APPENDIX D-3

Replacement Forestry Lands Report

1 INTRODUCTION

This Appendix describes the ecology of the proposed replacement/replant lands associated with felling of commercial forestry for proposed Drumnahough Wind Farm development. The replant lands are required as part of the application for the felling license. Replacement replanting of forestry can occur in Ireland subject to licence in compliance with the Forestry Act 1946 (as amended). The consent for such replanting is covered by Statutory Instrument (S.I.) 191/2017 - Forestry Regulations 2017. This legislation provides for development of afforestation and forest road construction project's adherence to compliance with the EIA Directive as amended (Directive 2011/92/EU as amended by Directive 2014/52/EU) and Habitats Directive (Directive 92/43/EEC) insofar as it applies to forestry development.

The lands assessed in this report have been granted Technical Approval by the Forest Service for afforestation (refer to **Appendix 1** for technical approval documents) and these lands, or similarly approved, will be used for replanting should the windfarm project receive planning permission. To afforest any land where the area involved is greater than 0.1ha requires the approval of the Minister under the 2017 regulations. The application for approval is known as Pre-Planting Approval-Form 1.

Areas designated for nature conservation have been considered in a standalone Natura Impact Statement (NIS) report prepared to deal specifically with European sites (Document No. 19715-6006).

There are four replacement lands sites as illustrated in **Figure 1** to **Figure 3**. The proposed replant lands details are supplied in the Pre-Planting Technical Approval-Forms (refer **Appendix 1**) and are summarised in **Table 1.** The sites are located in the townlands of:

- Shessiv and Craghera in Co. Clare (hereafter referred to as Shessiv for brevity)
- Furroor, Lisroe, Reanagishagh and Kilcolumb in Co. Clare (hereafter referred to as Furroor)
- Pollacurragune, Co. Galway (hereafter referred to as Pollacurragune) and
- Rathgoggan north, Ballincolly, Co. Cork/Limerick (hereafter referred to as Rathgoggan).

These sites were surveyed by MWP ecologists on the 9th September 2019 (Pollacurragune, Co. Galway), 7th November 2019 (Shessiv and Furroor, Co. Clare) and 23rd April 2020 (Rathgoggan, Co. Cork). The ecological surveys undertaken included habitat and botanical surveys, and the recording of birds and mammals (see **Section 6.2.3** in the main body of the report). Based on the results of these studies, potential direct, indirect and cumulative effects of the proposed replanting on the existing ecological receptors were considered and appropriate mitigation measures to minimise these potential effects were proposed.

Habitat boundaries and associated attribute data were mapped using desk-based GIS software, which was also used to calculate habitat areas and lengths. Once the baseline ecological survey and

mapping was complete, a constraints map highlighting important ecological features and resources was generated.

Table 1 Proposed replant lands details (from Pre-Planting Technical Approval-Forms)

	Shessiv	Furroor	Pollacurragune	Rathgoggan
Forest owner	FO123291B	FO106204G	FO128265G	FO138610W
Contract Number	CN81429	CN81081	CN78648	CN81335
Townland	Craghera, Shessiv	Furroor, Kilcolumb, Reanagisagh, Lisroe	Pollacurragune	Rathgoggan north, Ballincolly
County	Clare	Clare	Galway	Cork, Limerick
Approved Area (ha.)	13.03	9.39	7.99	20.96
Fencing length (m)	1,400 (stock)	1,200	700	300
Additional Environmental and Silvicultural conditions	Adhere to 'Forestry and Water Quality Guidelines' (2000) Forestry Biodiversity Guidelines' (2000) Freshwater Pearl Mussel setbacks installed at locations where water is rising	Adhere to 'Forestry and Water Quality Guidelines' (2000) Forestry Biodiversity Guidelines' (2000)	Adhere to 'Forestry and Water Quality Guidelines' (2000) Forestry Biodiversity Guidelines' (2000) Water buffer zone setback 10m	Adhere to 'Forestry and Water Quality Guidelines' (2000) and Forestry Biodiversity Guidelines' (2000) Keep drains back 10m from streams. Plant 20% of the stream setback with alder/birch on inverted mounds. Only fence boundaries which are not stock proof

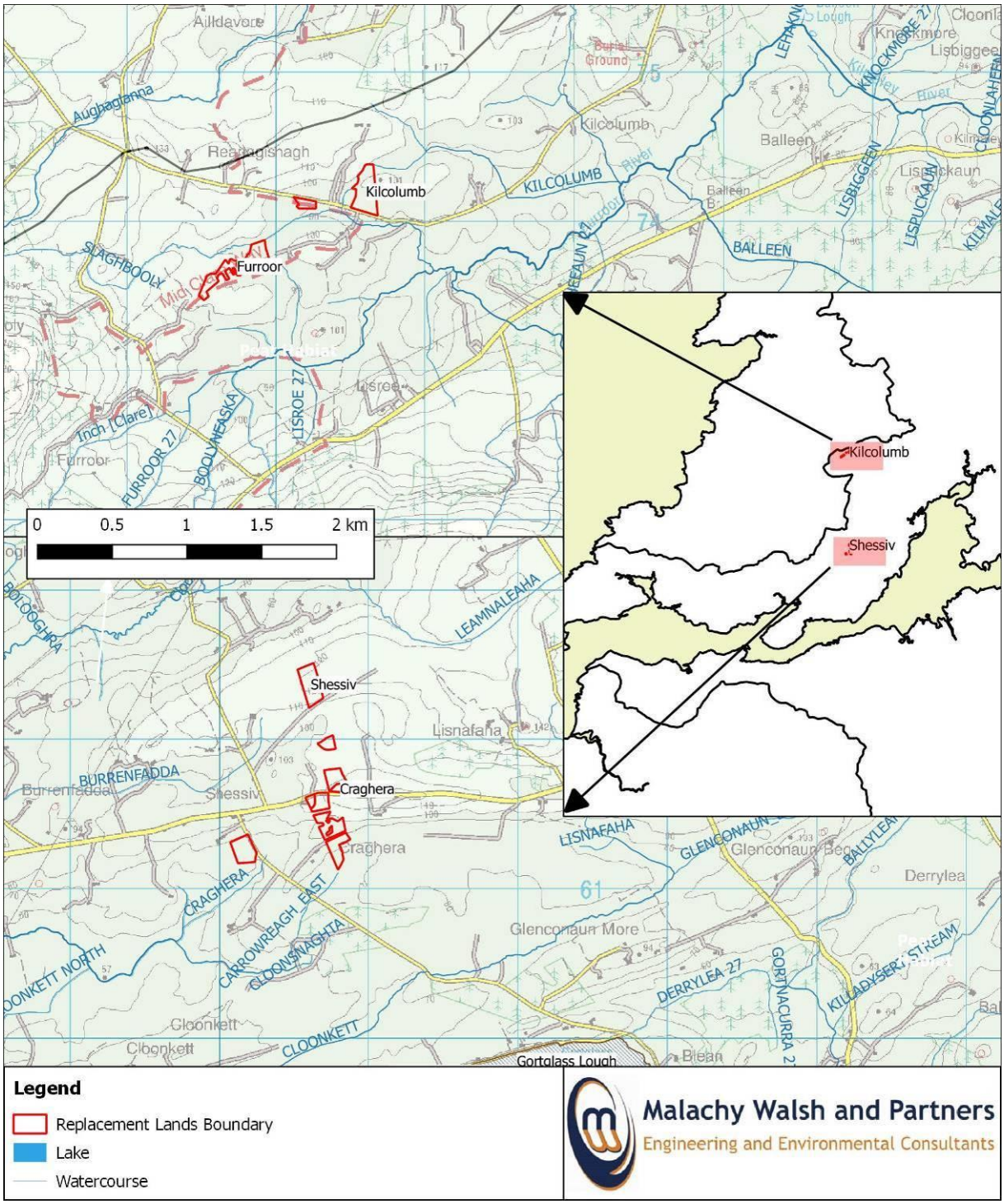

Figure 1 Location of replacement lands at Shessiv and Furroor in Co. Clare.

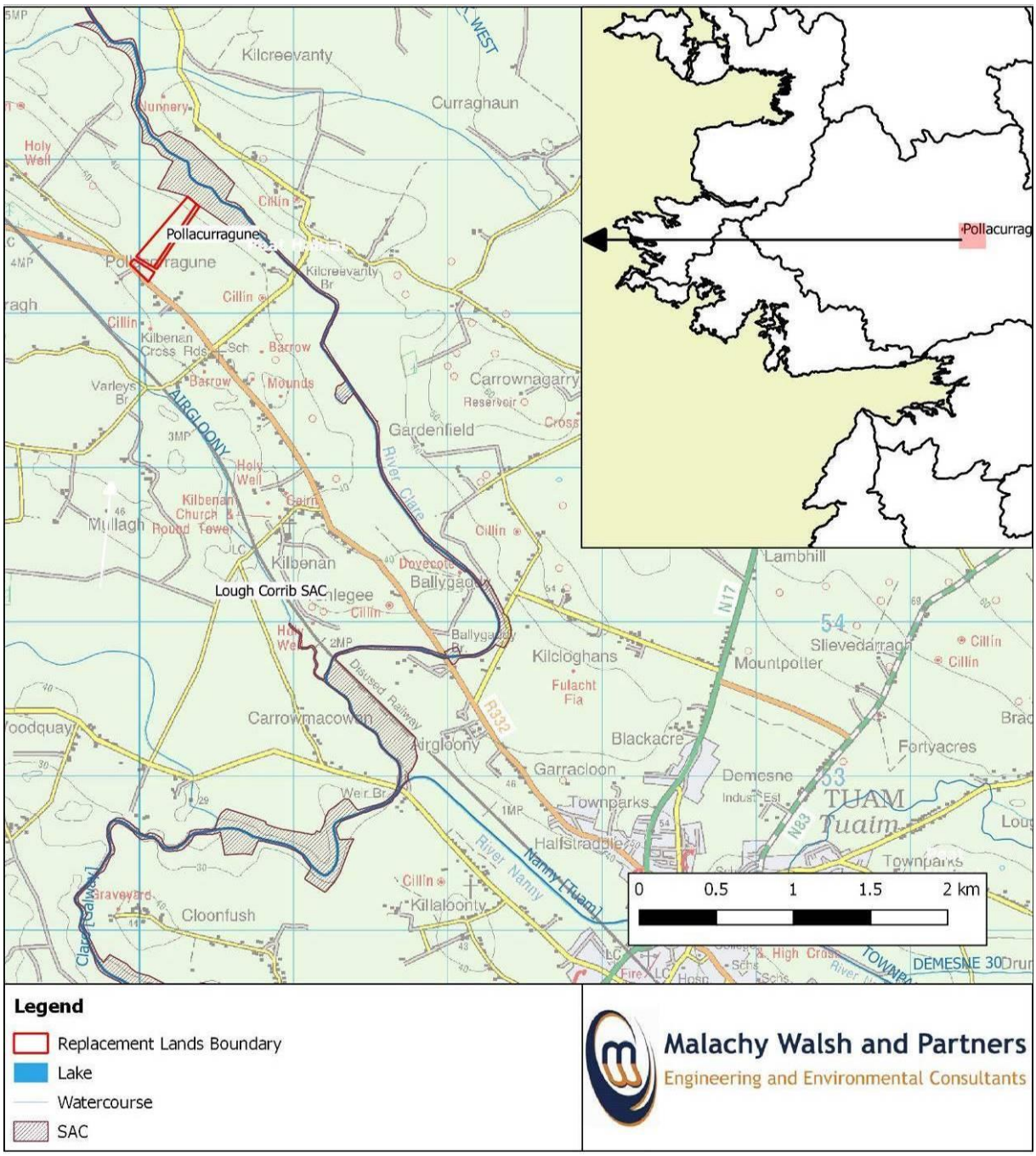

Figure 2 Location of replacement lands at Pollacurragune, Co. Galway.

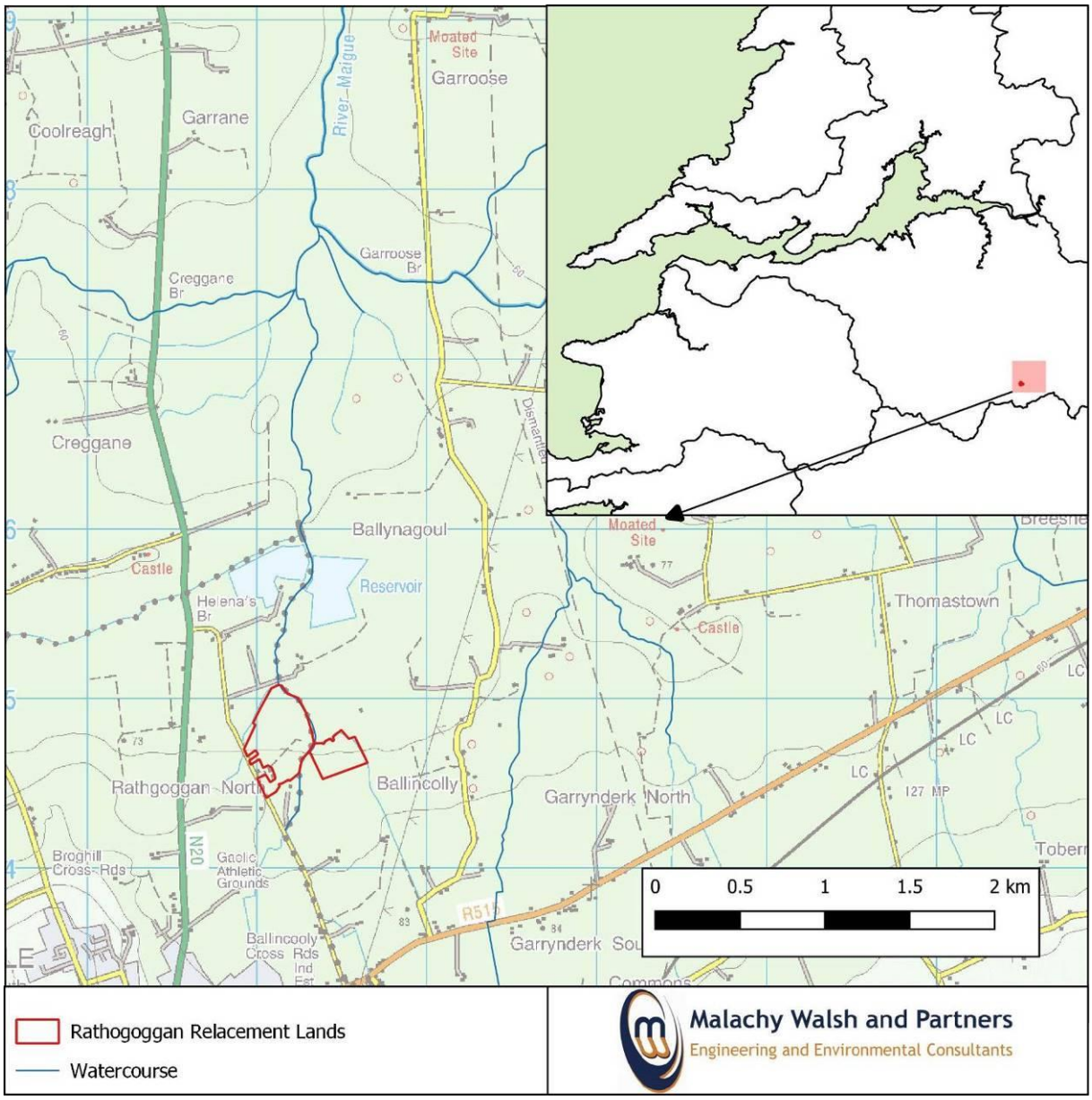

Figure 3 Location of replacement lands at Rathgoggan.

1.1 RELEVANT NATIONAL GUIDELINES AND TENCHICAL APPROVALS

The replanting at the proposed replant sites will be carried out in accordance with the Forest Service Guidelines described below and any further requirements resulting from the technical approvals.

1.1.1 Forestry and Water Quality Guidelines [2000][1]

Forestry activities have the potential to interact both positively and negatively with aquatic resources and the maintenance and enhancement of water quality is of utmost importance. These guidelines describe a range of measures intended to cover all situations relating to forestry and water quality including:

- guidelines to reduce risk of acidification

[1] https://www.agriculture.gov.ie/media/migration/forestry/publications/water_quality.pdf

- guidelines to reduce risk of erosion and sedimentation via creation of buffer zones and aquatic zones
- guidelines for ground preparation and drainage
- guidelines for fertiliser application and storage
- guidelines for chemicals, fuel and machine oils
- guidelines for road construction
- guidelines for bridge, culvert and fords installation
- guidelines for harvesting

1.1.2 Forest Biodiversity Guidelines [2000][2]

Forests are among the most diverse and complex ecosystems in the world, providing a habitat for a multitude of flora and fauna. Ireland's forests represent an important opportunity to conserve and enhance biodiversity at both a local and national level. These guidelines are biodiversity considerations to be incorporated into all forest development, harvesting, roading and maintenance plans to take account of biodiversity, habitat and nature conservation issues.

1.1.3 Forestry and the Landscape Guidelines [2000][3]

These guidelines describe a range of measures that forest owners can employ in relation to the landscape, it is recognised that some may be impractical for individual forests, due to land ownership pattern, location and other set factors. Where a degree of flexibility exists, forest owners are required to implement those landscape measures which can be applied effectively to their property.

All forest workers and machine operators involved in any forest operation will be made aware of and understand the guidelines, all relevant environmental issues relating to the site, and working practices which minimise environmental disturbance. The guidelines include:

- response to landscape and character
- planning and design criteria

1.1.4 Forest Harvesting and Environmental Guidelines [2000][4]

These guidelines address issues relating to soil conservation; the protection of water quality, archaeological sites, biodiversity and the visual landscape; the maintenance of forest health and productivity in the context of timber harvesting and forest road construction and maintenance. It therefore provides guidelines for:

- harvest planning;
- harvest operation;

[2] https://www.agriculture.gov.ie/media/migration/forestry/publications/biodiversity.pdf
[3] https://www.agriculture.gov.ie/media/migration/forestry/publications/landscape.pdf
[4] https://www.agriculture.gov.ie/media/migration/forestry/publications/harvesting.pdf

- harvest site restoration;
- road planning;
- road construction; and
- machine servicing.

2 RECEIVING ENVIRONMENT

2.1 DESIGNATED SITES

The designated areas within 15km of the proposed development are illustrated in **Figure 4** to **Figure 9**. It is considered that designated areas beyond 15km are outside the ZOI of the proposed development, taking account of the scale of the replanting and overland hydrological connectivity. Therefore, adopting this approach, anything beyond a 15km radius has not been included in this report as it lies beyond the zone of impact. The proposed replacement lands are located within watersheds which can be defined by large areas known as 'Hydrometric Areas', intermediate drainage areas known as catchments and smaller units known as 'sub-basins'. Designated areas in Hydrometric Areas other than those containing the proposed replant lands are outside the ZOI and have not been considered further beyond this section of this report. The proposed replant sites at Shessiv and Furroor are ca. 11km apart and have been combined in this section to avoid duplication. **Table 2** lists the designated sites within 15km of the proposed replant lands at Shessiv and Furroor. **Table 3** and

Table 4 list the designated sites within 15km of the proposed replant lands at Pollacurragune and Rathgoggan respectively.

Table 2 Designated sites within 15km of the proposed replant lands at Shessiv and Furroor.

Designated Site	Site Code	Proximity of replant site to nearest point of designated site
Cloonsnaghta Lough pNHA	001004	1.5km N (Shessiv)
Gortglass Lough pNHA	001015	1.5km N (Shessiv)
Lough Naminna Bog NHA	002367	2.1km NE (Furroor)
Lower River Shannon SAC	002165	2.8km E (Shessiv)
Lough Acrow Bogs NHA	002421	3.3km N (Furroor)
River Shannon and River Fergus Estuaries SPA	004077	5.5km NW (Shessiv)
Fergus Estuary and Inner Shannon, North Shore pNHA	002048	5.6km NW (Shessiv)
Cragnashingaun Bogs NHA	002400	5.9km NE (Furroor)
Derrygeeha Lough pNHA	000050	6.1km NE (Shessiv)
Slievecallan Mountain Bog NHA	002397	6km SE (Furroor)
Paradise House (Ballynacally) pNHA	000062	7.1km W (Shessiv)
Clonderalaw Bay pNHA	000027	7.7km NE (Shessiv)
Sturamus Island pNHA	001436	8.6km NW (Shessiv)
Cahiracon Wood pNHA	001000	8.6km NW (Shessiv)
Knockanira House SAC	002318	8.9km NW (Furroor)
Fort Fergus (Ballynacally) pNHA	000035	9.3km W (Shessiv)
Inner Shannon Estuary - South Shore pNHA	000435	9.6km N (Shessiv)
Pouladatig Cave SAC / pNHA	000037	9.6km W (Furroor)

Designated Site	Site Code	Proximity of replant site to nearest point of designated site
Cahircalla Wood pNHA	001001	10.6km W (Furroor)
Newhall and Edenvale Complex SAC / pNHA	002091	10.8km W (Shessiv)
Lough Cleggan pNHA	001331	12.3km SW (Furroor)
Toonagh Estate SAC	002247	12.4km SW (Furroor)
Ballyallia Lake SAC / pNHA	000014	12.6km W (Furroor)
Ballyallia Lough SPA	004041	12.6km W (Furroor)
Ballycullinan Lake SAC / pNHA	000016	13.1km SW (Furroor)
Barrigone SAC / pNHA	000432	13.4km N (Shessiv)
Ballycullinan, Old Domestic Building SAC	002246	14.3km SW (Furroor)
East Burren Complex pNHA	001926	14.6km S (Furroor)
Corofin Wetlands SPA	004220	14.7km S (Furroor)
East Burren Complex SAC	001926	14.7km SW (Furroor)

Table 3 Designated sites within 15km of the proposed replant lands at Pollacurragune.

Designated Site	Site Code	Proximity of replant site to nearest point of designated site
Lough Corrib SAC	000297	Bordering the south/west boundary of SAC
Killower Turlough pNHA	000282	4.5km NE
Belclare Turlough pNHA	000234	5.6km NE
Altore Lake pNHA	000224	5.7km SE
Rathbaun Turlough pNHA	000215	6.6km SE
Turlough O'Gall pNHA	000331	7.1km NE
Knockavanny Turlough pNHA	000289	7.1km NW
Knockmaa Hill pNHA	001288	8.3km NE
Castle Hackett Souterrain pNHA	002038	10km NE
Drumbulcaun Bog pNHA	000263	10.1km W
Lough Hacket pNHA	001294	11.1km NE
Turlough Monaghan pNHA	001322	11.8km NE
Greaghans Turlough SAC / pNHA	000503	12.3km SE
Shrule Turlough SAC / pNHA	000525	12.7km E
Levally Lough SAC / pNHA	000295	12.4km W
Kilglassan/Caheravoostia Turlough Complex SAC / pNHA	000504	13.3km SE
Ardkill Turlough SAC	000461	13.7km SE
Turloughcor pNHA	001788	15km NE

Table 4 Designated sites within 15km of the proposed replant lands at Rathgoggan.

Designated Site	Site Code	Proximity of replant site to nearest point of designated site
Blackwater River (Cork/Waterford) SAC	002170	5.5km S
Ballyhoura Mountains SAC and pNHA	002036	8.5km SE
Kilcolman Bog SPA and pNHA	004095	13.5km SE
Heathfield Wood pNHA	001434	14.5km W
Mountrussell Wood pNHA	002088	7km SE
Ballyroe Hill & Mortlestown Hill pNHA	002089	12km E
Castleoliver Woods pNHA	002090	12km SE

Designated Site	Site Code	Proximity of replant site to nearest point of designated site
Ballintlea Wood pNHA	002086	13km SE
Kilcolman Bog pNHA	000092	14km SSE
Eagle Lough pNHA	001049	14km S

2.1.1 Sites of International Importance

Candidate Special Areas of Conservation (cSACs) and Special Protection Areas (SPAs) are protected under the European Union (EU) 'Habitats Directive' (92/43/EEC). Sites of international importance are discussed under the four locations. It is noted that SPAs and SACs have been assessed in a standalone NIS and have been summarized below.

2.1.1.1 Shessiv

The Lower River Shannon SAC (002165) is located 3km west of the proposed replant lands at Shessiv.

The River Shannon and River Fergus Estuaries SPA is the only other Natura 2000 site hydrologically connected to the proposed Shessiv replant lands. This site is located 5km to the south east and even further through the only surface water linkage i.e. the Cloon River (>12km). Due to geographical separation and the intervening distance along the Cloon River pathway, the screening for appropriate assessment concluded that that the proposed forestry activities did not have the potential to significantly effect the SCI's of the River Shannon and River Fergus Estuaries SPA. This conclusion was arrived at it without regard to implementation Forest Service Guidelines.

Lower River Shannon SAC

The Lower River Shannon SAC is hydrologically connected to the proposed replanting lands as drainage from the site is to a reach of the Cloon River (EPA code 37C02) within the SAC. This reach of the river is located ca. 3km west of the proposed replanting lands. According to the site synopsis for the Lower River Shannon SAC, freshwater pearl mussel (*Margaritifera margaritifera*), a species listed on Annex II of the E.U. Habitats Directive, occurs abundantly in parts of the Cloon River. The freshwater pearl mussel (FPM) population in the Cloon River catchment is one of 27 listed in the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations (S.I. 296 of 2009). These regulations introduced ecological objectives for the 27 populations listed as qualifying interests of SACs. They apply to the habitats of the freshwater pearl mussel populations that are within the boundaries of a site notified in a candidate list of European sites, or designated as a Special Area of Conservation, under the European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94/1997). Draft sub-basin plans have been prepared. The FPM sub-basin plans identify critical local pressures and impacts on the freshwater pearl mussel and provide possible measures for restoration to favourable conservation status. The Cloon is one of these 27 populations which are currently at unfavourable conservation status.

2.1.1.2 Furroor

With regard to the location of the proposed Furroor replant lands, European sites are in separate hydrological regions, or too distant and/or have features of interest that will not be indirectly affected by the proposed planting at replacement lands. For example, the closest European site to

the proposed replanting lands at Furroor is Knockanira House SAC (002318), located ca. 8.9km to the south east. The feature of interest here is lesser horseshoe bat *Rhinolophus hipposideros*. The proposed replant lands at Furroor are hydrologically connected to the River Fergus and Shannon Estuary by surface water drainage. The Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA are located in excess of 20km downstream of the proposed replant lands. Taking account of the area of the proposed replant lands, and geographical separation between source and Fergus Estuary (Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA), forestry activities at the proposed replant lands do not have the potential to significantly effect the conservation/qualifying interests of these sites.

2.1.1.3 Pollacurragune

The Lough Corrib SAC (000297) lies directly adjacent to the eastern boundary of the proposed replant lands at Pollacurragune. With regard to the location of the proposed Pollacurragune replant lands, other European sites are in separate hydrological regions, or too distant and/or have features of interest that would not be indirectly affected by the proposed planting at replacement lands. For example, apart from the Lough Corrib SAC, the closest European site to the proposed replanting lands at Pollacurragune is Greaghans Turlough SAC, located ca. 12.3km to the north west. The only European site within the ZOI of the proposed replant lands is the Lough Corrib SAC.

Lough Corrib SAC

A number of rivers including the River Clare are included within the cSAC as they are important for Atlantic salmon *Salmo salar*. Salmon, listed on Annex II of the E.U. Habitats Directive, uses the River Clare as a spawning ground. White-clawed Crayfish (*Austropotamobius pallipes*), also listed on Annex II, is well distributed throughout Lough Corrib and its in-flowing rivers over limestone[5].

Otter and Irish Hare have been recorded regularly within this site. Both of these species are listed in the Red Data Book and are legally protected by the Wildlife Act, 1976, as amended. Otter is also listed on Annex II of the E.U. Habitats Directive. Brook lamprey (*Lampetra planeri*), also listed on Annex II, are also known from a number of areas within the site, including the River Clare. A population of FPM occurs in the Owenriff River within the SAC site. This species is not of concern in the River Clare catchment, with no records and unsuitable water chemistry.

A number of the rivers in the site support submerged and floating vegetation of the *Ranunculion fluitantis* and *Callitricho-Batrachion*, including mosses. For example, in the River Corrib species such as shining pondweed (*Potamogeton lucens*), perfoliate pondweed (*Potamogeton perfoliatus*), small pondweed (*P. berchtoldii*), yellow waterlily (*Nuphar lutea*), white water-lily (*Nymphaea alba*) and stoneworts (*Chara* spp.) occur. The forestry activities at Pollacurragune do not have the potential to significantly effect this 2000 site.

2.1.1.4 Rathgoggan

The closest European site to the proposed replanting lands at Rathgoggan is the Blackwater River (Cork/Waterford) SAC, located ca. 5.5 km to the south. This site is located in a different Hydrometric

[5] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000297.pdf

area (HA 18) to that containing the replant lands (HA 24). There are no European sites within the ZOI of these proposed replant lands. Forestry activities have no potential to significantly effect any Natura 2000 site.

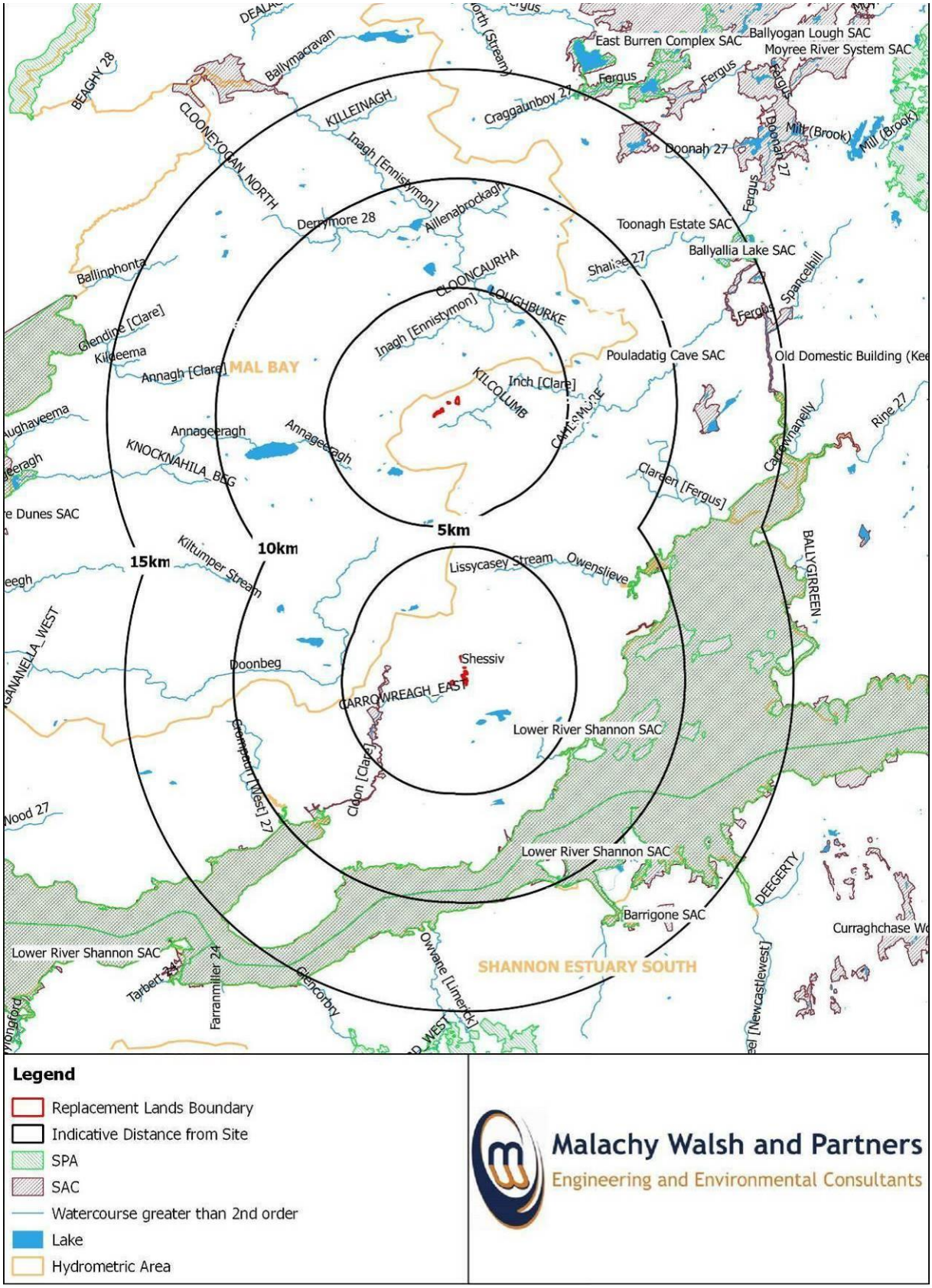

Figure 4 Natura 2000 sites within 15km of the proposed replanting lands at Furroor and Shessiv.

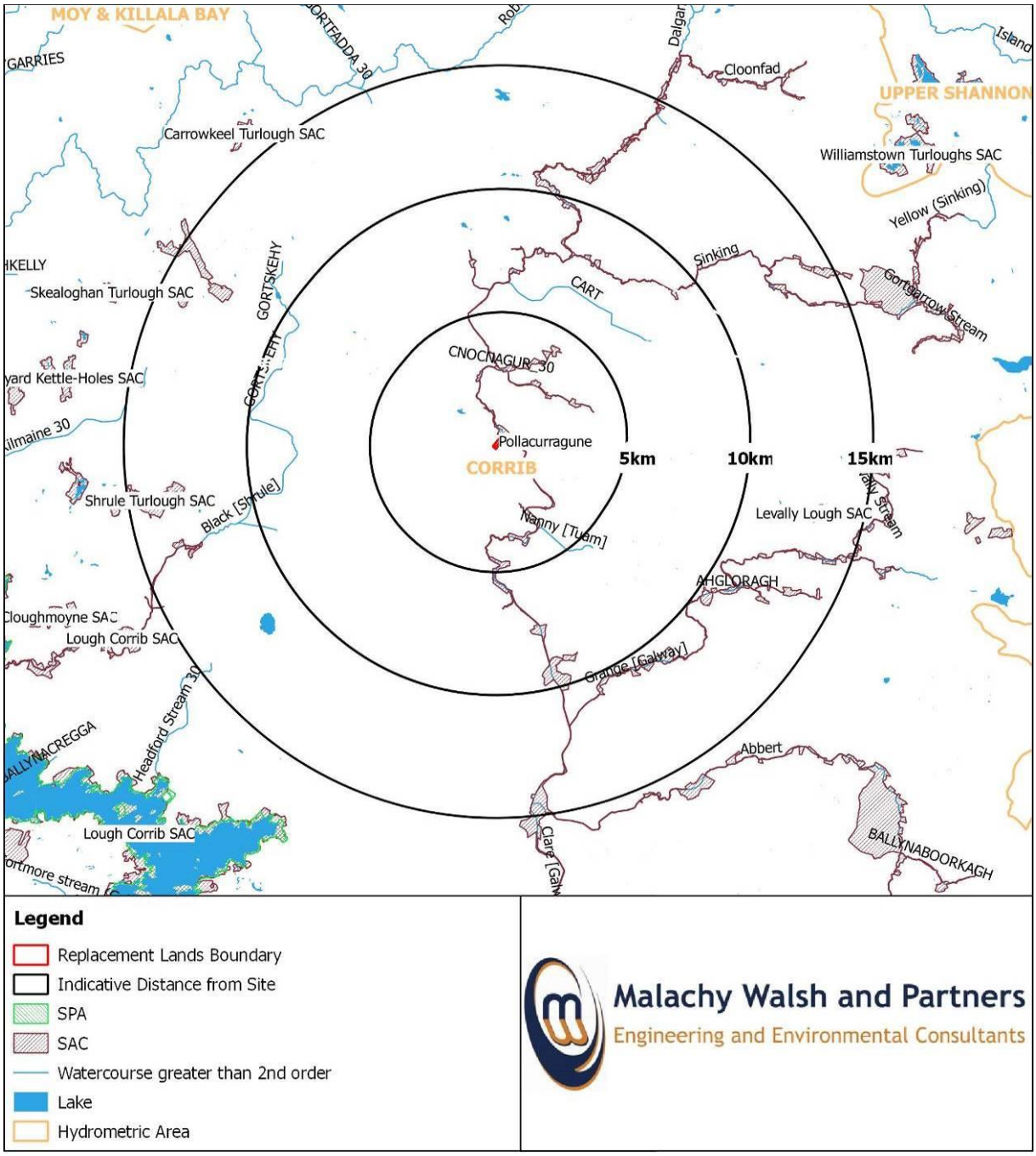

Figure 5 Natura 2000 sites within a 15km radius of replacement lands at Pollacurragune.

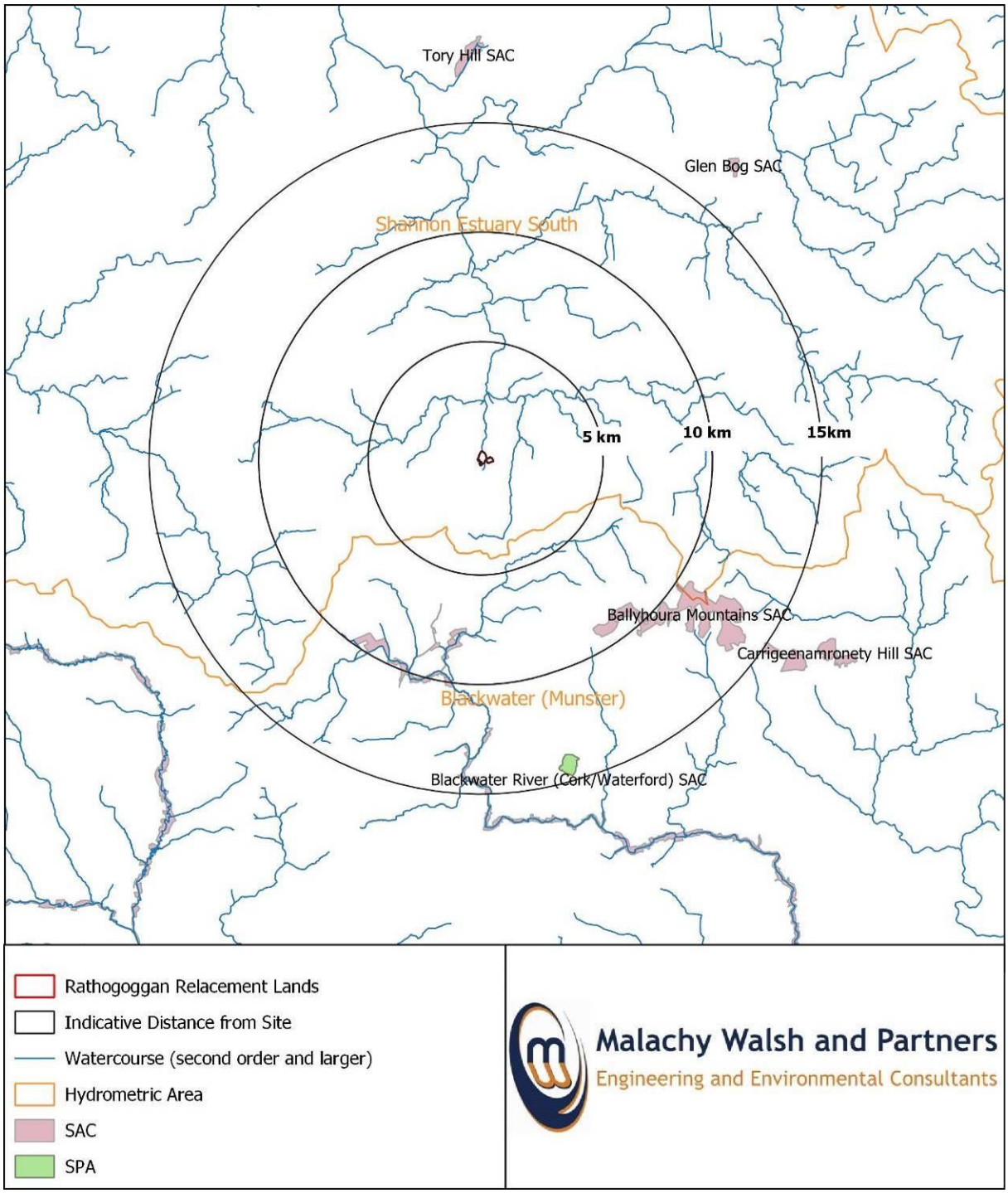

Figure 6 Natura 2000 sites within a 15km radius of replacement lands at Rathgoggan.

2.1.2 Sites of National Importance

2.1.2.1 Shessiv

The replant lands site does not occur within any site of National importance so there will be no direct effects. Cloonsnaghta Lough pNHA and Gortglass Lough pNHA are located ca. 1.5km south of the proposed replant lands at Shessiv. Arctic char (*Salvelinus alpinus)*, a species listed in the Irish Red Data Book are found at these sites. The proposed replant lands at Shessiv are located in sub-basin Cloon (CLARE)_020 but the aforementioned designated areas are in a sub-basin to the south (Killadysert Stream_010). There is no hydrological connection between the proposed replant lands at Shessiv and Cloonsnaghta and Gortglass Loughs pNHAs. The Fergus Estuary and Inner Shannon, North Shore pNHA (002048) is located ca. 5.6km south east of Shessiv. This designated site is overlapped by the Lower River Shannon SAC and has no potential to be significantly effected due to geographical separation and the intervening distance along the Cloon River pathway Taking account of the area of the proposed replant lands, and geographical separation, other sites of National importance are not considered to have the potential to be significantly effected by the proposed replant lands at Shessiv given the geographical separation and the intervening distance along surface water pathways.

2.1.2.2 Furroor

The replant lands site does not occur within any site of National importance so there will be no direct effects. The closest sites of National importance to the proposed replant lands at Furroor are Lough Naminna (002421) and Lough Acrow (002421) Bogs NHAs, located 2.1km southwest and 2.8km south of the proposed replant lands at Furroor, respectively. A small portion of Lough Naminna Bog NHA is drained by the headwaters of the Inch River, while the proposed replant lands at Furroor are drained by the Slaghbooly Stream, a tributary of the Inch River which feeds the Inch River 3.7km downstream of Lough Naminna Bog NHA. The proposed replant lands at Furroor are within sub-basin Inch (CLARE)_010 while Lough Acrow Bog NHA is located in drainage area to the south (sub-basins Doonbeg_010 And Doonbeg_020). These sites are therefore not within the ZOI of the proposed replant lands at Furroor so there will be no indirect effects. Taking account of the area of the proposed replant lands, and geographical separation, other site of National importance will be significantly affected by the proposed replant lands at Furroor.

2.1.2.3 Pollacurragune

The replant lands site does not occur within any site of National importance so there will be no direct effects. The closest sites of National importance within 15km of the proposed replant lands at Pollacurragune are Killower (000282) and Belclare (000234) Turlough NHAs, located 4.5km southwest and 5.6km southwest of the proposed replant lands at Pollacurragune, respectively. These are part of the River Clare group of turloughs, situated in an area of carboniferous limestone, with large amounts of marl underlying thin soils. The main habitats are the turloughs, as well as lowland grassland, wet, dry and improved, heath and reedswamp at Killower Turlough. The main interest of Killower Turlough is ornithological and is of local or regional importance for 14 species of waterfowl, including whooper swan and Greenland white-fronted goose, both listed in Annex I of the Habitats Directive. These NHAs are located in sub-basin Boadaun_010, with a small portion of Killower Turlough in sub-basin Black (Shrule)_010, while the proposed replant lands at

Pollacurragune are located in sub-basins Clare (Galway)_030 and Clare (Galway)_040. These NHAs are in a different river catchment (Shrule) to the proposed replant lands at Pollacurragune so there are no surface water interactions between these two areas. The proposed works at replant lands at Pollacurragune will not alter groundwater bodies to any degree that will affect the water table. Based on these facts, Killower and Belclare Turlough NHAs will not be significantly affected by the proposed forestry at Pollacurragune. Likewise, other designated sites of National importance (mostly turloughs) will not be significantly affected by the proposed replant lands at Pollacurragune taking account of their geographical separation from same.

2.1.2.4 Rathgoggan

There are no NHAs within 15km of the proposed replant lands so there will be no direct effects. The closest site of national importance to the proposed replant lands at Rathgoggan is the Ballyhoura Mountains proposed National Heritage Area (pNHA), located ca. 8.5km east. This designated area is in the Blackwater catchment, while the proposed replant lands are in the Maigue catchment. Therefore, there is no hydrological connection and no likely significant effects. Taking account of the area of the proposed replant lands and geographical separation, other proposed sites of National importance will not be significantly affected by proposed forestry at Rathgoggan.

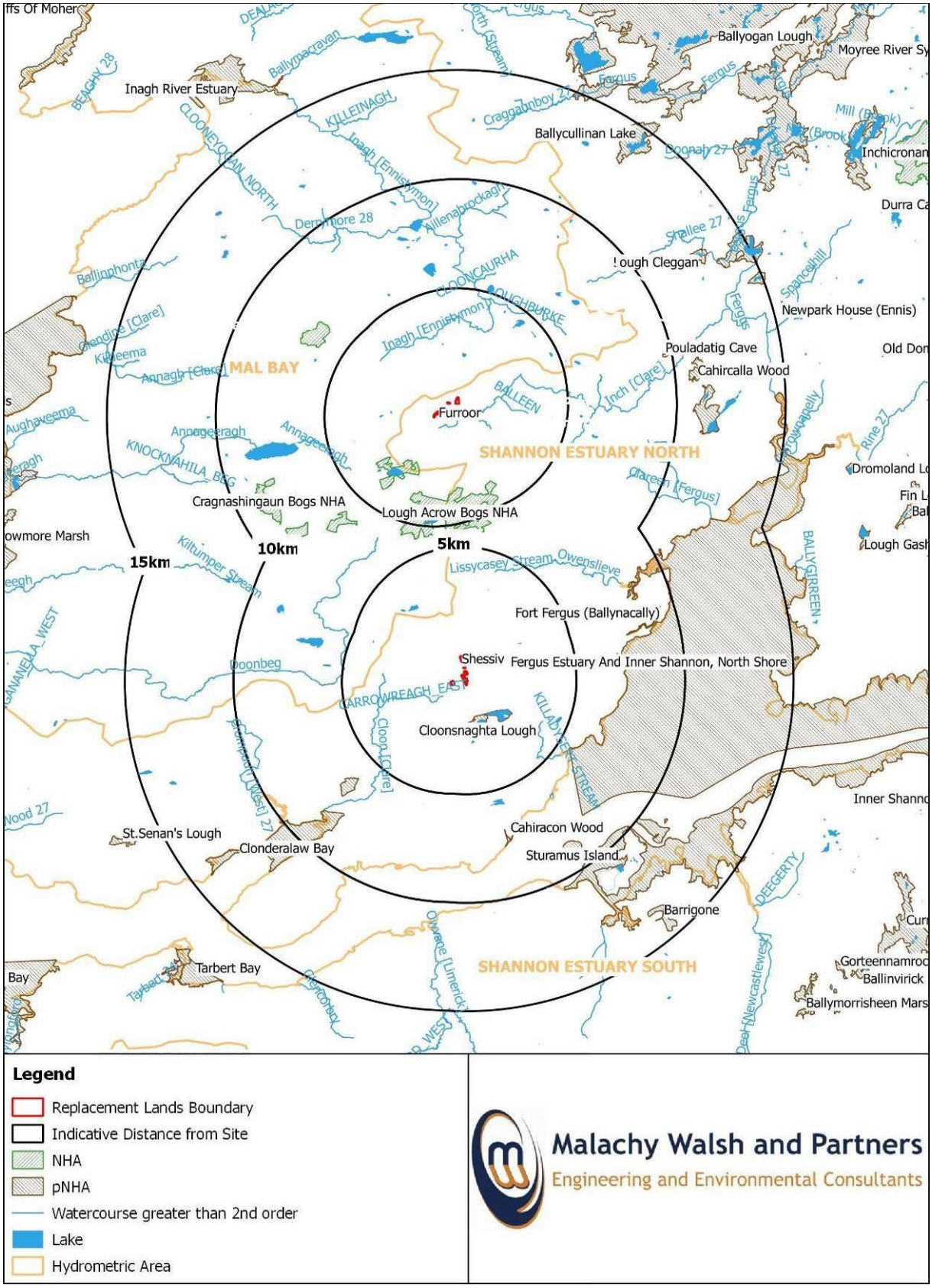

Figure 7 Natural Heritage Areas (NHAs) and pNHAs within 15km of the proposed replant lands at Shessiv and Furroor.

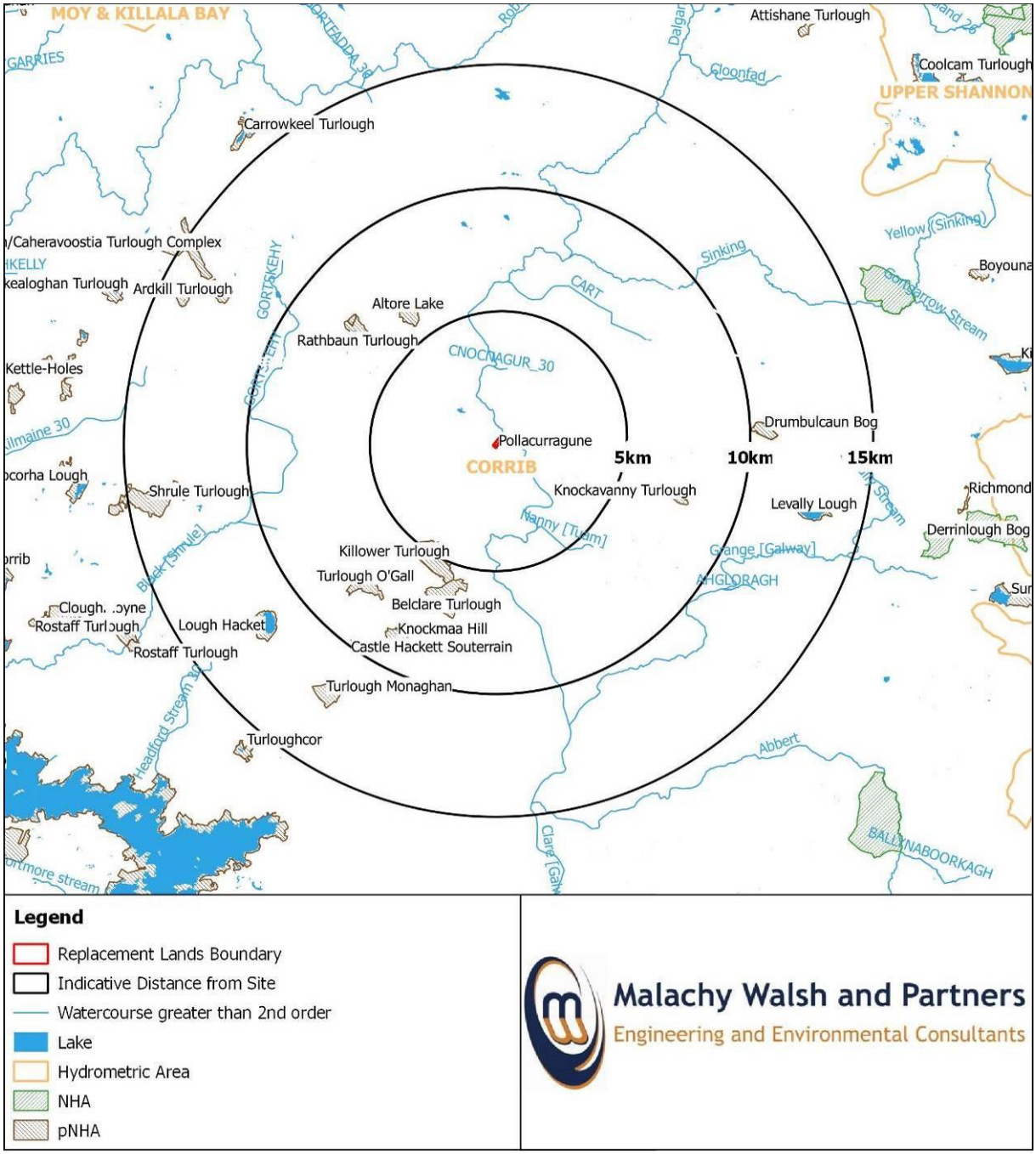

Figure 8 Natural Heritage Areas (NHAs) and pNHAs within 15km of the proposed replant lands at Pollacurragune.

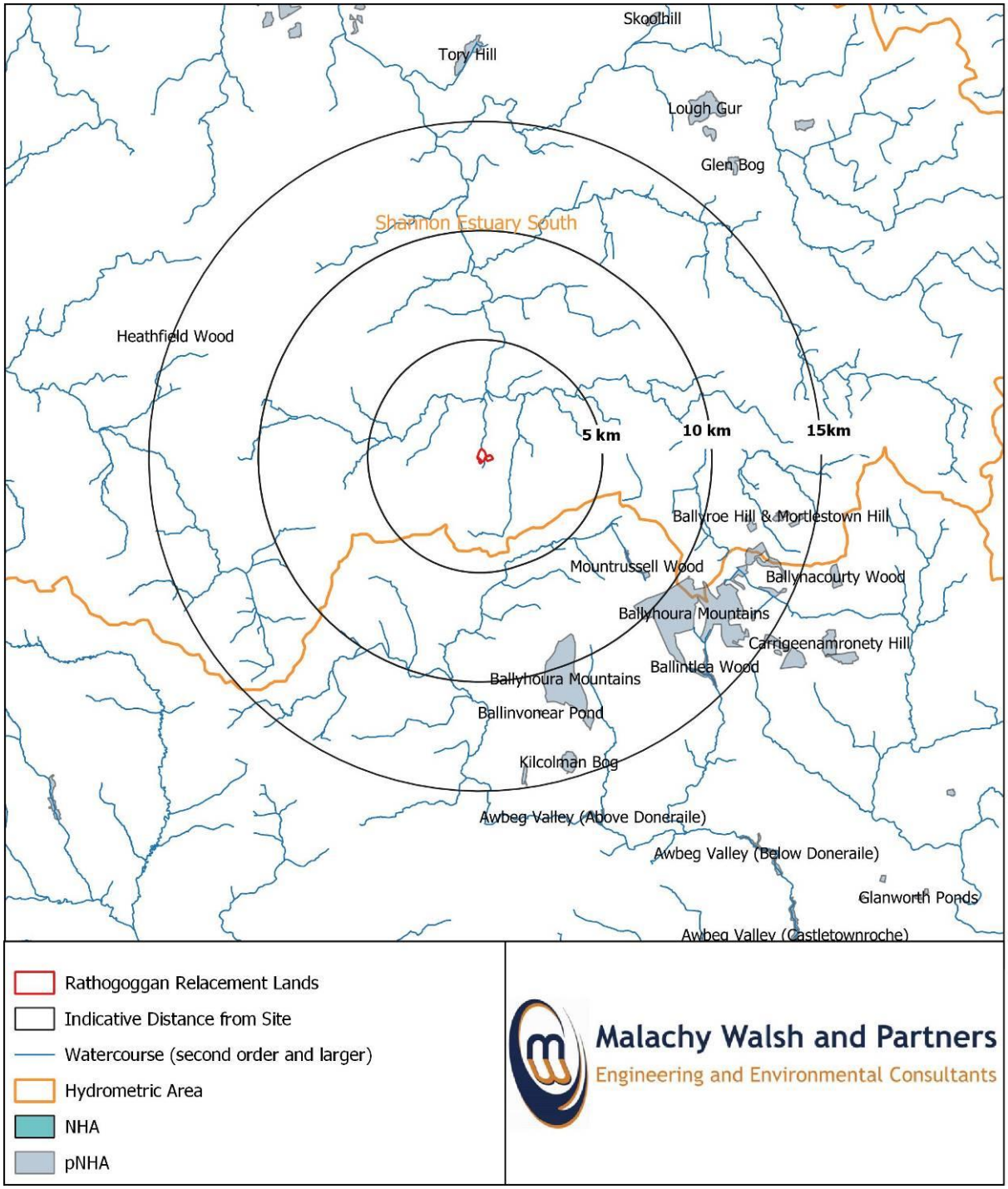

Figure 9 Natural Heritage Areas (NHAs) and pNHAs within 15km of the proposed replant lands at Rathgoggan.

2.1.3 Additional Sites

The Convention on Wetlands of International Importance especially as Waterfowl Habitat, more commonly known as the Ramsar Convention, was ratified by Ireland in 1984 and came into force for Ireland on 15 March 1985. Ireland presently has 45 sites designated as Wetlands of International Importance, with a surface area of 66,994 hectares. There are no Ramsar sites within 15km of the proposed replanting sites.

2.2 HABITATS AND FLORA

The study areas lie within Ordnance Survey National Grid 10km Squares as follows:

- Shessiv: R26
- Furroor: R17 and R27
- Pollacurragune: M35 and M45 and
- Rathgoggan: R52

2.2.1 Rare or Protected Flora

The 10km grid squares covering the proposed replant lands were searched for records of rare plant species (see **Table 5**). The only NBDC records of rare/protected plant species in the 10km grid squares covering the proposed replant lands are large white-moss (*Leucobryum glaucum*) and meadow barley (*Hordeum secalinum*). These plants have specific habitat requirements. Meadow barley has been recorded in hectad R26 south of Shessiv, a record likely from along the embankments of the Shannon Estuary. The habitats at the replant lands are not suitable for these plants and therefore will not occur at these locations.

Table 5 NBDC Rare/protected plant species in the 10km grid squares R26 (Shessiv, S), R17 & R27 (Furroor, F), M35 & M45 (Pollacurragune, P) and Rathgoggan (R).

Species name	Conservation Status	Habitat	Grid square					
			R26 (S)	R17 (F)	R27 (F)	M35 (P)	M45 (P)	R52 (R)
Large white-moss (*Leucobryum glaucum*)	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Threatened Species: Least concern	Broadleaf forest biome: forest which contains densely packed populations or communities of broadleaf trees, strongly limiting light penetration to the forest floor.		✓		✓		
Meadow barley (Hordeum secalinum)	Threatened Species: Endangered	Herb of lowland meadows, pastures and roadsides, often in river valley floodplains and showing a strong preference for sticky clay soils. In coastal areas it is frequently abundant in grazing marsh grasslands and on earthen sea walls.	✓					

2.2.2 Invasive species

The 10km grid squares covering the replant lands were searched for records of Invasive Alien Species (IAS). There are several NBDC records of rare/protected plant species in the 10km grid squares covering the proposed replant lands. Species listed as invasive in Ireland come from the Invasive Species in Ireland prioritization risk assessment last undertaken in 2013. From this, 48 non-native

species were ranked as at risk of having a High Impact and 78 species at risk of having a Medium Impact. Invasive Alien plants recorded in the hectads covering the proposed replant lands are listed in **Table 6**.

Japanese Knotweed *Fallopia japonica* was recorded at the proposed Shessiv replant site. A large stand of Japanese Knotweed has established along the northern boundary of the field in the townland of Shessiv (520165, 661395). This plant occurs within the hedgerow in the vicinity of an old building in the northern corner of the field. The root system of this stand has extended into the adjacent grassland, as evidenced by new growth emerging from the ground away from the hedgerow. Recent hedgerow clearance/maintenance may have increased the likelihood of this plant spreading within the field.

Rhododendron *Rhododendron ponticum* was found at the central and western parcels of land at the proposed Furroor replant site. A total of six shrubs, mostly mature were recorded along the southern boundary of a field at Reanagishagh (central parcel). These were located between 520123, 674125 and 5200206, 467124. Only a single shrub was recorded in the western parcel of land at Furroor (519511, 673665). This plant was semi-mature and was growing on an earth bank.

Japanese knotweed and rhododendron are subject to restrictions under Regulation 49 of the European Communities (Birds and Natural Habitats) Regulations, 2011. They are listed as Invasive Alien Plant Species in Part 1 of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended). Failure to comply with the legal requirements set down can result in either civil or criminal prosecution, and/or financial penalties. The relevant sections of the regulations are reproduced below.

49(2) *Save in accordance with a licence granted [by the Department of Arts, Heritage and the Gaeltacht], any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place [a restricted non-native plant], shall be guilty of an offence.*

49(3) *… it shall be a defence to a charge of committing an offence under paragraph (1) or (2) to prove that the accused took all reasonable steps and exercised all due diligence to avoid committing the offence.*

50(1) *Save in accordance with a licence, a person shall be guilty of an offence if he or she […] offers or exposes for sale, transportation, distribution, introduction or release—*

a. *[any restricted non-native animal or plant species],*
b. *anything from which an animal or plant referred to in subparagraph (a) can be reproduced or propagated, or*
c. *A vector material listed in the Third Schedule, [which includes] soil or spoil taken from places infested with Japanese Knotweed….and its hybrids…*

It is an offence under regulations 49(2) and 50(1) to spread, or cause to spread Japanese Knotweed and Rhododendron. An offence may be avoided only if the relevant party can prove that they took all reasonable steps to avoid causing an offence under the legislation. Therefore, in compliance with these regulations, mitigation will be required to ensure strict compliance with the legislation (refer to **Section 4.5**).

Table 6 Invasive Alien Species (plants) recorded in the 10km grid squares R26 (Shessiv, S), R17, R17 & R27 (Furroor, F) and M35 & M45 (Pollacurragune, P).

Species name	Impact category/regulation	10km grid square					
		R26 (S)	R17 (F)	R27 (F)	M35 (P)	M45 (P)	R52 (R)
Black Currant (*Ribes nigrum*)	Medium		✓				
Broad-leaved Rush (*Juncus planifolius*)	Regulation S.I. 477				✓		
Cherry Laurel (*Prunus laurocerasus*)	High Impact		✓		✓		
Giant Hogweed (*Heracleum mantegazzianum)*	High, Regulation S.I. 477					✓	✓
Himalayan Knotweed (*Persicaria wallichii*)	Medium, Regulation S.I. 477		✓	✓			
Japanese Knotweed (*Fallopia japonica*)	High, Regulation S.I. 477	✓	✓	✓	✓		✓
Rhododendron ponticum	High, Regulation S.I. 477		✓				
Spanish Bluebell (*Hyacinthoides hispanica)*	Regulation S.I. 477	✓					
Sycamore (*Acer pseudoplatanus*)	Medium	✓	✓	✓	✓	✓	✓
Three-cornered Garlic (*Allium triquetrum*)	Medium, Regulation S.I. 477					✓	
Canadian Waterweed (*Elodea canadensis*)	High, Regulation S.I. 477						✓

The only IAS recorded during the surveys were Japanese knotweed and rhododendron. It is possible that the extent of Japanese knotweed is greater than that recorded, taking account of the season at the time of the survey. Other IAS could be present but were not detected for the same reason.

Japanese knotweed and rhododendron are identified as **Key Ecological Receptors** (KERS).

2.2.3 Habitats

Habitat maps for the areas within proposed replant sites at Shessiv, Furroor and Pollacurragune are provided in **Figure 10** to **Figure 13**. Photographs of representative habitats at the proposed replant sites are presented in **Plate 1** to **Plate 8**. Habitats present at each site and their evaluation are listed in **Table 7.** It is noted that the proposed replant lands are, by (EPA, 2017) definition, potential pollution source sites for watercourses (receptors) down-gradient, where overland flow, drainage and headwater streams act as pathways. Though there are no streams within the proposed replant lands, watercourses receiving drainage from the proposed replant sites are considered ecological receptors, especially given the sensitivities of some aquatic fauna.

Table 7 Habitats present and evaluation at proposed replant land sites at Shessiv, Furroor and Pollacurragune.

Habitat and code	Replant Lands				Evaluation
	Shessiv	Furroor	Pollacurragune	Rathgoggan	
Improved Agricultural Grassland (GA1)	✓	✓	✓	✓	Local importance (lower value)
Dry Meadows and Grassy Verges (GS2)			✓		Local importance (higher value)
Dry-humid Acid Grassland (GS3)	✓				Local importance (higher value)
Wet Grassland (GS4)	✓	✓			Local importance (lower value - higher value)
Hedgerow (WL1)	✓	✓	✓	✓	Local importance (lower value - higher value)
Treeline (WL2)	✓	✓			Local importance (lower value - higher value)
Scrub (WS1)	✓	✓	✓		Local importance (higher value)
Earth Bank (BL2)	✓	✓	✓		Local importance (higher value)
Spoil and bare ground (ED2)	✓	✓			Local importance (lower value)
Recolonising Bare Ground (ED3)	✓				Local importance (lower value)
Exposed Siliceous Rock (ER1)	✓				Local importance (higher value)
Buildings and Artificial Surfaces (BL3)	✓				Local importance (lower value - higher value)
Other Artificial Lakes and Ponds (FL8)	✓				Local importance (lower value)
Drainage Ditch (FW4)	✓	✓	✓	✓	Local importance (lower value - higher value)
Eroding/Upland River (FW1)	✓	✓			Local importance (higher value) – Internationally important
Depositing/Lowland River (FW2)			✓		Internationally important

2.2.3.1 Shessiv

The habitats at Shessiv are influenced by the dominant bedrock of shale, sandstone, siltstone & coal. The overburden in this area comprises 'shale and sandstone till' and peat with some areas of exposed bedrock[6]. Where soils other than peat have developed, they consist of 'fine loamy drift with siliceous stones'.

The habitat at the proposed replant site comprises mostly a variety of semi-natural and improved grassland. The field at Shessiv/Burrenfadda and some areas of lands at Craghera are categorised as wet grassland (GS4). The fields at the centre of the site are typically improved agricultural grassland. Part of the field at Shessiv (south western most extent of overall site) comprises improved

[6] https://gis.epa.ie/EPAMaps/

agricultural grassland, but this field largely comprises a mosaic of recolonising bare ground (ED3) and wet grassland, a result of recent land improvement efforts. A deep drainage ditch has been recently excavated/maintained though the centre of this field. This feature leads to the headwaters of the Craghera Stream.

Dry-humid Acid Grassland (GS3) occurs as semi-improved grassland on free-draining soils at Craghera (central part of overall site). This area has been recently maintained, with much habitat disturbance and a portion of habitat classified as Recolonising Bare Ground. This part of the site features some Exposed Siliceous Rock (ER1), which has probably increased in coverage due to erosion of thin soils with recent vegetation removal. This area also contains two old stone buildings, corresponding to Buildings and Artificial Surfaces (BL3), and an old disused well, corresponding to 'Other Artificial Lakes and Ponds (FL8). It is noted that the building near the centre of the site also has features associated with 'Stone walls and other stonework (BL1)'. A drainage ditch at the southern boundary leads to the source of the Carrowreagh Stream.

The fields that are the primary subject of the proposed replant lands are bordered mostly by hedgerow (WL1) habitat, typically of Whitethorn *Crataegus monogyna* and willow *Salix* sp.

The watercourses draining the site, as mapped by OSI/EPA are classified as eroding/upland rivers (FW1). The lands at Shessiv are largely located in the Cloon (Clare)_020 sub-basin, with the most northerly component in the Cloon (Clare)_010 sub-basin, both in Hydrometric Area 27 (Shannon Estuary North). The Cloon catchment has an area of approximately 59km^2. The catchment is situated just inland of the River Shannon Estuary itself. The main river within the catchment is the Cloon river which enters the north-east corner of Clonderalaw Bay ca. 4km north-west of Labasheeda, Co. Clare. The Cloon is a fast-flowing river and is acid in nature (NS2, 2010).

From north to south, the proposed replanting lands are drained by the Leamnaleaha (27L15), Burrenfadda (27B37), Craghera (27C53) and Carrowreagh East (27C49) Streams. These streams are 1st order watercourses which fall to the west. The Burrenfadda Stream rises to the west of the proposed replanting lands at Shessiv north and flows for 3.2km to meet the 2nd order Cloon River. The upper limit of the designated reach of the Cloon River within the Lower River Shannon SAC is ca. 1km downstream of the Burrenfadda – Cloon confluence.

A portion of the proposed replanting lands at Shessiv south are located less than 100m from the Craghera Stream, while the southern extent of proposed replanting lands at Craghera south are less than 50m from the source of the Carrowreagh East Stream. The Craghera and Carrowreagh East Streams are each fed by a 1st order stream before meeting less than 1.5km from source. The Carrowreagh East then flows a further 3.4km west before discharging to the 3rd order Cloon River.

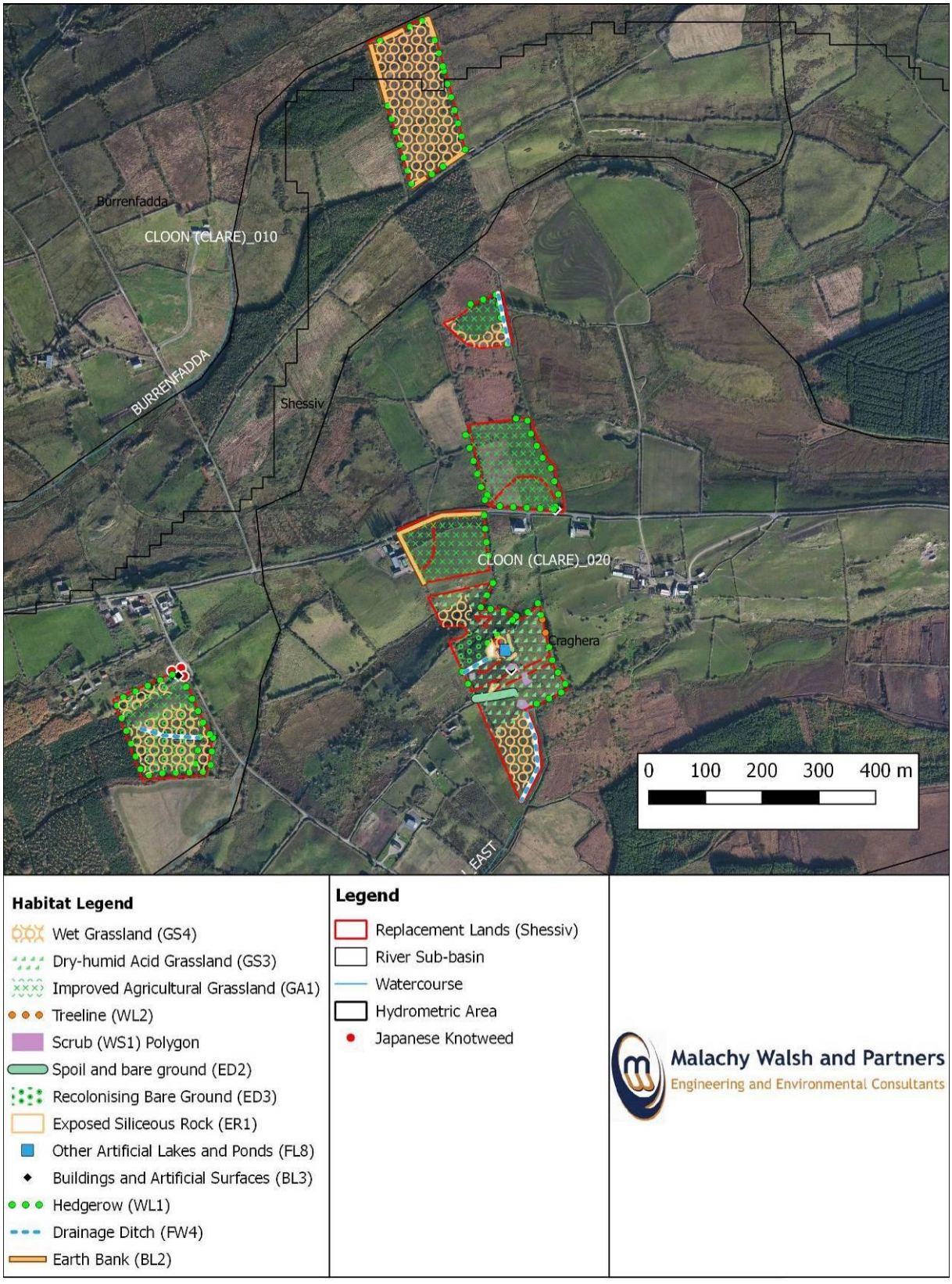

Figure 10 Habitat map for the proposed replant site at Shessiv.

Plate 1 Exposed Siliceous Rock bordering Dry-humid Acid Grassland at Craghera (left). Disused well corresponding to 'Other Artificial Lakes and Ponds (right).

Plate 2 Recolonising Bare Ground near the centre of the site (left). Drainage ditch (right) at the southern parcel of land leading to the Craghera Stream.

Plate 3 Improved agricultural grassland (foreground) and Buildings & Artificial Surfaces (background). Japanese Knotweed at Shessiv/Craghera.

2.2.3.2 Furoor

The habitats at Furroor are influenced by the dominant bedrock of shale, sandstone, siltstone & coal. The overburden in this area comprises 'shale and sandstone till' and peat with some areas of exposed bedrock[7]. Where soils other than peat have developed, they consist of 'fine loamy drift with siliceous stones'. Drainage is naturally poor.

The main habitat at the proposed development site is grassland. This habitat occurs in fields, where a combination of shallow soils and poor drainage has brought about poor-quality sward. The field at Kiloumb is categorised as improved agricultural grassland (GA1), though some areas are reverting to wet grassland (GS4). This habitat is generally degraded by livestock poaching. It is species poor and of low ecological diversity. Where management has apparently ceased as in the case of the field at Reanagisagh, wet grassland habitat occurs. The sward of wet grassland supports a floral array of plants and rated 'local importance (higher value)'. The wet grassland habitat at Reanagisagh was found to include Devil's bit scabious *Succisa pratensis*. The importance of this plant is that it is the food plant of the Marsh fritillary butterfly *Euphydryas aurinia*.

The fields that are the primary subject of the proposed replant lands bordered mostly by earth banks (BL2), some of which support hedgerow (WL1) habitat and treeline (of conifer) habitat. Drainage density is apparently low and recently excavated drains are confined to some field boundaries. The site is drained primarily by the Slaghbooly Stream (27S19). A 1st order reach of this channel flows adjacent to the eastern plot of land. A 2nd order reach of this stream flows less than 100m south of the remainder of the lands. The Slaghbooly Stream flows into the 3rd order Inch River (27I01) ca. 600m downslope of the nearest component of the site. The watercourses draining the site, as mapped by OSI/EPA are classified as eroding/upland rivers (FW1).

[7] https://gis.epa.ie/EPAMaps/

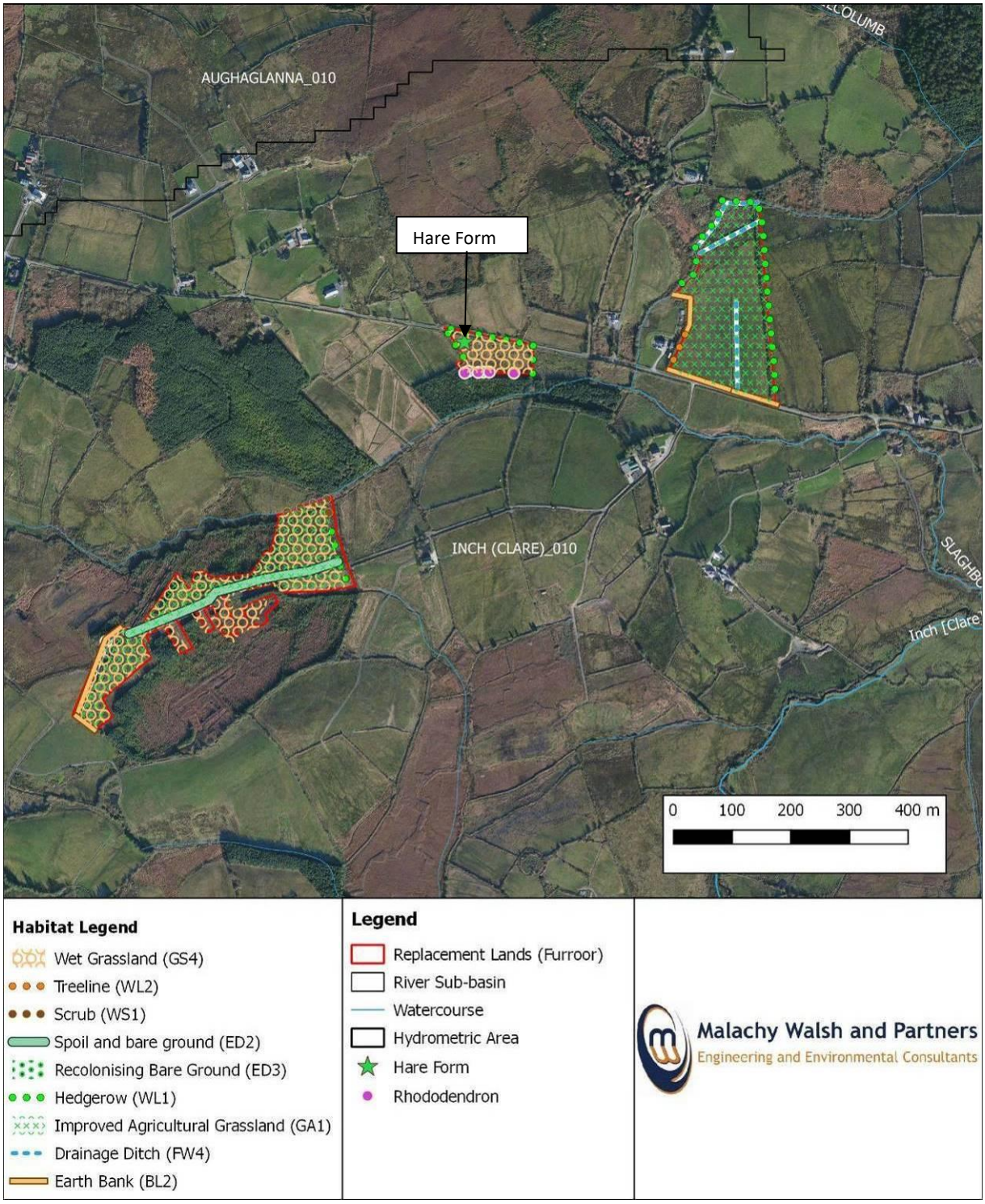

Figure 11 Habitat map for the proposed replant site at Furroor**.**

Plate 4 Drainage ditch & hedgerow (left) and improved agricultural grassland, earth bank & treeline at Kilcoloumb, proposed Shessiv replacement lands.

Plate 5 Wet grassland at Reanagishagh with Rhododendron in the background (left). Devil's bit scabious *Succisa pratensis* within wet grassland habitat (right).

Plate 6 Rhododendron on an earth bank at Furroor. The Slaghbooly Stream within the Inch catchment drains the lands at Furror and Kilcoloumb.

2.2.3.3 Pollacurragune

The proposed replant lands here are represented by a single large field which falls in a north easterly direction towards the River Clare. The habitat is mostly improved agricultural grassland that has not been recently grazed or managed. At the northern end of the field, past management is deemed to have been less intensive, or ceased at an earlier stage, and the habitat is classified as dry meadows and grassy verges (GS2). A drainage ditch runs along the southern/eastern boundary and the lower end of the northern boundary. Hedgerow bounds the northern and western sides of the field, an

earth bank on the south. The 5th order River Clare (30C01) flows less than 100m to the north/east of the site. This watercourse is classified as a lowland river (FW2).

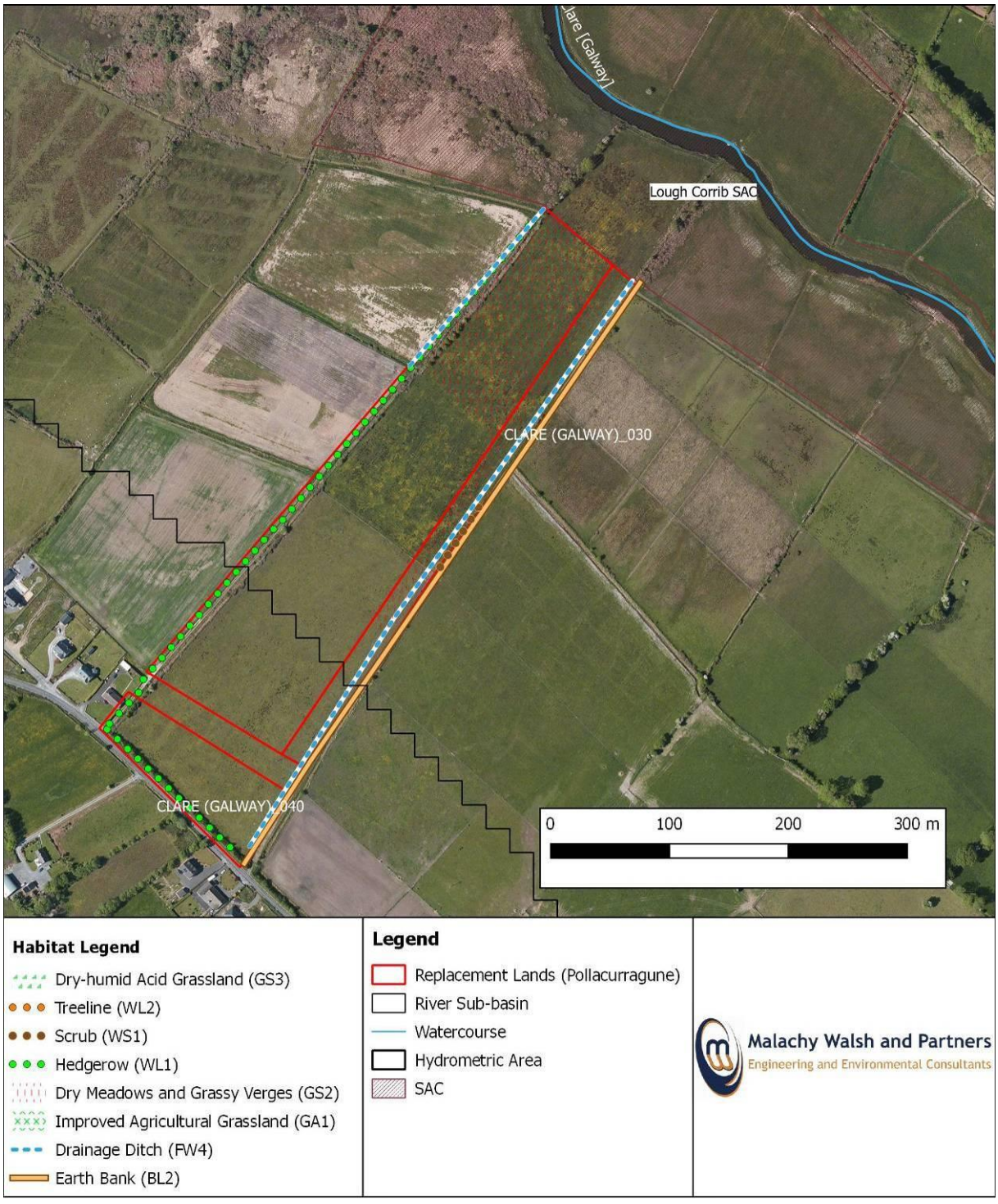

Figure 12 Habitat map for the proposed replant site at Pollacurragune.

Plate 7 Improved agricultural grassland at Pollacurragune (left). The River Clare is a lowland river and drains the site (right).

2.2.3.4 Rathgoggan

The proposed replant lands are dominated by manged grassland fields comprising improved agricultural grassland (GA2) habitat. The fields are in the order of 2-3 ha. They are bordered by hedgerows of whitethorn with an occasional mature tree. A drainage ditch runs north through the centre of the site and also forms the north eastern boundary of the site. This water feature is referred to as the Charleville Stream (EPA code 24C02). It is a 2nd order channel and has been deepened presumably for drainage purposes.

Plate 8 Improved agricultural grassland (left) and drainage ditch (right) at Rathgoggan.

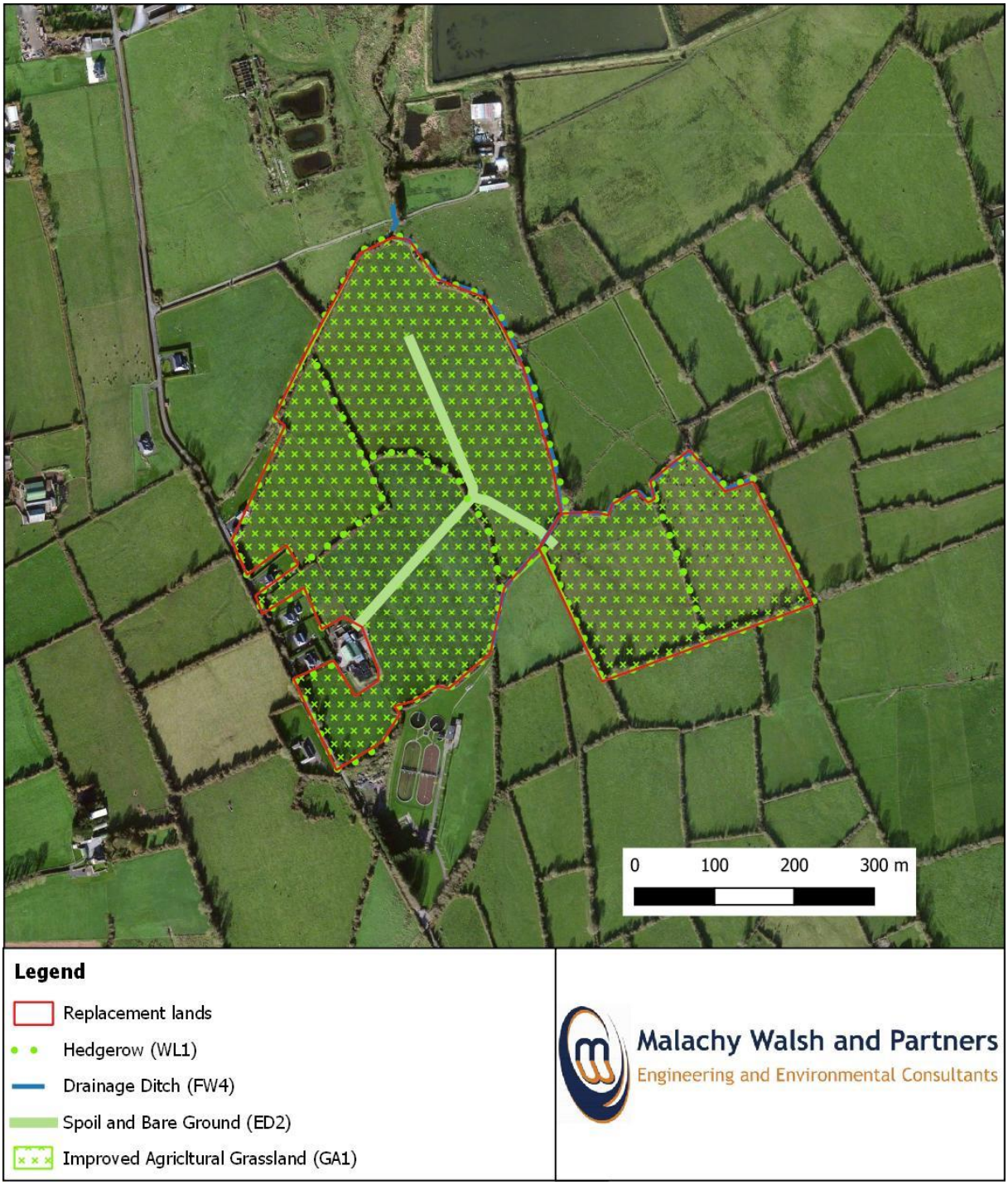

Figure 13 Habitat map for the proposed replant site at Rathgoggan.

2.3 FAUNA

NBDC records of rare/protected mammal species (excluding IAS) in the hectads covering the proposed replacement lands are given in **Table 8**. Bat suitability indices for the proposed replant lands are provided in **Table 9.** A list of non-native fauna previously recorded in the hectads covering the proposed replant sites is provided in

Table 10**.** The findings of the desk study and the current surveys is given separately for the four sites.

Table 8 NBDC records of rare/protected faunal species (excluding IAS) in the 10km grid squares R26 (Shessiv, S), R17 & R27 (Furroor, F) M35 & M45 (Pollacurragune, P) and R52 Rathgoggan (R).

Species name	EU Habitats Directive listed / Conservation Status	Grid square					
		R26 (S)	R17 (F)	R27 (F)	M35 (P)	M45 (P)	R52 (R)
Badger (*Meles meles*)	Wildlife Acts	✓	✓	✓	✓	✓	✓
Otter (*Lutra lutra*)	Annex II & IV, Wildlife Acts		✓		✓	✓	✓
Pygmy shrew (*Sorex minutus*)	Wildlife Acts	✓			✓		✓
Red squirrel (*Sciurus vulgaris*)	Wildlife Acts	✓	✓	✓		✓	
Pine marten (*Martes m*artes)	Annex V, Wildlife Acts	✓	✓	✓	✓	✓	
Hedgehog (*Erinaceus europaeus*)	Wildlife Acts	✓		✓		✓	✓
Lesser noctule bat (*Nyctalus leisleri*)	Annex IV, Wildlife Acts	✓	✓	✓	✓	✓	✓
Natterer's bat (*Myotis nattereri*)	Annex IV, Wildlife Acts	✓	✓			✓	
Pipistrelle (*Pipistrellus pipistrellus sensu lato*)	Annex IV, Wildlife Acts	✓	✓	✓	✓	✓	✓
Soprano Pipistrelle (*Pipistrellus pygmaeus*)	Annex IV, Wildlife Acts	✓	✓	✓	✓	✓	✓
Brown long-eared bat (*Plecotus auritus*)	Annex IV, Wildlife Acts	✓	✓	✓		✓	
Daubenton's bat (*Myotis daubentonii*)	Annex IV, Wildlife Acts	✓		✓	✓	✓	✓
Whiskered bat (*Myotis mystacinus*)	Annex IV, Wildlife Acts	✓					

Table 9 Bat suitability indices for the proposed replant lands at Shessiv (S), Furroor (F), Pollacurragune (P) and Rathgoggan (R).

Common name	Scientific name	Suitability index				Irish red list status
		S	F	P	R	
All bats	-	26.11	26.56	30.44	26.22	-
Common pipistrelle	*Pipistrellus pygmaeus*	38	40	44	43	Least Concern
Brown long-eared bat	*Plecotus auritus*	40	40	40	37	Least Concern
Soprano pipistrelle	*Pipistrellus pipistrellus*	33	36	38	44	Least Concern
Lesser horseshoe bat	*Rhinolophus hipposideros*	12	1	9	2	Least Concern
Leisler's bat	*Nyctalus leisleri*	35	33	42	39	Least Concern
Whiskered bat	*Myotis mystacinus*	18	26	19	14	Near Threatened
Daubenton's bat	*Myotis daubentonii*	30	28	39	27	Least Concern
Nathusius' pipistrelle	*Pipistrellus nathusii*	5	0	3	5	Least Concern
Natterer's bat	*Myotis nattereri*	24	35	40		Least Concern

Table 10 Non-native fauna previously recorded in the hectads covering the proposed replant sites

Species Group	Species name	Impact category/regulation	Grid square					
			R26 (S)	R17 (F)	R27 (F)	M35 (P)	M45 (P)	R52 (R)
Terrestrial Mammal	American Mink (*Mustela vison*)	High Impact, Regulation S.I. 477 (Ireland)			✓		✓	✓
	European Rabbit (*Oryctolagus cuniculus*)	Medium Impact	✓	✓		✓	✓	✓
	Fallow Deer (*Dama dama*)	High Impact	✓	✓	✓	✓	✓	✓
	Bank Vole (*Myodes glareolus*)	Medium Impact						✓
	Eastern Grey Squirrel (*Sciurus carolinensis*)	High Impact Regulation S.I. 477 (Ireland)						✓
	Sika Deer (*Cervus nippon*)	High Impact Regulation S.I. 477 (Ireland)						✓
	Brown Rat (*Rattus norvegicus*)	High Impact Regulation S.I. 477 (Ireland)						✓
Mollusc	Common Garden Snail (*Cornu aspersum*)	Medium Impact	✓			✓	✓	✓
	Jenkins' Spire Snail (*Potamopyrgus antipodarum*)	Medium Impact		✓	✓	✓	✓	
	Wrinkled Snail (*Candidula intersecta*)	Medium Impact					✓	✓
	Zebra Mussel (*Dreissena (Dreissena) polymorpha*)	High Impact, Regulation S.I. 477		✓				
	Budapest Slug (*Tandonia budapestensis*)	Medium Impact						✓
Flatworm (Turbellaria)	*Arthurdendyus triangulatus*	High Impact			✓			

2.3.1 Shessiv

Evidence of Badger (snuffle holes) was found at the central area of Shessiv. No dwellings of larger mammals were recorded. The proposed development lands at Shessiv are generally too wet to be used by burrowing animals for dwelling purposes, but open areas of semi-natural grassland are likely to be used by Hare. The hedgerows and earth banks that bound the fields are likely used by a variety of mammals including hedgehog and pygmy shrew. Pine marten (*Martes martes*) and red squirrel (*Sciurus vulgaris*) likely occur in the general area but the proposed replant lands are unsuitable for these species. There is no suitable otter foraging habitat within or adjacent to the site, but watercourses in the Cloon catchment downstream most certainly support otter.

The overall bat suitability index for Shessiv is low, at only 26.11. This is probably due to the upland and windswept character of the site, and suboptimal feeding habitat. It is considered that the hedgerow network provides some suitable foraging habitat for Pipistrelle bats, and that Leisler's bat may also forage over the site. There are no trees that would be used by roosting bats on the site. There are two old derelict buildings at 520828, 661685. These structures are constructed of local stone and feature corrugated iron roofs. These buildings are accessible to bats and could be used by bats as summer roosts.

A wide range of bird species has been recorded from the hectad encompassing the study area including Barn Owl (*Tyto alba*), Black-headed Gull (*Larus ridibundus*), Common Redshank (*Tringa totanus*), Little Egret (*Egretta garzetta*) and Yellowhammer (*Emberiza citrinella*), all red-listed species. The proposed replant site is of no particular value to any species of high conservation concern. Hooded Crow (*Corvus cornix*), Meadow Pipit (*Anthus pratensis*), Great Tit (*Parus major*) and Lesser Redpoll (*Carduelis cabaret*) were among the birds recorded during the current survey. The hedgerows at the proposed replant site provide nesting, refuge and feeding habitats for passerines and are likely to be used occasionally by hunting raptors. Snipe may occur in areas of wet grassland.

Common Frog (*Rana temporaria*) likely forages in areas of wet grassland within the site. European eel *Anguilla Anguilla* and Brown trout *Salmo trutta* occur in the Carrowreagh Stream and Cloon River which drain the proposed development site. European eel is listed as 'Critically endangered' and is 'Red Listed' in 'Red List No. 5: Amphibians, Reptiles & Freshwater Fish' (King *et al*., 2011). According to McGinnity *et al.* (2003) the 2nd order watercourses in the Cloon catchment are producers of Salmon and Sea trout.

Considering the most recent (2016) EPA biological water quality ratings (Q4) for the Cloon River, an macroinvertebrate assemblage indicative of unpolluted conditions probably occurs in the watercourses draining the site. The most sensitive aquatic receptor is potentially the FPM. This species is known to occur in the Cloon River, but could also occur in the Carrowragh East Stream which drain a portion of the proposed development site. FPM are widespread in Ireland, occurring in more than 160 rivers.

The FPM is protected under several tiers of national and international legislation:

- The Wildlife Act, 1976 and Wildlife (Amendment) Act, 2000 (The pearl mussel was given protected faunal species status under The Wildlife Act, 1976 (Protection of Wild Animals) Regulations, 1990, S.I. No. 112, 1990);
- The Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) as transposed by the European Communities (Birds and Natural Habitats Regulations 2011 (S. I. No. 477 of 2011). The pearl mussel is listed on Annex II and Annex V to the Directive; and
- Bern Convention Appendix III.

The FPM is also on the following red data lists:

- IUCN Red Data List as Endangered (IUCN, 1996); and
- Red Data (Ireland) as Critically Endangered (Moorkens, 2006).

The three species of non-native mammals previously recorded in the hectad R26 (Fallow Deer *Dama dama,* Rabbit *Oryctolagus cuniculus* and American Mink *Mustela vison*) probably occur occasionally at the proposed replant lands, but there was no evidence of same during the current survey.

2.3.2 Furroor

Hare was seen in wet grassland habitat at Furroor. A hare form was also recorded in this area. The proposed development lands at Furroor are generally too wet to be used by burrowing animals for dwelling purposes. Pine Marten and Red Squirrel likely occur in the general area but the proposed replant lands are unsuitable for these species. The hedgerows and earth banks that bound the fields are likely used by a variety of mammals including hedgehog. There is no suitable otter foraging habitat within the site, but this species may forage along the lower reach of the Slaghbooly Stream.

The overall bat suitability index for Furroor is low, at only 26.56. This is probably due to the upland and windswept character of the site, and suboptimal feeding habitat. The site is probably best suited to Pipistrelle bats, species which forage along linear features. The local hedgerow network provides some suitable foraging habitat for Common and Soprano Pipistrelle bats, Leisler's bat may also forage over the site. The habitat suitability rating for both these species is 40. The site does not include trees or buildings, features that can be used by roosting bats.

Salmon, European Eel and Brown trout almost certainly occur in in the Slaghbooly Stream and Inch River which drain the proposed development site. Given the most recent (2016) EPA assessment of the Inch River '*Continuing satisfactory at the three upstream sites*', the macroinvertebrate community in the watercourses drained by the site comprise some pollution sensitive taxa.

Plate 9 Badger snuffle hole at Shessiv (left). Hare form at Furroor (right).

A wide range of bird species has been recorded from the hectad encompassing the study area including red-listed herring gull (*Larus argentatus*), red grouse (*Lagopus lagopus*), common redshank

(*Tringa totanus*), twite (*Carduelis flavirostris*) and yellowhammer. The proposed replant site is of no particular value to any species of high conservation concern. Mistle thrush (*Turdus viscivorus*), goldfinch (*Carduelis carduelis*), coal tit (*Periparus ater*), robin (*Erithacus rubecula*) and wood pigeon (*Columba palumbus*) were recorded during the current survey. The hedgerows at the proposed replant site provide refuge, nesting and feeding habitats for passerines which are likely to be hunted occasionally by raptors such as sparrowhawk and hen harrier. Snipe may occur in areas of wet grassland and woodcock in wet shaded areas.

It is possible that common lizard (*Zootoca vivipara*), previously recorded in the relevant hectad occurs at this site considering its attraction for exposed rock. This species is afforded protection by the Wildlife Acts. Marsh fritillary (*Euphydryas aurinia*) has been previously recorded in the hectad containing the proposed development site. Habitat for this species, although of limited extent occurs in a field within the proposed replant lands. This area could be of significance if it is part of a larger habitat complex concomitant with the feeding requirements of the larval stage of the species.

Non-native mammals previously recorded in the hectads covering the site (fallow deer and mink) probably occur occasionally at the proposed replant lands, but there was no evidence of same during the current survey. It is possible that the non-native common garden snail (*Cornu aspersum*) occurs at this site where rock and stone occurs.

2.3.3 Pollacurragune

Open areas of grassland at this site are likely to be used by Hare. The hedgerows and earth banks that bound the field are potentially used by hedgehog and pygmy shrew. The River Clare provides suitable otter foraging habitat within ca. 100m of the proposed replant lands. There was no evidence of Otter holts within 50m of the proposed replant lands however.

The overall bat suitability index for Pollacurragune is 30.44. The hedgerows network and River Clare provides suitable foraging habitat for bats. The proposed replant lands are probably best suited to Common pipistrelle and Soprano pipistrelle, with habitat suitability ratings of 44 and 38 given for these species at the proposed replant lands, respectively. There are no trees that would be used by roosting bats on the site. Leisler's bat is likely to forage over the site taking account of the wide open countryside in the general area, and Daubenton's bat is likely to forage over the nearby Clare River.

The River Clare flows ca. 100m to the north of the site. This watercourse is a large highly productive hard-water river which supports a rich assemblage of macroinvertebrate and fish life. Fish recorded in this river include salmon, trout, *S. trutta,* European eel*,* brook lamprey *Lampetra planeri*, nine-spined stickleback *Pungitius pungitius,* three-spined stickleback *Gasterosteus aculeatus,* stone loach *Barbatula barbatula,* roach *Rutilus rutilus* and minnow *Phoxinus phoxinus*.

White-clawed crayfish (*Austropotamobius pallipes*) occurs in the River Clare (pers. obs). In 2019, however, the River Clare was added to the list of watercourses affected by the Crayfish plague (*Aphanomyces astaci*). Otter (IV), salmon (V), brook lamprey and white-clawed crayfish (V) are listed in Annex II of the EU Habitats Directive, with numbers in parenthesis representing other listings of

this directive applicable to these species. Swan mussel (*Anodonta cygnea*) has been recorded in the hectad M35 encompassing the site. This is a threatened aquatic species and listed as 'Vulnerable' in Byrne *et al* (2009), and possibly occurs in the River Clare. Jenkins' spire snail (*Potamopyrgus antipodarum*), a non-native species does occur in the River Clare (pers. obs.). Based on the 2018 EPA biological monitoring carried out on the River Clare upstream of Tuam (Q4), the biological community is indicative of unpolluted water, and therefore likely to support an array of pollute sensitive species, including the mayfly *Ephemera danica*.

A wide range of bird species has been recorded from the hectad encompassing the study area including red-listed whooper swan (*Cygnus cygnus*), northern lapwing (*Vanellus vanellus*), northern shoveler (*Anas clypeata*). The proposed replant site is of no particular value to any species of high conservation concern. The hedgerows at the proposed replant site provide nesting, refuge and feeding habitats for passerines. The site is likely to be used occasionally by hunting raptors. Blackbird (*Turdus merula*), wren (*Troglodytes troglodytes*) and mallard (*Anas platyrhynchos*) were recorded during the site visit. Redwing (*Turdus iliacus*), fieldfare (*Turdus pilaris*) and lapwing potentially use the site for foraging. Mute swan (*Cygnus olor*), coot (*Fulica atra*), moorhen (*Gallinula chloropus*), grey heron (*Ardea cinerea*) and cormorant (*Phalacrocorax carbo*) are examples of avifauna that use the River Clare adjacent to the site.

Common Whorl Snail (*Vertigo pygmaea*), Striated Whorl Snail (*V. substriata*) and Marsh Whorl Snail (*V. antivertigo*) have been previously recorded in the wider study area (hectad M45), all IUCN listed as *Threatened Species, Vulnerable*. These species have similar habitat requirements: damp pastures and the margins of wetlands at low altitude. With regard to whorl snails, the lands at the proposed replant site do not contain supporting habitats as they are too dry. Smooth Newt (*Lissotriton vulgaris*) and frog may occur at the site but there is no suitable breeding habitat present.

2.3.4 Rathgoggan

Most of the site consists of areas of grassland of low species diversity, so the carrying capacity of this site for wild fauna is significantly reduced. There was no sign of any mammal activity during the survey. The hedgerows bounding the fields are potentially used by hedgehog and pygmy shrew. The Charleville Stream which flows through the site is a low gradient channel with limited potential for a stock of fish required to provide adequate sustenance for foraging otters, but it could be used to some degree by the species.

The overall bat suitability index for the area is 26.22, this low score a reflection of the degraded agricultural landscape that exists within and in the environs of the replant site. Despite this, the hedgerow network can be expected to provide suitable foraging habitat for bats. The proposed replant lands are probably best suited to Common pipistrelle and Soprano pipistrelle, with habitat suitability ratings of 43 and 44 given for these species, respectively. Some of the larger trees that form the hedgerows could potentially be used by roosting bats on the site, especially those with ivy cover. Leisler's bat is likely to forage over the site taking account of the wide-open countryside in the general area.

The Charleville Stream flowing through the site is likely to support a small population of brown trout, European eel, brook lamprey, *three-spined stickleback* and minnow *Phoxinus phoxinus*. The bed of this channel has been altered by excavation. The morphology of this channel reduces habitat value for aquatic life, including fish and macroinvertebrates. Charleville waste-water treatment plant (WWTP) is located in a field directly to the south of the proposed replant site. It is noted that the primary discharge from the WWTP is to the Charleville Stream which may be impacting water quality.

The hedgerows at the site were seen to provide cover for wood pigeon, blackbird, song thrush, wren, great tit and chaffinch, while pheasant and starling were recorded in the open area. The site is likely to be used occasionally by hunting raptors. The proposed replant site is of no particular value to any species of high conservation concern. The hedgerows at the proposed replant site provide nesting, refuge and feeding habitats for passerines. Moorhen and Grey Heron probably use the Charleville Stream.

White-clawed crayfish have been previously recorded in the hectad R52. This species could occur in the Charleville Stream, as this watercourse feeds the River Maigue, a known stronghold for the species. This river has been recently affected by the crayfish plague.

Frogs may occur at the site but the only breeding habitat for frog is the Charleville Stream. This is the only aquatic feature at the site but is a marginal habitat with reference to amphibian reproduction.

2.4 SUMMARY OF HABITAT AND SPECIES EVALUATION

An evaluation and identification of KERs and rationale for inclusion/exclusion of KERs is presented in **Table 11.** This list is based on desk study results and ecological features recorded at and in the environs of the proposed replant sites. Significant effects are not predicted for European sites – there will be no direct impacts on designated areas and no significant indirect effects.

Table 11 Key Ecological Receptors (KERS) selected for assessment and the rationale at Shessiv (S), Furroor (F), Pollacurragune (P) and Rathgoggan (R).

Receptor	Evaluation	Rationale for inclusion/exclusion as a Key Ecological Receptor (KER)	Occurrence at site				KER
			S	F	P	R	
Habitat							
Improved Agricultural Grassland (GA1)	Local importance (lower value)	Highly maintained habitat of low ecological value.	✓	✓	✓	✓	No
Dry Meadows and Grassy Verges (GS2)	Local importance (higher value)	Relatively high species diversity in the context of the dominating local grassland type			✓		Yes
Dry-humid Acid Grassland (GS3)	Local importance (higher value)	Relatively high species diversity in the context of the dominating local grassland type	✓				Yes
Wet Grassland (GS4)	Local importance (lower value - higher value)	Relatively high species diversity in the context of the dominating local grassland type	✓	✓			Yes
Hedgerow (WL1)	Local importance (lower value - higher value)	Important for birds and small mammals and in maintaining links between habitats in the locality	✓	✓	✓	✓	Yes
Treeline (WL2)	Local importance (lower value - higher value)	Comprises a non-native conifer linear feature	✓	✓			No
Scrub (WS1)	Local importance (higher value)	Associated mostly with hedgerows. Important cover for birds and small mammals.	✓	✓	✓		Yes
Earth Bank (BL2)	Local importance (higher value)	Important cover for birds and small mammals	✓	✓	✓		Yes
Spoil and bare ground (ED2)	Local importance (lower value)	Low species diversity and prone to regular disturbance	✓	✓			No
Recolonising Bare Ground (ED3)	Local importance (lower value)	Highly disturbed, low species diversity, prone to erosion and invasion by non-native plants	✓				No
Exposed Siliceous Rock (ER1)	Local importance (higher value)	This habitat has links with an Annex I habitat 'siliceous rocky slopes with chasmophytic vegetation (8220)' but is of no particular importance due to its small extent and recently disturbed character	✓				Yes
Buildings and Artificial Surfaces (BL3)	Local importance (lower value - higher value)	Roofed buildings at centre of site at Shessiv potentially used by roosting bats. Derelict building near well to the south provides refuge for terrestrial invertebrates	✓				Yes
Other Artificial Lakes and	Local importance (lower value)	Potentially used by local mammals as a source of drinking water.	✓				Yes

Receptor	Evaluation	Rationale for inclusion/exclusion as a Key Ecological Receptor (KER)	Occurrence at site				KER
			S	F	P	R	
Ponds (FL8)		Creates a damp habitat in the vicinity, unusual in the locality.					
Drainage Ditch (FW4)	Local importance (lower value - higher value)	Artificial habitat carrying little/no water and of low floral diversity	✓	✓	✓	✓	No
Eroding/Upland River (FW1)	Local importance (higher value) – Internationally important	Watercourses indicated in OSI/EPA mapping and downslope of the site support aquatic ecosystems sensitive to pollution.	✓	✓			Yes
Depositing/Lowland River (FW2)	Internationally important	Watercourses indicated in OSI/EPA mapping and downslope of the site support aquatic ecosystems sensitive to pollution.			✓		Yes
Species							
Protected flora		None identified during the current botanical surveys and no suitable habitat for those previously recorded in the hectad containing the proposed development.					No
IAS	Japanese knotweed is recognised as a 'High impact' species. It occurs within part of the site and within the ZOI. There is potential for this nuisance plant to be spread.	Japanese knotweed is recognised as a 'High impact' species. It occurs within part of the site and within the ZOI. There is potential for this nuisance plant to be spread.	✓				Yes
Bats	Local Importance (higher value)	There were no roosts recorded within the site boundary. The site at Shessiv is likely used by foraging bats and a derelict building may have some roost potential. The legal status and ecological sensitivity of these species merits their selection a KER.	✓	✓	✓	✓	Yes
Otter (*Lutra lutra*)	Local Importance (higher value)	This species utilises waterbodies for foraging. There are no significant waterbodies directly adjacent to the replant sites and no evidence of otter usage within or adjacent to same. No watercourse impacts predicted at a level that would affect fish biomass i.e. main prey of the otter		✓	✓	✓	No
Badger (*Meles meles*)	Local Importance (higher value)	Evidence of foraging, but no setts or significant foraging indicative of a nearby sett	✓	✓	✓	✓	No
Hare	Local Importance (higher value)	Utilises the open habitats at the site	✓				Yes

Receptor	Evaluation	Rationale for inclusion/exclusion as a Key Ecological Receptor (KER)	Occurrence at site				KER
			S	F	P	R	
Pygmy Shrew (*Sorex minutus*)	Local Importance (lower value)	Potential habitat for this species lies within the proposal site boundary but populations of greater than local significance were not recorded	✓		✓	✓	No
Red Squirrel (*Sciurus vulgaris*)	Wildlife Acts	Potential habitat for species lies within the proposal site boundary but populations of greater than local significance were not recorded	✓	✓	✓		No
Pine Marten (*Martes m*artes)	Annex V, Wildlife Acts	Potential habitat for species lies within the proposal site boundary but populations of greater than local significance were not recorded	✓	✓	✓		No
Hedgehog (*Erinaceus europaeus*)	Wildlife Acts	Potential habitat for species lies within the proposal site boundary but populations of greater than local significance were not recorded	✓	✓	✓	✓	No
Additional non-volant mammals (e.g. stoat)	Wildlife Acts	Potential habitat for species lies within the proposal site boundary but populations of greater than local significance were not recorded	✓	✓	✓	✓	No
Birds	Local Importance (higher value)	The grassland habitats of the site are of no particular value to birds and numbers of birds of ecological significance are unlikely to show preference for the sites. The borders are used to some degree by passerine birds.	✓	✓	✓	✓	No
Other fish populations in watercourses downstream	Local Importance (higher value)	The populations of salmon, eel, trout and other fish in the catchment are sensitive to environmental change and are important in the overall functioning of the aquatic ecosystems.	✓	✓	✓	✓	Yes
Freshwater pearl mussel	International importance	This species is in decline internationally primarily due to habitat degradation. It is critically endangered and listed under Annex II of the EU Habitats Directive. There are FPM in the Cloon River catchment potentially within the ZOI downstream of the proposed development. Taking into account the status of this species and potential cumulative impacts, this species has been selected as a KER.	✓				Yes
Other aquatic macroinvertebrates	Local Importance (higher value)	The aquatic macroinvertebrate communities are important in the functioning of the aquatic ecosystem of the receiving watercourses. They are an important indicator of water quality.	✓	✓	✓	✓	Yes
Other terrestrial macroinvertebrates	Local Importance (higher value)	The terrestrial insect populations are important at the lower level of ecosystem food chains, for example, essential for sustenance of bats	✓	✓			Yes

Receptor	Evaluation	Rationale for inclusion/exclusion as a Key Ecological Receptor (KER)	Occurrence at site				KER
			S	F	P	R	
		and birds.					
Marsh Fritillary	Local Importance (higher value)	Though marsh fritillary was not recorded, there are previous records in the wider study area, and the food plant of this species occurs in the study area. Taking into account the status of this species and loss of suitable habitat, this species has been selected as a KER.	✓				Yes
Common Frog	Local Importance (higher value)	Frog recorded at the eastern extent of the study area. The most suitable habitats for frog include wet grassland, drainage ditches.	✓				Yes
Common Lizard	Local Importance (lower value)	Not recorded but may occur, a population of greater than local significance was not recorded					No

2.5 DO-NOTHING SCENARIO

Improved agricultural land habitats would likely continue to be managed intensively. If left to nature, other habitats such as scrub and wet grassland would develop into wooded features such as treelines and pockets of woodland comprised of native species. Eventually, a climax ecosystem would develop in unmanaged areas, with maximum benefits for flora and fauna.

3 LIKELY SIGNIFICANT EFFECTS

The replant sites will be prepared for planting with earthworks and drainage works. Replanting will be completed mainly with conifer species with some components of broadleaved species. In all cases, the land will be drained and the ground prepared for planting using a mounding technique. The sites will be fertilized with rock phosphate and undergo herbicide treatments. The forests will be thinned and felled after a period of about 25 and 45 years, respectively. After felling, land used for commercial forestry is usually planted again. The impacts outlined below are cognisant of the Forest Service Guidelines that form part of the technical approval. It is noted that these guidelines are being rolled out across most afforestation sites, but commercial forestry is still a 'significant pressures on Ireland's aquatic environment', 'affecting 16% of water bodies' (O'Boyle *et al.*, 2019).

3.1 HABITATS AND FLORA

The impacts of afforestation with conifer trees (and felling) on habitats have been detailed in the main body of Chapter 6. They include direct loss of habitat due to ground preparation and eventual lack of light. Indirect impacts are also possible through runoff of sediment to surface waters and fluvial habitat degradation in downstream areas.

The loss of habitats selected as KERs (see **Table 11**) is considered a **long-term very significant negative** impact: these habitats are sensitive aspects of the environment as they support native flora and fauna; and they will be significantly altered and possibly lost in some instances. This takes into account the do-nothing scenario of likely increasing biological diversity in areas not currently managed for agricultural purposes i.e. all except agricultural grassland. Significant effects on habitats selected as KERs are likely and predicted to be significant at a local level.

Japanese knotweed is present at the Shessiv site, so there is potential for afforestation to result in the introduction, establishment or spread of this IAS within the proposed replant lands at this location, and also elsewhere. As Japanese knotweed dies back in winter to leave soils bare and exposed to erosion, there is potential knock-on effects on habitats and water quality.

The introduction, establishment or spread of IAS such as Japanese knotweed or rhododendron is considered a **Permanent significant negative** impact: these plants can last over 60 years; outcompete native flora and harbour fewer macroinvertebrate fauna than native flora; Japanese knotweed can grow on most soils and conditions, so IAS can potentially alter a sensitive aspect of the environment. There is therefore a potential for local significant ecological effects related to IAS.

3.2 FAUNA

Direct habitat loss will affect the botanical communities and therefore the dependent fauna at the proposed replant sites. Non-volant mammal, bat and bird foraging behaviours at the proposed replant sites can be expected to change as the woodland grows and matures.

The impact of the proposed afforestation on non-volant mammal, bat and bird fauna selected as KERs is assessed a **Long-term moderate negative** impact at a local level; this follows on from impacts on habitats, above, which support local fauna such as hare, bats and birds. The effects on fauna are not predicted to be significant however given the level of ecological resilience afforded to faunal communities at the subject sites. This is due to the availability of suitable habitats that would allow populations of species to continue to exist at levels they currently occur at the local level.

Afforestation with sitka spruce, the dominant species proposed at the replant lands, is known to cause artificial acidification. The rough canopies of mature evergreen forests are efficient scavengers of particulate and gaseous contaminants in polluted air. This results in a more acidic deposition under the forest canopies than in open land. Chemical processes at the roots of trees, evergreens in particular, further acidify the soil and soil water in forest catchments. When the forests are located on poorly buffered soils, these processes can lead to a significant acidification of the run-off water and consequent damage to associated streams (NS, 2010). The peat and gley soils associated with the replant lands in Co. Clare are therefore considered prone to acidification by the proposed replanting.

The afforestation at each of the replacement sites has approval from the Forest Service and all planting, maintenance, thinning, and felling will be carried out in accordance with relevant licences. It is important to note that forest service guidelines related to water quality have been in existence for two decades however (DMNR, 2000), and that the EPA have identified watercourse nationwide where forestry is listed as a significant pressure. Despite guidelines, there are still water quality problems associated with afforestation. It is considered therefore that there is potential for water quality effects on watercourses draining the proposed replant sites, through siltation of streams associated with soils loss, or from chemical and nutrients altering water chemistry. As with siltation, nutrient enrichment can have serious and ongoing impacts on aquatic macroinvertebrates and fish. Increased inputs of dissolved nutrients to watercourses tend to lead to filamentous algal growth, unless combined with siltation, where macrophyte growth can dominate. Macrophytes smother gravel beds, and trap more sediment, exacerbating the problem in the long term. Filamentous algae can lead to the death of benthic macroinvertebrates through blocking oxygen exchange with the sediment.

Water quality changes and associated impacts on sensitive aquatic species are considered **long-term moderate negative** at the local scale, as the proposed forestry would be in place for 15-60 years as commercial forestry has been found to be a driver of water quality degradation in recent times. The effects on aquatic ecology could be significant at the local level. For example, if there was a change in water quality status, many pollution sensitive taxa could no longer survive.

There is potential for significant indirect habitat deterioration for FPM in the Carrowreagh East Stream, a species very sensitive to water quality reductions, arising from forestry activities at the Shessiv site. This species has a complicated reproductive strategy and life cycle and has high water quality requirements. The effect on FPM and FPM habitat in the Cloon River downstream could be significant. If present in the Carrowreagh East Stream, any water quality effects on FPM are predicted to be significant.

3.3 CUMULATIVE IMPACTS OF REPLACEMENT PLANTING

The main significant pressures impacting water quality in Ireland include agriculture, waste-water discharges, impacts to the physical habitat conditions including excess fine sediment (hydromorphology), and pressures from forestry activities (O'Boyle *et al.* 2019). Significant cumulative impacts are not expected at all proposed replant sites with the exception of Rathgoggan, due to the relatively small areas involved, the local scarcity of conifer woodland and general lack of other significant pressures at the local level.

It is considered that the WWTP that discharges to the Charleville Stream upstream of the Rathgoggan site could potentially have a cumulative eutrophication impact on water quality in the Charleville Stream which could have significant effects on sensitive aquatic biota. Mitigation is required to reduce potential significant cumulative impacts on the Charleville Stream.

4 MITIGATION

It is considered that the forestry activities associated with the replanting sites could indirectly affect water quality in downgradient watercourses. These measures have been developed to avoid water quality affects at the replanting sites. Many of these measures have been based on information provided in Department of Agriculture, Food and Marine (2018) draft Plan for Forests and FPM in Ireland[8] as well as general best practice for land management and water quality.

4.1 WATER SETBACK

One of the conditions of planting at the replacement sites at Shessiv is that the correct freshwater pearl mussel set back is installed. The guide of 50m as in DAFM (2018) will be used at a minimum.

An appropriate water setback will be required between:

- the headwaters of the Carrowreagh East Stream and the replanting site at Shessiv;
- the Slaghbooly and Kilcolumb Streams and their tributaries and the replanting site at Furroor;
- the River Clare and the replanting site at Pollacorragune; and
- the Charleville Stream and the replanting site at Rathgoggan.

8 https://www.agriculture.gov.ie/forestservice/publicconsultation/planforforestsfreshwaterpearlmusselinirelan d/

No work or machinery will be allowed encroach on these areas.

4.2 NATIVE WOODLAND

Native woodland can intercept potential sediment and nutrient flows, can contribute to erosion prevention and help reinstate natural hydrological patterns.

The southern parcel of land at Craghera, referred to as No. 983 on the technical approval form, will be planted entirely with native woodland.

Native woodland will be planted between the setback area and conifer forestry on the downslope aspect of each parcel of replanting land in the Shessiv and Craghera.

Native woodland will be planted between the SAC setback area and the conifer forestry at the replanting site at Pollacorragune.

4.3 DRAIN BLOCKING

Sediment trapping willbe carried out by blocking drains and consequently slowing the overland flow of water on the downslope aspects of all replanting parcels within the replanting lands for infiltration and filtering through vegetation before entry into the aquatic zone.

4.4 SILVICULTURE SYSTEM

An appropriate silvicultural system will be put in place where sites would be managed under continuous cover forestry model (CCF) to avoid clear felling of the forestry at the sites. As part of this, brash will be removed from site to avoid phosphorous release. CCF is an alternative forest management approach where the forest canopy is maintained at one or more levels without clearfelling. The distinctive element of CCF is the avoidance of clearfelling areas greater than 0.25 ha (or more than two tree heights wide) without the retention of some mature trees. Natural regeneration is encouraged but natural regeneration can be supplemented by planting if required[9] (if desired tree density by natural colonisation is insufficient).

On the replanting sites with marginal fertility (Co. Clare), wide-spaced planting with pine species is proposed *in lieu* of fertilizer application and conventional Sitka spruce. No fertilisers, herbicides or insecticides will be permitted during the lifetime of the forestry.

4.5 IAS

Rhododendron was found at the central and western parcels of land at the proposed Furroor replant site. Japanese knotweed was recorded at the proposed Shessiv replant site. A pre-planting IAS survey will be required at the proposed Shessiv and Furroor sites during the growing season, when plants can be easily identified. This survey will map the extent of IAS at these locations, as it is possible that the full extent of Japanese knotweed has not been ascertained – recent drainage works in the field containing the plant could have led to its spread.

[9] https://www.teagasc.ie/crops/forestry/grants/management-grants/wis---continuous-cover-forestry/

An IAS management plan will be prepared to eradicate Japanese knotweed and rhododendron at the Shessiv and Furroor sites, respectively. IAS management will be based on guidance outlined in the following documents:

- Guidelines on management of noxious weeds and non-native invasive plant species on national roads (TII, 2010)[10];
- Best Practice Management Guidelines for Japanese Knotweed (Kelly *et al*., 2008)[11] and
- The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites (Version 3) (EA, 2013)[12].

The main measures that will be implemented are:

- Establish the existing extent of IAS within the site;
- Prevent the spread of IAS to ensure compliance with legislation;
- Treat in-situ or remove viable plant material from the footprint of site;
- Prevent risk of re-growth of viable plant material by the use of approved root barrier membranes;
- Monitor and control IAS re-growth;
- Establish a follow up monitoring and treatment programme on completion of replanting, for a period of at least 3 years.

5 RESIDUAL IMPACTS

With forestry operations at each of the replacement sites strictly undertaken in accordance with Forest Service Guidelines, and mitigation outlined above no significant impacts on biodiversity are expected. It is considered that the significance of the residual impacts will be **Long-term imperceptible negative**, provided the mitigation measures and best practice methodologies recommended are implemented. No likely significant effects on aquatic biota from water quality changes are predicted at the local level. Given the general scarcity of conifer plantation in the localities of the subject replant sites, it is considered that there is capacity of local ecosystems to accommodate the changes predicted, and as such, significant effects on local ecosystems are not predicted.

6 CONCLUSION

The ecological value of areas currently classified as improved agricultural grassland and other habitats of low ecological value will remain similar with the proposed planting. Overall, the replant lands have the capacity to provide a biodiversity gain with some areas of improved agricultural grassland converted to broadleaved woodland. Broadleaved woodland is a climax community in many parts of Ireland i.e. final stage of biotic succession attainable by a plant community in an area

[10] (NRA, 2010). '*Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads'* Revision 1. National Roads Authority, St Martin's House, Waterloo Road, Dublin 4

[11] https://westmeathppn.ie/sites/default/files/2018-07/jap%20knot%20management.pdf

[12] https://www.gov.uk/government/publications/japanese-knotweed-managing-on-development-sites

under the environmental conditions present at a particular time. With the mitigation measures proposed, no significant ecological effects on KERs are predicted.

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APPENDIX 1 REPLACEMENT LAND TECHNICAL APPROVALS

Department of
Agriculture, Food and the Marine
An Roinn
Talmhaíochta, Bia agus Mara

RECEIVED
09 MAY 2018

JOHN O'REILLY
GREEN BELT LTD
MAIN STREET
VIRGINIA
CO CAVAN

Joe Flaherty
1805346 19

04/05/2018

Application for Technical Approval for an Afforestation Licence

Copy
JP | Mike

Forest Owner	FO128365G
Contract Number	CN78648
Townland	Pollacorragune
County	Galway
Approved Area (ha)	7.99
Fencing Length (lm)	700.00

This is technical approval for an afforestation licence only and is not grant approval. You should note that the project will not be eligible for grant aid unless prior financial approval has been given in writing in advance of commencement of planting. Also, to qualify for Afforestation grant and premiums applicants must own, lease or be in joint management of the lands proposed for planting. You should consult with your registered forester about applying for financial approval under the Scheme.

I refer to your application for an afforestation licence as described above and shown on the enclosed map. Your application has been assessed and a licence is hereby issued on the basis that the works will be undertaken in accordance with the prescription set out in Appendix A, attached herewith. You are now required to remove your site notice immediately.

This scheme is financed by the State and payment of the grant, if financial approval is given, is subject to the following conditions:

1. Availability of funds in each financial year.

2. Submission of a fully completed and signed Form 2 (Application for Payment) and the following documents to support this application.

Proof of Ownership (including removal of any constraints on ownership)
Valid Mandate
Current Tax Clearance Certificate(s)
C2 Certificate
Provenance Certificates
Fencing Map
Biodiversity Map
Certified Species Map

28 days up 5/6/18
Note conditions on page 4 + 5
See 2 pages in relation to Background of file

3. Satisfactory completion of the work not later than 31/12/2019.

4. Compliance with Operational Proposals and Specifications enclosed.

5. Compliance with Departmental guidelines and requirements for Landscape, Water Quality, Harvesting, Biodiversity and Archaeology.

6. Compliance with Ecological Survey and Management Plan as submitted (if applicable).

7. The work is carried out by the registered company or forester specified on the original application. If it is intended to have a different company or forester undertake the work, it will be necessary to submit a new application (Form 1) to the Forest Service.

8. All applications are subject to the provisions of the penalty schedules as set out in the Afforestation Grant and Premium Scheme document.

9. All applications are subject to Cross Compliance checks with other grant schemes.

10. Grant payment may be subject to the netting policy of the Department of Agriculture, Food and the Marine.

11. This licence is issued subject to the terms and conditions of the Forestry Standards and Procedures Manual.

12. Your acceptance that the responsibility for the ultimate success of the plantation rests with you, the applicant. Plantations which fail to establish successfully will result in grant and premium recoupment.

13. Additional Environmental & Silvicultural Conditions

- Shallow mounding cross slope, herringbone pattern, to collector drain and to existing main drain. Silt traps to be placed before mounding. Invert mounding only NWS plots.M,
- 5m setback from watercourse east side of site and broadleaves adjacent. No fertiliser required.,
- NWS plots to adhere to species mix and layout appropriate to GPC9. Sheep fence using min medium guage sheepwire where required.h,
- Adhere to forestry & water quality guidelines,
- Water Buffer Zone Setback 10m,
- All guidelines to apply

You are required to notify the Department of Agriculture, Food and the Marine in writing if any of the details of your application have changed. Changes to your application may invalidate this licence.

In order to allow for the possibility of appeals, you must not commence any works until 28 days from the date of this letter have elapsed. If an appeal is lodged, this licence will be suspended and no work may commence until the appeal process has concluded.

If you wish to appeal any condition attached to this licence, where applicable, you should do so in writing within 28 days of the date of this letter to the Forestry Appeals Committee. You must set out the grounds of your appeal and include a statement of the facts and contentions upon which you intend to rely along with any documentary evidence you wish to submit in support of your appeal. The appeal must be sent to the Forestry Appeals Committee, Kilminchy Court, Portlaoise, Co. Laois, Lo-Call 076 1064418 or 057 8631900.

Yours sincerely

_____

COLIN GALLAGHER
Approval Section
Forestry Division

APPENDIX A

Department of Agriculture, Food and the Marine

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

Operational Proposals for Technical Approval for an Afforestation Licence

Forest Owner Number	FO128365G
Contract Number	CN78648
Townland	Pollacorragune
County	Galway
Area Approved	7.99(ha)
Fencing Length (LM)	700.00

All applications must be developed in accordance with detailed standards and procedures as described in the current Forestry Schemes Manual. Certain specific operational proposals particular to this application are described below. No change is permitted to these proposals and species approved unless approved in advance by the Department. The Department may insist that proposed changes constitutes a new application.

Operational Proposal Details

Agro Forestry (GPC 11)		
1.	Tree Shelters	Not Entered
2.	Plant Size and Stocking	Not Entered
Drainage		
1.	Drainage	Required
2.	Drainage Comment	in conjunction with mounding
Fertiliser		
1.	Zero	Not Entered
2.	350 Kg Granulated Rock Phosphate	Not Entered
3.	250 Kg Granulated Rock Phosphate	Yes
4.	Split Application	Not Entered
5.	Other Details	Not Entered
Firebreaks/Res.		
1.	Firebreaks/Res	Not Required
Forestry for Fibre (GPCs: 12a and 12b))		
1.	Is Land Free Drainage arable or pasture soils	Not Entered
2.	Are there surface water gleys without a peat layer	Not Entered
3.	Do you intend to use improved genetic material	Not Entered
4.	Details	Not Entered
Ground Prep.		
1.	Woody Weed Removal	Yes
2.	Ripping	Not Entered
3.	Pit Plant	Not Entered
4.	Mole Drainage	Not Entered
5.	Mounding	Yes
6.	Ploughing	Not Entered
9.	Other Details	Not Entered
Planting Method		
1.	Angle Notch	Not Entered
2.	Pit	Not Entered
3.	Machine	Not Entered

4.	Slit	Yes
5.	Other Details	Not Entered
Road Access		
1.	Road Access	Provided
Standard Stocking		
1.	Standard Stocking	Yes
2.	Details	Not Entered
Weed Control		
1.	Herbicide Control yr0	Yes
2.	Herbicide Control yr1	Yes
3.	Herbicide Control yr2	Yes
3.	Herbicide Control yr4	Not Entered
4.	Manual	Yes
4.	Herbicide Control yr3	Yes

Fencing Details (metres)	Stock	0	Stock-Sheep	700
	Stock-Rabbit	0	Upgrade to Deer	0
	Deer-Rabbit	0	Deer	0
	Upgrade Existing Fence(s)	N		
	Upgrade Details: None Entered			

Species Approved

The species approved in this proposal relate to the digitised certified species map attached.

Species Approved for Afforestation

Plot	Area	GPC	Land Type	Species	Species Area	Yield Class	Mixture Type	Exclusion	Exclusion Type
1	5.02	GPC 3	CHF	SS	4.52	20	Groups		
				ADB	.5	10			
2	1.23	GPC 8	BHF	ALD	1.23	10	Pure		
3	.64	GPC 9 - NWE	BHF	ALD	.58	10	Groups		
				ADB	.06	10			
4	.23	GPC 9 - NWE	BHF	ALD	.21	10	Groups		
				ADB	.02	10			
5	.87	GPC 3	Bio				None		

Additional Silvicultural and Environmental Conditions

In addition to the Department's environmental and silvicultural guidelines the following specific conditions apply to this proposal:

Silvicultural and Environmental Conditions

Shallow mounding cross slope, herringbone pattern, to collector drain and to existing main drain. Silt traps to be placed before mounding. Invert mounding only NWS plots.M,
5m setback from watercourse east side of site and broadleaves adjacent. No fertiliser required.,
NWS plots to adhere to species mix and layout appropriate to GPC9. Sheep fence using min medium guage sheepwire where required.h,
Adhere to forestry & water quality guidelines,

Department of
Agriculture,
Food and the Marine
An Roinn
Talmhaíochta,
Bia agus Mara

Water Buffer Zone Setback 10m,
All guidelines to apply

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

2.CN78648 Background to file

The 8.4ha. CN78648 site is adjacent to the River Clare, which is within the Lough Corrib Special Area of Conservation (SAC code 000297). The habitats and species for which the SAC is designated (qualifying interests) include many aquatic habitats and species, some of which are listed below.

Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]
Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130]
Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140]
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]
Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]
Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]
Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]
Austropotamobius pallipes (White-clawed Crayfish) [1092]
Petromyzon marinus (Sea Lamprey) [1095]
Lampetra planeri (Brook Lamprey) [1096]
Salmo salar (Salmon) [1106]
Lutra lutra (Otter) [1355]

The conservation objectives of the SAC are to maintain or restore the favourable conservation condition of the Annex I habitats and Annex II species listed above. Any potential significant adverse impact on the SAC must be screened for Appropriate Assessment

My observations are based on a desk assessment only and discussions with the District Inspector Donal Keegan who has visited the site.

The whole site is comprised of improved agricultural grassland currently heavily grazed and poached by cattle. The soil is primarily well drained mineral with some localised dark organic material. There are no watercourses on the site but a drainage ditch along the eastern site boundary discharges towards the Clare River.

The proposed application if for native woodland establishment Alder and ADB (GPC10) within Parcels 686 and 696 in the SAC area. The main part of the site is for (GPC3) Sitka spruce and additional broadleaves and Alder and ADB (GPC 8) for Parcel 618 . Proposed Ground cultivation is by mounding and an application of 250kg fertilizer.

3. CN78648 Potential impacts:

There are potential hydrological impacts on the adjoining Clare River which is part of Lough Corrib SAC. Potential longer term impacts may be positive in establishing permanent broadleaved woodland within the SAC.

4. CN78648 Recommendations

The 8.4ha. application site is adjacent to the River Clare. Parcels 686 and 696 are within the boundary of Lough Corrib Special Area of Conservation (SAC code 000297) which is designated for a number of aquatic habitats and species that require high water quality. In order to ensure no increases in sedimentation and nutrient runoff and potential adverse hydrological impacts on the SAC, at all times strictly adhere to the Forest Service Environmental Requirements in addition, the following is recommended:

- Parcels 686 and 696 will be managed under the principles of Continuous Cover Forestry (CCF)
- Apply a 5m water set back adjacent to the relevant watercourse along the eastern boundary of the application site. Adjacent to the water set back pit plant 5 rows of broadleaves.
- Appropriate silt control measures are to be applied during cultivation and planting including temporary geotext silt traps if required.
- No fertilizer application is to be applied.
- All forestry operations are only to be undertaken in dry weather
- Before commencement of work, communication with contractors about the environmental sensitivity of the site, to raise awareness of the potential for aquatic impacts on the Clare River and downstream effects on Lough Corrib SAC.
- Monitoring of forestry operations to ensure mitigation measures are implemented and a contingency plan to be applied in the event of accident or unforeseen events.
- Future forestry thinning and felling operations will be carried out in a manner that ensures no adverse aquatic impacts on Lough Corrib SAC.

(If relevant, Recommended outcome of Appropriate Assessment Procedure (as per Forestry Inspector's AAP Manual[1]):

Please forward my response to District Inspector Donal Keegan, to inform the completion of the Appropriate Assessment Screening process (as per the Forestry Inspector's AAP Manual, September 2013). It is my view that, with good forest practice adhered to and the above conditions, Appropriate Assessment Screening Conclusion 2 will apply (i.e. "*There is no possibility that the CN78648 project, individually or in combination with other plans or projects, will have a significant effect on this NATURA site (Lough Corrib SAC 000297) and therefore an Appropriate Assessment is not required.*").

[1] Forest Service Appropriate Assessment Procedure – Forestry Inspectors Manual (Sept. 2013)

Contract: **CN78648** Scale 1: 5000

Certified Species Information

Contract Number	CN78648
Townland	Pollacorragune
County	Galway City
6" OS No:	GY29

Plot No	GPC	Parcel No	GPC Area(H)	Land Use Type	Species Area	Species	Mixture Type	Excl Area(h)	Excl Type
1	3	43327656	5.02	CHF	5.02	ADB,SS	Groups	0	
2	8	43327618	1.23	BHF	1.23	ALD	Pure	0	
3	9	43327686	.64	BHF	.64	ADB,ALD	Groups	0	
4	9	43327696	.23	BHF	.23	ADB,ALD	Groups	0	
5	3	43327604	.87	Bio	0		None	0	
		TOTALS	**7.99**		**7.12**			**0**	

Remarks:

Area Surveyed By: **Date:**

Species Certified By: **Date:**

.87

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

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29 APR 2019

Copy
JP+Mike

JOHN O'REILLY
GREEN BELT LTD
MAIN STREET
VIRGINIA
CO CAVAN

180535661

Joseph Lynch

25/04/2019

Application for Technical Approval for an Afforestation Licence

Forest Owner	FO106204G
Contract Number	CN81081
Townland	Furroor (ed furroor), Kilcolumb, Reanagishagh, Lisroe
County	Clare
Approved Area (ha)	9.39
Fencing Length (lm)	1,200.00

This is technical approval for an afforestation licence only and is not grant approval. You should note that the project will not be eligible for grant aid unless prior financial approval has been given in writing in advance of commencement of planting. Also, to qualify for Afforestation grant and premiums applicants must own, lease or be in joint management of the lands proposed for planting. You should consult with your registered forester about applying for financial approval under the Scheme.

I refer to your application for an afforestation licence as described above and shown on the enclosed map. Your application has been assessed and a licence is hereby issued on the basis that the works will be undertaken in accordance with the prescription set out in Appendix A, attached herewith. You are now required to remove your site notice immediately.

This scheme is financed by the State and payment of the grant, if financial approval is given, is subject to the following conditions:

1. Availability of funds in each financial year.

2. Submission of a fully completed and signed Form 2 (Application for Payment) and the following documents to support this application.

Proof of Ownership (including removal of any constraints on ownership)
Valid Mandate
Current Tax Clearance Certificate(s)
C2 Certificate
Provenance Certificates
Fencing Map
Biodiversity Map
Certified Species Map

* 28 day hold up 22/05/2019
* Conditions pg 5

3. Satisfactory completion of the work not later than 25/04/2022.

4. Compliance with Operational Proposals and Specifications enclosed.

5. Compliance with Departmental guidelines and requirements for Landscape, Water Quality, Harvesting, Biodiversity and Archaeology.

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

6. Compliance with Ecological Survey and Management Plan as submitted (if applicable).

7. The work is carried out by the registered company or forester specified on the original application. If it is intended to have a different company or forester undertake the work, it will be necessary to submit a new application (Form 1) to the Forest Service.

8. All applications are subject to the provisions of the penalty schedules as set out in the Afforestation Grant and Premium Scheme document.

9. All applications are subject to Cross Compliance checks with other grant schemes.

10. Grant payment may be subject to the netting policy of the Department of Agriculture, Food and the Marine.

11. This licence is issued subject to the terms and conditions of the Forestry Standards and Procedures Manual.

12. Your acceptance that the responsibility for the ultimate success of the plantation rests with you, the applicant. Plantations which fail to establish successfully will result in grant and premium recoupment.

13. Additional Environmental & Silvicultural Conditions

- Desk Audit only. Ensure that all appropriate watersetbacks are installed in accordance with slope and soil type..,
- Adhere to forestry biodiversity guidelines,
- Adhere to forestry & water quality guidelines

You are required to notify the Department of Agriculture, Food and the Marine in writing if any of the details of your application have changed. Changes to your application may invalidate this licence.

In order to allow for the possibility of appeals, you must not commence any works until 28 days from the date of this letter have elapsed. If an appeal is lodged, this licence will be suspended and no work may commence until the appeal process has concluded.

If you wish to appeal any condition attached to this licence, where applicable, you should do so in writing within 28 days of the date of this letter to the Forestry Appeals Committee. You must set out the grounds of your appeal and include a statement of the facts and contentions upon which you intend to rely along with any documentary evidence you wish to submit in support of your appeal. The appeal must be sent to the Forestry Appeals Committee, Kilminchy Court, Portlaoise, Co. Laois, Lo-Call 076 1064418 or 057 8631900.

Yours sincerely

COLIN GALLAGHER
Approval Section
Forestry Division

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

APPENDIX A

Department of Agriculture, Food and the Marine

Operational Proposals for Technical Approval for an Afforestation Licence

Forest Owner Number	FO106204G
Contract Number	CN81081
Townland	Furroor (ed furroor), Kilcolumb, Reanagishagh, Lisroe
County	Clare
Area Approved	9.39(ha)
Fencing Length (LM)	1,200.00

All applications must be developed in accordance with detailed standards and procedures as described in the current Forestry Schemes Manual. Certain specific operational proposals particular to this application are described below. No change is permitted to these proposals and species approved unless approved in advance by the Department. The Department may insist that proposed changes constitutes a new application.

Operational Proposal Details

Agro Forestry (GPC 11)		
1.	Tree Shelters	Not Entered
2.	Plant Size and Stocking	Not Entered
Drainage		
1.	Drainage	Required
2.	Drainage Comment	500
Fertiliser		
1.	Zero	Not Entered
2.	350 Kg Granulated Rock Phosphate	Not Entered
3.	250 Kg Granulated Rock Phosphate	Yes
4.	Split Application	Not Entered
5.	Other Details	50
Firebreaks/Res.		
1.	Firebreaks/Res	Required
Forestry for Fibre (GPCs: 12a and 12b))		
1.	Is Land Free Drainage arable or pasture soils	Not Entered
2.	Are there surface water gleys without a peat layer	Not Entered
3.	Do you intend to use improved genetic material	Not Entered
4.	Details	500
Ground Prep.		
1.	Woody Weed Removal	Not Entered
2.	Ripping	Not Entered
3.	Pit Plant	Not Entered
4.	Mole Drainage	Not Entered
5.	Mounding	Yes
6.	Ploughing	Not Entered
9.	Other Details	50
Planting Method		
1.	Angle Notch	Not Entered
2.	Pit	Not Entered

3.	Machine	Not Entered
4.	Slit	Yes
5.	Other Details	50
Road Access		
1.	Road Access	Provided
Standard Stocking		
1.	Standard Stocking	Yes
2.	Details	50
Weed Control		
1.	Herbicide Control yr0	Yes
2.	Herbicide Control yr1	Yes
3.	Herbicide Control yr2	Yes
3.	Herbicide Control yr4	Not Entered
4.	Manual	Yes
4.	Herbicide Control yr3	Yes

Fencing Details (metres)	Stock	1200	Stock-Sheep	0
	Stock-Rabbit	0	Upgrade to Deer	0
	Deer-Rabbit	0	Deer	0
	Upgrade Existing Fence(s)	N	Tree Shelter (Hectares)	0
	Upgrade Details: None Entered			

Species Approved

The species approved in this proposal relate to the digitised certified species map attached.

Species Approved for Afforestation

Plot	Area	GPC	Land Type	Species	Species Area	Yield Class	Mixture Type	Exclusion	Exclusion Type
1	2.88	GPC 3	CHF	SS	2.45	20	Groups		
				ADB	.43	10			
2	1.29	GPC 3	CHF	SS	1.1	20	Groups		
				ADB	.19	10			
3	.88	GPC 3	CHF	SS	.75	20	Groups		
				ADB	.13	10			
4	1.46	GPC 3	CHF	SS	1.24	20	Groups		
				ADB	.22	10			
5	.3	GPC 3	CHF	SS	.26	20	Groups		
				ADB	.05	10			
6	.41	GPC 3	CHF	SS	.35	20	Groups		
				ADB	.06	10			
7	.4	GPC 3	Bio				None		
8	1.77	GPC 3	CHF	SS	1.5	20	Groups		
				ADB	.27	10			

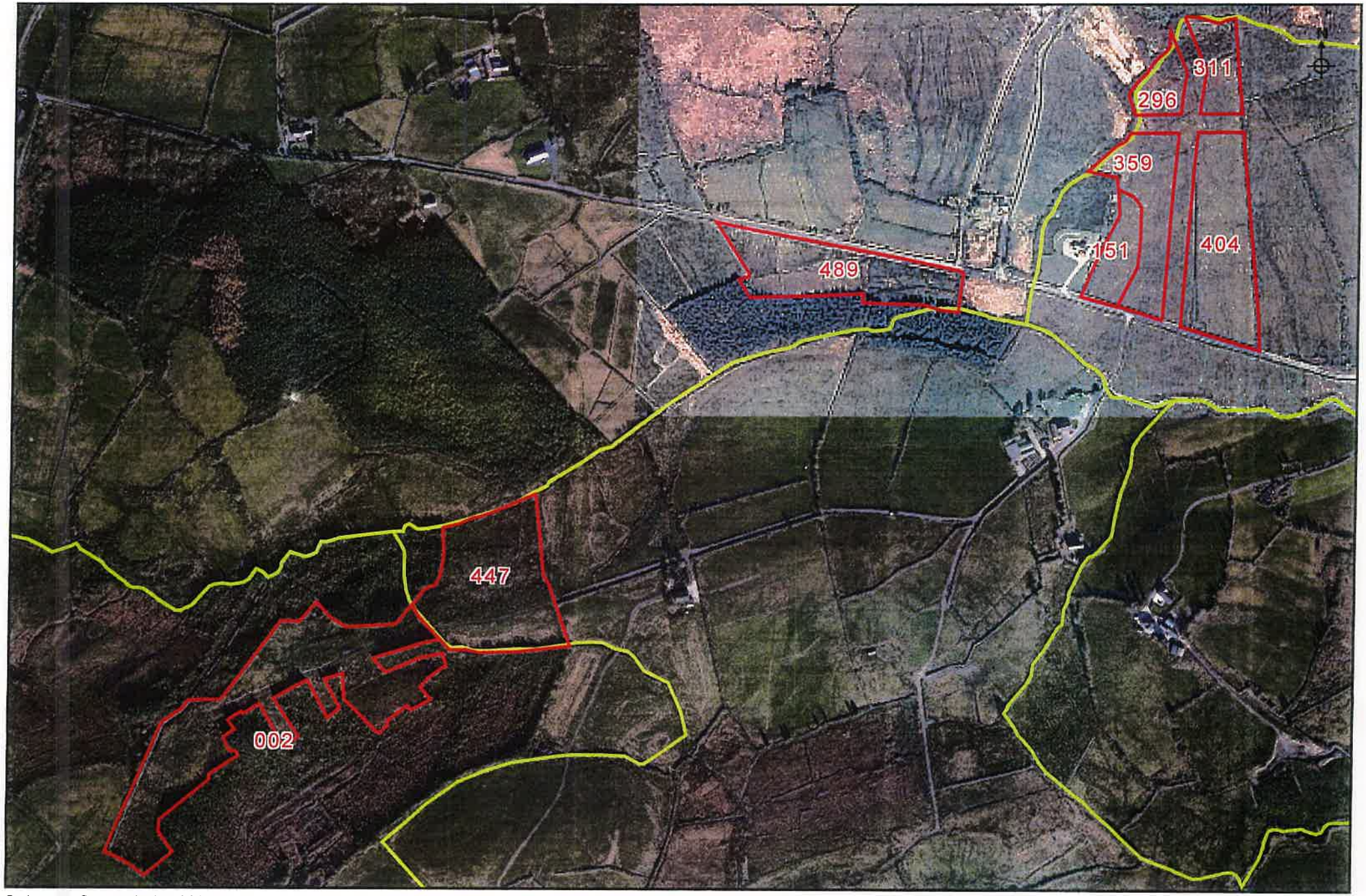
Additional Silvicultural and Environmental Conditions

In addition to the Department's environmental and silvicultural guidelines the following specific conditions apply to this proposal:

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Silvicultural and Environmental Conditions

Desk Audit only. Ensure that all appropriate watersetbacks are installed in accordance with slope and soil type..,
Adhere to forestry biodiversity guidelines,
Adhere to forestry & water quality guidelines



Contract: **CN81081** Scale 1: 5000

Certified Species Information

Contract Number	CN81081
Townland	Furroor (ed furroor), Kilcolumb, Reanagishagh, Lisroe
County	Clare
6" OS No:	CE32

Plot No	GPC	Parcel No	GPC Area(H)	Land Use Type	Species Area	Species	Mixture Type	Excl Area(h)	Excl Type
1	3	46811002	2.88	CHF	2.88	ADB,SS	Groups	0	
2	3	46811489	1.29	CHF	1.29	ADB,SS	Groups	0	
3	3	46811359	.88	CHF	.88	ADB,SS	Groups	0	
4	3	46811404	1.46	CHF	1.46	ADB,SS	Groups	0	
5	3	46811296	.3	CHF	.31	ADB,SS	Groups	0	
6	3	46811311	.41	CHF	.41	ADB,SS	Groups	0	
7	3	46811151	.4	Bio	0		None	0	
8	3	46810447	1.77	CHF	1.77	ADB,SS	Groups	0	
		TOTALS	**9.39**		**9**			**0**	

Remarks:

Area Surveyed By: **Date:**

Species Certified By: **Date:**

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

RECEIVED
17 APR 2019

19053554S
John Paul Fahy

JOHN O'REILLY
GREEN BELT LTD
MAIN STREET
VIRGINIA
CO CAVAN

15/04/2019

Application for Technical Approval for an Afforestation Licence

Forest Owner	FO123291B
Contract Number	CN81429
Townland	Craghera, Shessiv
County	Clare
Approved Area (ha)	13.03
Fencing Length (lm)	1,400.00

Copy to JP + Mike.

This is technical approval for an afforestation licence only and is not grant approval. You should note that the project will not be eligible for grant aid unless prior financial approval has been given in writing in advance of commencement of planting. Also, to qualify for Afforestation grant and premiums applicants must own, lease or be in joint management of the lands proposed for planting. You should consult with your registered forester about applying for financial approval under the Scheme.

I refer to your application for an afforestation licence as described above and shown on the enclosed map. Your application has been assessed and a licence is hereby issued on the basis that the works will be undertaken in accordance with the prescription set out in Appendix A, attached herewith. You are now required to remove your site notice immediately.

This scheme is financed by the State and payment of the grant, if financial approval is given, is subject to the following conditions:

1. Availability of funds in each financial year.

2. Submission of a fully completed and signed Form 2 (Application for Payment) and the following documents to support this application.

Proof of Ownership (including removal of any constraints on ownership)
Valid Mandate
Current Tax Clearance Certificate(s)
C2 Certificate
Provenance Certificates
Fencing Map
Biodiversity Map
Certified Species Map

*NOTE Cont on Pg 2.

3. Satisfactory completion of the work not later than 15/04/2022.

4. Compliance with Operational Proposals and Specifications enclosed.

5. Compliance with Departmental guidelines and requirements for Landscape, Water Quality, Harvesting, Biodiversity and Archaeology.

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

6. Compliance with Ecological Survey and Management Plan as submitted (if applicable).

7. The work is carried out by the registered company or forester specified on the original application. If it is intended to have a different company or forester undertake the work, it will be necessary to submit a new application (Form 1) to the Forest Service.

8. All applications are subject to the provisions of the penalty schedules as set out in the Afforestation Grant and Premium Scheme document.

9. All applications are subject to Cross Compliance checks with other grant schemes.

10. Grant payment may be subject to the netting policy of the Department of Agriculture, Food and the Marine.

11. This licence is issued subject to the terms and conditions of the Forestry Standards and Procedures Manual.

12. Your acceptance that the responsibility for the ultimate success of the plantation rests with you, the applicant. Plantations which fail to establish successfully will result in grant and premium recoupment.

13. Additional Environmental & Silvicultural Conditions

- parcel 192 (plot 10) does not meet minimum area requirements.,
- Any areas that do not meet the minimum rooting depth of 45cms are to be excluded.,
- Any locations on the site that are adjoining locations where water is rising must have installed the correct Fresh Water Pearl Mussel setbacks.,
- Adhere to forestry biodiversity guidelines,
- Adhere to forestry & water quality guidelines

You are required to notify the Department of Agriculture, Food and the Marine in writing if any of the details of your application have changed. Changes to your application may invalidate this licence.

In order to allow for the possibility of appeals, you must not commence any works until 28 days from the date of this letter have elapsed. If an appeal is lodged, this licence will be suspended and no work may commence until the appeal process has concluded.

If you wish to appeal any condition attached to this licence, where applicable, you should do so in writing within 28 days of the date of this letter to the Forestry Appeals Committee. You must set out the grounds of your appeal and include a statement of the facts and contentions upon which you intend to rely along with any documentary evidence you wish to submit in support of your appeal. The appeal must be sent to the Forestry Appeals Committee, Kilminchy Court, Portlaoise, Co. Laois, Lo-Call 076 1064418 or 057 8631900.

Yours sincerely

COLIN GALLAGHER
Approval Section
Forestry Division

APPENDIX 4

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Department of Agriculture, Food and the Marine

Operational Proposals for Technical Approval for an Afforestation Licence

Forest Owner Number	FO123291B
Contract Number	CN81429
Townland	Craghera, Shessiv
County	Clare
Area Approved	13.03(ha)
Fencing Length (LM)	1,400.00

All applications must be developed in accordance with detailed standards and procedures as described in the current Forestry Schemes Manual. Certain specific operational proposals particular to this application are described below. No change is permitted to these proposals and species approved unless approved in advance by the Department. The Department may insist that proposed changes constitutes a new application.

Operational Proposal Details

Agro Forestry (GPC 11)		
1.	Tree Shelters	Not Entered
2.	Plant Size and Stocking	Not Entered
Drainage		
1.	Drainage	Required
2.	Drainage Comment	500
Fertiliser		
1.	Zero	Not Entered
2.	350 Kg Granulated Rock Phosphate	Not Entered
3.	250 Kg Granulated Rock Phosphate	Yes
4.	Split Application	Not Entered
5.	Other Details	50
Firebreaks/Res.		
1.	Firebreaks/Res	Not Required
Forestry for Fibre (GPCs: 12a and 12b))		
1.	Is Land Free Drainage arable or pasture soils	Not Entered
2.	Are there surface water gleys without a peat layer	Not Entered
3.	Do you intend to use improved genetic material	Not Entered
4.	Details	500
Ground Prep.		
1.	Woody Weed Removal	Not Entered
2.	Ripping	Not Entered
3.	Pit Plant	Not Entered
4.	Mole Drainage	Not Entered
5.	Mounding	Yes
6.	Ploughing	Not Entered
9.	Other Details	50
Planting Method		
1.	Angle Notch	Not Entered
2.	Pit	Not Entered
3.	Machine	Not Entered

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

4.	Slit	Yes
5.	Other Details	50
Road Access		
1.	Road Access	Required
Standard Stocking		
1.	Standard Stocking	Yes
2.	Details	50
Weed Control		
1.	Herbicide Control yr0	Yes
2.	Herbicide Control yr1	Yes
3.	Herbicide Control yr2	Yes
3.	Herbicide Control yr4	Not Entered
4.	Manual	Yes
4.	Herbicide Control yr3	Yes

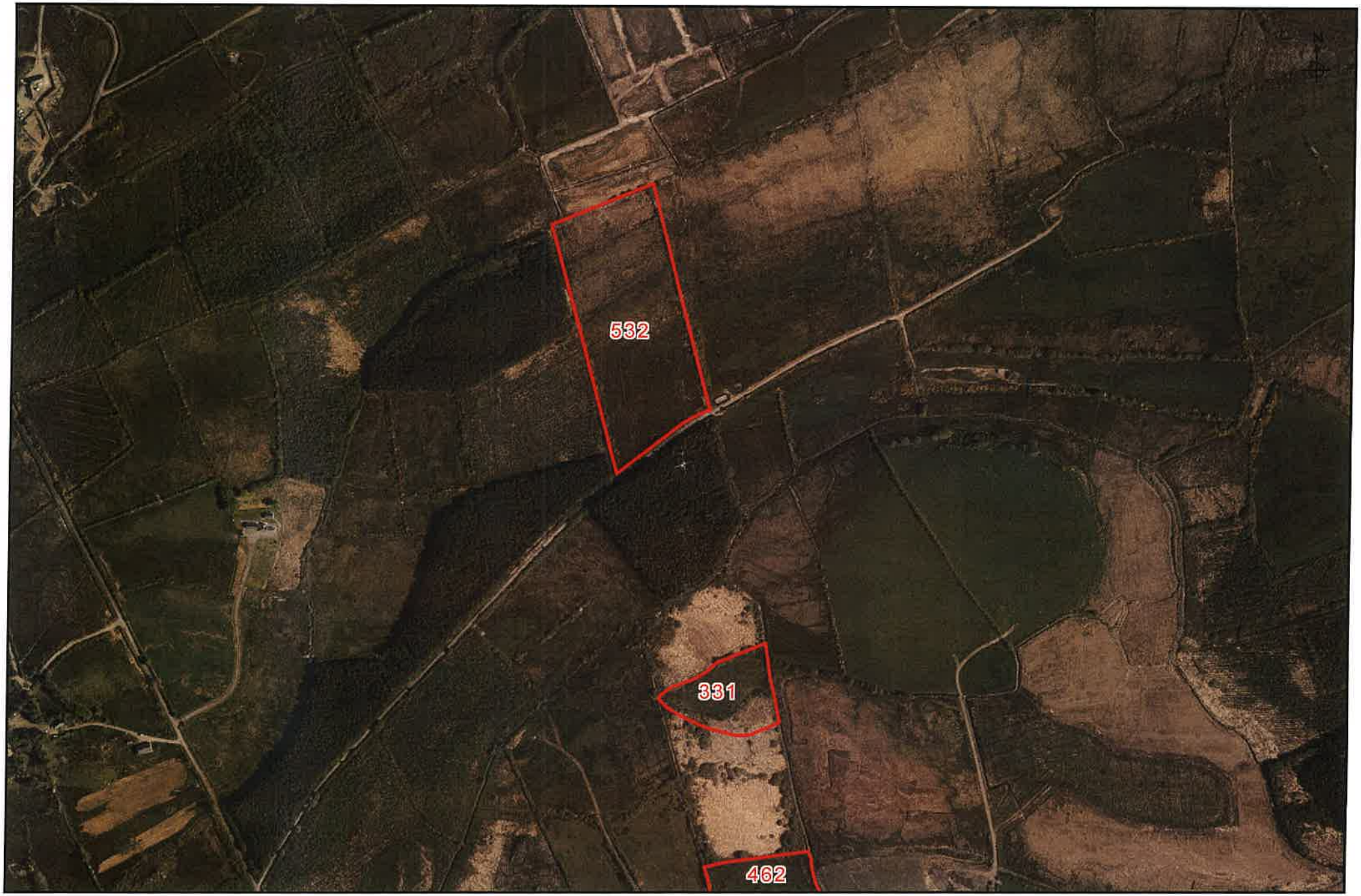
Fencing Details (metres)				
	Stock	1400	Stock-Sheep	0
	Stock-Rabbit	0	Upgrade to Deer	0
	Deer-Rabbit	0	Deer	0
	Upgrade Existing Fence(s)	0	Tree Shelter (Hectares)	0
	Upgrade Details: None Entered			

Species Approved

The species approved in this proposal relate to the digitised certified species map attached.

Species Approved for Afforestation

Plot	Area	GPC	Land Type	Species	Species Area	Yield Class	Mixture Type	Exclusion	Exclusion Type
1	2.14	GPC 3	CHF	SS	1.95	20	Groups		
				ADB	.34	10			
2	1.12	GPC 3	CHF	SS	1.03	20	Groups		
				ADB	.18	10			
3	1.99	GPC 3	CHF	SS	2.21	20	Groups		
				ADB	.39	10			
4	1.86	GPC 3	CHF	SS	1.58	20	Groups		
				ADB	.28	10			
5	.34	GPC 3	Bio				None		
6	1.43	GPC 3	CHF	SS	1.36	20	Groups		
				ADB	.24	10			
7	.74	GPC 3	CHF	SS	.39	15	Groups		
				ADB	.07	10			
8	2.89	GPC 3	CHF	SS	2.47	20	Groups		
				ADB	.44	10			
9	.52	GPC 3	Bio				None		



Contract: **CN81429** Scale 1: 5000

Contract: **CN81429**

Scale 1: 5000

Certified Species Information

Contract Number	CN81429
Townland	Craghera, Shessiv
County	Clare
6" OS No:	CE49

Plot No	GPC	Parcel No	GPC Area(H)	Land Use Type	Species Area	Species	Mixture Type	Excl Area(h)	Excl Type
1	3	48649010	2.14	CHF	2.29	ADB,SS	Groups	0	
2	3	48649137	1.12	CHF	1.21	ADB,SS	Groups	0	
3	3	48649279	1.99	CHF	2.6	ADB,SS	Groups	0	
4	3	46543683	1.86	CHF	1.86	ADB,SS	Groups	0	
5	3	48649349	.34	Bio	0		None	0	
6	3	48649462	1.43	CHF	1.6	ADB,SS	Groups	0	
7	3	48819331	.74	CHF	.46	ADB,SS	Groups	0	
8	3	48649532	2.89	CHF	2.91	ADB,SS	Groups	0	
9	3	48649480	.52	Bio	0		None	0	
		TOTALS	**13.03**		**12.93**			**0**	

Remarks:

Area Surveyed By: **Date:**

Species Certified By: **Date:**

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

RECEIVED
23 NOV 2018

18213547B - Eamon + Maura O'Connor
V SC

JOHN O'REILLY
GREEN BELT LTD
MAIN STREET
VIRGINIA
CO CAVAN

22/11/2018

Application for Technical Approval for an Afforestation Licence

Forest Owner	FO138610W
Contract Number	CN81335
Townland	Rathgoggan north, Ballincolly
County	Cork, Limerick
Approved Area (ha)	20.96
Fencing Length (lm)	300.00

copy to G Moloney + A. Farrelly

This is technical approval for an afforestation licence only and is not grant approval. You should note that the project will not be eligible for grant aid unless prior financial approval has been given in writing in advance of commencement of planting. Also, to qualify for Afforestation grant and premiums applicants must own, lease or be in joint management of the lands proposed for planting. You should consult with your registered forester about applying for financial approval under the Scheme.

I refer to your application for an afforestation licence as described above and shown on the enclosed map. Your application has been assessed and a licence is hereby issued on the basis that the works will be undertaken in accordance with the prescription set out in Appendix A, attached herewith. You are now required to remove your site notice immediately.

This scheme is financed by the State and payment of the grant, if financial approval is given, is subject to the following conditions:

1. Availability of funds in each financial year.

2. Submission of a fully completed and signed Form 2 (Application for Payment) and the following documents to support this application.

Proof of Ownership (including removal of any constraints on ownership)
Valid Mandate
Current Tax Clearance Certificate(s)
C2 Certificate
Provenance Certificates
Fencing Map
Biodiversity Map
Certified Species Map

NOTE Cond on Pg 2 + Arch letter + Map

3. Satisfactory completion of the work not later than 21/11/2021.

4. Compliance with Operational Proposals and Specifications enclosed.

5. Compliance with Departmental guidelines and requirements for Landscape, Water Quality, Harvesting, Biodiversity and Archaeology.

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6. Compliance with Ecological Survey and Management Plan as submitted (if applicable).

7. The work is carried out by the registered company or forester specified on the original application. If it is intended to have a different company or forester undertake the work, it will be necessary to submit a new application (Form 1) to the Forest Service.

8. All applications are subject to the provisions of the penalty schedules as set out in the Afforestation Grant and Premium Scheme document.

9. All applications are subject to Cross Compliance checks with other grant schemes.

10. Grant payment may be subject to the netting policy of the Department of Agriculture, Food and the Marine.

11. This licence is issued subject to the terms and conditions of the Forestry Standards and Procedures Manual.

12. Your acceptance that the responsibility for the ultimate success of the plantation rests with you, the applicant. Plantations which fail to establish successfully will result in grant and premium recoupment.

13. Additional Environmental & Silvicultural Conditions

- Keep drains back 10m from streams. Plant 20% of the stream setback with alder/birch on inverted mounds.,
- Only fence boundaries which are not stock-proof.,
- Adhere to forestry & water quality guidelines,
- All guidelines to apply

Specific Archaeological Conditions:
20m wide exclusion zone/setback required to be established from the outermost extent of the enclosure (LI 047-031), as illustrated. Fencing, plus access.
No deep drains within 30m of this monument as well.
See attached archaeological report and accompanying illustrative map for further details, including specific measurements.

You are required to notify the Department of Agriculture, Food and the Marine in writing if any of the details of your application have changed. Changes to your application may invalidate this licence.

In order to allow for the possibility of appeals, you must not commence any works until 28 days from the date of this letter have elapsed. If an appeal is lodged, this licence will be suspended and no work may commence until the appeal process has concluded.

If you wish to appeal any condition attached to this licence, where applicable, you should do so in writing within 28 days of the date of this letter to the Forestry Appeals Committee. You must set out the grounds of your appeal and include a statement of the facts and contentions upon which you intend to rely along with any documentary evidence you wish to submit in support of your appeal. The appeal must be sent to the Forestry Appeals Committee, Kilminchy Court, Portlaoise, Co. Laois, Lo-Call 076 1064418 or 057 8631900.

Yours sincerely

COLIN GALLAGHER
Approval Section
Forestry Division

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

APPENDIX A

Department of Agriculture, Food and the Marine

Operational Proposals for Technical Approval for an Afforestation Licence

Forest Owner Number	FO138610W
Contract Number	CN81335
Townland	Rathgoggan north, Ballincolly
County	Cork, Limerick
Area Approved	20.96(ha)
Fencing Length (LM)	300.00

All applications must be developed in accordance with detailed standards and procedures as described in the current Forestry Schemes Manual. Certain specific operational proposals particular to this application are described below. No change is permitted to these proposals and species approved unless approved in advance by the Department. The Department may insist that proposed changes constitutes a new application.

Operational Proposal Details

Agro Forestry (GPC 11)		
1.	Tree Shelters	Not Entered
2.	Plant Size and Stocking	Not Entered
Drainage		
1.	Drainage	Required
2.	Drainage Comment	500
Fertiliser		
1.	Zero	Not Entered
2.	350 Kg Granulated Rock Phosphate	Not Entered
3.	250 Kg Granulated Rock Phosphate	Yes
4.	Split Application	Not Entered
5.	Other Details	50
Firebreaks/Res.		
1.	Firebreaks/Res	Not Required
Forestry for Fibre (GPCs: 12a and 12b))		
1.	Is Land Free Drainage arable or pasture soils	Not Entered
2.	Are there surface water gleys without a peat layer	Not Entered
3.	Do you intend to use improved genetic material	Not Entered
4.	Details	500
Ground Prep.		
1.	Woody Weed Removal	Not Entered
2.	Ripping	Not Entered
3.	Pit Plant	Not Entered
4.	Mole Drainage	Not Entered
5.	Mounding	Yes
6.	Ploughing	Not Entered
9.	Other Details	50
Planting Method		
1.	Angle Notch	Yes
2.	Pit	Not Entered
3.	Machine	Not Entered

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Department of Agriculture,
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4.	Slit	Yes
5.	Other Details	50
Road Access		
1.	Road Access	Provided
Standard Stocking		
1.	Standard Stocking	Yes
2.	Details	50
Weed Control		
1.	Herbicide Control yr0	Yes
2.	Herbicide Control yr1	Yes
3.	Herbicide Control yr2	Yes
3.	Herbicide Control yr4	Not Entered
4.	Manual	Yes
4.	Herbicide Control yr3	Not Entered

Fencing Details (metres)				
	Stock	300	Stock-Sheep	0
	Stock-Rabbit	0	Upgrade to Deer	0
	Deer-Rabbit	0	Deer	0
	Upgrade Existing Fence(s)	N	Tree Shelter (Hectares)	0
	Upgrade Details: None Entered			

Species Approved

The species approved in this proposal relate to the digitised certified species map attached.

Species Approved for Afforestation

Plot	Area	GPC	Land Type	Species	Species Area	Yield Class	Mixture Type	Exclusion	Exclusion Type
1	6.52	GPC 3	CHF	SS	5.54	22	Integrated Mix		
				ALD	.98	10			
2	5.23	GPC 3	CHF	SS	4.45	22	Integrated Mix		
				ALD	.78	10			
3	8.38	GPC 9 - NWE	BHF	PO	5.03	8	Integrated Mix		
				BI	3.35	10			
4	.39	GPC 9 - NWE	Bio				None		
5	.44	GPC 9 - NWE	Bio				None		

Additional Silvicultural and Environmental Conditions

In addition to the Department's environmental and silvicultural guidelines the following specific conditions apply to this proposal:

Silvicultural and Environmental Conditions

Keep drains back 10m from streams. Plant 20% of the stream setback with alder/birch on inverted mounds.,
Only fence boundaries which are not stock-proof.,
Adhere to forestry & water quality guidelines,
All guidelines to apply

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Certified Species Information

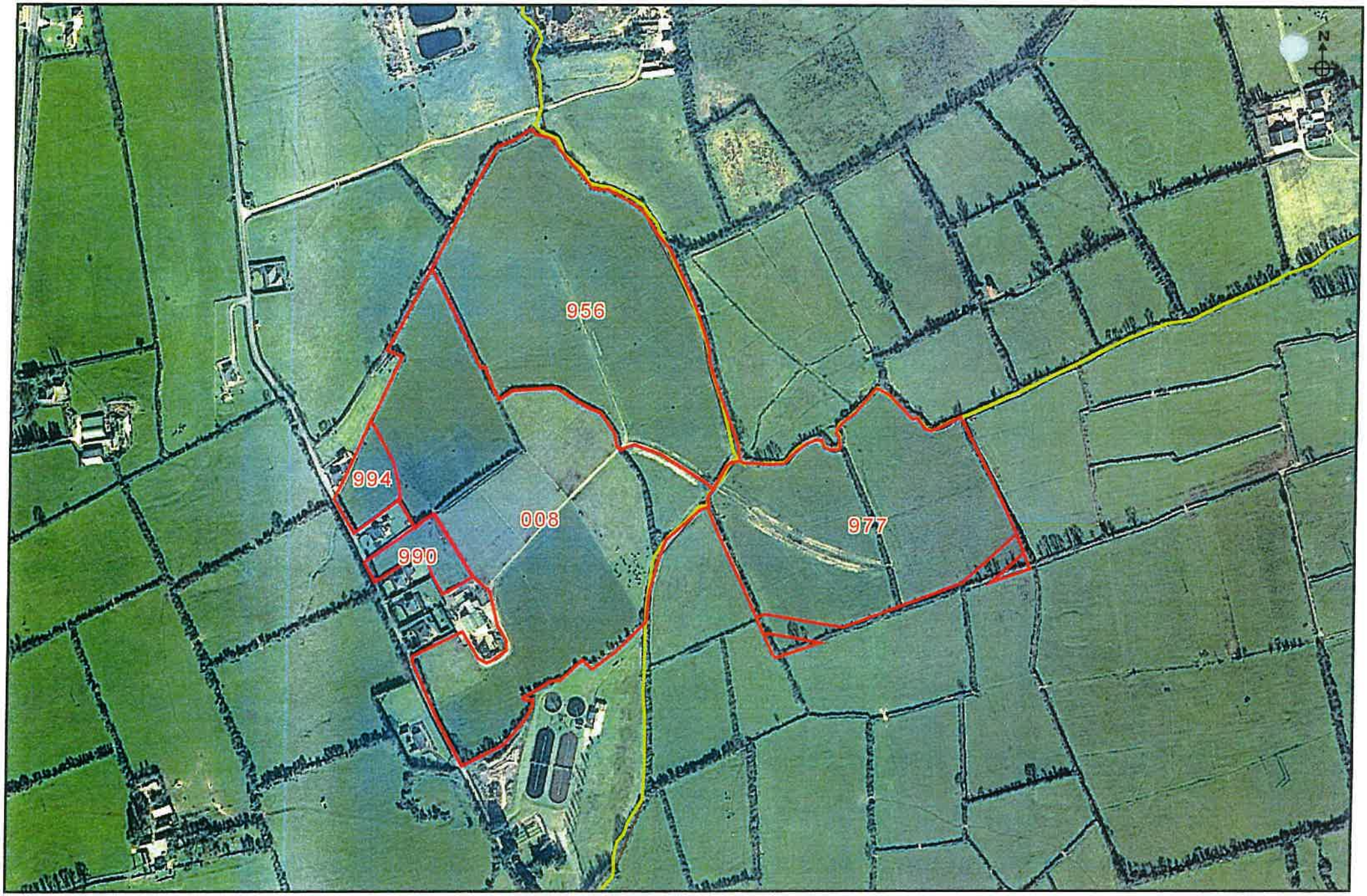
Contract Number	CN81335
Townland	Rathgoggan north, Ballincolly
County	Cork City
6" OS No:	CK3

Plot No	GPC	Parcel No	GPC Area(H)	Land Use Type	Species Area	Species	Mixture Type	Excl Area(h)	Excl Type
1	3	46481956	6.52	CHF	6.52	ALD,SS	Integrated Mix	0	
2	3	46481977	5.23	CHF	5.23	ALD,SS	Integrated Mix	0	
3	9	46482008	8.38	BHF	8.38	BI,PO	Integrated Mix	0	
4	9	46481990	.39	Bio	0		None	0	
5	9	46481994	.44	Bio	0		None	0	
		TOTALS	**20.96**		**20.13**			**0**	

Remarks:

Area Surveyed By: **Date:**

Species Certified By: **Date:**



Contract: **CN81335** Scale 1: 5000

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Approvals Section,
Forest Service,
Department of Agriculture, Food and the Marine,
Johnstown Castle Estate,
Co. Wexford,
Y35 PN52.

15th October 2018

Re: CN 81335 – Rathgoggan North , Co. Limerick

Dear Sir / Madam,

I am writing to you with regard to the application for a licence for afforestation in respect of certain lands at Rathgoggan North, Co. Limerick.

The area proposed for afforestation is contiguous to a Recorded Monument – an enclosure (LI047-031).

It is recommended that the archaeological conditions detailed on the accompanying page should be attached to any letter of approval.

For the purposes of the EIA Screening Form and the Forestry Regulations 2017 this constitutes:

	Yes	*No*	*N/A*
- Adherence to the normal standards of the Forestry and Archaeology Guidelines	X		
- Specific conditions regarding buffer zones etc	X		
- Archaeological Monitoring during ground preparation or drainage works		X	
- Archaeological Assessment		X	
- Refusal in part		X	
- Refusal		X	

For the purposes of the IFORIS summary notes this constitutes:

Archaeological Conditions: Extra

Yours sincerely,

Barry Fitzgibbon
Archaeologist Grade III
Forestry Inspectorate (Forest Service)

An Roinn Talmhaíochta, Bia agus Mara,
An Teach Talmhaíochta, Sráid Chill Dara, Baile Átha Cliath 2, D02 WK12
Department of Agriculture, Food and the Marine
Agriculture House, Kildare Street, Dublin 2, D02 WK1
T +353 1 607 2164 | barry.fitzgibbon@agriculture.gov.ie
www.agriculture.gov.ie

CN 81335

Rathgoggan North, Co. Limerick

Archaeological conditions

The area proposed for afforestation is contiguous to a Recorded Monument – an enclosure (LI047-031).

It is of concern that every effort should be made to prevent damage to this Recorded Monument as well as any surviving remains of the historic limekiln and to ensure that there would be an appropriate response should any other previously unrecorded archaeology be discovered during the course of the works.

Consequently, the following conditions should be adhered to during the proposed afforestation works:

1. As always, at all times during the proposed afforestation operations the terms of the '*Environmental Requirements for Afforestation*' should be adhered to.

2. **Specifically, the areas highlighted in yellow with red hatching on the accompanying map, should be entirely excluded from the proposed afforestation works.**

   That means an unplanted exclusion zone/setback 20m in along each field boundary adjacent to the enclosure, as illustrated.

3. In addition no deep drains should be excavated within 30m of the enclosure.

4. The archaeological exclusion zone should be properly fenced off prior to works commencing and all operational staff should be apprised of the location of the exclusion zone and the Recorded Monument within it.

5. These archaeologically excluded areas may be eligible in whole or in part as an ABE/open space: see the Forest Standards Manual for details and rules.

6. Any previously unrecorded archaeological site or artefact discovered during the course of the works on site must be left undisturbed and the relevant authorities notified immediately. A minimum exclusion zone of 20m, preferably 100m or more, must be created until the any such site has been properly investigated.

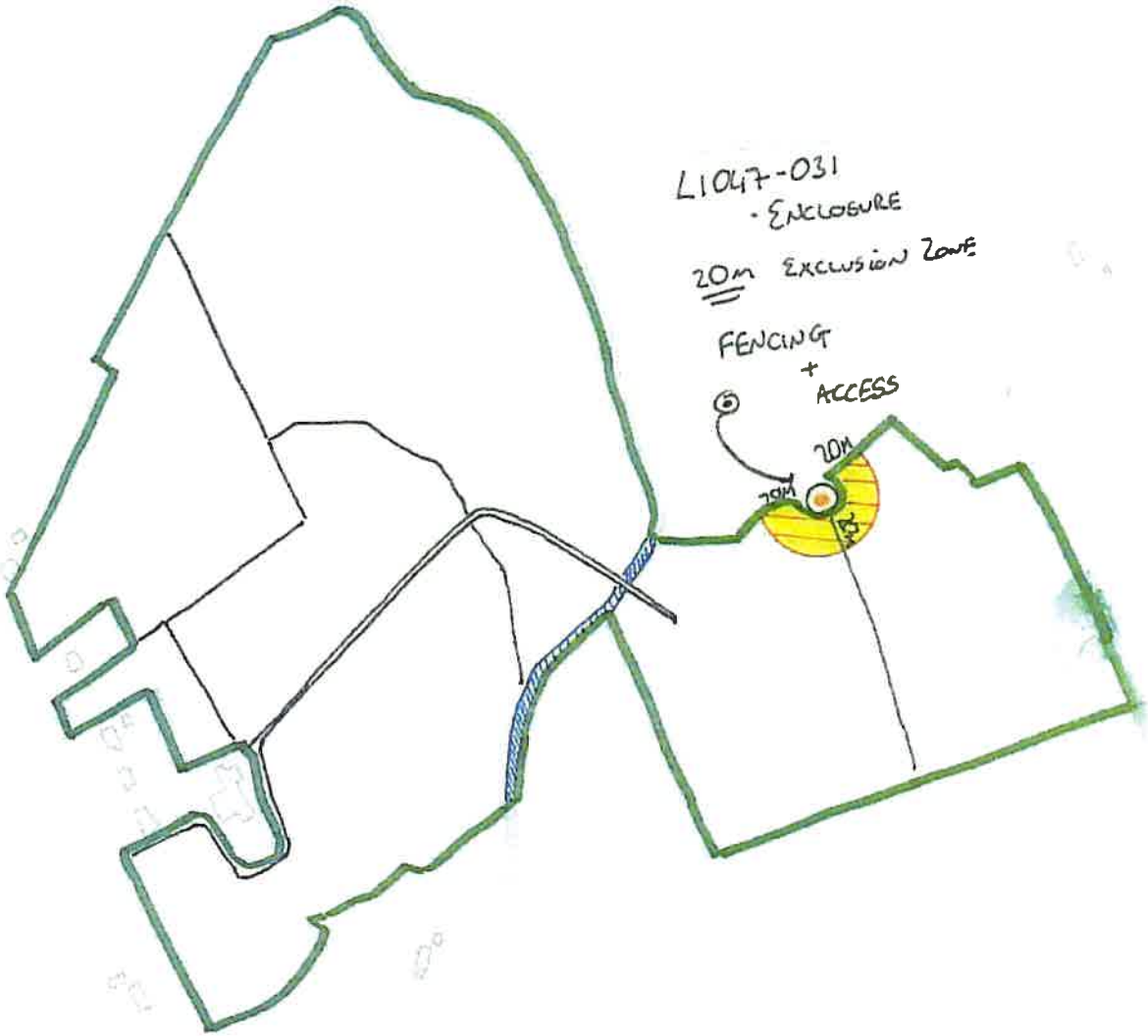
   The relevant authorities include the duty archaeologist in the Forest Service, DAFM, and in the case of the discovery of human remains An Garda Síochána and the Local Coroner.

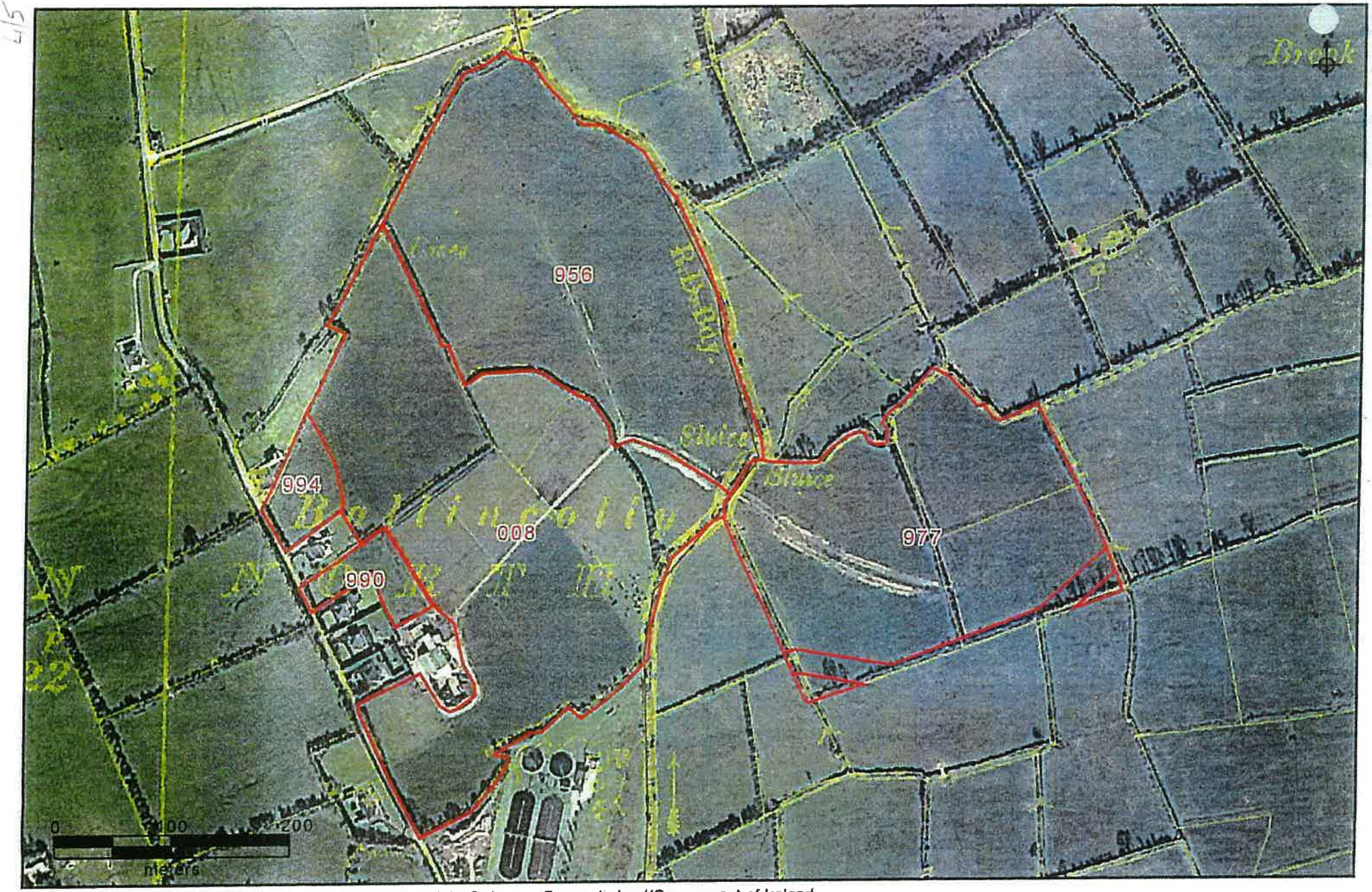
7. Otherwise, no known archaeological objections.

Barry Fitzgibbon
Forest Service Inspectorate
Ph.: 01-6072164
Mobile.: 086-0498249

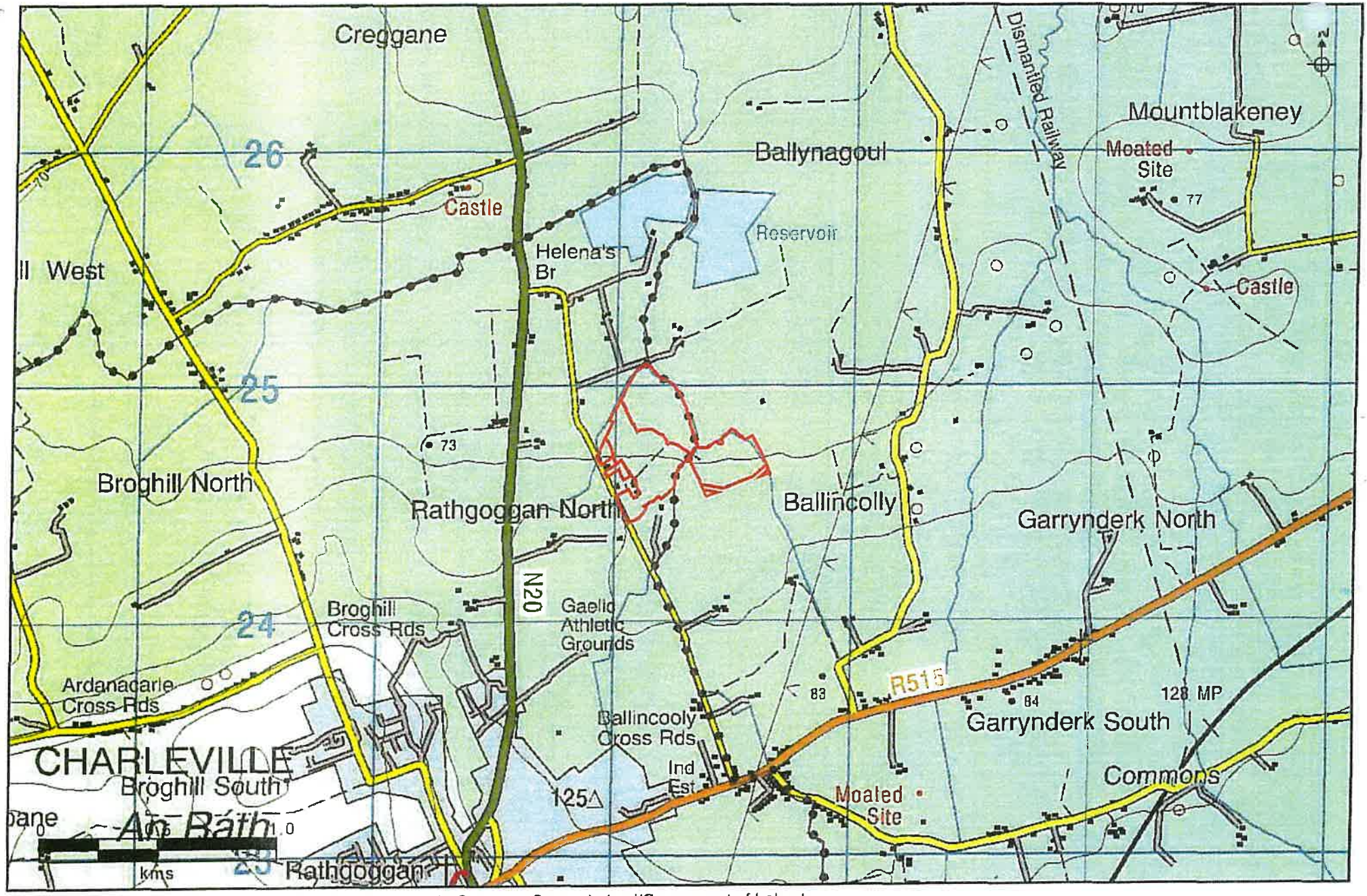
3/5

CN81335 - RATHGOGGAN NORTH. CO. LIMERICK





Contract: **CN81335** Scale 1: 4000



Contract: **CN81335** Scale 1: 20000