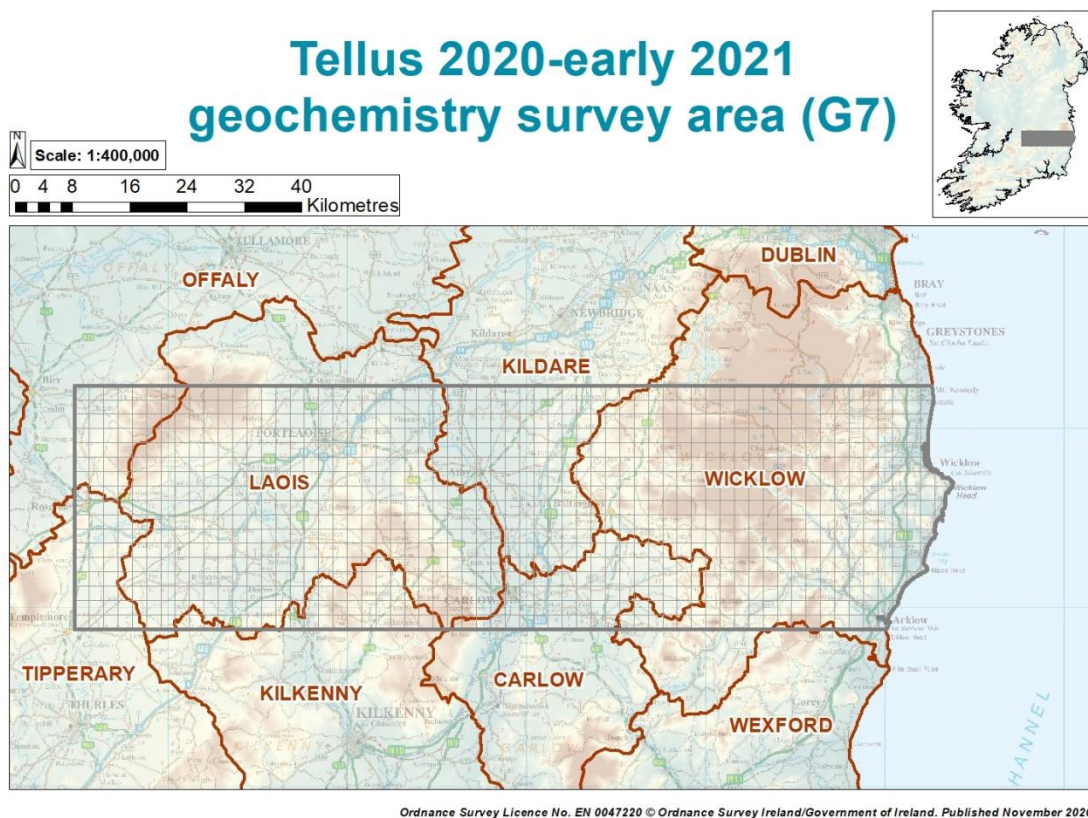


Figure 1: G7 Survey location map with sampling grid

3 Project Description

Tellus is a national airborne geophysical and ground geochemical survey managed by Geological Survey Ireland which is a line division the Department of the Environment, Climate and Communications.

The geochemical programme collects soils samples at a density of one sample per 4 km². These samples are then analysed for a number of different chemical elements allowing geochemical variations to be mapped. All data collected and resultants maps are made freely available to the public. The data supports work in the geological, agricultural, mineral and environmental sectors.

Soil sampling in the G7 Block (parts of Counties Wicklow, Kildare, Laois, Offaly, Carlow, Kilkenny and Tipperary) involves the collection of soil samples from 1000 sites. Each site is located within a 2 km x 2 km grid square. The exact location of sampling is determined by the samplers on site based on a number of conditions and following consent from the landowner.

3.1 Survey Activity

The soil sampling survey involves teams of two samplers collecting soil samples from each of the predefined survey grids. Two sample depths are collected: a surface soil sample (labelled **A**) at 5-20 cm and a deeper soil sample (labelled **S**) at 25-50 cm. Sites are ideally located at least 100 m from roads, buildings, railways, electricity pylons etc. on open non-forested, undisturbed ground whenever possible. Sites are chosen by the samplers, deciding on the best available site and following permission from the landowner.

Samples are collected user a hand tool called an auger. The auger makes a hole approximately 5 cm in diameter. Each sample is made of a composite of material from auger flights taken from 5 holes distributed within an area (where possible) of approximately 20 m x 20 m.

It is estimated that the 2 field teams will take approximately 12-16 weeks to complete the works.

4 SACs & SPAs

There are a number of Special Areas of Conservation (SAC) and Special Protection Areas (SPA) within the survey area with a 2 km buffer applied. A 2-kilometre buffer was applied to ensure any impacted Natura 2000 sites would be included in the screening process. These are mostly focussed along and within the Wicklow Mountains and National Park (Co. Wicklow) and the Slieve Bloom Mountains in Co. Laois. There are also a number of SACs and SPAs along the major rivers in the area and peat bogs. Table 1 & 2 below list all the SAC's & SPA's in the area and are also shown in Figure 2.

Table 1: List of SAC's within G7 survey block

SITE CODE	SITE NAME
000412	Slieve Bloom Mountains SAC
000717	Deputy's Pass Nature Reserve SAC
000729	Buckronev-Brittis Dunes And Fen SAC
000733	Vale of Clara Rathdrum Wood SAC
000781	Slaney River Valley SAC
000869	Lisbigney Bog SAC
001757	Holdenstown Bog SAC
001766	Magherabeg Dunes SAC
002122	Wicklow Mountains SAC
002162	River Barrow And River Nore SAC
002236	Island Fen SAC
002256	Ballyprior Grassland SAC
002274	Wicklow Reef SAC

Table 2: List of SPA within G7 survey block

SITE CODE	SITE NAME
IE0004040	Wicklow Mountains SPA
IE0004063	Poulaphuca Reservoir SPA
IE0004127	Wicklow Head SPA
IE0004160	Slieve Bloom Mountains SPA
IE0004186	The Murrough SPA
IE0004233	River Nore SPA

The sampling activities will not result in any significant change to the site(s) or negatively impact the site in terms of habitat loss, fragmentation, disruption, disturbance or change key hydrogeological, ecological or hydrochemical characteristics of conservation value. It is not thought that soil sampling across the area will have any cumulative impacts as a whole.

6 Mitigation

All samplers will be issued basemap layers that show the location of the SPAs and SACs. Sites should be selected by samplers to avoid these areas where possible. In locations where an entire 4 km grid square is covered by SPA or SAC a suitable site should be selected for sampling. Samplers should minimise any impact from driving by approaching the site on foot. Priority should be made for open grass fields with landowner permission. Samples should be taken away from hedgerows or woodland (minimum 20 m) or from rivers and streams (minimum 50 m).

7 Screening of Relevant Natura 2000 Sites

The following tables show the qualifying interest for each SAC and SPA.

Table 3 showing the qualifying interest for each SAC within the survey area along with potential hazards arising from sampling

Natura 2000 Site	Qualifying Interest	Interaction with Survey area	Potential impacts	Screened In or Out
Slieve Bloom Mountains SAC (000412)	Northern Atlantic wet Heaths with <i>Erica Tetralix</i> (4010)	Overlap	Disturbance from samplers walking and digging holes?	Screened In
	Blanket Bogs (7130)	Overlap	Disturbance from samplers walking and digging holes?	Screened In
	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) (91E0)	No overlap – no sampling in forests	No	Out
Deputy's Pass Nature Reserve SAC (000717)	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles (91A0)	No overlap	No	Out
Buckroney-Brittis Dunes And Fen SAC (000729)	Annual vegetation of drift lines (1210)	No overlap	No	Out
	Perennial vegetation of stony banks (1220)	No overlap	No	Out
	Mediterranean salt meadows (<i>Juncetalia maritimi</i>) (1410)	No overlap	No	Out
	Embryonic shifting dunes (2110)	No overlap	No	Out

	Shifting dunes along the shoreline with (white dunes) (2120)	No overlap	No	Out
	Fixed coastal dunes with herbaceous vegetation (grey dunes) (2130)	No overlap	No	Out
	Atlantic decalcified fixed dunes (Calluno-Ulicetea) (2150)	No overlap	No	Out
	Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) (2170)	No overlap	No	Out
	Humid dune slacks (2190)	No overlap	No	Out
	Alkaline fens (7230)	No overlap	No	Out
Vale of Clara (Rathdrum Wood) SAC (000733)	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles (91A0)	No Overlap	N	Out
Slaney River Valley SAC (000781)	Freshwater Pearl Mussel <i>Margaritifera margaritifera</i> (1029)	No Overlap	No	Out
	Sea Lamprey <i>Petromyzon marinus</i> (1095)	No Overlap	No	Out
	Brook Lamprey <i>Lampetra planeri</i> (1096)	No Overlap	No	Out
	River Lamprey <i>Lampetra fluviatilis</i> (1099)	No Overlap	No	Out
	Twait Shad <i>Alosa fallax</i> (1103)	No Overlap	No	Out

	Atlantic Salmon <i>Salmo salar</i> (only in fresh water) (1106)	No Overlap	No	Out
	Estuaries (1130)	No Overlap	No	Out
	Mudflats and sandflats not covered by seawater at low tide (1140)	No Overlap	No	Out
	Otter <i>Lutra lutra</i> (1355)	No Overlap	No	Out
	Harbour Seal <i>Phoca vitulina</i> (1365)	No Overlap – survey land based	No	Out
	Water courses of plain to montane levels with the <i>Ranunculion Nfluitantis</i> and <i>Callitricho-Batrachion</i> Vegetation (3260)	No Overlap	No	Out
	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles (91A0)	Overlap but avoidable no sampling in forest	No	Out
	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) (91E0)	Overlap but avoidable no sampling in forest	No	Out
Lisbigney Bog SAC (000869)	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> (7210)	Overlap but avoidable	No	Out
	Desmoulin's Whorl Snail <i>Vertigo moulinsiana</i> (1016)	Overlap but avoidable	No	Out

Holdenstown Bog SAC (001757)	Transition mires and quaking bogs (7140)	Overlap but avoidable	No	Out
Magherabeg Dunes SAC (001766)	Annual vegetation of drift lines (1210)	No Overlap	No	Out
	Embryonic shifting dunes (2110)	No Overlap	No	Out
	Shifting dunes along the shoreline with <i>Ammophila aenaria</i> (white dunes) (2120)	No Overlap	No	Out
	Fixed coastal dunes with herbaceous vegetation (grey dunes) (2130)	No Overlap	No	Out
	Atlantic decalcified fixed dunes (Calluno-Ulicetea) (2150)	No Overlap	No	Out
	Petrifying springs with tufa formation (Cratoneurion) (7220)	No Overlap	No	Out
Wicklow Mountains SAC (002122)	Otter <i>Lutra lutra</i> (1355)	Overlap but avoidable - no sampling near waterways	No	Out
	Oligotrophic waters containing very few minerals of sandy plains N(Littorelletalia uniflorae) (3110)	Overlap but avoidable - no sampling near waterways	No	Out
	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea (3130)	Overlap - no sampling near waterways	No	Out
	Natural dystrophic lakes and ponds (3160)	Overlap - no sampling near	No	Out

		waterways		
	Northern Atlantic wet heaths with <i>Erica Tretalix</i> (4010)	Overlap	Disturbance from samplers walking and digging holes?	Screened in
	European dry heaths (4030)	Overlap	Disturbance from samplers walking and digging holes?	Screened in
	Alpine and Boreal heaths (4060)	Overlap	Disturbance from samplers walking and digging holes?	Screened in
	Calaminarian grasslands of the <i>Violetalia calaminariae</i> (6130)	Overlap	Disturbance from samplers walking and digging holes?	Screened in
	Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) (6230)	Overlap	Disturbance from samplers walking and digging holes?	Screened in
	Blanket bogs (* if active bog) (7130)	Overlap	Disturbance from samplers walking and digging holes?	Screened in
	Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) (8110)	Overlap	Disturbance from samplers walking and digging holes?	Screened in
	Calcareous rocky slopes with chasmophytic vegetation (8210)	Overlap	Disturbance from samplers walking and digging holes?	Screened in
	Siliceous rocky slopes with chasmophytic vegetation (8220)	Overlap	Disturbance from samplers walking	Screened in

			and digging holes?	
	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles (91A0)	Overlap – no sampling in forests	No	Out
River Barrow And River Nore SAC (002162)	Desmoulin's whorl snail <i>Vertigo moulinsiana</i> (1016)	No Overlap	No	Out
	Freshwater pearl mussel <i>Margaritifera margaritifera</i> (1029)	No Overlap	No	Out
	White-clawed crayfish <i>Austropotamobius pallipes</i> (1092)	No Overlap	No	Out
	Sea lamprey <i>Petromyzon marinus</i> (1095)	No Overlap	No	Out
	Brook lamprey <i>Lampetra planeri</i> (1096)	No Overlap	No	Out
	River lamprey <i>Lampetra fluviatilis</i> (1099)	No Overlap	No	Out
	Twaite shad <i>Alosa fallax</i> (1103)	No Overlap	No	Out
	Atlantic salmon (<i>Salmo salar</i>) (only in fresh water) (1106)	No Overlap	No	Out
	Estuaries (1130)	No Overlap	No	Out
	Mudflats and sandflats not covered by seawater at low tide (1140)	No Overlap	No	Out
	<i>Salicornia</i> and other annuals colonizing mud and sand (1310)	No Overlap	No	Out
	Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) (1330)	No Overlap	No	Out

	Otter <i>Lutra lutra</i> (1355)	No Overlap	No	Out
	Mediterranean salt meadows (<i>Juncetalia maritimi</i>) (1410)	No Overlap	No	Out
	Killarney fern <i>Trichomanes speciosum</i> (1421)	No Overlap	No	Out
	Nore freshwater pearl mussel <i>Margaritifera durrovensis</i> (1990)	No Overlap	No	Out
	Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation (3260)	No Overlap	No	Out
	European dry heaths (4030)	No Overlap	No	Out
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (6430)	No Overlap	No	Out
	Petrifying springs with tufa formation (<i>Cratoneurion</i>) (7220)	No Overlap	No	Out
	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles (91A0)	No Overlap	No	Out
	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) (91E0)	No Overlap	No	Out
Island Fen SAC (002236)	<i>Juniperus Commanis</i> formations on heaths or calcareous grasslands (5130)	No Overlap	No	Out
	Alkaline fens (7230)	No Overlap	No	Out

Ballyprior Grassland SAC (002256)	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia) (* important orchid sites)* (6210)	No Overlap	No	Out
Wicklow Reef SAC (002274)	Reefs (1170)	No Overlap	No	Out

Table 4 showing the qualifying interest for each SPA within the survey area along with potential hazards arising from sampling

Natura 2000 Site	Qualifying Interest	Interaction with Survey area	Potential impacts	Screened In/Out
Wicklow Mountains SPA (004040)	Merlin <i>Falco columbarius</i>	Overlap	Disturbance from samplers walking	Screened In
	Peregrine <i>Falco peregrinus</i>	Overlap	Disturbance from samplers walking	Screened In
Poulaphouca Reservoir SPA (004063)	Greylag Goose <i>Anser anser</i>	No overlap	No	Out
	Lesser Black-backed Gull <i>Larus fuscus</i>	No overlap	No	Out
Wicklow Head SPA (004127)	Kittiwake <i>Rissa tridactyla</i>	No overlap	No	Out
Slieve Bloom Mountains SPA (004160)	Hen Harrier <i>Circus cyaneus</i>	Overlap	Disturbance from samplers walking	Screened In
The Murrough SPA (004186)	Red-throated Diver <i>Gavia stellata</i>	Overlap	Disturbance from samplers walking	Screened In

	Greylag Goose <i>Anser anser</i>	Overlap	Disturbance from samplers walking	Screened In
	Light-bellied Brent Goose <i>Branta bernicla hrota</i>	Overlap	Disturbance from samplers walking	Screened In
	Wigeon <i>Anas penelope</i>	Overlap	Disturbance from samplers walking	Screened In
	Teal <i>Anas crecca</i>	Overlap	Disturbance from samplers walking	Screened In
	Black-headed Gull <i>Chroicocephalus ridibundus</i>	Overlap	Disturbance from samplers walking	Screened In
	Herring Gull <i>Larus argentatus</i>	Overlap	Disturbance from samplers walking	Screened In
	Little Tern <i>Sterna albifrons</i>	Overlap	Disturbance from samplers walking	Screened In
River Nore SPA (004233)	Kingfisher <i>Alcedo atthis</i>	No Overlap	No	Out

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Screening conclusions

Following the initial screening of all potentially impacted Natura 2000 sites by the proposed survey operations, the following sites have been screened-in for potential overlap with the survey area, however, in most cases sample locations can be chosen for the soil samples that lie outside each SAC & SPA. In larger extensive areas, such as the Wicklow Mountains and Slieve Bloom Mountains, soil samples will be taken at selected locations which pose minimal risk to the sites. The collection of shallow soil samples is not thought to pose any significant risk to any of the SAC's and SPA listed within the survey area. Appendix 1 provides a detailed examination of the impact of soil sampling for geochemical surveying. The below table summarises the Natura 2000 sites where there is overlap:

Natura 2000 sites screened in for Appropriate Assessment:

- Slieve Bloom Mountains SAC (000412)
- Wicklow Mountains SAC (002122)
- Wicklow Mountains SPA (004040)
- Slieve Bloom Mountains SPA (004160)
- The Murrough SPA (004186)

Qualifying interests to be assessed in Natura Impact Statement:

- Northern Atlantic wet Heaths with *Erica Tetralix* (4010)
- Blanket Bogs (7130)
- European dry heaths (4030)
- Alpine and Boreal heaths (4060)
- Calaminarian grasslands of the *Violetalia calaminariae* (6130)
- Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) (6230)
- Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) (8110)
- Calcareous rocky slopes with chasmophytic vegetation (8210)
- Siliceous rocky slopes with chasmophytic vegetation (8220)
- Merlin *Falco columbarius*
- Peregrine *Falco peregrinus*
- Hen Harrier *Circus cyaneus*
- Red-throated Diver *Gavia stellata*
- Greylag Goose *Anser anser*
- Light-bellied Brent Goose *Branta bernicla hrota*
- Wigeon *Anas penelope*
- Teal *Anas crecca*
- Black-headed Gull *Chroicocephalus ridibundus*
- Herring Gull *Larus argentatus*
- Little Tern *Sterna albifrons*

8 Natura Impact Statement

From the screening report a number of Natura 2000 sites have been screen in. In most cases soil samples can be taken from locations where no impact is likely. However, in some grid squares sampling may take place within a European site. This will be shown as a data layer on the survey digital data capture tablets carried by each sampler. Allowing samplers to clearly identified potential areas within each grid cell.

These sites are further reviewed in tables 5 and 6 below for SAC and SPA sites and their qualifying interests respectively. The potential impact, along with mitigation measures and verdict is given. Reference is also made to Appendix 1: The assessment of effects of geochemical soil sampling.

Table 5: Screened in SAC and corresponding qualifying interest, mitigation measures and resultant impact.

Natura 2000 Site	Qualifying Interest	Potential Impact	Mitigation Measures	Comment / verdict
Slieve Bloom Mountains SAC (000412)	Northern Atlantic wet Heaths with <i>Erica Tetralix</i> (4010)	Disturbance from samplers walking and digging holes?	Samplers to choose a site with the least impact to the site. Get landowner permission; keep to paths or edge of fields when accessing area. Follow sampling procedure. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. No removal of vegetation. See Appendix 1	Minimal impact, the activity is not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations Significant effects not likely.
	Blanket Bogs (7130)	Disturbance from samplers walking and digging holes?	Samplers to choose a site with the least impact to the site. Get landowner permission; keep to paths or edge of fields when accessing area. Follow sampling procedure. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. No removal of vegetation. See Appendix 1	Minimal impact, the activity is not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations Significant effects not likely
Wicklow Mountains SAC (002122)	Northern Atlantic wet heaths with <i>Erica Tretalix</i> (4010)	Disturbance from samplers walking and digging holes?	Samplers to choose a site with the least impact to the site. Get landowner permission; keep to paths or edge of fields when accessing area. Follow sampling procedure. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice.	Minimal impact, the activity is not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations Significant effects not likely

			No removal of vegetation. See Appendix 1	
	European dry heaths (4030)	Disturbance from samplers walking and digging holes?	Samplers to choose a site with the least impact to the site. Get landowner permission; keep to paths or edge of fields when accessing area. Follow sampling procedure. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. No removal of vegetation. See Appendix 1	Minimal impact, the activity is not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations Significant effects not likely
	Alpine and Boreal heaths (4060)	Disturbance from samplers walking and digging holes?	Samplers to choose a site with the least impact to the site. Get landowner permission; keep to paths or edge of fields when accessing area. Follow sampling procedure. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. No removal of vegetation. See Appendix 1	Minimal impact, the activity is not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations Significant effects not likely
	Calaminarian grasslands of the <i>Violetalia calaminariae</i> (6130)	Disturbance from samplers walking and digging holes?	Samplers to choose a site with the least impact to the site. Get landowner permission; keep to paths or edge of fields when accessing area. Follow sampling procedure. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. No removal of vegetation. See Appendix 1	Minimal impact, the activity is not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations Significant effects not likely
	Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain	Disturbance from samplers walking	Samplers to choose a site with the least impact to the site. Get landowner permission; keep to paths or edge of fields	Minimal impact, the activity is not significantly intrusive to change the structure and composition or extent of any

	areas (and submountain areas, in Continental Europe) (6230)	and digging holes?	when accessing area. Follow sampling procedure. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. No removal of vegetation. See Appendix 1	associated vegetation community over normal natural variations Significant effects not likely
	Blanket bogs (* if active bog) (7130)	Disturbance from samplers walking and digging holes?	Samplers to choose a site with the least impact to the site. Get landowner permission; keep to paths or edge of fields when accessing area. Follow sampling procedure. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. No removal of vegetation. See Appendix 1	Minimal impact, the activity is not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations Significant effects not likely
Wicklow Mountains SAC (002122)	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) (8110)	Disturbance from samplers walking and digging holes?	Samplers to choose a site with the least impact to the site. Get landowner permission; keep to paths or edge of fields when accessing area. Follow sampling procedure. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. No removal of vegetation. See Appendix 1	Minimal impact, the activity is not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations Significant effects not likely
	Calcareous rocky slopes with chasmophytic vegetation (8210)	Disturbance from samplers walking and digging holes?	Samplers to choose a site with the least impact to the site. Get landowner permission; keep to paths or edge of fields when accessing area. Follow sampling procedure. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek	Minimal impact, the activity is not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations Significant effects not likely

			ecological advice. No removal of vegetation. See Appendix 1	
	Siliceous rocky slopes with chasmophytic vegetation (8220)	Disturbance from samplers walking and digging holes?	Samplers to choose a site with the least impact to the site. Get landowner permission; keep to paths or edge of fields when accessing area. Follow sampling procedure. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. No removal of vegetation. See Appendix 1	Minimal impact, the activity is not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations Significant effects not likely

Table 6: showing the qualifying interest for each SPA within the survey area along with potential hazards arising from sampling

Natura 2000 Site	Qualifying Interest	Potential Impact	Mitigation Measures	Comment / verdict
Wicklow Mountains SPA (004040)	Merlin <i>Falco columbarius</i>	Disturbance from samplers walking	Avoid known breeding sites, avoid forestry, cliff faces rivers and waterways. Maintain minimum noise disturbance, no vehicles aces. No sampling during breeding season. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. See Appendix 1.	Avoid known breeding sites. The activity not likely to exceed noise levels of 80dB LA _{max} and 55dB LA _{eq,1hr} AQTAG09 thresholds. Therefore significant effects not likely.
	Peregrine <i>Falco peregrinus</i>	Disturbance from samplers walking	Avoid known breeding sites, avoid forestry, cliff faces rivers and waterways. Maintain minimum noise disturbance, no vehicles aces. No sampling during breeding season. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should	Avoid known breeding sites. The activity not likely to exceed noise levels of 80dB LA _{max} and 55dB LA _{eq,1hr} AQTAG09 thresholds. Therefore significant effects not likely.

			seek ecological advice. See Appendix 1.	
Slieve Bloom Mountains SPA (004160)	Hen Harrier <i>Circus cyaneus</i>	Disturbance from samplers walking	Avoid known breeding sites, avoid forestry, cliff faces rivers and waterways. Maintain minimum noise disturbance, no vehicles aces. No sampling during breeding season. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. See Appendix 1.	Avoid known breeding sites. The activity not likely to exceed noise levels of 80dB LA _{max} and 55dB LA _{eq,1hr} AQTAG09 thresholds. Therefore significant effects not likely.
The Murrough SPA (004186)	Red-throated Diver <i>Gavia stellata</i>	Disturbance from samplers walking	Avoid known breeding sites, avoid forestry, cliff faces rivers and waterways. Maintain minimum noise disturbance, no vehicles aces. No sampling during breeding season. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. See Appendix 1.	Avoid known breeding sites. The activity not likely to exceed noise levels of 80dB LA _{max} and 55dB LA _{eq,1hr} AQTAG09 thresholds. Therefore significant effects not likely.
	Greylag Goose <i>Anser anser</i>	Disturbance from samplers walking	Avoid known breeding sites, avoid forestry, cliff faces rivers and waterways. Maintain minimum noise disturbance, no vehicles aces. No sampling during breeding season. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. See Appendix 1.	Avoid known breeding sites. The activity not likely to exceed noise levels of 80dB LA _{max} and 55dB LA _{eq,1hr} AQTAG09 thresholds. Therefore significant effects not likely.
	Light-bellied Brent Goose <i>Branta bernicla hrota</i>	Disturbance from samplers walking	Avoid known breeding sites, avoid forestry, cliff faces rivers and waterways. Maintain minimum noise disturbance, no vehicles aces. No sampling during breeding season. Samplers to follow ecological guidance, If samplers are	Avoid known breeding sites. The activity not likely to exceed noise levels of 80dB LA _{max} and 55dB LA _{eq,1hr} AQTAG09 thresholds. Therefore significant effects not likely.

			unsure on suitability of a site they should seek ecological advice. See Appendix 1.	
	Wigeon <i>Anas penelope</i>	Disturbance from samplers walking	Avoid known breeding sites, avoid forestry, cliff faces rivers and waterways. Maintain minimum noise disturbance, no vehicles aces. No sampling during breeding season. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. See Appendix 1.	Avoid known breeding sites. The activity not likely to exceed noise levels of 80dB LA _{max} and 55dB LA _{eq,1hr} AQTAG09 thresholds. Therefore significant effects not likely.
	Teal <i>Anas crecca</i>	Disturbance from samplers walking	Avoid known breeding sites, avoid forestry, cliff faces rivers and waterways. Maintain minimum noise disturbance, no vehicles aces. No sampling during breeding season. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. See Appendix 1.	Avoid known breeding sites. The activity not likely to exceed noise levels of 80dB LA _{max} and 55dB LA _{eq,1hr} AQTAG09 thresholds. Therefore significant effects not likely.
	Black-headed Gull <i>Chroicocephalus ridibundus</i>	Disturbance from samplers walking	Avoid known breeding sites, avoid forestry, cliff faces rivers and waterways. Maintain minimum noise disturbance, no vehicles aces. No sampling during breeding season. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. See Appendix 1.	Avoid known breeding sites. The activity not likely to exceed noise levels of 80dB LA _{max} and 55dB LA _{eq,1hr} AQTAG09 thresholds. Therefore significant effects not likely.
	Herring Gull <i>Larus argentatus</i>	Disturbance from samplers walking	Avoid known breeding sites, avoid forestry, cliff faces rivers and waterways. Maintain minimum noise disturbance, no vehicles aces. No sampling during breeding season. Samplers to follow	Avoid known breeding sites. The activity not likely to exceed noise levels of 80dB LA _{max} and 55dB LA _{eq,1hr} AQTAG09 thresholds. Therefore

			ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. See Appendix 1.	significant effects not likely.
	Little Tern <i>Sterna albifrons</i>	Disturbance from samplers walking	Avoid known breeding sites, avoid forestry, cliff faces rivers and waterways. Maintain minimum noise disturbance, no vehicles aces. No sampling during breeding season. Samplers to follow ecological guidance, If samplers are unsure on suitability of a site they should seek ecological advice. See Appendix 1.	Avoid known breeding sites. The activity not likely to exceed noise levels of 80dB LA _{max} and 55dB LA _{eq,1hr} AQTAG09 thresholds. Therefore significant effects not likely.

Note

- i) Samples are to use the supplied digital data capture devices to identify grid squares or sample locations that overlap with designated areas.
- ii) Samples should follow ecological guidance where applicable.
- iii) In areas where samplers are unsure as to the specifics of a site, independent ecological advice should be sort.
- iv) If a sample site is shown to overlap with areas known to contain protected flora that appropriate ecological advice is sort.

9 Conclusion

This Appropriate Assessment is considered to incorporate all of the relevant requirements of the EC DG Environment guidance document, “Assessment of plans and projects significantly affecting Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC”.

The Tellus soil sampling programme takes one small soil sample (1 kg) from an area of 2 x 2 Km i.e. 400 Ha. The survey area encompasses numerous SAC and SPA's, however, in most cases sample locations can be chosen for soil samples that lie outside each SAC & SPA. In large extensive areas, soil samples will be taken at selected locations which pose minimal risk to the sites. Samplers will follow the GSI sampling protocols and mitigation measures provided to further minimise any disturbance or likely impact.

The collection of shallow soil samples is deemed not to pose a significant risk to any of the SAC's and SPA listed within the survey area.

Appendix 1

ASSESSMENT OF EFFECTS: GEOCHEMICAL SURVEYING (SHALLOW SOILS)

Taken from Expert Environmental Guidance on Exploration Methodologies; Part Two Geochemical Survey' produced by SLR for the Department of Communications, Climate Action and Environment

The following provides an assessment of likely significant effects of shallow soil geochemical sampling on a Special Area of Conservation (SAC; and a Special Protection Area (SPA; Section 6.4), respectively, during Geochemical Surveying (Shallow Soils).

A1 Potential Hazards – Geochemical Surveying (Shallow Soils)

This section identifies the potential hazards (i.e. the pathways) through which Geochemical Surveying (Shallow Soils) activities may have the potential risk exposure of likely significant effects on Natura 2000 sites. This essentially is a preliminary assessment of risk and probability (see Chapter 4 above).

Table 5 provides a preliminary risk assessment of Geochemical Surveying (Shallow Soil) activities (without the application of standard operating procedures designed to avoid or reduce significant effects).

Table A1: Preliminary Risk Assessment - Geochemical Surveying (Shallow Soils)

Potential Hazard	SAC		SPA	
	Annex I Habitats	Annex II Species	Qualifying Birds	Wetlands
Direct Loss of Habitat	Not likely	Not likely	Not likely	Not Likely
Damage and/or Disturbance of Habitats causing a change in the Vegetation Community or where there would be an Effect on the Population Status of an Individual or Group of Species	Unlikely	Extremely Unlikely to Unlikely depending upon species	Unlikely	Extremely unlikely
Habitat Fragmentation	Not likely	Not likely	Not likely	Not Likely
Disturbance (Noise and Visual Disturbance) Low Levels from one or two persons, High from Mechanised Sampling.	Not applicable	Unlikely	Unlikely	Not applicable
Disturbance (Lighting)	Not likely	Not likely	Not likely	Not Likely
Changes in Air Quality (Deposition of Dust)	Not likely	Not likely	Not likely	Not Likely
Changes in Air Quality (Emissions to Air)	Not likely	Not likely	Not likely	Not Likely
Alteration to Hydrological Regime	Not likely	Not likely	Not likely	Not Likely
Alteration to Hydrogeological Regime	Not likely	Not likely	Not likely	Not Likely

Changes in Surface Water Quality	Not likely	Not Likely	Not Likely	Not Likely
Increase in Sedimentation	Extremely unlikely	Extremely unlikely	Extremely unlikely	Extremely unlikely
Changes in Groundwater Quality	Not likely	Not likely	Not likely	Not Likely
Introduction and spread of Non-Native Species	Extremely unlikely	Extremely unlikely	Extremely unlikely	Extremely unlikely

Based on the risk assessment in Table 5, the potential hazards required for any further consideration as part of the screening matrix include:

- **damage and/or disturbance of habitats; and**
- **noise and visual disturbance.**

A1.1 Damage and/or Disturbance of Habitats

Geochemical Surveying (Shallow Soils) is not likely to result in any direct loss of habitat but may result in the damage and disturbance of habitats during the walkover of a site and removal of samples. In most cases the effects are likely to be temporary and reversible in nature except for the most sensitive of habitats. The damage and disturbance of sensitive habitats can result in a change in the physical attributes of the habitat and its associated vegetation communities. Stresses induced by changes in physical attributes, e.g. trampling, which can increase soil compaction and create gaps which may allow stress tolerant species to dominate. Such occurrences can result in changes to the structure and species composition within a particular area. For some habitats any changes in key indicator plant species can alter the classification given to any particularly vegetation community.

Any damage and disturbance to habitats can have a direct impact on individual populations of qualifying species, or on other individual and/or groups of species that any qualifying species is dependent upon, i.e. food source, or indirectly by increasing levels of stress placed upon populations of some species. The damage and disturbance of habitats outside the defined boundary of a Natura 2000 site may also have an impact on habitats that can be considered to contribute to the habitat resource of any qualifying habitats. Damage to those external habitats can also affect widely-ranging species that may lose part of breeding/foraging range and therefore individuals' fitness may be affected. These effects can ultimately result in increased mortality or productivity reduction.

Where a qualifying species may be wide ranging it is important to consider the site of any proposed exploration activity and its connectivity with a Natura 2000 site. This is especially important in relation to the potential dispersal and foraging distances that some species of birds may travel outside the boundary of a SPA. Where relevant, guidance published by Scottish Natural Heritage (SNH) ⁶ should be used to determine the core ranges for many species.

A1.2 Noise and Visual Disturbance

Increases in human disturbance can have a range of impacts depending upon the sensitivity of the ecological receptor, the nature and duration of the disturbance and its timing. Human disturbance particularly includes noise and visual disturbance from human activity from Geochemical Surveying (Shallow Soils). The response of individual species to increased levels of human disturbance will depend upon a number of factors. The factors include:

- sensitivity;
 - reproductive status;
 - previous exposure to human disturbance;
 - behaviour during the event;
 - species tolerance to disturbance;
 - location in relation to the source;
 - availability of alternative nearby habitat; and
 - environmental factors (e.g. topography, vegetation and atmospheric conditions which can influence noise levels).
-

The level of disturbance will also be dependent upon the existing ambient noise levels and maximum noise levels.

It is generally accepted that for noise and visual disturbance, certain species or groups of species can be impacted upon up to a distance of 300m from source for high level and discontinuous disturbance. These distances are reduced for low level and/or continuous disturbance levels. However, where specific guidance indicates otherwise, the potential zone of an activity can increase, depending upon the susceptibility of a particular species to disturbance. High levels of noise and visual disturbance have the potential to significantly increase the distance where species may alter their behaviour.

Where noise levels are below 80dB L_{Amax} and 55dB $L_{Aeq, 1hr}$ measured at a nest site for birds or other feature used by wildlife it is considered unlikely that it will have an adverse impact on any such species, in accordance with guidance produced by Air Quality Technical Advisory Group (AQTAG09)⁷.

Geochemical Surveying (Shallow Soils) will generally produce low levels of noise and visual disturbance and will typically be below the AQTAG threshold levels.

A2 Potential Zone of Influence

Based on the nature of the exploration activity and on the potential hazards it is considered that the distance for which any Geochemical Surveying (Shallow Soils) should be evaluated in terms of Natura 2000 sites is up to a maximum radius of 1km based on the full extent of the licensable exploration activity.

A3 Special Areas of Conservation

The potential for likely significant effects of Geochemical Surveying (Shallow Soils) on a SAC or candidate SAC (cSAC) are considered separately under *Annex 1 Habitats* and *Annex II Species* below. Please refer to Table 1 in Chapter 4.0 for colour codes. Table 6 below provides an overview as to whether activities associated with Geochemical Surveying (Shallow Soils) are likely to have significant effects on individual Annex I habitats for which a SAC or cSAC may be designated as being of European importance.

Where it is identified that there is a probable risk and the possibility or uncertainty of likely significant effects then further information is likely to be required by the EMD in making its determination. The level of information and details of standard operating procedures to be followed will have to be appropriate for any activities and in relation to the individual qualifying Annex I habitat concerned. The information and standard operating procedures will also have to be appropriate for the Natura 2000 site which may be impacted upon.

Where no likely significant effects have been identified but there is a risk of an adverse effect on sensitive features the EMD may require further information. The information required will be on a site by site basis, to be submitted by the applicant in order to completely satisfy EMD that the activities will have no likely significant effects on certain qualifying Annex I habitats.

Table 6 Screening of Likely Significant Effects of Geochemical Sampling (Shallow Soils) on Annex I Habitats

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
FRESHWATER					
3110	Oligotrophic waters containing very few minerals of sandy plains: <i>Littorelletalia uniflorae</i>	Access & Egress	Potential exposure to hazard where activity may occur around the margins of lakes where some, but not all, vegetation zones are present.		
		Operation	Activity not considered significantly intrusive where there would be any changes in the structure and composition or extent of any vegetation community over normal natural variations in the marginal zone. Significant effects not likely.		
		Abstraction & Return			
3130	Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>	Access & Egress	Potential exposure to hazard where activity may occur around the margins of lakes and interface between water and land supporting vegetation communities associated with this habitat-type.		
		Operation	Activity but not significantly intrusive where there would be any changes in the structure and composition or extent of any vegetation community present in the interface area between water and land over normal natural variations. Significant effects not likely.		
		Abstraction & Return			
3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	Access & Egress	Potential exposure to hazard where activity may occur around the margins of lakes where some, but not all, vegetation zones are present.		
		Operation	Activity not significantly intrusive where there would be any changes in the <i>Chara</i> community structure and composition or extent of any vegetation community over normal natural variations in the marginal zone. Significant effects not likely.		
		Abstraction & Return			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
3150	Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation	Access & Egress	Potential exposure to hazard where activity may occur around the margins of lakes where some, but not all, vegetation zones are present.		
		Operation	Activity not considered significantly intrusive where there would be any changes in the structure and composition or extent of any vegetation community over normal natural variations in the marginal zone. Significant effects not likely.		
		Abstraction & Return			
3160	Natural dystrophic lakes and ponds	Access & Egress	Potential exposure to hazard where activity may occur on the edge of fringing habitat typically associated with floating carpets of vegetation.		Proposer of activity may be required to provide further information on standard operating procedures to be implemented to avoid and/or minimise disturbance and damage of this habitat-type to satisfy no LSE.
		Operation	Activity with potential to be intrusive but unlikely to change the structure and composition or extent of any vegetation community over normal natural variations and which would be anticipated to recover relatively quickly from any disturbance. Significant effects not likely.		
		Abstraction & Return			
3180	Turloughs	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
3260	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation	Access & Egress			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
		Operation			
		Abstraction & Return			
3270	Rivers with muddy banks with <i>Chenopodium rubri</i> p.p. and <i>Bidention</i> p.p. vegetation	Access & Egress			
		Operation			
		Abstraction & Return			
GRASSLAND AND MARSH					
6130	Calaminarian grasslands of the <i>Violetalia calaminariae</i>	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>)	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
		Abstraction & Return			
6230	Species-rich <i>Nardus</i> grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe)	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
6410	<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
6510	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
HEATH					
4010	Northern Atlantic wet heaths with <i>Erica tetralix</i>	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		Proposer of activity may be required to provide further information on standard operating procedures to be implemented to avoid and/or minimise disturbance and damage of this habitat-type to satisfy no LSE.
		Operation			
		Abstraction & Return			
4030	European dry heaths	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
4060	Alpine and Boreal heaths	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of		

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
		Operation	any associated vegetation community over normal natural variations. Significant effects not likely.		
		Abstraction & Return			
PEATLANDS					
7110	Active raised bogs	Access & Egress			
		Operation			
		Abstraction & Return			
7120	Degraded raised bogs still capable of natural regeneration	Access & Egress			
		Operation			
		Abstraction & Return			
7130	Blanket bogs	Access & Egress			
		Operation			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
		Abstraction & Return			
7140	Transition mires and quaking bogs	Access & Egress			
		Operation			
		Abstraction & Return			
7150	Depressions on peat substrates of the <i>Rhynchosporion</i>	Access & Egress			
		Operation			
		Abstraction & Return			
7210	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
7220	Petrifying springs with tufa formation (<i>Cratoneurion</i>)	Access & Egress	Activity with potential to be intrusive on a habitat highly sensitive to disturbance and which may be susceptible to footfall. Habitat likely to recover relatively quickly providing other physical attributes not altered through the proposed activities. Significant effects uncertain.		Proposer of activity should provide further information on standard operating procedures to be implemented to avoid and/or minimise disturbance and damage of this habitat-type in order for EMD to be satisfied of no LSE. These habitats typically cover small areas where it should be possible to avoid these point or linear formations.
		Operation			
		Abstraction & Return			
7230	Alkaline fens	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
WOODLAND AND SCRUB					
91A0	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
91E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of		

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
		Operation	any associated vegetation community over normal natural variations. Significant effects not likely.		
		Abstraction & Return			
91D0	Bog woodland	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
91J0	<i>Taxus baccata</i> woods of the British Isles	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
5130	<i>Juniperus communis</i> formations on heaths or calcareous grasslands	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
		Abstraction & Return			
EXPOSED ROCK/DISTURBED GROUND					
8110	Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>)	Access & Egress			
		Operation			
		Abstraction & Return			
8120	Calcareous and calcshist screes of the montane to alpine levels (<i>Thlaspietia rotundifolia</i>)	Access & Egress			
		Operation			
		Abstraction & Return			
8210	Calcareous rocky slopes with chasmophytic vegetation	Access & Egress			
		Operation			
		Abstraction & Return			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
8220	Siliceous rocky slopes with chasmophytic vegetation	Access & Egress			
		Operation			
		Abstraction & Return			
8240	Limestone pavements	Access & Egress			
		Operation			
		Abstraction & Return			
8310	Caves not open to the public	Access & Egress	Potential exposure to hazard and which may susceptible to disturbance especially where sensitive species of moss or algae may be present on the rock / cave soils. Habitat likely to recover relatively quickly providing other physical attributes not altered through the proposed activities. Significant effects uncertain.		Proposer of activity should provide further information on standard operating procedures to be implemented to avoid and/or minimise disturbance and damage of this habitat-type in order for EMD to be satisfied of no LSE. It should be possible to avoid, as far as practically possible, areas where mosses and algal carpets are present.
		Operation			
		Abstraction & Return			
MARINE, COASTAL AND HALOPHYTIC HABITATS					
1110	Sandbanks which are slightly covered by sea water all the time	Access & Egress			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
		Operation			
		Abstraction & Return			
1130	Estuaries	Access & Egress			
		Operation			
		Abstraction & Return			
1140	Mudflats and sandflats not covered by seawater at low tide	Access & Egress			
		Operation			
		Abstraction & Return			
1150	Coastal lagoons	Access & Egress			
		Operation			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
		Abstraction & Return			
1160	Large shallow inlets and bays	Access & Egress			
		Operation			
		Abstraction & Return			
1170	Reefs	Access & Egress			
		Operation			
		Abstraction & Return			
1210	Annual vegetation of drift lines	Access & Egress			
		Operation			
		Abstraction & Return			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
1220	Perennial vegetation of stony banks	Access & Egress			
		Operation			
		Abstraction & Return			
1230	Vegetated sea cliffs of the Atlantic and Baltic coasts	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
1310	<i>Salicornia</i> and other annuals colonising mud and sand	Access & Egress			
		Operation			
		Abstraction & Return			
1320	<i>Spartina</i> swards (<i>Spartinion maritimae</i>)	Access & Egress			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
		Operation			
		Abstraction & Return			
1330	Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>)	Access & Egress			
		Operation			
		Abstraction & Return			
1410	Mediterranean salt meadows (<i>Juncetalia maritimi</i>)	Access & Egress			
		Operation			
		Abstraction & Return			
1420	Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
		Abstraction & Return			
8330	Submerged or partially submerged sea caves	Access & Egress			
		Operation			
		Abstraction & Return			
COASTAL SAND DUNES					
2110	Embryonic shifting dunes	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
2120	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
2130	Fixed dunes with herbaceous vegetation ("grey dunes")	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
2140	Decalcified fixed dunes with <i>Empetrum nigrum</i>	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
2150	Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>)	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
2160	Dunes with <i>Hippophae rhamnoides</i>	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of		

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
		Operation	any associated vegetation community over normal natural variations. Significant effects not likely.		
		Abstraction & Return			
2170	Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
2190	Humid dune slacks	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			
		Abstraction & Return			
21A0	Machairs	Access & Egress	Potential exposure to hazard but activity not significantly intrusive to change the structure and composition or extent of any associated vegetation community over normal natural variations. Significant effects not likely.		
		Operation			

EU Code	Habitat	Geochemical Sampling (Shallow Soils)	Damage and/or Disturbance of Habitats	Noise and Visual Disturbance	Areas of influence and items to note
		Abstraction & Return			