

Forestry Standards and Procedures Manual



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1. Introduction

The Forest Service of the Department of Agriculture, Food and the Marine is Ireland's national forest authority. It is responsible for, inter alia, national forest policy, promotion of private forestry, administration of forest consent system and forestry support schemes, forest health and protection, control of felling and promotion of research in forestry and forest products.

The objective of the Forest Service is to “*develop forestry to a scale and in a manner which maximises its contribution to the national economic and social wellbeing on a sustainable basis and which is compatible with the protection of the environment*”.

The ***Forestry Standards and Procedures Manual*** provides guidance on the operational requirements of the various Schemes which are subject to the conditions set out in each of the ***Scheme documents***. Eligibility under the various schemes is governed by the terms and conditions of the relevant scheme document, as published by the Department.

The scheme documents as well circulars amending or updating scheme requirements are available on the Department's website. This Manual complements, and should be read in conjunction with, the *National Forest Standard*, the *Code of Best Forest Practice* and the suite of mandatory environmental guidelines published by the Department relating to Archaeology, Biodiversity, Landscape, Water Quality, Aerial Fertilisation, Harvesting, Forest Protection, Otters and Kerry Slug. Adherence to the measures described in these publications is a condition of all grant schemes.

This manual relates to the Schemes funded by the State under the Forestry Development Programme for 2014-2020. The programme is 100% funded from the Exchequer and is subject to European Union State Aid rules.

2. Application Process for the Afforestation and Native Woodland (Establishment) Schemes (2014 - 2020)

All proposed afforestation developments must receive the prior written approval of the Forest Service.

It is an offence to undertake afforestation without the prior written approval of the Minister. Any afforestation development which proceeds without such approval will not be eligible for grant payment and premium under the Scheme. Under the *European Communities (Forest Consent and Assessment) Regulations 2010 (S.I. No. 558 of 2010)*, as amended (by S.I. No. 442 of 2012) the Minister may also require the removal of the forest and may seek to prosecute the applicant through the Courts.

No differentiation is made between farmers and non-farmers in relation to the rate of premium payable under the Afforestation and Native Woodland (Establishment) Grant and Premium Schemes 2014-2020.

Following completion of the works, formal applications for payment of the Afforestation Grant (1st and 2nd Instalments) and Premiums must be made by the applicant through his or her registered forester.

2.1 Application for Pre-planting Approval - Form 1

All Form 1 applications must be completed and signed by the applicant and a qualified forester whose name is included on the Register of Foresters and Forestry Companies. This Register is available on the Department's website or on request from the Forest Service. The following enclosures must accompany the application:

- Form 1
- Site Location Map
- Certified Species Map
- Biodiversity Map
- Fencing Map (if applicable)
- State Aid and Incentive Effect declaration by beneficiary and additional documentation in the case of applications by large companies
- Calcium carbonate CaCO₃ test results (if applicable) – see Appendix 15.
- Drainage Survey report – see Chapter 8
- Soil Analysis report – see Chapter 8 and Appendix 13
- Forms A and B of the Fresh Water Pearl Mussel mitigation measures (if applicable)
- Release of any constraints on ownership e.g. turbary rights on a folio
- Form 1 signed by the owner of the property

The application is processed by the Forest Service and assigned a unique Forest Service reference number the “Contract Number”. An Online facility, called iNET, is available for the submission of a Form 1. Registered foresters can register to use iNET by logging onto the Department's website www.agriculture.gov.ie.

Form 1 applications go through the following procedures:

The application is referred to the relevant Forestry Inspector for assessment and recommendations.

- If there are any environmental considerations identified, the application is simultaneously referred to the one or more of relevant prescribed consultation body bodies, as detailed in Chapter 13.
- Notice of all applications for approval is published on the Department's website and any member of the public, including non-governmental organisations promoting environmental protection, may make a submission on the proposed development within 28 days.
- If the proposed development is greater than 25 hectares the application is automatically referred to the relevant Local Authority for their observations. Sites below this threshold may also be referred to Local Authorities depending on their location and landscape sensitivity, as detailed in Chapter 13. Sites may also be referred on a case by case basis where other potential issues are identified e.g. water abstraction points
- EIA Screening and/or screening for an Appropriate Assessment
- If the site is greater than 50 hectares, or a proposed road is greater than 2 km, an Environmental Impact Statement must accompany the Form 1 to enable an EIA to be undertaken
- In addition if a site is less than 50 hectares and, after screening by the Forest Service, it is considered that the proposed development is likely to have significant environmental an Environmental Impact Statement will be requested from the applicant to enable an EIA to be undertaken.
- Following issue of technical approval a separate application must be made on Form 1a for financial approval, to be followed by notification of substantive commencement of work (Form 1b) and completion of work (Form 1c).

Note: *A "technical approval" confirms that a) that the prior written approval for afforestation required under the European Communities (Forest Consent and Assessment) Regulations 2010), as amended, has been obtained, and b) the proposed afforestation project is compatible with the objective of ensuring that there are no adverse impacts for the environment or that such risks are mitigated by the conditions that form part of the approval. It also confirms that the project complies, in principle, with the conditions of the Scheme and that application for a grant may be made, subject to the availability of funds and completion of the project in compliance with the terms and conditions of the scheme. Persons who undertake afforestation without prior technical approval may be required to remove the trees planted and to restore the land to its condition prior to the commencement of the development within a specified timeframe, and/or be liable to prosecution. A separate application for "financial approval" must be submitted before the planting work commences if the applicant wishes to proceed with the project and apply for a grant. Financial approval will only be granted if there are sufficient funds available.*

The referrals described above are initiated simultaneously. The general time frame for these consultations is shown in Table 30 in Chapter 13.

If the Forest Service District Inspector finds that issues requiring referral to a prescribed body have not been identified by the registered forester at the time of application, the referral will take place after completion of his/her report resulting in delays in the processing of the application. Also note the Forestry Scheme Penalty Schedules (DAFM January 2015).

2.2 Changes to Specifications

Any proposed changes to species and/or plot boundary changes must be submitted to Approvals Section on a revised certified species map and include a revised plot table, i.e. page 5 of the Form1. Where significant changes to species and/or plot locations are proposed, further consultation referral to one or more prescribed consultation bodies and or public notification may be required. This may include the situation where a number of approved plots are proposed for exclusion which may create an adverse environmental impact and particularly in respect of landscape considerations. For example if the exclusion of some plots left the remaining plots visually obtrusive on a landscape sensitive hillside then this would constitute a significant material change which would require further consultation. Where there are no adverse environmental or social impacts associated with planting less than the area approved there is no requirement to contact the Forest Service. However the revised application must still conform to the schemes rules e.g. regarding ABE allowances and broadleaf species requirements, on its own merits. If Registered Foresters are in any doubt on whether a proposal amounts to a significant material change they should contact the Forest Service in writing outlining proposed changes for approval.

Significant material changes which have not been approved in advance of works being carried out may invalidate any approval issued and eligibility for grant aid.

2.3 Application for 1st instalment Grant and 1st Premium – Form 2

The 1st instalment of the Afforestation Grant and 1st Premium are due for payment upon successful completion of the initial site operations and submission of a completed Form 2.

The application must be completed and signed, at the time of submission, by both the applicant and the registered forester to whom pre-planting approval issued.

The Form 2 includes a Forest Management Plan outlining the management objectives of the forest and a timeline within which the various activities including thinning and felling are proposed.

If the applicant carries out the development works, the registered forester who completed the Form 1 must complete the Form 2 application to confirm that the works have been carried out in accordance with the Form 1 specifications and Forest Service standards. If developments are not compliant with scheme rules and specifications the application form must not be signed and submitted for payment.

No Form 2 will be processed for grant payment if the company who carried out the work is different from that which received approval at Form 1 stage, unless specific prior written approval has been given by the Forest Service.

The following enclosures must be submitted with the application:

- Form 2 completed

- Certified Species map
- Biodiversity map
- Fencing map (if applicable)
- Current Tax Clearance Certificate(s) for applicant and forester
- C2 Certificate for contractor(s) used
- Provenance Declaration Forms for all species planted - see Chapter 8 and Appendix 1
- A valid mandate, if the grant is mandated to a Registered Forester / Forestry Company - see Appendices 2 and 3.
- Forest Management Plan.
- Proof of ownership – see Chapter 3

Where the applicant for payment is not the same as the person who received the initial technical approval the declarations for Incentive Effect and Beneficiary should also be submitted.

Applications for 1st instalment grant may be subject to site inspections by the Forest Service to ensure the plantation has been established to the required standards as outlined in *Chapter 8- Silvicultural Standards (Section 8.19.1)*. If the documentation is complete and the site inspection confirms the works have been carried out in compliance with the Scheme, the Afforestation Grant and 1st Premium will be paid.

2.3.1 Statement of Costs

The Afforestation Schemes and Thinning and Tending Scheme are administered under the fixed-rate grant system and statements of costs are not required. Applicants must detail the area claimed per Grant and Premium Category (*as described in Chapter 4*) and if claiming a fencing grant, the fence length, if it is I.S. 436 and type erected.

2.4 Application for 2nd instalment grant – Form 3

Payment of the 2nd instalment afforestation grant can be claimed 4 years after the completion date of the plantation, subject to the plantation being successfully established and maintained. Applications for 2nd instalment grant may be subject to a site inspection by a Forestry Inspector to ensure the plantation has been established and managed to the required standard. The application for payment of the 2nd instalment afforestation grant (Form 3) must be completed and signed by the applicant and a registered forester. An application for payment must be based on a recent field inspection within the last 6 months by a registered forester who can declare that all plots meet the required standard. The Form 3 will be posted to the applicant by the Forest Service at the appropriate time.

If the entire plantation is up to the required standard, and all scheme conditions have been met, the grant will be paid.

Payment of the 2nd Instalment grant will be postponed on sites which have been damaged by fire and/or wind until they have been successfully reconstituted and one full growing season has passed. The Forest Service will assess reconstituted sites 4 years after planting.

2.4.1 Forest Management Plans

After payment of the 11th premium, all afforestation scheme applicants must submit a ***Forest Management Plan to cover the period from Year 12 to Harvesting time*** for any plantation which is 5 hectares or greater. A ***Forest Management Plan*** must be submitted before payment of the 12th and subsequent premiums can be made.

A Forest Management Plan provides a general outline of how the forest will be managed and what operations will be required and undertaken over a specified time period.

The Department has developed a management plan template which must be completed for all grant aided forests 5 ha or greater. This template will be available for online submission and can be used for all forests where a management plan is required. A Forest Management Plan must be prepared by a registered forester and signed by the applicant. The management plan template in Appendix 4 must be used until the new management plan system is available online.

2.5 Application for subsequent Premium Payments - Form 4

All premiums after the 1st premium are applied for by completing a Form 4 which is sent to the applicant annually by the Forest Service unless the applicant is registered as a user of the Department's on-line services. Where an applicant has registered to use these services, applications for forest premiums must be made at www.agfood.ie. At the time of application for payment, the plantation must be to the standard required by the scheme.

After payment of the 11th premium, all afforestation scheme applicants must submit a Forest Management Plan in the Department template provided to cover the period from Year 12 and the remainder of the rotation for any plantation which is 5 hectares or greater. A Forest Management Plan must be submitted before payment of the 12th and subsequent premiums can be made. Any application for the 12th annual premium which is not accompanied by a Forest Management Plan will be returned to the applicant.

2.6 Rules for reduction/withholding of payments

2.6.1 1st Instalment Grants

If part of the planted area fails inspection, the applicant must carry out the identified remedial works within the timeframe prescribed by the Forest Service. Payment of grant and premium will be withheld until the remedial works have been completed to the satisfaction of the Department.

2.6.2 2nd Instalment Grants

Second Instalment grants will be paid only when the entire plantation is up to the required standard.

Further details are available in Section 8 of the terms and conditions of the Afforestation Scheme.

2.6.3 Premiums

Where the Forest Service is of the opinion that a plantation or part thereof does not meet the required standard, premium payments may be suspended, withheld, reduced or recouped in accordance with the scheme terms and conditions.

The Forest Service carries out random forest inspections and if plantations are not managed in accordance with the rules of the schemes, premiums may be withheld or reduced in accordance with the scheme terms and conditions and penalties may be applied.

2.7 Registered Foresters and Forestry Companies

It is a requirement of the various forestry schemes that applicants must engage the services of a Registered Forester or Forestry Company to prepare, certify and submit applications on their behalf.

For this purpose the Department keeps a Register of Foresters and Forestry Companies who have been vetted by the Department having regard to a number of criteria including educational qualifications and Professional Indemnity Insurance. The registration of a Forestry Company confers the status of Registered Forester on qualified foresters nominated by that Company and the Company is responsible for its foresters' obligations and compliance with the various standards that apply in respect of applications certified on behalf of the Company.

A forester who is registered solely as a nominee of a Forestry Company may submit applications for and on behalf of that Company only, and must not certify applications in a private capacity as a forester. Foresters who wish to be registered in their own right must make separate application to the Department and meet the requirements of the Terms and Conditions for registered foresters. The applicant and a forester whose name is listed on the **Register of Foresters and Forestry Companies** must complete Form 1, Form 2, and Form 3 applications.

Foresters and forestry companies who wish to be listed on the Register of Foresters and Forestry Companies must complete an application form, available from the Forest Service. All registered foresters must sign an undertaking that they have read, fully understand, and will comply with the terms and conditions for the registration of foresters and forestry companies. In addition, they must have Professional Indemnity Insurance of at least €500,000.

3. Ownership

In order to qualify for Afforestation Grants and Premiums, the applicant(s) must own, lease or be in joint management of the lands proposed for planting. All applicants must provide documentary evidence of ownership, and of leasing or joint management to receive these Grants and Premiums, where applicable. It is in the interests of the applicant, and their registered forester, to establish the availability of this documentation and to identify and/or resolve any constraints on ownership, before lodging an application for approval.

No grant or premium can be paid until the applicant has provided satisfactory documentation to confirm that they own, lease or are in joint management with the owner of the lands in question.

3.1 Proof of Ownership

Where the applicant is the registered owner of the lands he/she must provide a copy of the Folio documents and Filed Plan (folio map) identifying the applicant as the owner. Currently, ownership status is declared at Form 1 stage by the Applicant, and is confirmed at Form 2 stage by submission of supporting documentation. However, the Forest Service may seek prove of ownership at Form 1 stage, before the file can be assessed.

If an applicant has recently acquired the lands and is in the process of registering ownership with the Property Registration Authority, the following documentation may be submitted:

- Folio and folio map in the name of the vendor/transferor, plus
 - Deed of Transfer with Stamp duty paid, or
 - Unstamped Deed plus the Department's Certification of Land Transfer signed and stamped by a solicitor. (see Appendix 6),

For unregistered land, where the proof of ownership takes the form of an Indenture or Memorial from the Registry of Deeds, that documentation should be submitted along with a map stamped by the applicant's solicitor showing the area of the proposed plantation. The owner's solicitor must also provide a letter confirming that the area of the plantation is included in the Deeds, and that ownership is unchanged since the last entry.

3.2 Commonage

A Commonage Consent Form (see Appendix 7), enables one of the owners to apply for the afforestation grant, provided the other owners give their consent. Documentary evidence, as defined in Section 3.1 above, identifying all the owners of the commonage is required. Each of the commonage owners is entitled to apply for premiums in respect of their share of the area grant-aided. Commonage Consent Forms must be witnessed and stamped by a solicitor.

3.3 Leases

An applicant who is leasing lands may be eligible to receive afforestation grants and premiums. The following documentation must be provided in support of such application:

- Copy of the folio documents and File Plan (folio map), or other documentation as described at 3.1 above, identifying the owner of the lands,

and

- Copy of the Lease.

The Lease must comply with the following requirements:

- a. The Lease must be stamped by the Revenue Commissioners or registered with the Property Registration Authority,
- b. The Lease must be signed and dated and witnessed independently in a solicitor's office.
- c. The duration of the term of the Lease must be at least 50 years where the crop is composed predominately of conifer trees i.e. approximating the length of a crop rotation and allowing time for reforestation. Longer leases may be required where broadleaved trees are planted and will be decided by the Department on a case by case basis
- d. If the Lease covers an area in excess of 21 hectares, it must be shown as a burden on the folio – or a new folio may be raised for the leased area.
- e. The lessee (the applicant for grants & premiums) must be the beneficiary of the annual premiums.
- f. The Lease must specify who is to be the beneficiary(s) of the timber crop and that trees are subject to the Forestry Act 1946 and any subsequent Act regulating the felling and replanting of trees.
- g. The monetary cost of the lease must be stated. In the event that this amount is not the commercial rate for leasing the land, an explanation must be provided.

3.4 Joint Management

A joint management arrangement may be made only between **immediate family members**, namely, husband and wife, sons, daughters, parents, brothers and sisters. The owner of the lands may give consent to an immediate family member who is jointly managing the lands to claim the afforestation grant and premiums. The owner consents to forego the right to these payments. In these cases the documentation required is:

- Documentary evidence, as defined in Section 3.1 above, identifying the owner/s of the planted lands.
- A joint management consent form (see Appendix 8) completed by the owner/s of the lands and the applicant.

Owners who wish to use the Joint Management facility must comply with the tax clearance requirements.

3.5 Constraints on ownership

The Forest Service cannot give approval for afforestation in respect of lands on which there are constraints or burdens in favour of third parties, for example:

- turbary rights
- grazing rights, or
- rights of way

unless documentary evidence is submitted showing that all such rights have been relinquished, or the area upon which the constraint exists is excluded from the application. Standard forms for the relinquishment of turbary and grazing rights are provided at Appendices 9 and 10. Where applications for approval are submitted without this documentary evidence, the application will be processed but approval will not issue until the required evidence is received. Applications for payment (Form 2) will not be processed where constraints on ownership remain.

Tree planting is not permitted on a Right of Way and such areas must be excluded from proposed plantations.

3.6 Change of Ownership

The Forest Service must be notified if there is a change of ownership of a grant-aided plantation during the term of the contract (fifteen or twenty years). The original applicant provided signed Undertakings (on Form 2) when he/she claimed payment of the 1st grant & 1st premium, including an undertaking to notify the Forest Service in advance of any proposal to sell or transfer ownership of any or all of the afforested land and to repay all grants and premiums received if this condition or any of the terms of the scheme were breached.

Likewise, the Forest Service should be notified as soon as possible if the death occurs of the owner or joint owner of a grant-aided plantation, so that arrangements can be put in place to continue payment of grants and premiums to the new owner(s).

Once a change of ownership is notified to the Department, payments will be suspended until registration of the new applicant(s) has been finalised. Any arrears accruing may be claimed at that stage provided the documentation needed to register the new owner(s) is submitted to the Department in accordance with the conditions of the scheme.

The documents required at change of ownership stage broadly coincide with those required to claim the 1st premium, viz. proof of ownership and a new signed commitment (on Form 5) to take over the obligations of the scheme. In addition, the new owner(s) must provide evidence of the reason for the change of ownership / change of applicant and the date of that event.

Payment of annual premiums is always subject to satisfactory maintenance of the plantation to Forest Service standards, availability of funds in each financial year and compliance with the tax clearance regulations.

If the previous owner was in receipt of a farmer rate of premium (this is applicable to members of schemes operational before 1st January 2015 only) in respect of a plantation that is subsequently transferred/inherited, the new owner may also be eligible to claim the farmer

rate of premium provided he/she satisfies the eligibility criteria for farmer rate of premium set out in Part IV of the Guide to Change of Ownership (available on the Department's website). If the previous owner was paid a premium at the (lower) non-farmer rate, this rate will continue to apply to that plantation. The rate of premium cannot be increased, even if the new owner satisfies the eligibility criteria for farmer rate of premium.

A detailed Guide on Change of Ownership of grant-aided plantations is available on the Department's website www.agriculture.gov.ie/forests-service

After the term of the contract ends the only continuing restriction on the land-owners use of the property are those applying under the Forestry Act 1946 and any subsequent Act which controls the felling and replanting of trees. Owners shall contact the Felling Licence Section of the Department before undertaking any felling or tree clearing operations. The provisions of the Forestry Act 1946 or any relevant provisions of the Forestry Act 2014 where commenced apply whether or not the owner participated in a grant scheme.

Forest owners are encouraged to make and maintain contact with their local Teagasc Forestry Advisor and also with their chosen forestry company or Consultant. The list of registered foresters and forestry companies is available from the Department. Forest owners are encouraged to continue active management of the plantation. At the appropriate stage, thinnings from the plantation may provide a cash crop for stake wood or wood-energy. In the longer term, thinning a plantation will help to optimise the return at the end of the 1st rotation by helping the forest grow to its full potential.

4. Plantation Rules and Grant Premium Categories (GPC's)

4.1 General

To decide on the grant and premium rates applicable to any plantation, the application area must comply with plantation rules 1 and 2 below. Only plots within each plantation which comply with one of the GPCs listed can be considered for grant aid.

4.2 Plantations

A proposed **plantation** for the purpose of the afforestation scheme is a **plot** (defined below) or number of plots on the same holding and contained on a single application planted in a single planting season under a single contract number. The rules below refer to the species composition that relate to grant and premium payments.

Only Plantations that comply with rules 1 and 2 below are eligible for grant aid.

Plantation Rules

Rule 1 - 10% broadleaves

Plantations on improved / enclosed land must contain a minimum of 10% broadleaves, site permitting.

The 10% broadleaf requirement can consist of broadleaves planted in plots of minimum width or **as** additional broadleaves planted for landscape and environmental reasons.

Rule 2 - 10% Diverse conifers

Where conifers constitute all or part of a plantation, the conifers must contain a minimum of 10% diverse conifers (i.e. approved conifer species other than Sitka spruce, lodgepole pine)

In intimately mixed plots the diverse conifer species may be substituted by broadleaves as listed in Chapter 8, Table 6 of this Manual, and birch and rowan, planted in groups. These broadleaves must be silviculturally suited to the site. Broadleaves adjacent to roads and watercourses may also form part of this 10% requirement.

Rule 1 and 2 can be satisfied in plantations comprising only of GPC 3 plots in the Afforestation Scheme where 10% additional broadleaves are planted for environment and landscape reasons e.g. riparian zones, road or boundary margins.

Refer to examples of plantations which comply with rules 1 and 2 shown at the end of this Chapter. These examples refer to the Afforestation Scheme only.

The Forest Biodiversity Guidelines require that in plantations greater than 10 hectares, areas of biodiversity enhancement (ABE's) should comprise up to 15 % of the area. Where plantations are less than 10 hectares, the open space element of ABE's should be designed in conjunction with neighbouring land use and may be reduced. For more information on ABEs refer to Chapter 6 and the Forest Service Forest Biodiversity guidelines.

Registered foresters should ensure that plots which contain conifer GPCs which are publicly-facing (along roads, facing dwellings) incorporate groups of broadleaf species along the

public edge, site permitting. These broadleaves should be allowed where possible to be managed on a continuous cover system to create a positive landscape impact over multiple rotations.

4.3 Grant and Premium Categories and Plots

Each plot within a plantation **must** conform with one of the following Grant and Premium Categories (GPCs) listed below if it is to receive grant aid. Plots cannot be combined for premium purposes.

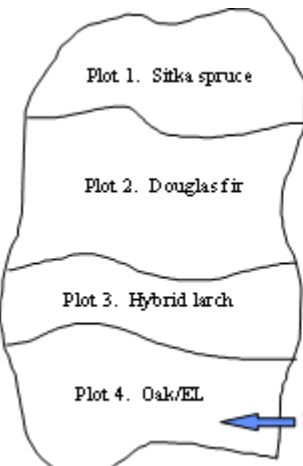
- GPC 1 - Unenclosed/unimproved land
- GPC 2 - Sitka spruce/lodgepole pine
- GPC 3 - 10% diverse mix
- GPC 4 - Diverse
- GPC 5 - Broadleaf
- GPC 6 - Oak
- GPC 7 - Beech
- GPC8 - Alder
- GPC9 - Native Woodland Establishment (Scenario 1-3)
- GPC10 - Native Woodland Establishment (Scenario 4)
- GPC11 - Agroforestry
- GPC12a - Forestry for Fibre
- GPC12b - Forestry for Fibre (Aspen)

Detailed descriptions and mapping conventions for each GPC category are described Chapter 12, Forestry Schemes Mapping Requirements. Areas of Biodiversity Enhancement (A.B.E.s) eligibility for grant and premium is defined in Chapter 6.

4.3.1 Examples of Plantation Payment Calculations


The following examples of proposed plantations demonstrate how the plantation and plot rules will apply to the paying of grants and premiums. The examples shown are based on the criteria that every plantation must comply with each of the two plantation rules and each plot within a plantation must conform to a Grant and Premium Category (GPC).

Example 1



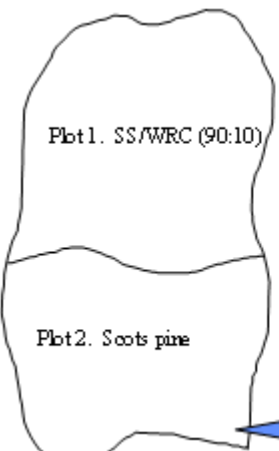
Plot No.	GPC	Area	Total Grant	Premium
1	GPC 2	4.2 ha	Eligible	Eligible
2	GPC 4	6.8 ha	Eligible	Eligible
3	GPC 4	4.0 ha	Eligible	Eligible
4	GPC 6	5.5 ha	Eligible	Eligible
		20.5 ha		

Example 2



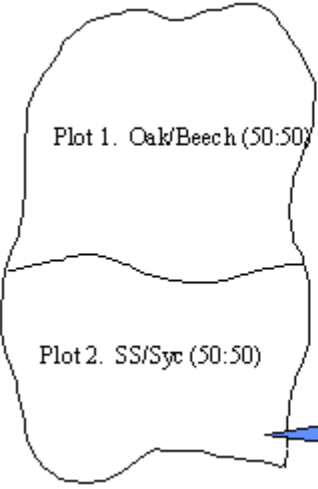
Plot No.	GPC	Area	Total	Farmer Premium
1	GPC 2	20.5	€00.00	€00.00
No grant or premium is payable on this plantation as the plantation does not comply with plantation rules 1 and 2. No broadleaves planted				

Example 3




Plot No.	GPC	Area	Total	Premium
1	GPC 3	11.0 ha	Eligible	Eligible
2	GPC 4	9.5 ha	Eligible	Eligible
		20.5 ha		
Note plantation complies as site is not suitable for 10% broadleaves				


Example 4

	Plot No.	GPC	Area	Total Grant	Farmer Premium
	1	None	11.0 ha	€00.00	€00.00
	2	None	9.5 ha	€00.00	€00.00
This plantation does not qualify for grant aid as neither of the plots are approved mixtures and neither plot corresponds to a Grant Premium Category (GPC).					

Example 5

	Plot No.	GPC	Area	Total	Farmer Premium
	1	GPC 4	20.5	€00.00	€00.00
	No grant or premium is payable on this plantation as the plantation does not comply with plantation rule 1. This site requires the planting of 10% broadleaves to be grant aided. If the site was not suitable for broadleaves this site would be grant aided.				

Example 6

	Plot No.	GPC	Area	Total	Premium
	1	GPC 3	20.5	Eligible	Eligible
	Grant and premium is payable on this plantation as the plantation does comply with plantation rules 1 and 2. 10% of site planted with broadleaves				

4.4 Planting of Alder in GPC 5, 6 and 7

The use of alder in small groups planted in localised areas within sycamore, oak and beech plots claimed as GPC 5, 6 and 7 is permitted in the Afforestation Schemes as described below.

GPC 5, 6 and 7

Alder can be included in these GPC's where it meets the following conditions

- Is planted in small groups in localised moist wet areas or adjoining aquatic zones
- Does not comprise more than 10% of the plot area
- Planted in groups that are less than 0.1 ha in size
- Intimately mixed and less than 10% of the plot area on sites requiring a nurse species
- Planted at spacing's applicable for the claimed GPC i.e. all trees must be planted at 3,300/ha for GPC 5, 6 and 7 and 2500/ha for GPC 1, 2, 3 and 4

Alder must not be planted in soils where water is stagnant.

Groups of alder equal to or greater than 0.1 ha must be plotted and claimed as GPC8.

In addition to the above rules, GPC 6 and 7 plots must contain oak or beech with the capacity to form at least 70% of the canopy at maturity when combined with other additional broadleaves or nurse species. However the alder component, if applicable, cannot exceed 10% of the plot area.

These species percentages will apply to all applications approved after 1st September 2011 and all sites not yet planted.

5. General Site Requirements

5.1 Land for Afforestation

The term “afforestation” means the planting of land not previously under forest. The *Afforestation Grant and Premium Scheme 2014–2020* is applicable to agricultural land. For the purposes of the scheme non agricultural lands where there are no significant adverse silvicultural or environmental considerations may be considered on application. However the following lands are excluded:

- Private gardens
- Golf courses. However areas not an integral part of the playing course can be considered for afforestation on application e.g. lands along the boundary of public roads, areas adjoining riparian zones etc
- Unmodified raised bogs
- Infertile blanket and midland raised bogs, e.g. vegetation predominately consisting of heather (*Calluna vulgaris*), bog cotton (*Eriophorum vaginatum*), deergrass (*Trichophorum caespitosum*-formerly called *Scirpus cespitosus*) and sphagnum, and also vegetation – often pool studded. Also containing sundews (*Drosera rotundifolia*) and Bog asphodel (*Narthecium ossifragum*)
- Designated blanket and raised bogs.
- Plots with rock outcrop and associated shallow soils in excess of 25% of the plot area.
- Severely exposed sites and some sea facing locations.
- All areas outlined in the Forestry Standards and Procedures Manual as being ineligible for grant aid, e.g. shell marl or sites which cannot be adequately drained.
- Sites not capable of producing a commercial crop of timber. The land must be capable of producing at least yield class 14 for Sitka spruce. The use of Sitka spruce as an indicator species recognises that other conifers may not achieve the same level of production on the same site.
- Very poor Unenclosed and Unimproved sites where a standard application of phosphorus fertiliser (e.g. 350 kg/ha GRP) at the time of establishment is unlikely to provide sufficient phosphorus input to bring the forest to full rotation.
- Former and existing industrial cutaway peatlands.

The Department may amend the above list from time to time following the operation of the scheme and in accordance with good forest practice.

5.2 Commercial Crop

Both conifer and broadleaf sites which are proposed for planting must be capable of producing a commercial sawlog crop of wood. Commercial wood is defined as timber suitable for industrial end use.

The land must be capable of producing yield class 4 for oak or beech or at least yield class 14 for Sitka spruce using normal forestry practices. Crops should be able to achieve YC14 SS with a maximum of two applications of phosphorus (a total of 400 kg/ha of GRP between the two applications) and one application of nitrogen (up to 150kg/ha of urea) or potassium. Sites which require additional fertiliser inputs are unsuitable for the afforestation scheme.

The use of Sitka spruce as an indicator recognises that other conifers may not achieve this production on the same site.

5.3 Access

5.3.1 Ownership of Access

The applicant must own or have written permission, certified by a solicitor, to use or have right of way on the access route to the plantation. Where the owner's site is land locked, access to a public road should be sought and written permission to use an access road should be provided to the Forest Service. Access and legal rights of way should be shown on the biodiversity map at Form 1 stage.

5.3.2 Adequate Access

It is essential that a landowner is aware that he/she will require adequate access from a public road to the proposed plantation to establish, manage and harvest the crop and accommodate forestry traffic in an unrestricted manner. Where adequate access does not already exist, the access must be capable of being upgraded to the required Forest Service road standard at harvesting stage. Exits /entrances to the main road should be planned and developed within the property and adhere to any legislative planning requirements. In a situation where there are no proposals for a road, the land should be accessible by forwarders and other terrain vehicles.



Photo 1: Good access is required to facilitate the transport of timber off site by timber trucks

5.4 Minimum Area

5.4.1 Conifer plantations:

- A proposed conifer plantation not adjoining other forests must not be less than 1 hectare in total.
- Where a proposed conifer plantations adjoins existing forests of 0.75ha or greater then a minimum conifer plantation size of 0.25 hectare applies.
- A conifer plot must not be less than 0.25 hectare.

5.4.2 Broadleaf plantations:

- A broadleaf plantation must not be less than 0.1 hectare.
- A broadleaf plot must also not be less than 0.1 hectare.
- An Agroforestry plot must be not less than 0.5 ha

5.5 Minimum Width

The minimum width applies to the actual planted area and does not take into account areas of the plantation left unplanted (e.g. buffers along roads, rivers, streams etc.). The minimum width of any plot (broadleaf and conifer) should not normally be less than 40 metres measured from planted tree to planted tree. Where sites do not meet this requirement but are in the following categories they may be submitted for approval:

- Plots where more than 50% of the proposed area will exceed 40 metres in width.
- Plots where more than 50% of the proposed area will exceed a width of 30 metres adjoining an existing forest.
- Broadleaved plots where the proposed width exceeds 20 metres for small plots, including Agroforestry plots.

For the purposes of the schemes the above minimum width criteria will be applied at the individual plot level. A plantation made up of a number of plots must satisfy the minimum width rules for every plot.

6. Unplanted Areas, Biodiversity and Setback distances

For the purposes of the Afforestation Schemes at least 85% of the site submitted for grant aid must be planted with trees.

Areas for Biodiversity Enhancement (ABEs) as described in the Forest Biodiversity Guidelines are comprised of open spaces and retained habitat. Their function is to conserve and encourage the development of diverse habitats, native flora and fauna, and biodiversity.

The Forest Biodiversity Guidelines require that 15% of the forest area must be treated with particular regard to biodiversity. In sites less than 10 hectares in area, the open space and retained habitat element of ABEs should be designed in conjunction with neighbouring land use and may be reduced.

6.1 Eligibility as an ABE

The following table outlines areas left unplanted in forest plantations and indicates which are eligible as ABEs in individual projects and their eligibility for grants and premiums.

Table 1: Eligibility of Areas for ABE's, grants and premiums

Areas	ABE	Grant	Premium
Open space for landscape and biodiversity	Yes	*	*
Hedgerows	Yes	*	*
Scrub***	Yes	*	*
Buffer zones along aquatic zones	Yes	*	*
Archaeological sites and their exclusion zones	Yes	*	*
Created lakes/reservoirs	Yes	*	*
Public road setback areas	Yes	*	*
Railway setback strip	Yes	*	*
Ridelines and drains	Yes	*	*
Internal roads and turning bay setback areas	Yes	*	*
Unplantable areas	**	No	No
Shallow, rocky soils	**	*	*
Rock and scree	**	No	No
Aquatic zones (area occupied by lake/ river)	**	No	No
Forest. (Conifer forest and broadleaf Forest - this includes newly planted areas with conventional stocking densities.)	No	No	No
Dwelling house/associated building setback area	Yes	*	*
Rights of way held by third party	No	No	No
Areas with turbary or grazing rights held by a third party	No	No	No
Major water mains	**	No	No
Power line corridors	**	No	No
Gas line	**	No	No
Public road	No	No	No

* An ABE is eligible for grant aid and premium in the afforestation of the project if the area is 15% or less of the total claimed eligible area

**These areas can be included as ABEs if in the view of the Forest Service it has sufficient biodiversity value but is not subject to grant aid or premium.

*** Areas associated with pockets of scrub and individual trees are eligible for grant and premium where they are less than 0.1 ha in size and are not classified as forest. A forest must have a minimum area of 0.1 hectare and a minimum width of 20m for the purposes of the Afforestation schemes.

Where ABEs add up to more than 15% of the total area the following calculation must be applied.

$$\text{Payment area} = \text{Actual planted area} \times \frac{100}{85}$$

For example, a 10 hectare application adjacent to a river has a combined unplanted area of 4 hectares. The 4 hectare area comprises the setback distance from the river which is colonised by scrub, areas associated with internal hedgerows and a 60 metre setback distance from a dwelling house. In this example the formula is applied as illustrated

$$\text{Payment area} = \text{Planted Area of 6 ha} \times \frac{100}{85} = 7.06 \text{ hectares}$$

In this case the eligible claimed area is 7.06 hectares and **not** 10 hectares. Over declaration of area will result in grant and premium recoupment and can result in additional penalties being applied. It is important that ABEs on proposed sites are retained during afforestation works. The total area of ABEs must be calculated accurately. Applicants must not remove ABE areas prior to entry to the Afforestation schemes or during afforestation works. If such areas are removed the application may be refused or a penalty applied as set out in the *Forestry Schemes Penalty Schedules (DAFM January 2015)*.

6.2 Criteria for ABE Eligibility

Areas chosen as ABEs should represent the best areas for biodiversity enhancement within the new forest. While protecting biodiversity outside of the forest area is desirable and encouraged, it is not within the scope of the afforestation schemes to grant aid in excess of 15% of the eligible and claimed area. The clarification below explains for the purposes of the Afforestation Schemes the eligibility criteria for ABEs to help maximise the biodiversity.

ABE's can be areas suitable for planting where the potential for a commercial forest crop is foregone for the purpose of retaining open spaces and habitats for biodiversity.

The area occupied by linear features (e.g. hedgerows, public road setbacks etc.) or point features (e.g. archaeological sites) must be accurately assessed and noted on the biodiversity map. This area must be added to any plot sized ABE area to give a total ABE area.

ABE's must be an integral part of the proposed forest area.

ABE's must be situated where they provide the best opportunity for enhancing the biodiversity within the new forest area while also protecting watercourses and archaeological sites through the use of buffer and exclusion zones.

- Existing forests (conifer and broadleaf), or parts of existing forests, may not be used as ABEs. To be deemed a forest it must have a minimum area of 0.1 hectare and a minimum width of 20m. Other tree covered areas with smaller dimensions to a forest may be included as ABE.

Areas associated with pockets of scrub and individual trees are eligible for grant and premium where they are less than 0.1 ha in size and do not meet the forest definition as described above. Individual areas of scrub greater than 0.1 ha in size must be accounted for when determining the total area of ABE eligible for grant aid. For the purposes of the Afforestation Schemes scrub includes species associated with transitional woodland such as hawthorn, blackthorn, juniper, willows, birches and hazel.

The mapping and recording of ABEs is described in Chapter 12.

6.3 Grant aiding ABE plots

An ABE of plot size is eligible to grant and premium as long as the total of all ABEs across the site do not exceed 15% of the claimed area. The GPC of the ABE should be that of the largest GPC category within the plantation. Unenclosed/unimproved land is paid at the GPC 1 rate irrespective of the largest GPC category in the plantation

6.4 Setback/corridor width Conventions

The principle for setback distances differs between planting and existing trees.

Existing trees

If existing individual trees did not breach the setback distances applicable at the time they were planted- the setback distances set out in this Manual in most cases do not apply to them. For environmental and landscape reasons the Forest Service may decide that any existing forests or trees within a setback area that breach current setback conventions may not be applicable for inclusion in a planting proposal eligible area. This does not preclude a special condition being made in relation to individual projects.

Planted trees

Planting in this case refers to the planting of trees for all schemes whether Afforestation, Native Woodland Establishment and Conservation, woodland improvement, reconstitution etc. In these cases all the setback distances apply.

Failure to adhere to the appropriate setback distances may result in grant aid being refused and/or penalties being applied.

6.4.1 Public road setback strip

A setback strip of 10m for broadleaves and 20m for conifers, measured to the surfaced edge of the public road, applies. In conifer plantations the strip 10m to 20m from the road should be planted with broadleaves and not left unplanted. Avoid planting in straight lines and create an undulating natural forest edge. This distance is an average distance from planting line to road edge for single applications and should vary to take account of good landscaping practices.

6.4.2 Dwelling Houses/associated buildings setback areas

The setback distance from dwelling houses and associated buildings is 60m, or 30m where written consent of the owner is granted prior to approval, and must be observed. Set back distance is most critical when a building is surrounded by forest on two sides or more. Where adjoining dwelling houses, including the curtilage, are 0.2 hectares or less, planting should be kept back 30m from the property boundary.

As per the Forestry and Landscape Guidelines, *“Forest developers should liaise with the owners of neighbouring properties, to resolve in advance any potential concerns.”* In particular situations where the Forest Service considers that the proposed development would have a significant effect on a neighbouring dwelling, e.g. by creating a sense of enclosure or isolation or by blocking significant light or an important view, it may specify local consultation and proof of same, as a specific requirement at pre-approval stage. While the prescribed 60 m ‘without permission’ setback will suffice in most cases, the Forest Service may require greater setbacks or indeed, the exclusion of sections of a proposed site, if deemed necessary on landscape grounds.

Applicants and Registered Foresters should also take into account the long term implications of managing large open areas adjoining properties and potential fire hazards associated with scrub encroachment on certain sites. In some instances large unplanted setback areas may be considered for exclusion from the afforestation schemes in certain cases.

6.4.3 Rights of way held by parties other than the owner

This varies but is normally no more than a corridor of 5m or as set out in the Folio document.

6.4.4 Major Water mains (Local Authority or Group Scheme)

A corridor of 15m applies.

6.4.5 Gas line

A corridor of 15m applies where the gas line has been installed prior to planting. A corridor of up to 30m applies where the gas line was installed after the area was planted. Forestry grants and premiums must be repaid in respect of the area deforested.

There is an agreement between Irish Farmers Association and Bord Gáis Éireann on compensation for gas pipeline wayleaves through forestry. For further information, contact Bord Gáis Éireann or Irish Farmers Association.

6.4.6 ESB corridors (see also Chapter 7)

The following corridors apply:

Table 2: ESB Corridors

Power line type	Corridor width (centred)
Low voltage (230/400V)	none (clearance from branches and tree tops only)
10 kV and 38 kV	20 m
110 kV	61 m
220 kV	68 m
400 kV	74 m

6.4.7 Wind Turbines

A minimum 30m setback from the maximum horizontal extent of the turbine blades rotated around 360° must be observed in the case of new afforestation around pre-existing turbines. This setback distance may be increased on a case by case basis during the consultation process. Where the plantation pre-dates the installation of wind turbines, permission of the Forest Service is required before any trees are removed. Forestry grants and premiums may have to be repaid in respect of areas deforested.

The Forest Service policy on the Granting of Felling Licences for Wind Farm Developments may also effect decisions in relation to afforestation. Policy in relation to tree felling and Windfarms is available on the Forest Service website at the link below:

<http://www.agriculture.gov.ie/forests-service/tree-felling/tree-felling/>

6.4.8 Ridelines

Normally 6m wide.

6.4.9 Internal roads & turning bays etc.

Normally 15m corridor.

6.4.10 Hedgerows

Normally 3 metres.

6.4.11 Streams, Rivers, lakes, reservoirs

As per the Forestry and Water Quality Guidelines.

6.4.12 Firebreaks

6m wide fuel free zone.

6.4.13 Railway setback strips

20 metres.

6.4.14 Points of Water Abstraction

If there are pump houses or substantial tank type reservoirs, then the setback distance should be 30m (as for buildings and permanent structures - it is not necessary to obtain the owner's consent). A 30 metre setback distance also applies to wells and boreholes. Applicants and Registered Foresters must ensure that the location of water abstraction points within the proposed area is clearly marked on the Bio Map if they present.

6.4.15 Setback from Swallow holes, turloughs

As per the aquatic buffer zone widths in the Forestry and Water Quality Guidelines unless otherwise specified.

7. ESB Power Lines

The contents of this Chapter has been agreed with the ESB and complies with the IFA/ESB agreement of 7th September 1992. Guidance is provided on how to deal with ESB lines interacting with grant aided forest areas and allows for each case to be examined on an individual basis. Landowners reserve the right to negotiate their own deal with the ESB. The Department is not party to any agreement between the ESB and the landowner. The Department will supply information regarding loss of earnings in relation to forestry afforestation scheme payments but accepts no liability in respect of this information or the agreement between the ESB and the landowner.

7.1 Unplanted Corridors

Where ESB power lines traverse a site proposed for planting, corridors of the dimensions indicated in Table 3 below must be left unplanted beneath the lines. Corridor areas do not qualify for Forest Service grant assistance (i.e. they do not attract payment) but may be used to satisfy the 15 % biodiversity requirement, if agreed by the Forest Service.

Table 3: Corridor widths under ESB lines

Power line type	Corridor width (centred)
Low voltage (230/400V)	none (clearance from branches and tree tops only)
10 kV and 38 kV	20 m
110 kV	61 m
220 kV	68 m
400 kV	74 m
Note : All trees must be outside their falling distances from line support structures.	

The area suitable for afforestation which is left unplanted because of ESB power lines should be indicated and certified on the species map but not included in the claimed area for grant and premium. Areas not falling under the corridor but, because of the corridor, cannot reach the minimum width or area for afforestation should also be recorded.

In the corridors mentioned above, trees may be grown to a height of no more than 3 metres above the ground. Trees exceeding 3 metres within this corridor must be cut or lopped by the landowner. However, a corridor of 4 metres must be left totally clear for ESB maintenance access.

Where corridors have been created due to the presence of a 110 kV, 220 kV or 400 kV transmission line, the ESB shall provide adequate fencing for the corridor area, where practicable. Where lesser corridors are necessitated by the presence of 38 kV, 20 kV, 10 kV or low voltage distribution lines, the ESB shall not be required to fence the corridor area except where an existing fence has been demolished to provide for the corridor or where the corridor covers an area of land which includes a boundary between the lands of adjoining farmers.

7.2 Claiming Compensation

Applications for compensation from the ESB for loss of forest premium can be made for areas suitable for afforestation but left unplanted as a result of the presence of an ESB line. These applications for compensation must be made before planting, to enable the ESB to exercise its option, if it so desires, of diverting the overhead line. Where grant-aided afforestation has to be removed to allow for the installation of power lines grants and premiums already paid will be recovered from the landowner by the Forest Service. Compensation may be claimed from the ESB in respect of the amounts repaid to the Forest Service.

To claim compensation the ESB will require the following:

1. Completed application form (Application for Compensation for loss of Tree Planting Rights).
2. Proof of grant approval letter and Ordnance Survey map.
3. Proof of Forest Premium loss (available on request from the Forest Service).
4. Agreement to grant an easement on the lands in question.

All claims for compensation should be processed initially through the local ESB office or ESB Regional office. No compensation will be paid until after the site has been planted.

7.3 Compensation levels

7.3.1 75% of land value

Where a landowner has recently purchased land for the purpose of afforestation, and where the ESB has notified the landowner that part of the land may not be planted due to the presence or the planned presence of an electricity line, the ESB shall, in the first instance, agree to pay the landowner an amount equivalent to 75% of the purchase price of the affected area where the price of the affected area is deemed to be pro rata to that of the remainder. The amount is payable on foot of an easement, following bona-fide intent to proceed and receipt of notification of afforestation grant approval.

Where the landowner proposes to plant an area which has not been recently purchased, a sum equivalent to 75% of the value of the land shall be paid by the ESB. The value of the land is that which would have prevailed had the land been recently purchased.

7.3.2 Compensation for loss of premium

In addition to this, premium based compensation is also payable by the ESB to the landowner. Methods of calculation are based on a standard annuity table, see Appendix 20, taking into account the premium rate, number of years and interest rate. Payment is capitalised as a once off payment.

Mapping of ESB lines

All applications affected by power lines must be mapped as described in Chapter 12 of this manual.

7.3.3 Proof of Forest Premium loss letter

The Forest Service IFORIS system will generate a “proof of forest premium loss letter” based on standard ESB line buffers and boundaries as digitised. In limited circumstances where it is not possible to generate such letters the Forest Service will confirm the premium and grant rates per hectare and the Registered Forester, applicant and ESB can calculate manually indicative loss of income.

8. Silvicultural Standards

The maintenance of high silvicultural standards compatible with the protection of our environment is of paramount importance. The following standards and specifications indicate the minimum acceptable for grant aid under the various grant schemes and should be read in conjunction with the Code of Best Forest Practice and the suite of environmental guidelines.

8.1 Species Selection

A prerequisite for grant aid is that the site is capable of producing a commercial crop of wood and it is necessary to carry out a proper assessment of site, soil and species suitability in order to establish this. Yield class is a measure of the average rate of growth of forests measured in cubic metres of commercial timber per hectare per year ($\text{m}^3/\text{ha}/\text{yr}$), assuming the crop will be grown on to the age of maximum mean annual increment. In certain areas the presence of high populations of deer and grey squirrel may also limit species choice.

Tables 4 and 5 are extracts from ‘*A Guide to Forest Tree Species Selection and Silviculture in Ireland*’ (Horgan, Keane, McCarthy, Lally and Thompson), COFORD 2004. The Guide is available from the Forest Service and is recommended reading (while not necessarily Forest Service policy) for foresters involved in species selection and forest management. **The tables are not intended as a ‘quick fix’ and should not be read in isolation. When read in conjunction with other chapters in the Guide, they provide a sound basis for species selection.**

Table 4 colour codes the suitability of a species or mixture from ‘optimal’ to ‘unsuitable’. Using this colour code, certain species can be disregarded immediately as not being suitable for a particular site. The species which are deemed more suitable can then be evaluated, based on additional information (susceptibility to frost, exposure, etc.) from **Table 4**.

For reforestation sites on many podsols and peaty podsolised gleys, the potentially suitable species range may be expanded due to the ameliorative effect of the previous crop. In addition, it should be noted from Table 4 that some species might grow too rapidly on certain fertile sites, leading to coarse growth, poor form or instability. The suggested combinations of site and species where this may occur are marked in the Table by an X.

Table 4: Species choice by soil type

		Soil Type																
Species		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Alder	Common																	
	Grey*																	
	Italian*																	
Ash	Common																	
Beech	European																	
	Southern																	
Birch	Downey*																	
	Silver*																	
Cherry	Wild																	
Chestnut	Spanish																	
Hornbeam	Common*																	
Lime	Common																	
Maple	Norway																	
Oak	Pedunculate																	
	Red																	
	Sessile																	
Rowan*																		
Sycamore																		
Cedar	Western red	X																
Cypress	Lawson																	
	Monterey																	
Fir	Douglas	X																
	Grand																	
Hemlock	Western	X																
Larch	European	X																
	Hybrid	X																
	Japanese*	X	X															
Pine	Austrian	X	X		X													
	Corsican																	
	Lodgepole (NC)																	
	Lodgepole (SC)	X	X	X	X	X					X	X		X				
	Macedonian																	
	Monterey	X																
	Scots	X																
Redwood	Coast																	
Spruce	Norway																	
	Serbian																	
	Sitka																	
Mixture	SS/DF	X																
	SS/JL	X	X															
	SS/HL	X																
	SS/LP (NC)																	
	SS/LP (SC)																	

Optimal Unsuitable

* Trees species not currently on Forest Service approved species list. These species may be considered in certain circumstances after consultation

Soil Types

A	Alkaline brown earths and free draining, deep grey brown podzolics	J	Gleys/peaty gleys (mottled profile) and gleyed grey brown podzolics (fertility class A or B)
B	Acid brown earths and brown podzolics	K	Gleys/peaty gleys (blue/grey or yellow profile) (fertility class B)
C	Rendzinas/shallow brown earths/shallow grey brown podzolics	L	Gleys/peaty gleys (fertility class C)
D	Podzols/peaty podzols +/- weakly developed iron pan	M	Flushed and/or reclaimed blanket peat
E	Indurated ironpan podzols (organic layer or furze present)	N	Unflushed blanket peats and intact raised bogs
F	Indurated ironpan podzols (scrawed, with heather)	O	Cutaway blanket bogs (milled peat)
G	Peaty podzolised gleys (fertility class C) - organic layer present	P	Cutaway raised bogs (milled peat) post 1980 and fen peats
H	Peaty podzolised gleys (fertility class C) - scrawed	Q	Cutaway raised bogs (hand or machine, sod) pre 1980
I	Lithosols		

☒ Denotes species predisposed to coarse growth, poor form, instability or butt rot by the excessively favourable growing conditions and/or the high pH provided by the soils in question

Where free calcium carbonate is present in the topsoil, most species will suffer from lime induced chlorosis. Soils most at risk are A, C, P and Q.

On reforestation sites, particularly in the case of soils D, E, F, G and H, the ameliorative effect of the previous/pioneer crop will result in the upgrading of many species to a higher level than that shown in the table above. This also applies where these soils have been reclaimed or modified in some way for agricultural purposes.

Any intended development outside these specifications should be referred to the Forest Service.

Table 5 is intended to aid in maximising site potential by indicating the most suitable trees to be planted in a range of site types.

Table 5: Species Silvicultural Characteristics

		Characteristics								
Species		A	B	C	D	E	F	G	H	I
Alders:	Common alder	1	1	3	4	5	4	5	1	1
	Grey alder	1	2	3	4	4	4	4	2	1
	Italian alder	3	4	4	3	3	4	5	2	1
Ash:		2	5	4	3	4	5	5	3	
Beech:	European beech	2	4	3	4	3	4	1	1	1
	Southern beech	3	4	4	4	3	3	4	3	
Birch:	Downy birch	3	1	3	4	4	3	3	4	1
	Silver birch	3	2	4	4	2	4	5	4	1
Cherry:	Wild cherry	2	4	5	4	3	5	5	5	
Chestnut:	Spanish chestnut	2	5	5	5	3	4	4	1	1
Hornbeam:		2	1	4	4	2 --- 4	3	1	1	1
Lime:		2	3	4	4	3	4	3	2	1
Maple:	Norway maple	2	2	4	2	3	4	4	2	
Oaks:	Pedunculate oak	2	4	5	3	4	5	5	1	
	Red oak	2	3	4	3	3	3	4	1	1
	Sessile oak	2	5	5	3	3	4	4	1	
Rowan:		1	1	3	2	3	4	5	2	1
Sycamore:		2	2	2	2	3	5	4	1	
Cedar:	Western red cedar	3	2	4	3	4	4	2	3	1
Cypress:	Lawson cypress	3	2	3	3	4	3	1	4	
	Monterey cypress	4	3	1	1	3	3	4	3	
Firs:	Douglas fir	3	3	5	5	2	3	4	2	1
	Grand fir	2	2	5	4	4	5	2	2	1
Hemlock:	Western hemlock	3	4	4	3	3	3	1	3	
Larch:	European larch	3	4	4	5	3	4	5	2	1
	Hybrid larch	2	3	3	2	4	3	5	2	1
	Japanese larch	2	3	3	2	4	3	5	2	1
Pines:	Austrian pine	3	2	3	2	2	3	3	3	
	Corsican pine	3	2	3	5	2	4	5	2	1
	Lodgepole pine	3	1	2	1	1 --- 4	1 --- 3	5	1	1
	Macedonian pine	4	1	1	3	3	3	4	1	1
	Monterey pine	4	2	4	1	2	3	5	1	1
	Scots pine	2	1	4	3	2	3	5	1	1
Redwood:	Coast Redwood	2	5	5	2	3	5	3	3	
Spruces:	Norway spruce	4	3	5	5	4	4	3	4	
	Serbian spruce	3	2	2	3	2 --- 4	2 --- 4	3	3	
	Sitka spruce	1	4	2	2	2 --- 4	3 --- 5	5	3	

Characteristics rated on a scale of 1 to 5					
A	Establishment	1	Easy	→	5
B	Spring frost	1	Tolerant	→	5
C	Exposure	1	Tolerant	→	5
D	Salt spray	1	Tolerant	→	5
E	Soil moisture	1	Low	→	5
F	Soil nutrient	1	Low	→	5
G	Shade/Light	1	Shade bearer	→	5
H	Rooting depth	1	Deep	→	5
I	Soil improver	1	Yes	→	5

Characteristic A (ease of establishment) includes a number of factors in the first five years following out-planting. These include survival, ability to compete with vegetation, growth rate and juvenile instability.

Conifers suit acid to neutral soils with a pH of 4.5 to 7 (assuming the soil is free draining with non fluctuating water tables, especially at higher pH levels).

Broadleaves suit mineral slightly acid to moderate alkaline soils with a pH of 4.5 to 8. In general, broadleaves should not be planted over 185 metres elevation in the east and 120 metres in the west of Ireland, depending upon soil, aspect, topography and drainage.

Table 6: Acceptable Tree Species for Grant aid in plots

Broadleaf Species	Botanic name	Abbreviation
Lawson cypress	<i>Chamaecyparis lawsoniana</i>	LC
Leyland cypress	<i>Cupressocyparis leylandii</i>	LEC
Monterey cypress	<i>Cupressus macrocarpa</i>	MC
Western Hemlock	<i>Tsuga heterophylla</i>	WH
European Larch	<i>Larix decidua</i>	EL
Hybrid Larch	<i>Larix eurolepis</i>	HL
Douglas Fir	<i>Pseudotsuga menziesii</i>	DF
Grand Fir	<i>Abies grandis</i>	GF
Austrian pine	<i>Pinus nigra</i> (var. <i>Nigra</i>)	AP
Corsican pine	<i>Pinus nigra</i> (var. <i>39aritime</i>)	CP
Lodgepole pine	<i>Pinus contorta</i> (North Coastal)	LPNC
Lodgepole pine	<i>Pinus contorta</i> (South Coastal)	LPSC
Monterey pine	<i>Pinus radiata</i>	MP
Scots pine	<i>Pinus sylvestris</i>	SP
Norway spruce	<i>Picea abies</i>	NS
Serbian spruce	<i>Picea omorika</i>	SES
Sitka spruce	<i>Picea sitchensis</i>	SS
Western Red Cedar	<i>Thuja plicata</i>	WRC
Coast Redwood	<i>Sequoia sempervirens</i>	CR
Broadleaf Species	Botanic name	Abbreviation
Common alder	<i>Alnus glutinosa</i>	ALD
Italian alder	<i>Alnus cordata</i>	ALDC
Ash	<i>Fraxinus excelsior</i>	ASH
Beech	<i>Fagus sylvatica</i>	BE
Southern beech	<i>Nothofagus procera</i> / <i>N. Oblique</i>	SBE
Cherry	<i>Prunus avium</i>	CH
Spanish (Sweet) Chestnut	<i>Castanea sativa</i>	SC
Lime Tree	<i>Tilia cordata</i> / <i>T. platyphyllos</i>	LIM
Norway maple	<i>Acer platanoides</i>	NM
Sycamore Acer	<i>pseudoplatanus</i> <i>SYC</i>	SYC
Pedunculate oak	<i>Quercus robur</i>	PO
Sessile oak	<i>Quercus petraea</i>	SO
Red oak	<i>Quercus rubra</i>	RO
*Birch (Registered as "Qualified" only) on application	Downy Birch Silver Birch	BI
Hybrid aspen	<i>Populus tremula x tremuloides</i>	HA
Eucalyptus (species)	<i>E. glaucescens</i>	EUC1
	<i>E. gunnii</i>	EUC2
	<i>E. nitens</i> (within 50 km of coast, frost prone, low-lying areas to be avoided)	EUC3
	<i>E. rodwayi</i> .	EUC4
	<i>E. subcrenulata</i>	EUC5

Poplar (Clones)	18 71058/2	POP1
	Fritzi Pauley	POP2
	Trichobel	POP3
	V.471xV.24(65)/34	POP4
	72030/7	POP5
	76004/10	POP6
	Raspalje 19	POP7
	Unal	POP8

* Teagasc, in association with university partners UCD and UCC and supported through funding by the Department of Agriculture, Food and the Marine, have reached a stage in the birch improvement programme, where “qualified” material is available, although limited in quantity at present. Birch “qualified” is now eligible for planting as a commercial timber crop species and can be claimed as “GPC8” for grant and premium purposes. Does not preclude the use of unqualified material as ADB.

Other species may be considered in certain circumstances after consultation with the Forest Service.

All sites must have at least 10% broadleaves either planted in a plot or in groups for environmental or landscape reasons. When broadleaf trees are planted in groups and not of plot size they are described as “Additional Broadleaves (ADB)” for recording purposes. ADB can consist of broadleaves outlined in the table above or can include native species such as birch (“qualified” or “unqualified”) rowan, crab apple and willow which are beneficial for a variety of environment enhancing reasons. Where possible, home collected seed or plants from an Irish seed source should be used. These can be established either within the plantation or, where appropriate, at edges of woodland.

8.2 Soil Analysis

Each site being assessed for suitability must, amongst other things, undergo a preliminary soil investigation by a Registered Forester. There must be sufficient depth of topsoil on sites to facilitate vigorous tree growth which must be maintained throughout the rotation. Foresters must check every site for the presence of shall marl and high lime soils. In areas where the soil reacts or where there is clear effervescence with dilute (10%) Hydrochloric Acid (HCl) occurring within 70 cm of the surface, a detailed soil sampling and chemical analysis must be carried out. The full procedure for the collection of soil samples in Appendix 13 must be followed. A soil sample form must be supplied to the soil testing laboratory along with the maps described in Appendix 13. The testing laboratory should be independent of the contracting company.

For assessing the sensitivity of surface water to acidification refer to Appendix 15.

8.3 Provenance Selection

8.3.1 Accepted Seed Origins/Provenances

Accepted seed origins/provenances for planting material are listed in Table 7. Where possible, home collected seed from registered Irish seed stands should be used and applicants are encouraged to ask first for plants from Irish seed. Only the origins/provenances in Table 7 will be approved for grant aid. **Note this does not includes species or clones listed as eligible for grant aid in the Forestry for Fibre scheme.** Applicants must check with, and seek written approval from the Forest Service before purchasing plants with origins/provenances other than those listed and registered material in a category “Source Identified”.

Table 7: Accepted Seed Origins/Provenances

Conifers	
Sitka spruce <i>Picea sitchensis</i>	<p>Registered Irish and British seed stands and material from Danish and British seed orchards. Seed imports under EU derogation from the Queen Charlotte Islands, coastal Washington and Oregon. Rooted cuttings derived from genetically improved Washington or Queen Charlotte Island material.</p> <p>On most sites (low to mid elevation sites of less than 300m, except low lying areas in the midlands) plant</p> <p><i>South Washington and North Oregon origins.</i></p> <p>On cold frost prone sites (above 300m elevation and low lying areas in the midlands) plant</p> <p><i>Queen Charlotte Islands (QCI) origins.</i></p>
Norway spruce <i>Picea abies</i>	Registered Irish and British seed stands and registered seed stands in the low elevations of Denmark and Germany (north of Frankfurt). Seed imports under EU derogation from Sudetan and Beskid regions of the Czech Republic, Tatra Mountains of Slovakia, north east and lowlands of south Poland.
Serbian spruce <i>Picea omorika</i>	Irish and British stands and seed imports from Serbia.
Lodgepole pine <i>Pinus contorta</i>	Irish and British seed orchards and stands.
- in mixture with Sitka spruce	<i>Alaskan and North Coastal (including QCI and Vancouver Island origins).</i>
- exposed, infertile sites	<i>QCI, Vancouver Island and Interprovenance hybrids.</i>
- less exposed, mineral soils	<i>Interprovenance hybrids, Lower Skeena River (Terrace, Kalun Lake and Hazelton) and South Coastal seed orchard material.</i>
Scots pine <i>Pinus sylvestris</i>	Irish and Scottish seed orchards and registered seed stands
Austrian pine <i>Pinus nigra</i> (var. <i>nigra</i>)	Registered Irish and British seed stands.
Corsican pine <i>Pinus nigra</i> (var. <i>maritima</i>)	Registered Irish, British and Corsican seed stands.
Monterey pine <i>Pinus radiata</i>	Guadalupe Island (Mexico) or stands derived from this origin and home grown Irish healthy, non-yellowing trees
Douglas fir <i>Pseudotsuga menziesii</i>	Registered Irish and British seed stands and seed imports under EU derogation from coastal Washington and northern Oregon.
Grand fir <i>Abies grandis</i>	Irish and British stands and imports from Olympic peninsula, Puget sound (Washington), Washington and Oregon coast range mountains and Vancouver Island
Western hemlock <i>Tsuga heterophylla</i>	Irish and British stands and seed imports from Puget Sound region of Washington state and the coast range and Cascade Mountains of Washington and Oregon.
Western red cedar <i>Thuja plicata</i>	Irish and British stands and seed imports of seed from Vancouver Island (British Columbia) and coastal Washington and Oregon.
European larch <i>Larix decidua</i>	Registered Irish, British, German (Schlitz) and low elevation Austrian (Wienerwald) seed stands. Seed imports under EU derogation from Southern Poland, Czech Republic (Sudetan Mountains) and Slovakia (Tatra Mountains).
Monterey cypress <i>Cupressus macrocarpa</i>	Irish and British stands and seed imports from coastal southern Oregon and northern California.
Coast redwood <i>Sequoia sempervirens</i>	Irish and British stands and seed imports from coastal southern Oregon and northern California
Lawson cypress <i>Chamaecyparis lawsoniana</i>	Irish and British stands and imports from coastal southern Oregon and northern California.

Broadleaves	
Pedunculate oak <i>Quercus robur</i>	First Choice: <u>Registered</u> Irish material Otherwise <u>registered</u> British (English and Welsh), French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) seed stands.
Sessile oak <i>Quercus petraea</i>	First Choice: <u>Registered</u> Irish material. Otherwise <u>registered</u> British (English and Welsh), French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) seed stands.
Red oak <i>Quercus rubra</i>	<u>Registered</u> Irish, British, French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) seed stands..
Beech <i>Fagus sylvatica</i>	<u>Registered</u> Irish, British, French (north of Paris), Belgian, Dutch, German (north of Frankfurt) seed stands.
Ash <i>Fraxinus excelsior</i> (currently not approved for new afforestation sites until further notice)	First Choice: Irish native material. Otherwise <u>Registered</u> British (English and Welsh), French (north of Paris), Belgian, Dutch, Danish German (north of Frankfurt) seed stands
Sycamore <i>Acer pseudoplatanus</i>	Irish, British (English and Welsh), French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) stands.
Norway maple <i>Acer platanoides</i>	Irish, British (English and Welsh), French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) stands
Common alder <i>Alnus glutinosa</i>	First Choice: Irish native material. Otherwise British, French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) stands
Cherry <i>Prunus avium</i>	First Choice: Irish native material. Otherwise British, French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) stands Not seeds resulting from fruit processing.
Southern beech <i>Nothofagus procera/N.obliqua</i>	Irish and British stands and <i>Nothofagus procera</i> imported from Chile (Malleco and Llanquihue). <i>Nothofagus obliqua</i> from Chile (Frutillar)
Lime <i>Tilia cordata/T.platyphyllos</i>	Irish, British, French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) stands.
Spanish chestnut <i>Castanea sativa</i>	French seed orchard material (not nuts collected for consumption)
*Birch <i>Betula pubescens</i> <i>Betula pendula</i>	First choice: Irish native material “Qualified” Otherwise British material
*Rowan <i>Sorbus aucuparia</i>	First choice: Irish native material Otherwise British material

* Up to 5% of these species may be planted for a variety of environmental enhancing reasons

8.4 EU Forest Reproductive Material Regulations

On 1 January 2003, the EU Directives 66/404/EEC and 71/161/EEC on forest reproductive material were repealed and replaced by a new single EU Directive, Council Directive 1999/105/EC on the marketing of forest reproductive material.

Forest reproductive material (FRM) is a collective term used to describe seeds, plants and other propagating material which are important for forestry purposes. The marketing Directive updates the legislation to take account of the accession of new Member States since 1975, the Internal Market, and scientific advances including the availability of new material. It is also compatible, as far as possible, with the revision of the current OECD scheme for the control of FRM moving in international trade. In Ireland, the Forest Service, Department of Agriculture, Food and the Marine, is the national authority with responsibility for the implementation of the Directive. The Directive is transposed into Irish legislation by the European Communities (Marketing of Forest Reproductive Material) Regulations 2002.

The Directive applies to the production with a view to marketing and to the marketing of species which are important for a range of forestry purposes including, but not exclusively, the production of wood. The Directive covers a much wider range of species which are important for forestry in Ireland including, ash, alder, birch, sycamore, cherry and lodgepole pine. Significantly, a new category of material “Source Identified” is included. This is FRM derived from basic material which may be either a seed source or stand located within a single region of provenance. This will allow collection and marketing of seed from outside of “Selected” registered sources subject to official control and labelling.

A key principle of the Directive is that FRM remains clearly identifiable through the entire process from collection to delivery to the end user. Under the Directive there is a legal requirement for suppliers of FRM throughout the EU to be officially registered. All seed collectors, seed suppliers, nurseries, plant suppliers/brokers etc. must be registered with the Forest Service. All seed collections must be notified in advance following which a Master Certificate of Provenance will be issued. Seed and plants should only be purchased from registered suppliers and material must be accompanied by an approved Supplier’s Document. These rules provide traceability and assurance to the end user regarding the origin and suitability of the planting stock. Details of the provenance/origin of planted material also provides an essential forest management record.

For the purpose of the Forest Service grant schemes, all planted material must be covered by a Supplier’s Document in the format of a Provenance Declaration Form.

A **Provenance Declaration Form** – Supplier’s Document (see Appendix 1) must be completed for all the species listed in **Table 7**. Only the origins/provenances listed in this table are acceptable.

Part A of the Provenance Declaration Form is completed by the Nursery/Supplier supplying the plants. The Nursery/Supplier must declare that the origin/provenance complies with the accepted list of Origins/Provenances (Table 7).

Part A of the Provenance Declaration Form and the associated plants should only be accepted from a supplying nursery/plant broker if the form is **fully** completed, including, where applicable, the full Plant Passport plant health details. Where the Provenance Declaration

Form accompanying the plants is a copy, the original must be forwarded by the nursery/plant broker as soon as possible.

Part A of the Provenance Declaration Form can only be completed by nurseries or plant brokers registered in Ireland. If importing plants from outside Ireland, the nursery or plant supplier in Ireland is required to be officially registered with the Forest Service under the EU Forest Reproductive Material Regulations and for regulated species under the EU Plant Health Regulations. In these cases Part A is completed by the importer.

Part B of the form is completed by the Contractor or Applicant applying for the grant

In all cases, the Contractor or Applicant must submit the original signed Part B. The Contractor or Applicant must declare that the original provenance details are correct.

Tick “*Part A is an Original*” when the original non-photocopied Part A is submitted

Tick “*Part A is a photocopy*” when the plants covered by Part A have been planted in more than one grant application/contract. The original non-photocopied Part A must be available for inspection.

Tick “*This Provenance Declaration Form accounts for: All of the trees planted of the above species on this contract*” where the delivery described in Part A covers all trees. In other words, no deliveries of plants of that species have been planted in relation to this specific grant application.

Tick “*This Provenance Declaration Form accounts for: Part of the quantity planted of the above species on this contract*” where Part A does not cover all the trees planted. In other words, other deliveries of plants of that species have been planted in relation to this specific grant application, potentially with difference Master Certificates of Provenance, seed origins/provenances, different suppliers etc. Additional Provenance Declaration Forms(s), Part B, must be completed to cover all of the plants actually planted. The number of trees planted and the applicable Plot Numbers(s) must be indicated in each case.

8.5 EU Plant Health Regulations

Irish forests are recognised under the EU Plant Health Directive as being among the healthiest in Europe, with relatively few serious forest pests or diseases. This is mainly due to Ireland’s island status, the relative newness of the forest estate, and the enforcement of forest plant health regulations.

The increasing movement between countries of forest plants and wood products (e.g. logs, sawn timber, wooden pallets, crates and ships dunnage) increases the risk of potentially very damaging forest pests and diseases spreading to Ireland.

The policy of the Forest Service in this area is to maintain a healthy forest environment by ensuring good management, identifying risks and maintaining a sustained commitment to measures which prevent the entry and establishment of destructive forest pests and diseases.

Under the EU Plant Health Directive, strict regulatory controls are in place to prevent the entry of exotic insect pests and diseases which could seriously damage our forests. These relate to the movement of forest plants and wood products into Ireland both from within the EU and from non-EU countries.

The Forest Service carries out an ongoing survey of the national forest estate for quarantine forest pests and diseases. Early detection of a newly introduced pest or disease is essential and forest owners and the forest industry are encouraged to be ever vigilant in detecting such introductions. **If any unusual pest or disease is observed please immediately contact your local Forestry Inspector.**

8.5.1 Plants originating in Ireland and other EU Countries

In the context of the Internal Market, Ireland has been granted a special Protected Zone status with regard to 11 harmful forest pests and diseases. A Protected Zone is essentially an area in the EU where a pest of quarantine significance, established in other parts of the EU, is not present despite favourable conditions for it to establish.

Plants of the genera listed in Table 7 should only be purchased from nurseries registered under the EU Plant Health Directive and the plants must be accompanied by a valid EU Plant Passport to certify freedom from specific pests and diseases.

Plants of the 5 conifer genera and Sorbus plants require a special Protected Zone Plant Passport valid for the island of Ireland (see **Table 8**). This is normally issued using the codes indicated in Table 8. These details are found on the delivery note and/or accompanying label issued by the registered nursery and also on the Provenance Declaration Form. The following is an example of a valid Plant Passport for rowan *Sorbus aucuparia*. DAFM is an abbreviation for the statutory authority for plant health (Department of Agriculture, Food and the Marine), 1234 is a unique registration number for the producer. ZP B2 is the coding to indicate that the plants are free of fireblight disease and are free to move into or within Ireland. The quantity and a unique batch number must also be supplied.

EU Plant Passport IRL/DAFM/1234.
Sorbus aucuparia ZP B2

Table 8 Forest Plants requiring an EU Plant Passport

Conifers	Protected Zone Code	Broadleaves	Protected Zone Code
Abies	ZP Conf.	Sorbus	ZP B2
Larix	ZP Conf.	Prunus	Not applicable
Picea	ZP Conf.		
Pinus	ZP Conf.		
Pseudotsuga	ZP Conf.		

8.5.2 Plants originating in non-EU countries

Plant imports from many non-EU countries are prohibited. Where imports are allowed from non-EU countries they must be accompanied by a Phytosanitary Certificate and importers must be formally registered with the Department of Agriculture, Food and the Marine. The plants must also comply with the forest reproductive material regulations.

8.6 Conifer Mixtures

All crops to be approved under the afforestation schemes must consist either of pure blocks or of silviculturally acceptable mixtures. Mixtures are often used to enhance the visual impact and productivity of a new plantation.

Table 9 shows the species which can be considered in mixture. Where alternative mixtures are proposed the Forest Service must be consulted for approval.

Table 9: Compatibility of Conifer Intimate and line Mixtures

	SS	LP	DF	NS	SP	HL	JL	EL	WH	WRC
Sitka spruce		Y	Y			Y	Y		Y	Y
Lodgepole pine	Y									
Douglas fir (DF)	Y					Y	Y	Y	Y	Y
Norway spruce (NS)					Y			Y		
Scots pine (SP)				Y				Y		
Japanese larch*	Y		Y							
Hybrid larch	Y		Y							
European larch (EL)			Y	Y	Y					
Western hemlock (WH)	Y		Y							
Western red cedar (WRC)	Y		Y							

Y = compatible/compatible on certain sites, otherwise not compatible

**= JL not currently on approved list of species*

8.7 Drainage

8.7.1 General Drainage Objectives

Drainage has a direct bearing on the economic, environmental, and social potential of the forest for the full rotation and beyond where it is required. A site which cannot be adequately drained should not be submitted for pre-planting approval or payment.

Conifers should have a minimum free draining rooting depth of 45-60cm throughout the year. This is measured from the top of the top soil to the top of the water table or subsoil. This height is not measured from the top of the mound. Broadleaf species generally require greater depths than 45 – 60 cm

Root structure should radiate in all directions on the horizontal plane. It is important not to impair harvesting efficiency by creating obstacles. Drainage should not impair site access and should be designed in conjunction with the road network. Traditional drainage routes must be respected and maintained. Drainage should not be installed so as to cause or threaten environmental damage.

The Ordinance Survey 6" map series (1:10,560) can provide a source of information on low lying areas which were liable to flooding historically. These areas must be silviculturally and environmentally capable of establishing a crop to full rotation, if submitted for approval. The

website www.floodmaps.ie can also provide useful information on existing flood history in certain catchments. Local Authorities also have maps available indicating areas that are prone to greater or lesser flood risk

8.7.2 Buffer zones and exclusion zones

Buffer and exclusion zones must be considered when designing a forest. An effective buffer zone is an area where forest operations are curtailed and which is managed for environmental protection and enhancement. Within a buffer zone, natural ground vegetation is allowed to develop with additional planting of suitable riparian tree species (pit planted). An exclusion zone excludes all operations (see, for example, the Forestry and Archaeology Guidelines and Water Quality Guidelines).

In most cases, slope will allow for drainage channels to taper out or be connected to an interceptor drain rather than enter a buffer zone. The buffer zone / interceptor drain will slow down the water and capture sediment. However on flat sites, or those with low slopes, it will may be necessary to connect drains into the aquatic zone. This may be done only where it will not result in sediment or any pollutants entering the aquatic zone and adequate effective silt traps are installed.

8.7.3 'Flat' difficult to drain areas

All drainage channels, slope allowing, should taper out before entering the buffer zone. The objective is to ensure that sediment and soluble pollutants do not enter the aquatic zone. The buffer zone filters the water of sediment and decreases nutrient exports, if any, from the site.

However on flat sites this is not feasible, as the site would not be drained. In these cases it will be necessary that the drains would connect up to the aquatic zone, provided it can be assured that sediment and soluble pollutants will not enter the aquatic zone at establishment and throughout the rotation to clearfell stage. There should be no erosion risk on these flat sites or, if there is, sediment traps will must negate the risk. If applicants and registered foresters cannot drain a site, or are prevented from doing so by approval conditions, the development must not proceed if they envisage that a crop cannot establish successfully and significant adverse environmental impacts prevented.

On some sites it may be feasible and desirable to close the drain either fully or partially after successful drainage and crop establishment. Where Fresh Water Pearl Mussel measures apply, a 20m uncultivated buffer that includes 5 rows of broadleaves is required. Therefore no connection to aquatic zones is permitted which may render some flat sites unviable, unplantable and not eligible for grant aid

8.7.4 Drainage Survey

A drainage survey should be carried out in flat areas or where there are doubts about the drainability of a site and this should be submitted at Form 1 stage. This survey must be carried out by a qualified Surveyor or Engineer at the appropriate time of the year to take account of raised water tables. The Drainage Survey should include:

- A certified Species Map at a scale of 1:5000 indicating date of survey and clearly showing surface levels throughout site relative to outfall water levels. Design calculations and details, including longitudinal sections where necessary.
- A declaration by the Surveyor or Engineer that drainage of the site will achieve a water table which is continuously 45-60cm below the current surface of the soil and will satisfy the following formula:-

$E = (L/300) + K$, where :

- L is the distance from a proposed planting area (point A) to an outfall (point B). L should relate to the area where drain ability is in question and not include easily drained areas on higher slopes/dry areas.
- K is the minimum continuous water table depth to be achieved (45-60cm)
- E is the minimum allowable elevation difference between the surface at point A and the outfall at point B.

Example

If L is 200 metres, K is 60 cm (or 0.6 m) and therefore E (the elevation of A minus B) needs to be a minimum of 1.26 metres.

A declaration from the applicant that the site, to the best of the applicants knowledge, is not prone to flooding

The Biodiversity Map must include drainage and cultivation proposals and should address the following, where applicable:

- Cultivation type and direction
- Appropriate exclusion and buffer zones.
- Number, type and location of sediment traps - ensure that they are on the more level part of the topography
- Location of any crossings of aquatic zones.
- Location and direction of collector drains/main drains/existing drains

Please refer to the Forestry Scheme Mapping Standards for detailed guidance on the preparation of Biodiversity Maps.

8.7.5 Drain types

Collector Drains

Collector drains (which collect water from mound drains, plough furrows, mole drains etc.) should not be greater than 80 metres apart and should run at acute angles to the contour. These acute angles should be no greater than 2 degrees (1 in 30) on slopes greater than 3 degrees (1 in 20). They should be excavated to a depth not greater than 10-15cm below the depth of mound drains. Where collector drains have to be extended into erodable material, 'mini' silt traps should be placed appropriately by deepening the drains in places. They

should discharge via sediment traps and/or an interceptor drain (see below) into the buffer zone or in flat sites into the aquatic zone via sediment traps.

Interceptor Drains

These are constructed along the edges of aquatic buffer zones. They collect the discharge from the drainage sub-catchment and allow it to overflow into the buffer zone.

Cut off Drains

These are constructed immediately up slope of a site and are designed to direct water away from the site.

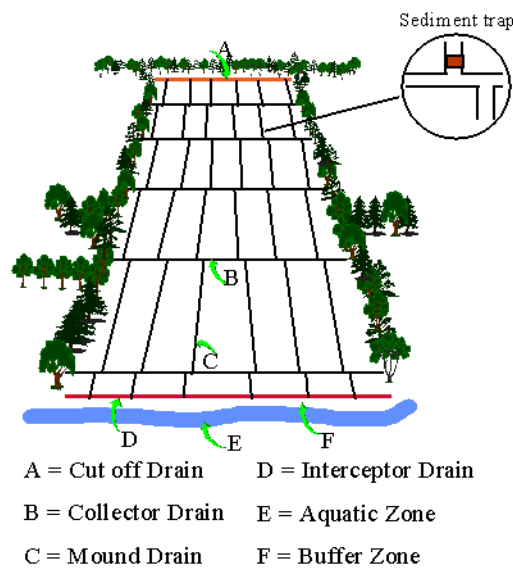


Figure 1: Diagrams illustrating the use of sediment traps and different drain types. This is for illustrative purposes only.

Note that each site will have to be assessed individually to determine the appropriate drainage design. Designs similar to the one above may be suitable for steeper erodable sites.

8.7.6 Sediment Control and Management

This can be achieved by minimising flow rate and flow volume. Riparian zone type vegetation of grasses, reeds and shrubs efficiently filters out sediment if the water flows over it.

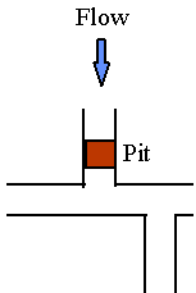
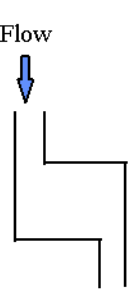
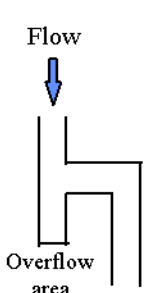
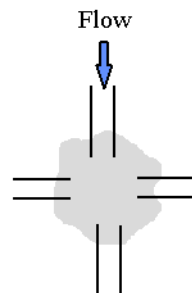
No. 1 (Pit)	No. 2 (Staggered Type)	No. 3 (Run Off Type)	No 4 (Swamp Type)
			
The end of the mound drain is slightly deepened for c. 0.3 metres before it enters the collector drain.	Forces water to slow down within the trap - more efficient than if the water ran straight through the trap. Minimum 1 metre long.	Caters for runoff events that exceed the design capacity. Useful on slopes. Overflows floods onto vegetation. Do not plant within 4 metres of the lower side in order to conserve dense vegetation.	Many drains may enter a natural depression to create a mini "swamp". Dimensions of the "swamp" depend on the needs of the site. May be c. 20 sq. metres. Do not plant within 4 metres of the "swamp".

Figure 2: Sediment Trap types (often referred to as 'Silt Traps').

A large number of small sediment traps (located throughout the site) are usually more efficient than a small number of big traps. Sediment traps should be of such number, design and size that they are sufficient for the full rotation. If they prove inadequate and fill with sediment, additional traps should be created or the existing ones maintained so that there is no risk of sediment reaching the aquatic zone. They should be located on level ground and should be maintained - sediment traps can fill within days on highly erodable sites (see **Table 10**). Sediment traps can be a site hazard and both safety and access for maintenance must be considered at the planning stage. Sediment traps should be rectangular with the longer side parallel to the feeder drain.

Small dams made from straw, vegetation, timber or stone, geotextiles, terram have been used with success to slow water flow and encourage the dropping of sediment. Physical barrier dams should have a V notch in the centre of the dam to control the overflow of water and prevent the erosion and scouring out of the sides of the channel during flood events.

Use existing agricultural drains wherever practical. Clear them of vegetation and change their shape only if this is essential to their function. In this event prior installation of sediment traps will be required.

Existing Drains should be excavated prior to mounding drains being installed.

Construction of new drains, or changing the shape of drains, should not take place in exclusion zones and should only enter aquatic buffer zones where the site is flat or almost so and will not result in sediment entering the aquatic zone.

Flood events are inevitable - plan for them.

Buffer zones and exclusion zones must not be disturbed during the site preparation operation as this may lead to erosion channels being created.

Table 10: Rating scheme for soil erodability

Soil Type	Slope Class					
	<3° 1 in 20	3°-6° 1 in 20 to 1 in 10	6°-8° 1 in 10 to 1 in 7	8°-17° 1 in 7 to 1 in 3	17°-30° 1 in 3 to 1 in 2	>30° > 1 in 2
Least erodable e.g. gleys	L	L	L	L	M	H
Erodable e.g. brown earths	L	L	M	H	H	H
Very erodable, e.g. podsoles, some peats	M	H	H	H	H	H

(L = low, M = medium, and H = high)

The more erodable the soil, the greater care needs to be taken on all the above points.

8.8 Burning and Clearing Vegetation

The site may have a covering of dense vegetation such as gorse (furze) or bramble. The nature and extent of vegetation involved will require a decision as to whether or not it should be removed. Every effort should be taken to minimise the need for removal. Pockets of broadleaf scrub such as willow and birch and hedgerows must be maintained for habitat and biodiversity purposes. Emergent native woodland should be conserved within the relevant schemes and allowable biodiversity categories.

Where any machinery is used, particular care is required to ensure against soil damage, compaction, rutting or removal. Subsequent spraying may also be required, using approved herbicide appropriate to the target vegetation.

In some situations, it may be desirable to burn vegetation prior to planting. Burning should only be supervised by experienced, trained operatives. All burning operations should be carefully planned and conform to DAFM Prescribed Burning Code of Practice.

<https://www.agriculture.gov.ie/media/migration/forestry/landandforestfires/CofPPrescribedBurningFinal90212.pdf>

Burning should be carried out in the season before planting. Burning of gorse or furze will not effect long term control, and may actually contribute to further development of gorse following burning and subsequent planting. Attempts at burning large areas of gorse may easily give rise to wildfire conditions and damage to land, habitats and other resources. Ideally, gorse (furze) should be treated by flailing.

Where trees are required to be removed, for example to facilitate the erection of a fence, a felling licence is necessary. Scrub areas provide important areas for biodiversity enhancement and may be included as an ABE up to a maximum of 15% of the eligible area.

Burning and destruction of vegetation is regulated by the Wildlife Act 1976, as amended by the Wildlife Act (Amendment), 2000.

- Landowners are **prohibited** from burning vegetation on land not yet cultivated, between **1st March and 31st August** of any given year.
- It is prohibited to burn vegetation within **one mile** of a wood without giving written notice to An Garda Síochána, and the forest owner. Written notification must be provided to neighbouring forest owners and An Garda Síochána between 7-35 days in advance of burning. The Fire Service must be notified of the operation by telephone, on the day of burning through the relevant regional control centre via 999/112 service.
- A prescribed burning plan should be in place, detailing how the fire is to be contained and conducted, and the weather conditions, personnel and other resources required to achieve this. A full risk assessment should be conducted as part of the planning process, and should take account of local hazards, and any resources, crops or dwellings that may be affected by the burning operation. Fines for breaches of the Wildlife Act (Amendment), 2000 range from **€635 to €63,490** and prison terms from **3 months to 2 years**, or both a fine and a prison term. Any person engaged in illegal burning may also be held responsible for any injury or damage caused by the fire.

Where vegetation is uprooted and piled for burning, a burning permit will be required from the local authority under the Waste Management (Prohibition of Waste Disposal by Burning) Regulations 2009. Contact your local Authority for Details.

Landowners should also note that under Good Agricultural and Environmental Conditions (GAEC) associated with cross-compliance, the burning of growing vegetation on cultivated or non-cultivated land (including permanent pasture), without approval, is prohibited and could lead to penalties under the Direct Payment Schemes.

More information on current legislation can be obtained at www.oireachtas.ie.

8.9 Ground Cultivation Methods

The most appropriate cultivation technique(s) must be selected for each site following a detailed walk over soil survey by a registered forester. The depth, soil type and drainage requirements will determine which cultivation method is selected. The cultivation techniques listed below are commonly used in afforestation in Ireland.

Table 11: Ground cultivation methods

Soil Type	Recommended Cultivation
Carboniferous Surface Water Gleys derived from carboniferous drift and Peaty Gleys and Podsolised Gleys with less than 20cm of peat remaining	Mound on slopes less than 5 degrees. Mole Plough on slopes greater than 5 degrees
Peaty Gleys, Podsolised Gleys and Peaty Podsoles with more than 20cm peat and blanket peat	Mound
Peaty podsoles, peat depth less than 20cm	Rip
Surface water gleys with adequate slope	Mole Mound
Old red sandstone	Mound
Brown Earths and other free draining mineral soils with indicated iron pan	Rip
Brown Earths and other free draining mineral soils	Rip Scarify Double furrow agricultural plough where ground permits
Suitable soil types and site conditions	Mechanical planting is considered

8.9.1 Mounding

Mound Drains

- Mound drains should be dug using a V-shaped bucket.
- Recommended Bucket Specification - conventional winged mounding bucket may be used for collector drains
- On sites with slopes greater than 4° (1 in 15) the mound drains should run in the direction of max slope and should be fed into collector drains spaced 50 - 80 m apart and aligned at a max slope of 2° (1 in 30). This ensures the slow removal of water from the site avoiding erosion. Alternatively mound drains can run across the slope at an angle of less than 1 in 30, tapering out into buffer zones.
- Depth of mound drains is dependent on soil quality for mounding and should not be more than 45cm in depth in mineral soils and 60cm in peat soils.

- Mound drains should normally be spaced 12m apart, but can range from 8-16m depending on soil, hydrology and moisture condition and to an adequate depth to serve the drainage over the life of the crop.
- In exceptional circumstances, drainage spacing may be greater where soil depth permits and natural drainage is not a problem.
- Collector drains should be excavated to a depth and size capable of collecting water from mound drains (normally 40cm-60cm deep).
- Design drain gradients so that erosion during storms is avoided, i.e. avoid long runs and use collector drains and sediment traps (see figures 1 and 2).
- Separate site and road drainage systems where possible.
- Use buffer zones between drain ends and watercourses.

Mounds

- Mound rows at 2 metre spacing except where otherwise stated by the Forest Service. Spacing to be adjusted within rows rather than between rows.
- Mound size should be a minimum of 45cm x 45cm x 15cm high to a maximum of 60cm x 60cm x 20cm high and clearly identifiable.
- Mounds should be placed at a minimum of 50cms from the drain edge.
- An intimate mix of soil should be used from top to bottom to ensure good planting medium for each mound.
- Avoid excessive subsoil, particularly on limestone derived soils.
- Inverted scrap mounds should be considered on steep slopes and free draining soils to avoid erosion.
- A period of settlement after cultivation is required before planting.
- On shallow soils where mound material is limited, supplement mounds taken from drain with scrap mounds taken from the side of the drains.

Ripping

- Rip at 2m spacing to 45cm depth using twin ripper tines.
- The tines should have wings fitted at bottom to ensure maximum disruption.
- In exceptional circumstances, deeper ripping may be necessary in order to break up consolidated soil layers or deep pans.
- Site collector drains should be excavated at spacing of 50m in order to collect water running in rips and to prevent risk of erosion and /or flooding of headland or adjacent land. In easily erodable sites, e.g. old red sandstone areas, closer drain spacing should be considered and be aligned at a slope of 2° (1 in 30).
- Depth of collector drains should be 55-60cm.

Moling

- Mole at 2m spacing.
- Install mole drains at a depth of 45cm.
- Use collector drain with sloped side walls spaced 50-80cm apart and to a depth of 55-60cm.

- Mole plough type - moling units are directly mounted on low ground pressure machines.
- Where a ball and chain is used for mole drains, the size of the ball should be approximately 10cm diameter.

Scarifying

- Scarifying should not be considered in shallow soils.
- Scarify to a depth of 10 to 20cm.
- Collector drains to be installed as required. On sites with slopes greater than 4° (1 in 15), especially in ORS derived soils, space collector drains at 50m apart and align at a slope of 2° (1 in 30).
- Planting area to be cleared of vegetation for an average width of 60cm.

Agricultural Ploughing (double furrow)

- Agricultural Ploughing should only be carried out on free draining agricultural soils with no compaction layer.
- Plough using a double furrow plough to depth of 20cm at 2m apart
- (Plough using a double furrow plough with a rip attachment has been shown to be effective)
- Planting area (double furrow) to be vegetation free for a width of 80cm.
- Plant on the sod furthest from the furrow or between the two sods, ensuring no air pockets
- Install collector drains as required at 80m apart on slopes greater than 4° (1 in 15), especially on easily erodable soils.

Planting Machines

- Suitable for good free draining agricultural land.
- Tine designed to ensure that there is appropriate disruption of the soil profile.
- Care should be exercised to ensure that the slit opened by the planting machine is closed properly.

Pit Planting

Pit planting is suitable for mineral or old woodland sites. It may also be appropriate for steep slopes where other types of preparation may lead to sediment run off. Also suitable where planting in aquatic buffer zone as long as trees can be established and grown successfully.

8.10 Stocking and Spacing

Table 12 represents the minimum spacing and stocking requirements for all species at initial planting stage. Only sites that are planted at these stocking levels or greater should be submitted for 1st instalment payment.

Table 11: Minimum stocking and spacing for conifers and broadleaves

Species	Spacing	Stocking/ha
LP pure	1.8m X 1.8m	3,100
All other Conifers	2.0m X 2.0m	2,500
Oak pure	2.0 m X 1.5m	3,300
Oak/nurse mix	10 lines of oak and one line of nurse species - Oak 2.0m X 1.5m - nurse 2.0m X 1.5m	3,300
Beech pure	2.0 m X 1.5m	3,300
Beech/nurse mix	10 lines of beech and one line of nurse species - Oak 2.0m X 1.5m - nurse 2.0m X 1.5m	3300
Sycamore and other broadleaves (except ash for new afforestation sites)	2.0m X 1.5m	3,300
Alder	2.0 m x 2.0 m	2,500

8.11 Plant Quality

Transplants (planting stock) must have the characteristics of plants in accordance with the following definition:-

- (a) A straight stem with a definite leader.
- (b) A well balanced foliage with a good fibrous root system.
- (c) A specified height to provide for size above ground when planted.
- (d) A specified root collar diameter to provide for hardiness.
- (e) Age must not exceed a specified maximum.

Transplants must be within the quality limits set out in **Table 13** and **14** below unless otherwise approved in writing or by circular by the Forest Service.

Table 12: Broadleaves - Quality limits for transplants

Species	Max. age (Yrs)	Min. Collar Diameter (mm)	Stem Height (cm)
Ash	3 4	7 12	50-75 60-90
Oak/Spanish chestnut/Beech	4 4 5	6 7 9	45-75 55-70 70-85
Sycamore	3	7	45-75
Alder	3	4	30-60
Other broadleaves	5	4	40-75

Table 13: Conifers - Quality limits for transplants

Species	Max. age (Yrs)	Min. Collar Diameter (mm)	Stem Height (cm)
SS	4	6 (4*)	31-65 (20-30*)
NS	4	6 (4*)	31-50 (20-30*)
LP	2	3	10-20
SP	3	4	20-40
CP	3	3	10-30
EL, HL	3	5	35-60
DF	4	8	40-60
WRC/WH/OC	4	4	25-45

(*) These are Size 2 Category Plants and apply only to SS and NS. They are suitable for sites without the potential for the vigorous growth of competing vegetation, provided the site is not liable to frost.

8.12 Plant Handling and Planting

Good plant handling is as important as plant quality. The following should be observed.

8.12.1 General Plant Handling Issues

Co-ordination and timing of plant deliveries from nursery to planting site is essential to ensure that the health of the plants is maintained.

Non bagged plants, and plants removed from bags, should be trenched-in on the planting site as soon as possible.

Plants should not be left with roots exposed and should be stored/trenched in the shade.

Cold storage plants should be planted within two weeks of removal from cold store.

Containerised plants should not be allowed to dry out on site.

8.12.2 Using Co-extruded plastic bags

Bagged plants should be bagged in nurseries using co-extruded bags. The trees should be bagged in dry conditions free of excess soil. The date of lifting in the nursery should be known. The week in which the plants are lifted is usually indicated on the labels attached to the bags. Plants in co-extruded bags should be stored in the shade. Plants should not normally remain in bags for longer than 4 weeks after lifting in the nursery, but this period should be reduced to 2 weeks for those lifted early or late in the season. Plant condition should be checked 2 weeks after receipt on the planting site. This period should be reduced to a week during the early and late parts of the lifting season. If there is evidence of heating, plant immediately. Leave bags slightly open to allow cooling without excessive drying. Bags showing evidence of damage should be repaired with heavy duty tape or placed inside another new bag.

Litter warning

It is against the law to litter.

Do not submit an application for payment until all packaging including planting bags, fertiliser bags herbicide containers are removed from the site and disposed of in an environmentally responsible manner. Burning of plastic containers and bags is not acceptable. Note Forest Service penalty for dumping.

8.12.3 Planting Methods

Trees must be planted correctly to provide optimum conditions for successful establishment. The main forms of planting are described below.

Slit planting

A spade is used to make a vertical slit in the ground. The trees roots are carefully positioned in the slit to ensure that roots are equally spaced in the vertical slit created. The slit is closed and firmed up ensuring the tree is vertical and upright. It is important to ensure that roots are not bent over which can lead to poor development, e.g. J root. This form of planting can be suitable for ribbons, mounds and ripped ground.

Angle notch

A spade is used to cut a T or L-shaped slit in the ground. The spade is used to lift the slit and the trees roots placed underneath to ensure good root distribution without causing damage. The slit is closed and firmed up to ensure that stem is left vertical and upright.

Pit planting

A spade is used to dig a hole and the trees roots placed in the centre. Soil is placed around the tree and firmed in, ensuring that it is upright and straight. This form of planting can be used in sensitive sites where no ground preparation has taken place.

Planting Position

Trees must be planted and positioned on top of mounds or ribbons and beside rips. It is important to ensure that trees are planted vertical and upright to reduce the incidence of bad form on the lower stem. Position the roots in the slit to ensure good distribution, which will lessen the potential for badly formed roots and stems, e.g. J- roots, basal sweep.

8.13 Lifting and Planting Dates

Provided that the handling guidelines listed above are adhered to, and morphological quality and size is acceptable, the planting stock should be in good condition at time of planting. In addition to the risk of plant mortality, shoot dieback is a common response to poor handling/planting practices. Recommended periods of planting for several species are given in **Figure 3**. The success of transplants after planting depends on plant quality and post planting environmental conditions. During the period of '*Less certainty*' (see Figure 3 below) the likelihood of success will vary with plant dormancy level at the time of lifting and post planting conditions. Planting should be carried out soon after the plants arrive on the site to minimise these effects.

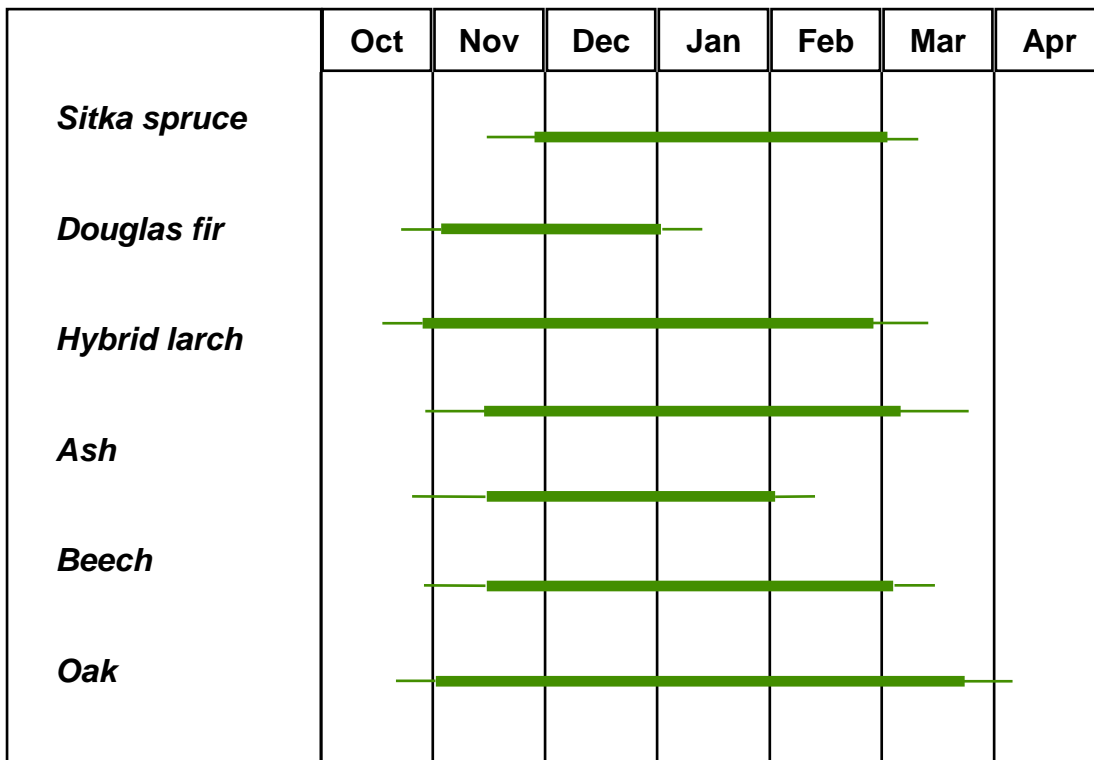
8.13.1 Cold Store Plants



Plants from cold storage can be used to extend the planting season to late April / early May. Planting cold stored plants late in the planting season can be risky as the risk of drought increases. Results have shown that where cold stored plants have been planted late in the planting season the height increment was reduced, especially for larch.



Photo 2: Forest nurseries establish trees to required standards for planting out in the forest

Figure 3: Optimal dates for planting freshly lifted stock



Best period for planting 
 Indicates period of less certainty 

8.14 Fertiliser Application

8.14.1 General.

- Apply fertiliser manually after cultivation to afforestation sites avoiding drains, buffer zones, areas within 20 metres of aquatic zones and waterlogged areas.
- Fertiliser should not be applied during or immediately after periods of heavy rainfall. It is best applied in early summer and not outside the period April to August.
- Subsequent application of fertiliser should be undertaken following a prescription resulting from a chemical analysis of foliar samples. Observe the Forestry and Water Quality Guidelines, in particular the section on Fertiliser Application and Storage (Page 7) and Forestry and Aerial Fertiliser Guidelines (where applicable).
- All fertiliser should be applied broadcast and evenly distributed.
- Correct time of application between the months of April to August inclusive.
- Apply after planting.
- Do not apply fertiliser to waterlogged soil.
- Do not apply during or after heavy rainfall.

8.14.2 Phosphate

Phosphorous applications in forestry must ensure that, while trees have sufficient phosphorus for sustainable growth, water quality or habitats are not damaged by phosphorous eutrophication. Forests are sometimes located in areas where naturally nutrient poor water bodies are vulnerable to enrichment if even small amounts of nutrients are discharged into them. Forest owners, foresters, managers and contractors must ensure that enrichment of waters does not result from their actions.

Phosphorous deficiency in trees can be characterised by

Poor height growth
Dull green colour on needles
Reduced needle length
Sparse foliage

Correct phosphorous management in forestry entails correct fertiliser application in terms of rate and timing and prevention of sedimentation of aquatic zones.

The following sets out phosphorous requirements for Sitka spruce at establishment time and should not be exceeded during the establishment of that species. It is a guide for other species.

Table 14: Phosphate Requirements

Site Type	Rate of Application of Granulated Rock Phosphate (approx 11% P) Ungranulated Rock Phosphate (approx 14% P)
Enclosed/Improved fields recently farmed	None
Former agricultural land not recently worked	250 kg./ha.
Unenclosed land	350 kg/ha GRP at the time of establishment. A split application not exceeding a total of 400 kg /ha GRP is acceptable within the establishment period provided that there are no adverse environmental impacts e.g. deterioration in water quality status

Rock phosphate is most effective in acid soils. For soils with a pH of 6 or greater, it is advisable to use other forms such as super phosphate. Potato fertiliser (7:6:17) has been beneficial on broadleaf sites.

Phosphorous application on peat soils should be kept to a minimum in any single application and careful consideration should be given to splitting the application on these soils.

Fertiliser type(s) and rate(s) should be described in the application form for approval for afforestation, woodland improvement, reforestation and aerial fertilisation.

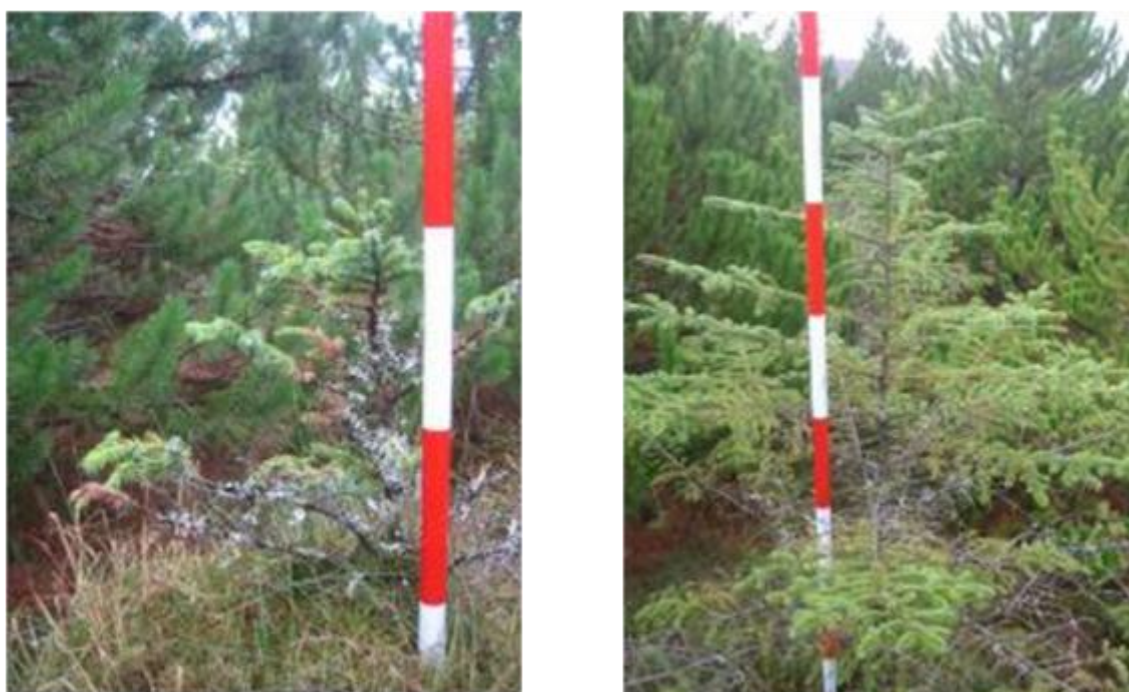


Photo 3: Phosphorus and nitrogen deficiency on Sitka Spruce (red and white graduations of survey pole are 20 cm in length) on peat soils



Photo 4: Phosphorus and nitrogen deficiency on Sitka spruce – peat soil

8.14.3 Potassium

Midland fen peats normally under grass often require potassium for successful tree growth (the midlands in this context corresponds roughly with the area of the central plain). Potassium deficiency can occur in Western counties. Potassium is supplied as muriate of potash (50% K) at 250 kg per ha.



Photo 5: K deficiency on Norway Spruce – Reclaimed Fen type peat (midlands)



Photo 6: K deficiency on Sitka spruce/lodgepole pine – Reclaimed Fen type peat (midlands)

8.14.4 Nitrogen

Sitka spruce is moderately nutrient demanding and on many unimproved/unenclosed sites an application of nitrogen fertiliser is needed. N deficient trees will have reduced needle and leader growth and a yellow/green or light green foliage colour, depending upon the degree of deficiency. N deficient sites often require 150kg/ha of urea to correct deficiencies and enable the trees to achieve canopy closure.

Fertiliser Requirements and Broadleaves

Ideal broadleaf sites seldom require fertiliser. On enriched peats and other sites where broadleaves may not grow to their full potential, an application of a compound fertiliser (such as 10.10.20; 18.6.12 or 7.6.17 sulphate of potash) is recommended at year 2 or year 3. There may be situations where phosphate and/or potassium are required but it is very questionable if broadleaves are suited to a site where nitrogen is deficient. If a nutrient deficiency is suspected at any stage, a foliar analysis should be carried out. See Appendix 14 for foliar sampling procedure. This will determine the type and rate of fertiliser required.

Sites ‘in check’

Often on infertile sites, even those that are correctly fertilised at planting, trees begin to lose vigour. This may happen a number of years after planting. To remedy the situation it is necessary to determine the nutrient status of the crop ‘in check’. Foliar analysis will be required to establish their nutrient status and determine the type and rate of fertiliser required.

Prevention of sedimentation and eutrophication of aquatic zones

Mineral soil particles contain varying amounts of phosphorous which may be released slowly into the aquatic environment. The amount varies with soil type and with past fertiliser applications.

Podsoles and some peats are very erodible, more so than brown earths which are, in turn, more erodable than gleys. The greater the slope, the more a soil is liable to erosion. Periods of heavy rain make all locations vulnerable to sediment loss.

Sediment must be prevented from entering aquatic zones. This is achieved by adherence to the Forestry and Water Quality Guidelines and the Forest Harvesting and the Environment Guidelines and the appropriate sections of this manual.

Table 15: Exclusion Zones

Feature	Width of Exclusion Zone by Method of Application		
	Manual*	Mechanical*	Aerial**
Aquatic Zone	20 metres or width of Buffer Zone whichever is the greater	50 metres	50 metres
Reservoirs & points of abstraction of drinking water	As above	As above	100 metres
Heritage areas	Consultation will take place with NPWS re applications for approval for grant aided projects.	Consultation will take place with NPWS re applications for approval for grant aided projects.	30 metres. Consultation will take place with NPWS re aerial fertiliser application.
Unforested lands	Nil	Nil	30 metres
Dwellings	30 to 60 metres at afforestation. Existing setback for later application-	30 to 60 metres at afforestation. Existing setback for later application.	30 metres
Roads, archaeology and old buildings	Exclusion zones per Forestry and Archaeology Guidelines and per road setback	Exclusion zones per Forestry and Archaeology Guidelines and per road setback	15 metres

**See Forestry and Water Quality Guidelines*

***See Forestry and Aerial Fertilisation Guidelines*

Fertiliser should not be discharged into a free flowing drain, nor into a sediment trap.

Storage of Fertiliser

Fertiliser should be placed under shelter on a dry elevated site at least 50 metres from the nearest aquatic zone. The requirement for shelter refers to long term storage.

8.15 Aerial Fertilisation

Aerial fertilisation may be considered (a) for later fertiliser application on sites with a dense ground vegetation or branch growth where branches of adjoining trees are within 1 metre of touching each other or, (b) for initial fertilisation of mineral sites which have no cultivation drains.

Prior approval must be obtained from the Forest Service for aerial fertilisation.

The European Communities (Aerial Fertilisation) (Forestry) Regulations 2006 (S.I. No. 592 of 2006), as amended, provide a statutory basis for licensing aerial fertilisation. Applicants may apply for a licence to the Forest Service. Details on the application procedure, the consultation process and the operational requirements, are described in the FORESTRY AND AERIAL FERTILISATION GUIDELINES and are available from the Forest Service.

These guidelines are currently being updated.

8.16 Fencing

8.16.1 General

Plantations must be fully protected from the time of planting.

There is no requirement to duplicate existing stock proof fences, rivers, substantial walls, or other stock proof boundaries with additional fencing. Adequate access to plantations for management purposes can be provided using styles and or secured temporary openings in fence lines. There is no requirement or additional funding to provide gates to all plots. All existing fences and boundaries must be to a standard which can exclude domestic stock and protect the growing crop. If plots require rabbit fencing, the entire area to be protected must be enclosed with a rabbit proof fence. Tree guards for rabbit and hare protection can be used for small areas otherwise protected from livestock. These must be to such a height that the rabbits or hares cannot damage the tops of the trees (normally 75cm high tree guards are sufficient)

Stiles must be erected at access points to all plantations and designed and maintained to allow safe access and indicated on the Bio Map.

Electric fencing is not acceptable unless supplementing the specifications given in **Table 17**.

8.16.2 Fencing wire and netting standards

The wire used must be to the following International Standards:

- I.S. EN 10223-1 Steel wire and wire products for fences – Part 1: Zinc and zinc-alloy coated steel barbed wire
- I.S. EN 10223-5 Steel wire and wire products for fences – Part 5: Steel wire woven hinged joint and knotted mesh fencing
- I.S. 126 Galvanised Fencing Wire.

Other netting and wire requirements include the following:

- The mesh in rabbit netting should not exceed 32mm (1.25"). 19 gauge wire is recommended. No weaker than 21 gauge wire should be used.
- Rectangular mesh netting or chain link fencing for sheep should not exceed 15cms x 20cms (6" x 8").
- Plain wire of single strand mild steel should be 4mm in diameter.

- Barbed wire consists of two line wires of 2.5mm mild steel or two line wires of 1.6mm high tensile steel having 4 point barbs at intervals between 75mm and 85mm.
- Use galvanised staples made from 4mm diameter wire and 38mm (1.5”) long.

The post and wire arrangements for Forest Fencing is outlined in **Table 17**, applies to all fences erected on afforestation sites. Fencing grants are only applicable where there is a genuine need for fencing e.g. where hedgerows are not tall or sufficiently strong or where ditches *in situ* are not stock proof.

The afforestation grant is available as a fixed grant in respect of costs incurred in the establishment of a plantation. It is payable in two fixed grants and the rate depends on whether the stakes are certified to IS436 or not. The fencing allocation grant is paid at the same time as the 1st Instalment.

IS436 Standard

Where fencing is involved, it must be to the Irish Standard 436:2007 to claim the higher rates of grant aid. The standard aims to give an anticipated service life of 15 years where timber posts are in contact with the ground. The IS436:2007 covers a number of technical specifications which include;

- Permitted timber species
- Post sizes and diameters
- Timber preservatives
- Pre-treatment drying requirements
- Labelling and traceability of the end product

Copies of this standard are available from the National Standards of Ireland (NSAI).

To qualify for the higher IS436 grant rates all fencing posts claimed in the 120m/ha allowance must be certified to this standard. Where part of the 120 metre per hectare allowance claim contains non IS436 material the entire allowance will be assessed at the non IS436 grant rate and at a density of 100 metres per hectare for the **entire plantation**. All fencing claims will be capped at €40,000 per plantation. The total fencing allowance available will depend on the area of the plantation multiplied by 120 m. All claims for grant aid will be based on the measured fence length of new fences erected. For example a 15 ha plantation with only 1 ha fenced (100 m x100 m square plot of oak), the fencing allowance will be 400 metres and not 120 metres. The allowance is capped at plantation level and allows fences to be placed only where they are needed. An IS436 Fencing Post Certificate must be completed in full and attached to the Form 2.

Non- IS436

The Department encourages the use of the IS436 standard. However it has decided to continue to provide grant aid for new fences which do not meet this standard but at a lower rate and allowance per hectare and at the same rates paid in 2014. A decision to continue funding will be kept under review.

Table 16: Specifications for Forest Fencing (This table should be read in conjunction with IS 436 :2007)

Fence Type	Wire and Netting	Intermediate posts (stakes)	Turning posts	Strainer posts
Cattle	Barbed wire Public roads <i>etc.</i> - plain wire Number of strands: 3 Distance between strands: 18-23cms Top strand not less than 1 metre from ground.	Round stake: Length: 1.5m (+/-30mm) Top diameter 10cm (+/- 3mm) Split stakes: Length: 1.5m (+/-30mm) Diameter 12.5cm (+/-25mm) Machined squared: Length: 1.5m (+/-30mm) Top dimension 10cm X 10cm (+/- 3mm)	Turning posts should be provided where there is a change in the angle of the fence but where this angle is less than 30°. Length: 1.8m Top diameter: 12.5cm Distance apart : as required	Strainers should be provided at the beginning and end of every length of fencing, at gaps or openings, at every change of direction where the angle is greater than 30° and to accommodate any significant change in gradient. Length: 2.1m Top diameter: 17.5cm Usual distance apart: 100m Strut (length 1.8m diameter 10cm)
Cattle/Sheep	<u>Ordinary sheep netting or rectangular mesh sheep netting.</u> <u>One strand of barbed wire.</u> Barbed wire 10-12.5cm above the netting. Lowest line of the sheep mesh shall be between 50mm and 100mm above ground level. (The use of barb wire may be waived on application where there is no long term threat from cattle)	Distance apart: Mild steel 4m High tensile 5m		
Cattle/Rabbit	<u>Rabbit netting.</u> <u>Three strands of barbed wire.</u> One strand on top of rabbit netting and netting stapled to barbed wire. Second strand 1.05m above ground. Bottom of netting turned outwards and held down with sods, stones or pegs. One strand 15cm from the bottom.			
Rabbit/Hare	<u>Rabbit netting.</u> <u>Two strands of barbed wire.</u> One strand on top of rabbit netting with netting looped over barbs. Second strand 15cm above rabbit netting. Bottom 15cm of rabbit netting buried underground turned outwards and held down with sods. This will leave approximately 90cm of rabbit netting above the ground. This will be made easier if the fence is constructed in a ploughed furrow. The rabbit wire can then be turned outwards and the plough ribbon can be placed back on top.			
Deer	(a) <u>Rectangular wire mesh</u> , 1.9m high or two lengths of sheep wire, one over the other. (b) Alternative fencing specifications /post arrangements approved on request on a case by case basis e.g. In very uneven terrain, on exceptionally stony ground, or where post-holes cannot be dug or augured, non-tensile suspended fencing may be approved. NOTE that a strand or strands of barbed wire must not be strung along the top of the deer fence. Use plain wire instead.	Length: 3m (driven 1m into ground) Diameter : 12.5 cm Distance apart : 8m	Turning posts for angles less than 30°. Length: 3.0m Top diameter : 20cm Distance apart : as required	H Frame only, Strut (length 1.8m diameter 10cm) to be fixed to strainer posts using either galvanised steel rod or rebated joint (See IS 146:2001) Length: 3m (driven 1m into ground) Top diameter : 20cm Distance apart : 80m

To qualify for a new fence which has not been certified to the IS436 standard, grant aid will be limited to 100 metres per hectare and based on the GPC categories. For example a 15 ha plantation with only 1 ha fenced (100 m x 100 m square plot of oak), the fencing allowance will be 100 metres and not 120 metres.

Deer Fencing Maximum Allocation:

All deer fencing allowances must be approved in advance and will be based on the area **enclosed and protected** by the deer fence. For example a 15 ha plantation with 1 ha of oak (100m x 100 m square) enclosed by a new non IS436 deer fence, the allowance will be capped at 150 metres i.e. 150 metres / hectare.

The fencing allowance for IS436 deer fencing will be based on 120 m / ha and will be calculated based on the area enclosed and protected by the fence. For example a 15 ha plantation with 1ha of oak enclosed by a new IS436 deer fence, the allowance will be capped at 120 metres i.e. 120 metres / hectare.

IS436 Certificates

Only companies that are certified by the National Standards Authority of Ireland (NSAI) or equivalent, can supply IS436 fencing stakes suitable for use in the Afforestation Schemes.

IS436 certificates are produced in duplicate, with the stake IS436 registration holder holding the original copy, and supplying the second copy to the person/company purchasing the posts. Manufacturers of NSAI fencing materials shall obtain numbers for each certificate directly from the Department of Agriculture, Food and the Marine, Nitrates, Biodiversity and Engineering Division Pavilion A, Grattan Business Centre, Dublin Road, Portlaoise, Co. Laois. This replicates the same process as administered by the DAFM Farm Fencing Scheme. All NASI registered suppliers of timber certified to IS436 will contact DAFM directly for certificate numbers.

Registered suppliers of IS436 timber fencing are available on the National Standards Authority of Ireland's website: www.nsai.ie/Our-Services/Certification/Company-Registration-Search.aspx.

All fencing rates are listed in the Afforestation Scheme document.

8.17 Fire

The potential fire risk to proposed plantations in high fire risk areas should be assessed and methods to reduce risks devised, described and implemented. This is a requirement for grant approval. The presence of any flammable vegetation, such as purple moor grass, furze and heather, is a strong indication that a firebreak is required. Firebreaks need regular maintenance where a fire risk exists.

Firebreaks should constitute a fuel free zone of 6m in width and should normally be placed along the external boundaries of plantations. However, in blocks of 60 ha or more, internal firebreaks, roads or other fuel free zones should be considered. Most fires spread from adjoining lands into forests and for that reason firebreaks are most often on the forest boundary. However they are an intensive form of soil disturbance so it is important to depart

from the boundary when constructing them if archaeological, water quality, biodiversity or other issues demand. In these instances, the appropriate buffer and exclusion zones must be observed and the firebreak must be made the required distance back from the features. Landscape considerations may also dictate that part or all of the firebreak should depart from the forest boundary and be made inside the forest.

Large forest properties (>60 ha), where there is a fire risk, should be served by reservoirs as an aid to fire control. The acceptable specification for a reservoir is a minimum capacity of 22,700 litres (5000 Gallons).

A reservoir should be fully operational during fire danger periods and easily accessible to vehicles. All reservoirs should be adequately fenced.

The Forest Service does not provide funding for reconstitution following damage to forests by fire. Forest owners who fail to reconstitute a damaged plantation will be considered a breach of contract and repayment of all grants and premiums will be required and further premium payments will be stopped on the relevant plantation.

The Forest Service strongly recommends that forest owners ensure that they have adequate insurance in the event of a fire, including the cost of reconstitution e.g. reforestation

8.17.1 Procedure for reporting fire damage to forest plantations

In the springs of 2010 and 2011 significant damage was caused to the national forest estate as a result of wildfires. Many forest owners incurred considerable losses as a result of these fires, which destroyed valuable timber resources.

8.17.2 Fire and the Obligation of Forest Owners

Beneficiaries of afforestation grants and premiums are obliged to maintain and protect their forest while in receipt of payments from the date the grant was first paid. This means that there is an obligation on the beneficiary to replant where the forest is damaged by fire.

Failure to adequately protect and maintain a grant aided forest can result in cessation of premium payment and may, ultimately, result in recoupment of all grant and premium monies received, unless remedial work is satisfactorily carried out.

If your forest is damaged by fire you must follow the procedures set out below.

1. Submit a **Reconstitution Notification Form 1: Application for Approval** form as quickly as possible. This form is used (i) to inform the Department that the forest has been damaged (ii) to provide details of the work required to reconstitute (replant) the site and (iii) to obtain the approval of the Forest Service to carry out the proposed reconstitution works. The forest owner completes pages 1 and 2 of the form, while pages 3 and 4 must be completed by a Forester. A map of the site clearly identifying the damaged area, along with any proposed changes in species, prepared and signed by the Forester, must accompany the Form 1.

Note: Forestry premium payments may be suspended until the reconstitution works have been completed, depending on the extent of the damage.

2. If the plan is acceptable to the Forest Service, the forest owner will be notified in writing to proceed with the reconstitution works.
3. When the reconstitution works have been completed, a **Form 2: Reconstitution Notification Form** should be submitted to the Department. The forest owner completes pages 1, 2 and 3 of the form, while pages 4 and 5 must be completed by a Forester. A certified Species Map, prepared and signed by the Forester, must accompany the Form 2.
4. The forest will be liable for further inspection by the Department 4 years after the reconstitution works are completed and a **Form 3: Reconstitution Notification Form** will be posted to the forest owner for completion and return, in advance of the inspection.

The Forest Service strongly recommends that the following cost effective steps should be implemented in order to address the risk of fire damage to your forest:

- Consider the financial consequences of fire damage – it is the responsibility of each forest owner to ensure that adequate insurance, including for reconstitution costs, is in place
- Firebreaks should be well maintained and checked at least once a year
- Have a Fire Plan and review it regularly – list key contact numbers and discuss procedures with family members
- Raise awareness with your neighbours so that people are not careless in the vicinity of the forest – make sure they are aware of the legal ban on the burning of growing vegetation on uncultivated land between 1 March and 31 August each year
- Landowners who set fires to burn vegetation are obliged to give you (and the Gardai) written notice if they intend to burn within a mile of your forest and you are entitled to object by counter notice (within three days)
- Take responsibility by reporting any suspicious activity to the Gardai

The prompt reporting of forest fires is essential and for this purpose a dedicated email address report.fires@agriculture.gov.ie has been allocated. You can also report fires during normal working hours by phoning lo-call number 1890 200 509 or in writing to Forestry Division (Forest Fires), Department of Agriculture, Food and the Marine, Johnstown Castle Estate, Wexford.

Any information submitted will be treated in the strictest confidence. However, it should be noted that the Department is subject to the provisions of the Freedom of Information (FOI) Acts.

For further information on to <http://www.agriculture.gov.ie/forests-service/land-and-forest-fires>

8.17.3 Fire Plan and Preparedness

The Forest Protection Guidelines provide information on fire plans. Forest owners should ensure that they have made adequate provisions to mitigate the risk of fire damage. Forest owners in high fire risk areas should **always** ensure that appropriate fire plans **and contingency measures** are in place irrespective of the area of the plantation. Plans should be reviewed in advance of fire season and updated as required. Plans should be kept in readiness by the forest owner/manager in the event they are required.

A Fire Plan should include the following:

- A risk assessment, identifying all areas of the plantation vulnerable to fire ingress, and the likely outcomes of fire ingress, should this occur.
- A map illustrating the following: Assembly points, (e.g. local landmark or crossroads).
- Access/escape routes
- Reservoir or water point.
- Firebreaks.
- Adjoining forests.
- High fire risk areas – Bracken, gorse, biofuels, dwellings and other structures..

Phone numbers of key personnel should also be recorded on the map, for example:

- Local Fire Brigade.
- Garda Station.
- Caretaker.
- Doctor
- Neighbour.
- Company Forester.
- Forest Owners
- Key equipment holders – e.g. vacuum tankers, ATV, fire trailers.
- Aviation contractor – contracts for aerial firefighting should be in place prior to fire season

8.18 Weed Control

Weeds reduce both the survival and height growth of trees by competing for light, moisture and nutrients. It has been demonstrated that the most effective and efficient means of controlling weeds is by the use of herbicides. **By controlling vegetation in a 1m diameter spot (or 1m wide band) around the base of trees in the initial 4 years, successful establishment to Forest Service standards should be achieved.**

Weed control should be undertaken in accordance with the booklet '*Guidelines for the use of Herbicides in forestry*' published by Coillte Teoranta on behalf of the Forest Service.

Please note that the use of chemicals is governed by the Health and Safety at Work Act 2005 and users should be familiar with manufacturer's instructions.

8.19 Required Plantation and Forest Management Standards

8.19.1 General

Applications submitted for pre-approval and grant payment must adhere to standards outlined in the following documents and guidelines, which are a condition of approval;

- Forestry Standards and Procedures Manual
- Current Scheme Document

- Forestry and Water Quality Guidelines
- Forest Biodiversity Guidelines
- Forestry and the Landscape Guidelines
- Forest Harvesting and the Environment Guidelines
- Forestry and Archaeology Guidelines
- Forestry and Kerry Slug Guidelines
- Forestry and Otter Guidelines
- Forest Road Manual: Guidelines for the Design, Construction and Management of Forest Roads (COFORD, 2005)
- Code of Best Forest Practice - Ireland
- Forestry and Freshwater Pearl Mussel Requirements: Site Assessment and Mitigation Measures

Registered Foresters and applicants must ensure that applications are complete and are within the scope of the scheme. A site inspection by Registered Foresters is mandatory at all stages, i.e. Form 1, 2 and 3 and by signing the Forms the Registered Forester is declaring that all the information is accurate. The following sections provide a summary of requirements at each stage of the approval and grant payment process. Specific scheme requirements are detailed in the Scheme Documents available on the Department's website.

Pre-approval (Form 1)

Applications submitted for approval must include and adhere to the following

- Application form fully completed
- Species proposed are silvicultural and environmentally suited to the site
- Applicants declaration completed, dated and signed
- Registered Foresters declaration completed, dated and signed
- Certified Species Map and species plot table completed in accordance with Forestry Schemes Mapping Standards
- Biodiversity Map completed in accordance with Mapping Standards
- Fencing Map
- Forest Road Map (Roads Scheme)
- Forest Road Specification (Roads Scheme)
- Inventory Details (Road Scheme)
- Scheduled of Proposed Costs/Operations (Roads, Reconstitution, Native Woodland Conservation Schemes)
- All areas ineligible for aid excluded from claimed area, e.g. areas of shell marl
- GPC categories correctly identified and mapped, e.g. GPC1
- Calcium carbonate test results submitted (if applicable)
- Drainage Survey Report attached (if applicable)
- Soil Analysis Report attached (if applicable)
- Environmental Impact Statement attached (if applicable)
- Signed consent to make an application by the current land owner.

Payment (Form 2)

Applications submitted for payment of a 1st Instalment grant must include and adhere to the following

- Application form fully completed
- Applicants declaration completed, dated and signed
- Registered Foresters declaration completed, dated and signed
- Planted forest complies with the Forestry Standards and Procedures Manual, environmental guidelines, schemes documents outlined above, approval letter and additional specific approval conditions, if applicable
- Certified Species Map and species plot table completed in accordance with Forestry Schemes Mapping Standards
- Forest Road Map (Roads Scheme)
- Biodiversity Map completed in accordance with Mapping Standards
- Fencing Map and claimed length in accordance with Mapping Standards and requirements
- Provenance Declaration forms completed for all species, as required
- Tax Clearance Certificates
- Valid Mandate (if applicable)
- All plots have at least 90% of the original planted trees spread evenly over the site, and are free from competing vegetation
- Mapped boundaries and species plot table completed in accordance with Forestry Schemes Mapping Standards
- All areas ineligible for aid excluded from claimed area, e.g. areas of shell marl, buildings, etc.,
- All plots and plantation boundaries have been verified on the ground and mapped accurately
- GPC categories correctly identified and mapped, e.g. GPC1
- Site boundaries are adequately fenced to protect crop
- Fire breaks correctly installed, if applicable
- Scheduled of Costs/Operations (Roads, Reconstitution, Native Woodland Conservation Schemes)



Photo 7: Plantations established correctly will optimise conditions for successful timber production

Payment (Form 3)

Applications submitted for payment of a 2nd Instalment grant must include and adhere to the following:

- Application form fully completed
- Applicants declaration completed, dated and signed
- Registered Foresters declaration completed, dated and signed
- Planted forest complies with the Forestry Standards and Procedures Manual, environmental guidelines, schemes documents outlined above, approval letter and additional specific approval conditions, if applicable
- Certified Species Map and species plot table completed in accordance with Forestry Schemes Mapping Standards
- Fire Plan Map for plantations greater than 10 ha
- All plots must have at least 90% of the original planted trees spread evenly over the site, and are free from competing vegetation and are free growing (see photos 8/9 over).
- Any nutritional deficiencies identified have been remediated and the crop is now established and free growing.
- Broadleaves shaped as described in this manual (see Section 8.19.4)
- Mapped boundaries and species plot table completed in accordance with Forestry Schemes Mapping Standards
- All areas ineligible for aid excluded from claimed area, e.g. areas of shell marl, buildings, etc.,
- All plots and plantation boundaries have been verified on the ground and mapped accurately
- GPC categories correctly identified and mapped, e.g. GPC1
- Site boundaries are adequately fenced to protect crop
- Installed fire breaks and silt traps maintained

Only when the entire plantation is established satisfactorily should a Form 3 be submitted for payment. Where part of the plantation is not up to standard, the applicant should not submit a Form 3. Any Form 3 submitted that falls into this category will not be paid.

8.19.2 Fertility

Plantations where trees are showing signs of nutrient deficiency should not be submitted for 2nd instalment payment. In such cases, a foliar analysis should be undertaken to determine the fertiliser type and rate to be applied. The site should then be fertilised accordingly and, following a successful response to the application of fertiliser, the site should then be submitted for 2nd instalment payment.



Photo 8: Norway spruce (left) and Douglas Fir 4 years old



Photo 9: Oak (left) and ash 4 years old

8.19.3 Fences, Roads, Firebreaks, Drains and Sediment traps.

All fences, roads, firebreaks, drains, sediment traps etc. should be in good working order.

8.19.4 Formative shaping

Formative shaping of broadleaves is an ongoing integral part of a plantations maintenance. It is necessary to have this operation complete at 2nd instalment stage for ash and sycamore.

If properly maintained with good weed control and management it may be necessary to shape oak and beech prior to 2nd instalment stage. Where oak or beech plantations have been successfully established by a Forestry Company which is mandated the 2nd instalment grant and are deemed not ready yet for shaping, a Form 3 may be submitted by that company and with the signed agreement of the owner with a joint declaration that formative shaping to Forest Service Standards will be carried out at a specified time period. Failure to carry out formative shaping successfully by the approved date will result in premiums being suspended and or recouped.

Formative shaping should occur when the trees are between 1m and 2m in height and, when completed, should give a minimum of 60% of Grade 1 and Grade 2 plants evenly distributed throughout the plantation.

Conifers after suffering a late spring frost attack may produce multiple leaders. It is important that rather than replacing these trees that they are formatively shaped to leave one leader on each stem. If only a small proportion of the crop <5% is effected it may not be necessary to carry out this operation.

Shaping involves the encouragement of apical dominance on a plant by the removal of multiple leaders with a secateurs, pruning saw or loppers. The shaping technique involves the retention of the 'branch bark ridge', an external ridge which is readily visible at the trunk/branch junction of most trees. The knife or secateurs should be disinfected regularly with an alcohol swab during the shaping operation. There is no need to remove the lower branches unless they are very large (>50% of the main stem). All trees that can be readily shaped (Grade 2 and 3's) should be shaped. Trees that are very poorly formed should not be shaped and should be either stumped back or let grow in order to shade out the side branches of neighbouring better formed trees. Trees should only be shaped during the months indicated in **Table 18**.

Table 17: Timing of Shaping

Species	Best period for shaping	2nd best period for shaping
Oak	December	mid Winter
Ash	June to August	mid Winter
Beech	June to August	mid Winter
Sycamore	June to August	mid Winter
Cherry	June to August	mid Winter

The aim of the first shaping is to achieve over 60% grade 1 and grade 2 trees for most broadleaved species (see Figure 4). The aim of the second shaping is to achieve over 50% grade 1 and grade 2 trees (at 2-4 metres in height) for most broadleaved species.

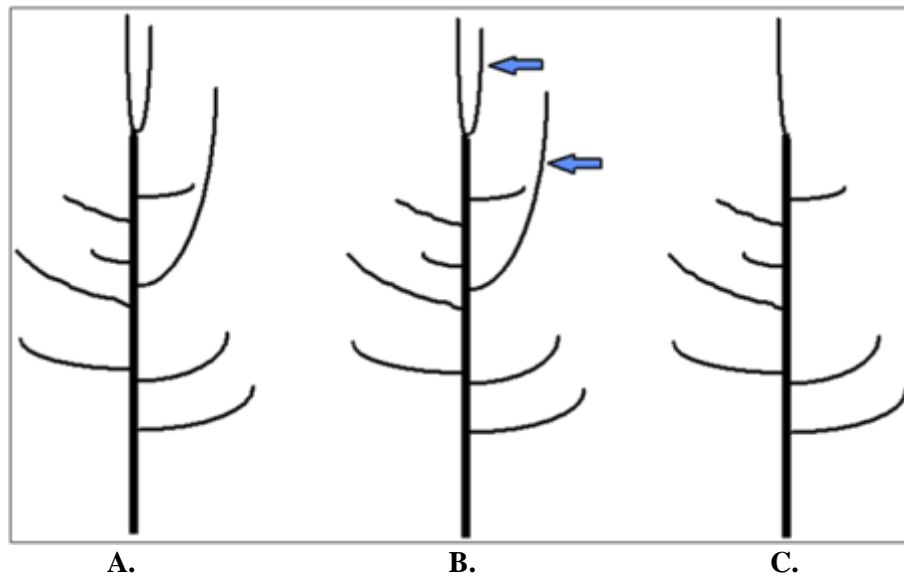


Figure 4: Removing double leaders

‘A’ shows a young broadleaf tree in need of formative shaping.

‘B’ identifies the branches that must be removed if the tree is produce a single straight stem.

‘C’ shows how the tree looks after shaping. Note the many side branches that are not competing to become the leading shoot are left on the tree.

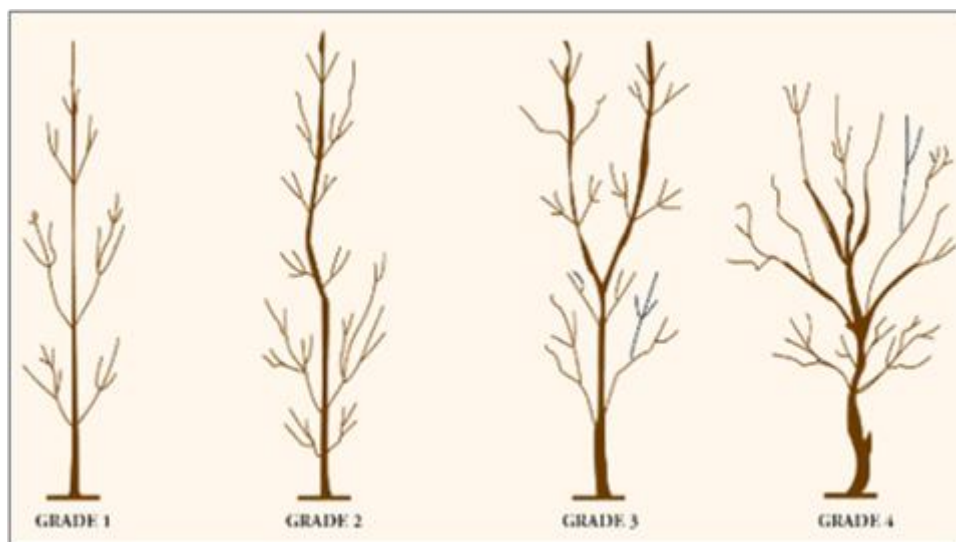


Figure 5: Standard Quality Grades for broadleaved trees

Table 18: Standard Quality Grades for broadleaved trees

	Grade 1	Grade 2	Grade 3	Grade 4
Overall	Very good tree	Good quality tree	Poor quality tree	Very poor tree
Stem straightness	Straight stem	Stem can be wavy	Crooked stem	Crooked stem
Apical dominance	Single leader	Not full apical dominance	Poor apical dominance	Poor apical dominance
Form	Narrow form	good form	Poor form	Very poor form
Co-dominants	No strong co dominants	No strong co dominants	Strong co-dominants	Multiple co-dominants
Branching	Light branches	No more than 1 heavy branch	1 or more heavy branches, 1 or more forks	Heavy branches, extensively forked
Shaping required	No shaping required	1 or at most 2 cuts to be converted into grade 1 tree	Numerous cuts to be converted into grade 1 or 2 tree	Shaping not likely on cost and crop balance grounds

8.19.5 Pests and Diseases

In addition to the Report of Registered Forester (page 3, Form 3), please contact your local Forestry Inspector immediately if any unusual pest or disease is observed.

Forest plantations should be adequately fenced to ensure that trespass does not occur from livestock. For comprehensive information on Forest Protection, see Forest Protection Guidelines published by the Forest Service.

9. Agroforestry (GPC11)

9.1 General

This measure is targeted at silvopastoral agro-forestry systems which combine forestry and pasture. Plots created under grant aid must satisfy the definition of a forest as described in the national forestry inventory. The felling and replanting of trees will be regulated by the Forestry Acts. Agroforestry plots will contribute to increasing forest cover.

9.1.1 Stocking

A stocking rate of 400 – 1000 trees per hectare (equal spacing).

9.1.2 Minimum Area and Width

0.50 ha and a minimum width of 20 metres, measured from tree to-tree.

9.1.3 Species

Acceptable broadleaf species will include oak, sycamore and cherry. Other species, including conifers will be considered on a site-by-site basis. Large plants (90cm – 120cm) should be used.

9.1.4 Site Type

Ideally, sites should contain free draining mineral soils and should have no requirement for additional drainage. In general, sites suitable for agro-forestry should not require additional fertiliser for tree growth. However, additional Nitrogen (<100kg/ha) may be required to promote grass growth for spring/summer grazing. This can be assessed on a site by site basis. Unenclosed lands as defined by this Department in Appendix 11 are not eligible for Agroforestry.

9.1.5 Planting

Planting should be carried out using pit planting where possible.

9.1.6 Weed Control

Prior to planting, herbicide weed control will be required to prevent grass growing within the tree shelters and around each tree until free growing and established. In general, there should be no weed control after successful establishment as this will be carried out by grazing animals.

9.1.7 Fencing

Agro-forestry plots must be fenced with appropriate stock proof fencing. Where an Agro-forestry plot forms part of a larger afforestation project, the Agro-forestry plot must be fully fenced to prevent animal trespass into the adjacent forest plots. Plants must be protected by tree shelters for the first 6-8 years. Tree shelters will be replaced with plastic mesh after 6-8 years, depending on tree growth.

9.1.8 Allowable Agricultural Activities

The following agricultural activities will be permitted, so long as such activity is compatible with protecting the trees:

- Pasture: Grazing by sheep or young domestic stock is permitted during the spring and summer months for the first 6-8 years, depending on tree growth, but trees must be protected and tree shelters checked regularly. Thereafter, when tree shelters are replaced with plastic mesh, larger animals may be introduced.
- Fodder: Silage and hay production is permitted. It is important that appropriate machinery is used when cutting silage and/or hay so as to ensure that the trees are not inadvertently damaged.
- Agro-forestry must remain under forestry and therefore is subject to a re-planting obligation.

9.1.9 Grant Rates and Premiums

Under state aid rules only 80% of eligible costs can be funded. Grant rates and payment Structures are similar to the afforestation scheme and paid on fixed grant basis. Premiums will be paid for five years and will cover the cost of maintenance only. Support for the establishment of demonstration plots for research purposes may also be considered under this scheme.



Photo 10: Sheep grazing grass in recently established pilot trial Agroforestry plot , Co Cork



Photo 11: Agroforestry, Mature ash with crop of grass growing underneath for sheep grazing, Loughgall, Northern Ireland

10. Forestry for Fibre (GPC 12 a and b)

10.1 General

The objective of this measure is meet a forecasted supply-demand gap for fibre for energy and other wood product applications by growing multiple crop rotations on a 10 to 15 year cycle. Once land is converted to forestry for fibre it will be classified as forest land and the provisions of forest legislation will apply.

10.1.1 Stocking

Stocking shall be a minimum of 2000 plants/ha at establishment for GPC12a and 1400 plants/ha GPC12b where aspen is planted. Stocking must be maintained at a minimum of 80% over the first five years of the period of premium payment.

10.1.2 Minimum Area and Width

1 ha with a minimum width of 40 metres, measured from tree to-tree.

10.1.3 Species

Preference will be given to applicants who propose to use improved genetic material, such as planting stock from the national and other documented tree improvement programmes. These additional species may be supported where demonstration plots are established for research purposes.

Table 20: The species listed below are eligible under this GPC category

Species/genus	Species and clones
Italian Alder	<i>Alnus glutinosa</i>
Hybrid aspen	<i>Populus tremula x tremuloides</i> (subject to plant availability)
Eucalyptus	<i>E. glaucescens</i> , <i>gunnii</i> , <i>nitens</i> , <i>rodwayi</i> and <i>subcrenulata</i> . (<i>E nitens</i> only to be restricted to within 50 km of coast and frost-prone, low-lying areas also avoided), other species will be considered on application e.g. where demonstration plots are established for research purposes)
Poplar	Clones 18 71058/2, Fritz Pauley, Trichobel, V.471xV.24(65)/34, 72030/7, 76004/10 Raspalje 19 and Unal

10.1.4 Site Type

Sites must be below 200 m elevation, be enclosed land, with free-draining arable or pasture soils, or surface water gleys without a peat layer.

10.1.5 Planting

Planting should be carried out using pit planting where possible.

10.1.6 Weed Control

Good vegetation control will be needed in the first 2-3 years after establishment to support and maintain vigorous growth. Normally fertilizer application will not be required.

10.1.7 Fencing

Plots must be fenced with appropriate stock proof fencing.

10.1.8 Rotation length

Trees planted under this scheme will be cut between 10 – 15 years.

Support for short rotation coppicing, Christmas trees or fast growing trees is not eligible for grant aid in the Afforestation Schemes. Fast growing trees are defined for the purposes of this scheme as having 9 years between cuts



Photo 12 : *Eucalyptus nitens* planted at Red Bog property, Coolgreany Forest, in Co Wexford after 15 growing seasons (*COFORD Connects 2008: Reproductive Material No.15*)

11. Native Woodland Establishment (GPC 9 and 10)

Procedures and standards for Native Woodland Establishment Grant & Premium Categories 9 and 10 reflect those which applied under the former Native Woodland Establishment Scheme, centred on the use of the Native Woodland Establishment Framework to identify the most appropriate native woodland type or types to establish on the site.

Additional criteria will apply in relation to the stipulation within water sensitive areas to utilise the 10% broadleaf requirement to create a separate Native Woodland Establishment GPC plot along watercourses onsite, in addition to the aquatic buffer zone, for water quality purposes.

For the purposes of the Afforestation Scheme the Native Woodland Scheme Manual (2011) describes the scenarios applicable to GPC9 and 10. The integration of native woodland planting within water sensitive areas will provide opportunities to maintain and protect water quality as part of overall afforestation projects. Eligibility criteria for the creation of native woodland types within sensitive catchments will be developed further in 2015.

12. Forestry Schemes Mapping Requirements

12.1 General

This Chapter sets out the procedures and standards required when compiling and submitting maps in support of approval and grant aid. The Chapter has been revised and updated to reflect the terms and conditions of the Department's new Afforestation and forestry Support Schemes (2015-2020).

Registered Foresters should ensure that all ground survey and boundary information is compiled and recorded correctly. Maps and plot information that do not comply with the standards outlined in this Chapter will be returned for correction to the Registered Forester.

12.1.1 Claims/payments for the Afforestation and Support Schemes (2015-2020)

Payments for the Departments Afforestation and Support Schemes (2015-2020) will be based on either the **area claimed** as eligible for payment by the applicant (on Form 2, Form 3 or Form 4 and associated maps as required under the particular scheme) or the **area determined** by the Department to be eligible for payment, whichever is the lesser. The onus is therefore on the applicant and the applicant's Registered Forester to satisfy him/herself that the area claim that he/she is submitting represents the area approved and planted.

The Department's computerised mapping and payment system (iFORIS) is used by the Department to capture a digital representation of the payment area based on the applicant's claim map (on Form 2, Form 3 or Form 4 and associated maps). Capturing the claim map in a digital form allows for the accurate measurement and calculation of the payment area. The process of electronically capturing the either the pre-approval map or claim map is referred to as digitisation. The digitised area of a contract (i.e. the entire plantation) is the sum of the areas of the individual forest plots (including biodiversity area(s)) comprising that contract number or plantation. For each plot contained in an application for payment, the digitised area is the entire area of the forest plot within the perimeter boundary of that plot measured by the Department's iFORIS system.

The **determined area** of a contract number or plantation is the sum of the areas, determined by the Department to be eligible for payment, of the individual forest plots comprising that contract number or plantation. The determined area is calculated by excluding any ineligible areas (e.g. power line corridors, rock, gas lines, ineligible areas of biodiversity greater than the allowed schemes threshold of 15%).

The **claimed area** is the total area of the forest plots specified by the applicant in the application as being claimed for payment of an afforestation grant or premium payment. The claimed area is calculated by the applicant by deducting any part of the plot that is not eligible to receive grant and/or premium payments (e.g. power line corridors, rock, gas line and ineligible areas of biodiversity greater than the allowed schemes threshold of 15%) from the digitised area.

Whichever is the lesser of the **claimed area** or the **determined area** is deemed to be the area eligible for payment, known as the **payable area**. This is the area on which payments of grants and/or premiums will be based. Where an area delineated as the payable area on a map

submitted by the applicant differs from the area specified on the species table attached to a map or the area specified on the Form 2 or Form 3, the **lesser** of these areas will be deemed to be the area claimed by the applicant.

Where the area determined by the Department as the payable area is greater than the area claimed by the applicant, this is deemed to be an **under-claim**. In such cases, a new revised claimed area equal to the determined area can be submitted by the applicant **in respect of the following and all subsequent payments due under the contract**. The onus is on the applicant to satisfy him/herself that the revised claim that he/she is submitting is correct. Any revised claimed area will then be deemed to be the payable area for the **remainder** of the grant and premium payments due under the contract. Note however that, this change cannot be applied retrospectively and no back monies will be paid in respect of payments that were made or, in the case of annual premiums, were due to be paid before the revised claim is submitted.

Where discrepancies from the claimed area are discovered following a Departmental inspection it may be necessary to adjust the amount of the premium and grant aid paid and apply a penalty. Full details regarding penalties applicable for over declaration of area as well as the associated appeals procedures are available in the afforestation scheme penalties documentation.

12.1.2 Direct Payments (2015-2020), Cross Compliance and Land Use Reconciliation

Following on from changes to the EU Regulations arising from the adoption of the CAP Health Check proposals, land which was afforested since 2009 is eligible for payments under the Single Payment Scheme (SPS). Similar provisions covering the eligibility of afforested land are contained in Regulation (EU) 1307/2013 governing the requirements of the Basic Payment Scheme, which will replace the Single Payment Scheme from 2015 onwards. Lands eligible for the Basic Payment Scheme must satisfy the following criteria:

- The land to be afforested was declared on a 2008 SPS application form;
- The applicant who declared that land on a 2008 SPS application form was paid under the 2008 Single Payment Scheme;
- The afforested land was eligible for payment in 2008;
- The afforested land meets all the requirements of the Afforestation Grant and Premium Scheme.

As an accredited EU paying agency, the Department of Agriculture, Food and the Marine is obliged to carry out checks and area controls on all applications. Beneficiaries of the Afforestation Grant and Premium Scheme must ensure that afforested land entered into the scheme is not included, or the subject of a claim, under any other area based scheme administered by the Department.

Applicants and Registered Foresters should note that the Minister may impose adjustments, reductions in payments and/or penalties or may recoup money already paid if an application under the Afforestation and Support Schemes exceeds the area approved, and/or overlaps with an area which is the subject of a claim under another area-based scheme administered by the Department (see also <http://www.agriculture.gov.ie/farmerschemespayments/>).

12.2 Maps Required for Approval and Grant Aid

The following section describes the maps and associated mapping standards required by the Department to assess applications for approval and facilitate payment of grant aid.

12.2.1 Pre-Approval Map Requirements (Form 1)

The following maps are required:

- Certified Species Map
- Fencing Map
- Biodiversity Map or BIO Map

These maps must be drawn on a 1:5,000 colour aerial photograph printed from the Department's online mapping system, iFORIS Internet (iNET). Alternatively an original composite Ordnance Survey map at a scale of 1:5,000 (based on the OSi 1:5,000 National Raster product) may be submitted. A Fencing Map is also required to record the length and location of proposed fencing for the application where this operation is proposed.

12.2.2 Maps Required for Grant Claims (Form 2 and Form 3)

The following maps are required:

- Certified Species Map
- Fencing Map
- Biodiversity Map or BIO Map

The Certified Species Map must record accurately all areas and plot boundaries as surveyed on the ground. Detailed mapping conventions are outlined below and must be strictly followed. The Form 2 and 3 BIO Map must record any revised details of features if applicable (e.g. cultivation type, additional silt traps or firelines installed). The Fencing Map is required in support of the claim for all erected fencing forming part of the Form 2 application.

12.2.3 Map Formats - Paper and Electronic Submission of Certified Species Maps

12.2.4 Paper Submission – Osi Map Original or Composites

The Department strongly encourages the use of iNET for the submission of pre-approval applications. In situations where a Registered Forester does not use or does not have access to iNET, a hard copy Certified Species Map must be submitted where an applicant seeks approval for or payment of a grant (see also Section 4.10). In this case, Registered Foresters must submit an original or composite Ordnance Survey paper map at a scale of 1:5,000 (based on OSi 1:5,000 National Raster product). All paper map submissions must be in A4 format. Two or more A4 maps should be submitted where the size of the application is such that it spans more than the area covered by a single A4 Ordnance Survey map. All paper A4 maps submitted should include a sequence number where applicable (e.g. 1 of 3, 2 of 3, 3 of 3 etc).

12.2.5 Form 1, Pre-Approval Online Submissions

iNET has been developed by the Forest Service to aid in the calculation of area and preparation of digital and hardcopy maps by Registered Foresters. The system has been developed for Registered Foresters who have access to broadband (i.e. 512 kb or greater internet connection speed. Lower connection speeds will vary in performance). iNET can be used to map and submit new pre-approval (Form 1) applications online for the Afforestation, FEPS and Forest Roads Schemes. In addition, iNET can be used to track online the progress of any pre-approval forestry application submitted by a registered user. iNET provides access for Registered Foresters to OSi map data including colour orthophotography for the entire country. Environmental Statutory Designations and other relevant spatial or mapping datasets to assist with forestry pre-approval applications are also available within iNET.



Registered Foresters can register to use iNET by logging onto the Department's website at www.agriculture.ie. Selecting the “Click here for Department’s Online Services” button will lead users through a number of simple steps to register to use the application.

Registered Foresters must have received training by the Department or other approved training prior to using the iNET online application system. An iNET user manual outlining the steps for submitting Afforestation and Forest Roads applications is available from the Department’s website.

Foresters who submit pre-approval applications using iNET must also attach a Biodiversity Map (BIO Map) and Fencing Map to their grant application posted to the Forest Service. These maps should be printed from iNET and annotated as per the instructions detailed in The remainder of this Chapter.

12.2.6 Paper Form 2 and Form 3 Submissions (Hardcopy Outputs from iNET)

In future iNET will be developed to allow electronic submission of Form 2 and Form 3 maps as well as submissions for the other Support Schemes administered by DAFM. In the interim, Form 2 and Form 3 maps may be digitised using the Department's iNET system (plot boundaries redlined, plot areas calculated, plot tables generated etc.). Form 2 and 3 hard copy maps outputs prepared using iNET must accord with the standards outlined below. The printed hard copy maps should be sent to the Department along with all other relevant forms and documents required for the scheme in question (e.g. signed Form 2/3s, folios, provenance declaration forms etc.). The most up to date orthophotography must be used (as of 1st January 2015, Bing Maps Imagery) when printing maps from iNET in support of Form 2 (and BIO Maps) and Form 3 grant and premium claims.

12.2.7 Use of Standardised Symbols, Colours and Text

The mapping symbols and symbol colours illustrated in the example maps provided at the in this Chapter must be used for all hard copy maps submitted to the Department. All text, symbols and map annotations used on hard copy maps must be legible and easy to differentiate.

Any relevant information which will facilitate evaluation of the proposal for grant aid must be included in the remarks section of the map legend. Registered Foresters must ensure that the BIO Map identifies the access routes/points to and from the proposed planting area using the appropriate access symbol. This will aid the inspector to gain access to the site should a field inspection be required. Applicants and Registered Foresters should also be aware that maps submitted in support of grant aid applications may be forwarded to relevant referral bodies (NPWS, Local Authorities, An Taisce, Inland Fisheries, Fáilte Ireland) and/or may be made available to the public or other interested parties through the normal public consultation process or via freedom of information requests.

Template Certified Species, Fencing and BIO Map legends are available from the Departments Web site at (<http://www.agriculture.gov.ie/forests-service/>). These template legends provide the format for the map legends and associated tables which must be used when submitting maps to the Department. Failure to observe Forest Service mapping conventions which require the use of standardised, legible mapping symbols, colours and text will result in a request for a new revised map(s) and may delay the assessment and evaluation of the proposal for grant aid.

12.2.8 Mapping Plantation and Plot Boundaries

Registered Foresters must certify all boundaries and areas submitted for approval and grant aid. A thin red line must be used on the certified species map to delineate all plot and plantation boundaries. Plots must be numbered sequentially in red. The rules regarding the placement of plot lines are summarised below:

- If the boundary of a plot is a visible feature on the orthophoto map or OSi map (e.g. hedgerow, field boundary, ridgeline) the red line is drawn to the centre of this feature.
- If the feature also happens to be an exclusion then the red line must be drawn to the edge of this feature (e.g. existing woodland, lake or water body).
- If a proposed planting area is split in two by a county boundary, townland boundary, DED boundary, an ESB line or other mappable exclusion a plot line must be drawn accordingly and the two plots created attributed using different plot numbers (i.e. each plot must have a unique plot number).

All visible features on the colour photographs should be utilised when surveying external/internal plantation and plot boundaries. The exact position of all undefined internal plot boundaries must be measured on the ground and adjusted for slope (Form 1s/2s/3s Maps).

Mapping undefined boundaries

In general, an undefined boundary will not be a visible or annotated feature on either an orthophoto Map or a 1:5000 Scale OSi map.

For all Form 2 and 3 grant claims, the position of external undefined plantation boundaries must be recorded in the field with the use of a GNSS (Global Navigation Satellite System) or DGNSS (Differential Global Navigation Satellite System) receiver. GNSS survey points should be recorded at the beginning and end of the undefined boundary and at any position along the boundary where there is a change in the external boundary (fence) direction. The GNSS survey points for the undefined external boundary must be numbered sequentially,

annotated on the Form 2/Form 3 claim map and the related Easting and Northing Irish Grid (IG) coordinates either noted on the map legend or submitted together with the certified species map as a map attachment (see below for an example application with a undefined external plantation boundary). The use of GNSS receiver for locating and plotting ESB line exclusion corridors is also encouraged.

For Form 1, pre-approval applications for the Afforestation and other Support Schemes, submission of GNSS coordinate information for external undefined boundaries is NOT a mandatory requirement. However, the Department encourages applicants to submit coordinate data to the Forest Service for pre-approval applications.

Note: In situations where an external undefined boundary represents a straight line between two clearly defined landmarks visible on the hard copy maps, for example the corners of a field or a road junction, the undefined boundary can be easily plotted and the map annotated without recourse to the use of GNSS receiver. However, where no GNSS coordinates have been provided for a Form 2/Form 3 grant claim and there is any uncertainty surrounding the location of a internal or external undefined boundary, a revised map and GNSS survey of external boundaries may still be requested.

Use of Global Navigation Satellite Systems/Differential Global Navigation Satellite Systems (GNSS/DGNSS).

For all Form 2 and Form 3 applications with undefined external boundaries, the undefined external boundaries must be walked and mapped using a GNSS/DGNSS receiver (i.e. along the edge of the plantation boundary at the fence line). Capturing an offset(s) using a DGNSS receiver is also permitted when surveying undefined boundaries.

iNET provides a facility for displaying GNSS/DGNSS way points collected in the field. The Easting and Northing National Grid (IG) coordinates of undefined boundary vertices can be plotted on the iNET map screen to facilitate digitising and to visualise and print hard copy maps of survey points captured during a GNSS/DGNSS survey.

12.3 Compiling the Certified Species Map plot table

In addition to mapping plantation and plot boundaries on the Certified Species Map, a plot table must be compiled and attached to the hard copy map submitted in support of scheme approval (Form 1) and grant aid instalments (Form 2, Form 3). The plot table summarises the area and species information for each of the plots making up the proposal.

An example plot table is available at (www.agriculture.gov.ie/forestsERVICE/). This template should be used when preparing Certified Species Maps.

An example of a completed plot table and associated fields is presented in the figure below (see also the completed Certified Species Map at the end of this section). A worked example explaining how to deal with types of ineligible exclusion areas (e.g. plot 1) is also provided below.

Plot No	Area (ha)	GPC	LUT	Spp.	No. of Trees (000s)	Spp. %	Mix. Type	P/Yr	Est. YC	Excl. Area (ha)	Excl. Type
1	1.11	5	BHF	SYC	NA	95	P	NA	8	0.50	U/P
1		5	BHF	AdB	NA	5	P	NA	6	0.10	U/P
2	1.97	8	BHF	ALD	NA	100	P	NA	12	0.00	NA
3	3.40	3	CHF	SS	NA	80	I	NA	22	0.00	NA
3		3	CHF	HL	NA	20	I	NA	12	0.00	NA
4	3.97	4	CHF	DF	NA	80	P	NA	18	0.00	NA
4		4	BHF	AdB	NA	20	P	NA	6	0.00	NA
5	2.78	3	CHF	SS	NA	80	I	NA	22	0.49	ESB
5		3	CHF	HL	NA	20	I	NA	12	0.12	ESB
6	0.52	6	MHF	PO	NA	80	I	NA	8	0.47	ESB
6		6	MHF	SP	NA	20	I	NA	10	0.05	ESB
7	0.72	3	BIO	NA	NA	NA	NA	NA	NA	NA	NA
8	1.52	3	CHF	SS	NA	80	I	NA	22	0.00	NA
8		3	CHF	HL	NA	20	I	NA	12	0.00	NA
9	0.71	6	MHF	PO	NA	80	I	NA	8	0.22	ESB
9		6	MHF	SP	NA	20	I	NA	10	0.02	ESB
10	1.60	6	MHF	PO	NA	80	I	NA	8	0.22	ESB
10		6	MHF	SP	NA	20	I	NA	10	0.02	ESB
Tot:	18.30									2.21	

Note: Values for “P./Yr.” and “No. of Trees (000)” fields are required for Certified Species Maps submitted with Form 2 and 3 applications only.

12.3.1 Plot No. (Plot Number)

Chapter 5 provides information on the minimum areas and widths for conifer and broadleaf plantations and plots. All areas of plot size must be assigned a sequential plot number. One plot can only have one GPC.

12.3.2 Area (ha)(Claimed Area)

Claimed area refers to the area for which an applicant has applied for a pre-approval application, forestry grant or premium payment (see also the Area based claims section earlier in this Chapter). All area numeric area values in the Certified Species Map plot table, including claimed area, must be reported to 2 decimal places (e.g. 2.45, 1.77). Registered Foresters must ensure that the total area claimed is equal to the sum of plot areas comprising the application. The claimed area does not include areas unsuitable for grant or premium payment.

The claimed area must not incorporate ineligible (non granted aided) exclusions. In iNET the claimed area is referred to as the Net Area in the plot summary table (i.e. the area of plot(s) or the total plantation area net of exclusions).

12.3.3 GPC (Grant and Premium Category)

The GPC is the category which best describes the profile of the plot(s) which will be used to determine premium and grant payment rate in the relevant scheme. The Certified Species Map for all schemes must reflect at plot level the area claimed for grant aid.

Table 21: GPC Number, Land Classification and GPC Definition

GPC No.	Land Classification	GPC Definition
GPC 1	Unenclosed Lands	Unenclosed Land - See also Appendix 11.
GPC 2	Enclosed/improved lands	Sitka spruce/lodgepole pine - This plot is comprised of Sitka spruce and/or lodgepole pine only. For landscape purposes, a small number of other species should be incorporated into this plot. A GPC 2 plot on its own is not eligible for grant or premium payments because it does not comply with plantation rules 1 and 2 and must be a component of a larger afforestation project comprised of other GPC categories.
GPC 3	Enclosed/improved lands	10% diverse mix - This plot is comprised of an intimate mix of Sitka spruce and/or Lodgepole Pine together with a suitable diverse conifer. The diverse conifer content must be at least 10% of the total number of trees planted. This diverse species can be intimately mixed through the forest or planted in groups through the forest, or a combination of both where silviculturally compatible with the main species. In an intimate mix, the diverse conifer species may be substituted by suitable broadleaves, including birch, planted in groups where soils are suitable. Broadleaves adjacent to roads and watercourses may also form part of this 10%. A forest comprising of <u>just</u> GPC 3 will satisfy the 10% broadleaved requirement where 10% additional broadleaves are planted for environment and landscape reasons.
GPC 4	Enclosed/improved lands	Diverse - This plot is made up of an acceptable conifer species (see Section 3.4.3.5 below) other than Sitka spruce and lodgepole pine. May also include ADB.
GPC 5	Enclosed/improved lands	Broadleaf (Non Oak/Beech) - This plot is made up of acceptable broadleaves other than oak and beech (see Section 3.4.3.5 below).. May also include ADB.
GPC 6	Enclosed/improved lands	Oak - This plot is comprised of pure oak. Oak must be planted pure at a stocking rate of 3300 stems per hectare on all sites and at a spacing of 2.0 x 1.5 metres. On large sites where additional shelter is required, an appropriate nurse species may be introduced but there must be at least 10 lines of oak between each nurse species. All nurse species must be planted at a spacing of 2.0 x 1.5 metres.
GPC 7	Enclosed/improved lands	Beech - This plot is comprised of pure beech. Beech must be planted pure at a stocking rate of 3300 stems per hectare on all sites and at a spacing of 2.0 x 1.5 metres. On large sites where additional shelter is required, an appropriate nurse species may be introduced but there must be at least 10 lines of beech between each nurse species. All nurse species must be planted at a spacing of 2.0 x 1.5 metres.
GPC 8	Enclosed/improved lands	Alder - This plot is comprised of pure alder at 2500 stems per hectare. For species diversity, up to 10% of trees planted may comprise of other species intimately mixed or planted in groups.
GPC 9	Enclosed/improved lands	Native Woodland Establishment (scenarios 1-3). Applicants can apply to establish native woodland over the entire site (i.e. all GPC 9 and/or GPC 10), or as a plot(s) within a larger afforestation project involving other GPCs, such as GPC 3: 10% Diverse Conifer). The Scenarios are based on Native Woodland Establishment Site Appraisal Framework (see www.agriculture.gov.ie/forests-service for further details regarding the scenario details).
GPC 10	Enclosed/improved lands	Native Woodland Establishment (scenarios 4). Applicants can apply to establish native woodland over the entire site (i.e. all GPC 9 and/or GPC 10), or as a plot(s) within a larger afforestation project involving other GPCs, such as GPC 3: 10% Diverse Conifer). Scenario 4 is based on Native Woodland Establishment Site Appraisal Framework (see www.agriculture.gov.ie/forests-service for further details regarding the scenario details).
GPC 11	Enclosed/improved lands	Agro-forestry – This plot is comprised of silvopastoral agro-forestry systems which combine forestry and pasture. A stocking rate of 400 - 1000 trees per hectare (equal spacing) is required with minimum eligible plot size of 0.50 ha and plot width of 20m. Acceptable broadleaf species will include oak, sycamore and cherry. Other species, including conifers will be considered on a site by site basis.

GPC12a	Enclosed/improved lands	Forestry for Fibre – Italian Alder, Hybrid Aspen, Eucalyptus, Poplar. Stocking shall be a minimum of 2000 plants/ha at establishment.
GPC12b	Enclosed/improved lands	Forestry for Fibre (Aspen) - Where Aspen is planted as prescribed under GPC10a except at the rate of 1,400 plants per hectare, a reduced grant rate applies.

12.3.4 LUT (Land Use Type)

Each plot in the plot table must have one of eight broad land use type categories assigned to it based on the definitions identified in the table below.

Table 22: Land Use Types

Land Use Type	Definition	GPC Definition
CHF	Conifer high forest	GPC's 1, 2, 3 and 4.
MHF	Mixed high forest	All broadleaved / conifer nurse mixtures in GPC's 6, 7, 9, 10.
BHF	Broadleaf high forest	Broadleaved GPC's 5, 6, 7, 9, 10, 12a, 12b where plots are planted pure.
BURNED	Burn forest	LUT assigned to areas damaged by fire.
BLOWN	Blown forest	LUT assigned to areas damaged by wind.
FELLED	Felled forest	LUT assigned to felled areas.
BIO	Biodiversity plot/area	Denotes area of biodiversity of plot size.
BCF	Broadleaf coppice forest	Pilot grant aid sites where coppicing is carried out i.e. willow.

12.3.5 Spp. (Approved Species Planted – Species Abbreviations)

The main species by area must be listed in the plot table for every plot. All broadleaves not of plot size or minimum width must have an area recorded against them in the species table and be recorded as “Additional Broadleaves” (AdB) per plot. A list of approved conifer and broadleaf species, their botanic names and associated abbreviations are listed in the tables below.

Table 23: Approved Species Planted

Broadleaf Species	Botanic name	Abbreviation
Lawson cypress	<i>Chamaecyparis lawsoniana</i>	LC
Leyland cypress	<i>Cupressocyparis leylandii</i>	LEC
Monterey cypress	<i>Cupressus macrocarpa</i>	MC
Western Hemlock	<i>Tsuga heterophylla</i>	WH
European Larch	<i>Larix decidua</i>	EL
Hybrid Larch	<i>Larix eurolepis</i>	HL
Douglas Fir	<i>Pseudotsuga menziesii</i>	DF
Grand Fir	<i>Abies grandis</i>	GF
Austrian pine	<i>Pinus nigra</i> (var. <i>nigra</i>)	AP
Corsican pine	<i>Pinus nigra</i> (var. <i>maritima</i>)	CP
Lodgepole pine	<i>Pinus contorta</i> (North Coastal)	LPNC
Lodgepole pine	<i>Pinus contorta</i> (South Coastal)	LPSC
Monterey pine	<i>Pinus radiata</i>	MP
Scots pine	<i>Pinus sylvestris</i>	SP
Norway spruce	<i>Picea abies</i>	NS
Serbian spruce	<i>Picea omorika</i>	SES
Sitka spruce	<i>Picea sitchensis</i>	SS

Western Red Cedar	<i>Thuja plicata</i>	WRC
Coast Redwood	<i>Sequoia sempervirens</i>	CR
Other conifer		OC
Broadleaf Species	Botanic name	Abbreviation
Common alder	<i>Alnus glutinosa</i>	ALD
Italian alder	<i>Alnus cordata</i>	ALDC
Ash	<i>Fraxinus excelsior</i>	ASH
Beech	<i>Fagus sylvatica</i>	BE
Southern beech	<i>Nothofagus procera</i> / <i>N. Oblique</i>	SBE
Cherry	<i>Prunus avium</i>	CH
Spanish (Sweet) Chestnut	<i>Castanea sativa</i>	SC
Lime Tree	<i>Tilia cordata</i> / <i>T. platyphyllos</i>	LIM
Norway maple	<i>Acer platanoides</i>	NM
Sycamore Acer	<i>pseudoplatanus</i> SYC	SYC
Pedunculate oak	<i>Quercus robur</i>	PO
Sessile oak	<i>Quercus petraea</i>	SO
Red oak	<i>Quercus rubra</i>	RO
Hybrid aspen	<i>Populus tremula x tremuloides</i>	HA
Eucalyptus	<i>E. glaucescens</i>	EUC1
	<i>E. gunnii</i>	EUC2
	<i>E. nitens</i> (within 50 km of coast, frost prone, low-lying areas to be avoided)	EUC3
	<i>E. rodwayi</i>	EUC4
	<i>E. subcrenulata</i>	EUC5
Poplar (Clones)	18 71058/2	POP1
	Fritzi Pauley	POP2
	Trichobel	POP3
	V.471xV.24(65)/34	POP4
	72030/7	POP5
	76004/10	POP6
	Raspalje 19	POP7
	Unal	POP8
Other General Abbreviations		
Additional Broadleaves	-	AdB
Scrub	<i>Scrub</i>	Scrub
None	<i>No species</i>	None

12.3.6 Spp. of Trees (000s) (Number of trees planted) (Form 2 only)

In the case of maps supporting Form 2 applications, the total number of trees planted in each plot must be recorded by species in the plot table. Provenance declarations forms submitted with the Form 2 application must support number of trees planted and listed in the Plot table.

12.3.7 Spp. % (Species Percentage)

All species listed in the plot table must have a percentage plot area associated with them. Species with the largest area percentage should be recorded first. The total percentage species in a given plot should sum to 100%. In broadleaved/conifer nurse mixtures the broadleaved species will be recorded first as this species will form the main species in the final crop. Where broadleaved mixtures are planted the main species by area will be recorded first (Table 24).

Table 24: Species mixture percentages examples

Species in Mixture	Canopy Area Breakdown	Planting Pattern
Oak/Conifer nurse species	90% Oak and 10% Conifer/Broadleaf nurse	10 rows of oak and 1 nurse line
Beech/ Conifer nurse species	90% Beech and 10% Conifer/Broadleaf nurse	10 rows of oak and 1 nurse line
Beech / Conifer nurse species (spacing pre-2009)	67 % Beech 33 % Conifer nurse species. Enter equivalent area in Ha	2 rows of Beech and 1 row of conifer nurse
Oak / Conifer nurse species (spacing pre-2009)	50 % Oak 50 % Conifer nurse species. Enter equivalent area in Ha	1 row of Oak and 1 row of Conifer nurse
Other mixtures	Record area associated with canopy	1 row of Oak and 1 row of Conifer nurse

12.3.8 Mix. Type (Mixture Type)

Species mixture type codes, their associated definitions and examples of species mixtures that should be used to populate the Mixture Type field in the plot table submitted with the certified species map are provided in the table below.

Table 25: Mixture types

Mixture type	Definition	Examples
'R' = Row	Where nurse species planted in rows/lines	PO&BI, PO&ALD, PO&SP, PO&EL, BE&EL, BE&SP
'I' =Intimate	Where nurse or second species not planted in rows but planted evenly throughout the plot.	10% Diverse SS&HL. However sometimes this mixture will have HL planted in Groups.
'G' = Group	Where trees are planted in "small" groups but are less than plot size of 30x40 m.	Additional broadleaves or where HL planted in groups in 10 % Diverse
'P' = Pure	All plots where there is only one main species	

12.3.9 P./Yr. (Planting Year) (Forms 2 and 3 only)

Planting year is defined as the year in which the first growing season occurs. For example a tree planted in February 2014 will have a planting year of 2014. A tree planted in November 2014 will have a planting year of 2015 and not 2014. In both examples trees will grow during the 2014 growing season. Note that for administrative reasons the annual planting programme returns will continue to be based on the total area submitted for grant payment (based on the contract works-completion date) in any given year.

12.3.10 P./Yr. Est. YC (Estimated Yield Class)

Registered Foresters should estimate Yield Class (i.e. m³/ha/year) for each species. Values for estimated Yield Class should be realistic and should be based on an assessment of the site to be planted (e.g. soil fertility, exposure, dominant vegetation etc.) and knowledge of the same species growing on geographically adjacent, similar site types.

12.3.11 Exc. Area (ha) (Exclusion area hectares)

Any exclusion area(s) which result in the gross area being reduced to determine the claimed area must be recorded on the plot table (e.g. unplantable areas, old buildings, hard surface areas, rock etc). The Exclusion Abbreviation table (Table 26) below identifies the type of exclusion areas for which exclusion areas must be recorded against each plot.

Table 26: Exclusion abbreviations and associated descriptions

Exclusion Abbreviations	Exclusion Area Description
ESB	Power line corridors (10 – 400 kV)
GAS	Gas line
U/P	Unplantable areas
Rock	Shallow, rocky soils Rock and scree
Water	Aquatic zones (area occupied by lake/river)
P-Forest	Plantation Forest. (Conifer High Forest and Broadleaf High Forest – this includes newly planted area with conventional stocking densities.)
N-Forest	Non Plantation Forest
Building	Dwelling house/associated building setback area
ROW	Rights of way held by third party
Turb	Areas with turbary rights held by a third party
Graz	Areas with grazing rights held by a third party
W-Mains	Major water mains
Road	Public road
Scrub	Scrub (in excess of ABE threshold)
Other	Other exclusion

The example plot table presented in the worked example below illustrates how the areas for two different exclusions types (ESB and unplantable areas) are recorded. The reader is referred to the Unplanted Areas, Biodiversity and Setback distances, Chapter 6, for instances where certain types of exclusions may be eligible for premium and grant payment.

12.3.12 Exc. Type (Exclusion Type)

Any relevant exclusions which result in the claimed area being reduced must be recorded along with an associated area in the Certified Species Map plot table. Where an area proposed for planting is split by an ESB line or other exclusion such as a gas pipe line, the area must be attributed different plot numbers either side of the exclusions (see also below for an example of how an ESB corridor exclusion should be mapped).

In the case of ESB exclusions, the Department will confirm in writing a letter stating the area affected by the power line and the applicant can apply to the ESB directly for compensation (Chapter 7). A table of corridor widths by ESB power line voltage is included below (Table 27).

Table 27: Power line types and associated corridor widths

Power line type	Corridor width (centred)
Low voltage (230/400V)	None (clearance from branches/tree tops only)
10 kV and 38 kV	20 m
110 kV	61 m
220 kV	68 m
400 kV	74 m
Note: All trees must be outside their falling distances from line support structures.	

The reader is referred to the Chapter 6 for further information regarding setback/corridor width conventions for various constraints such as public roads, dwelling houses, gas pipelines, wind turbines etc.

Exclusion areas that are eligible for grant and premiums and satisfy the 15% ABE criteria should not be recorded as an exclusion or exclusion type e.g. archaeological sites and their exclusions zones. Features that may be incorporated as part of the ABE but are not subject to grant aid or to premium should be excluded from the plot area.

12.4 Certified Species Map Plot Table - A Worked Example

The table presented below provides an example of how the plot table of a Certified Species Map should be structured (Form 1 example). The worked examples for Plots 1 and 2 show how two different types of exclusions (unplantable areas, ESB power line exclusions) should be treated.

The gross area of plot 1 when first surveyed is 1.71 ha. However, following the field survey of the site by the Registered Forester a number of smaller unplantable and unmappable areas were found scattered across the plot area which amount 0.60 hectares. The eligible area submitted for approval or eligible grant payment claim is therefore 1.11 ha and is recorded as per the table below. The unplantable exclusion areas associated with the plot species, 0.50 ha for sycamore and 0.1 ha for the additional broadleaf (AdB) area are also recorded in the plot table.

Plot No	Area (ha)	GPC	LUT	Spp.	No. of Trees (000s)	Spp. %	Mix. Type	P/Yr	Est. YC	Excl. Area (ha)	Excl. Type
1	1.11	5	BHF	SYC	NA	95	P	NA	8	0.50	U/P
1		5	BHF	AdB	NA	5	P	NA	6	0.10	U/P

Plots 5 and 6 – ESB exclusion

Both plots 5 (2.78 ha) and 6 (0.52 ha) are separated by a non-grant aided power line corridor. As per mapping conventions both plots are mapped to the edge of the non-grant aided corridor and numbered separately.

As the area calculated does not include the corridor the claimed area is not reduced. However in order to determine the area for ESB compensation, the area of the corridor is recorded in

the plot table against the species planted in the two plots. Thus, the total corridor area and payable compensation is 0.61 ha for plot 5 and 0.52 ha for plot 6.

Plot No	Area (ha)	GPC	LUT	Spp.	No. of Trees (000s)	Spp. %	Mix. Type	P/Yr	Est. YC	Excl. Area (ha)	Excl. Type
5	2.78	3	CHF	SS	NA	80	I	NA	22	0.49	ESB
5		3	CHF	HL	NA	20	I	NA	12	0.12	ESB
6	0.52	6	MHF	PO	NA	80	I	NA	8	0.47	ESB
6		6	MHF	SP	NA	20	I	NA	10	0.05	ESB

A complete example of a Plot table including exclusion examples is provided below.

Plot No	Area (ha)	GPC	LUT	Spp.	No. of Trees (000s)	Spp. %	Mix. Type	P/Yr	Est. YC	Excl. Area (ha)	Excl. Type
1	1.11	5	BHF	SYC	NA	95	P	NA	8	0.50	U/P
1		5	BHF	AdB	NA	5	P	NA	6	0.10	U/P
2	1.97	8	BHF	ALD	NA	100	P	NA	12	0.00	NA
3	3.40	3	CHF	SS	NA	80	I	NA	22	0.00	NA
3		3	CHF	HL	NA	20	I	NA	12	0.00	NA
4	3.97	4	CHF	DF	NA	80	P	NA	18	0.00	NA
4		4	BHF	AdB	NA	20	P	NA	6	0.00	NA
5	2.78	3	CHF	SS	NA	80	I	NA	22	0.49	ESB
5		3	CHF	HL	NA	20	I	NA	12	0.12	ESB
6	0.52	6	MHF	PO	NA	80	I	NA	8	0.47	ESB
6		6	MHF	SP	NA	20	I	NA	10	0.05	ESB
7	0.72	3	BIO	NA	NA	NA	NA	NA	NA	NA	NA
8	1.52	3	CHF	SS	NA	80	I	NA	22	0.00	NA
8		3	CHF	HL	NA	20	I	NA	12	0.00	NA
9	0.71	6	MHF	PO	NA	80	I	NA	8	0.22	ESB
9		6	MHF	SP	NA	20	I	NA	10	0.02	ESB
10	1.60	6	MHF	PO	NA	80	I	NA	8	0.22	ESB
10		6	MHF	SP	NA	20	I	NA	10	0.02	ESB
Tot:	18.30									2.21	

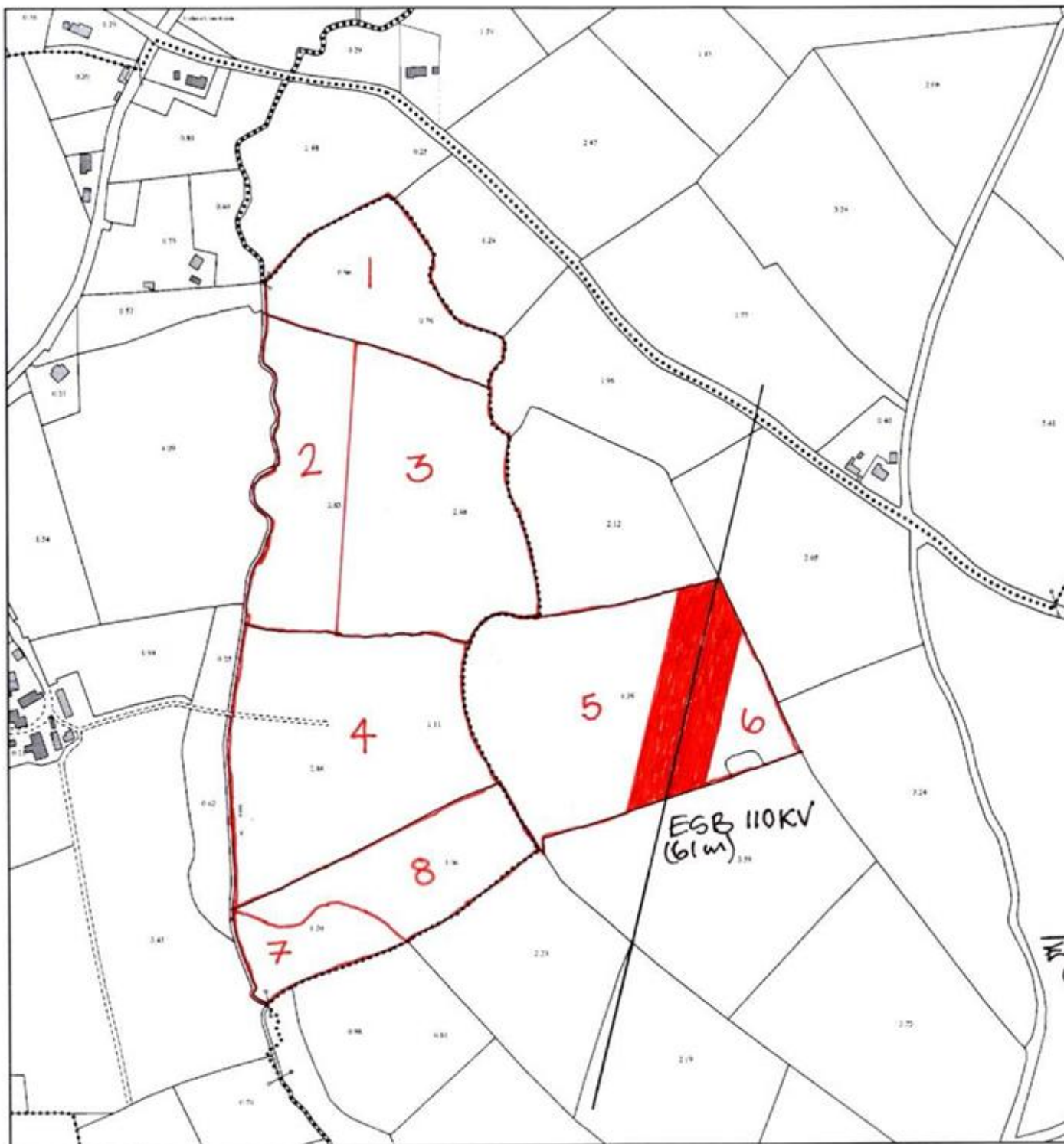
Note: Values for “P/Yr” and “No of Trees” fields are required for maps submitted with Form 2 and 3 applications only. NA should be used to fill in the plot table in all situations where information required is not applicable.

12.5 Updating Plot Information (Form 2, Form 3 and Management plans)

Any area or species changes that may have occurred in the in plantation either at Form 2 or Form 3 stage must be reflected in the revised Certified Species Map and plot table submitted (see also Section 2 of this Chapter). Plantations that have been reconstituted must have the claimed map updated to reflect new species and associated plot boundaries of the areas reconstituted. Plots that have been reconstituted must also have a revised planting year recorded.

All applicants are expected to write to and notify the Department of any change to plot boundaries (e.g. due to house building or removal of a grant aided forest area) during the time since submission of the Form 3 certified species map. Such changes must be reflected in a revised Certified Species Map submitted to the Department. The area removed from the plantation should be clearly indicated on the map and the plot boundaries amended to reflect any changes since establishment grants were paid.

Any changes to plot details or plantation boundaries must also be updated on the Certified Species Map submitted with the management plan required at the end of year 11. Failure to alert the Department to changes to the plantation area may result in sanctions being taken by the Department against the applicant, including repaying the Department any grant and premium paid in respect of the plantation. Forest owners must inform the Department in advance before any areas of a grant aid plantation are removed.



Certified Species Map (Form 1) Map 1 of 1

Applicant: Charles McNamee
 County: Wexford
 Townland: Woodgrigue/Scurloguebush

OS Sheet: WX46

Contract No: CN80001

Plot No	Area (ha)	GPC	LUT	Spp.	No. of Trees (000s)	Spp. %	Mix. Type	PYr	Est YC	Excl. Area (ha)	Excl. Type
1	1.11	5	BHF	SYC	NA	95	P	NA	8	0.50	U/P
1		5	BHF	AdB	NA	5	P	NA	6	0.10	U/P
2	1.97	8	BHF	ALD	NA	100	P	NA	12	0.00	NA
3	3.40	3	CHF	SS	NA	80	I	NA	22	0.00	NA
3		3	CHF	HL	NA	20	I	NA	12	0.00	NA
4	3.97	4	CHF	DF	NA	80	P	NA	18	0.00	NA
4		4	BHF	AdB	NA	20	P	NA	6	0.00	NA
5	2.78	3	CHF	SS	NA	80	I	NA	22	0.49	ESB
5		3	CHF	HL	NA	20	I	NA	12	0.12	ESB
6	0.52	6	MHF	PO	NA	80	I	NA	8	0.47	ESB
6		6	MHF	SP	NA	20	I	NA	10	0.05	ESB
7	0.72	3	BIO	NA	NA	NA	NA	NA	NA	NA	NA
8	1.52	3	CHF	SS	NA	80	I	NA	22	0.00	NA
8		3	CHF	HL	NA	20	I	NA	12	0.00	NA
9	0.71	6	MHF	PO	NA	80	I	NA	8	0.22	ESB
9		6	MHF	SP	NA	20	I	NA	10	0.02	ESB
10	1.60	6	MHF	PO	NA	80	I	NA	8	0.22	ESB
10		6	MHF	SP	NA	20	I	NA	10	0.02	ESB
Tot:	18.30									2.21	

Remarks: (Silvicultural & Mapping)

- Scale 1:5000
- Additional Broadleaves (rowan, birch) will be planted irregularly along the edges of aquatic zone
- A 4-row mixture of alder, mountain ash and birch will be planted along the edge of plot 10 adjoining the road. Native species (spindle, hawthorn, birch, crab apple) will be planted in plot 7 at 3 x 3 m spacing.

Area Surveyed By: John Joe Forester
 Name/Contact No: John Joe Forester, Green Forestry
 087 1231231

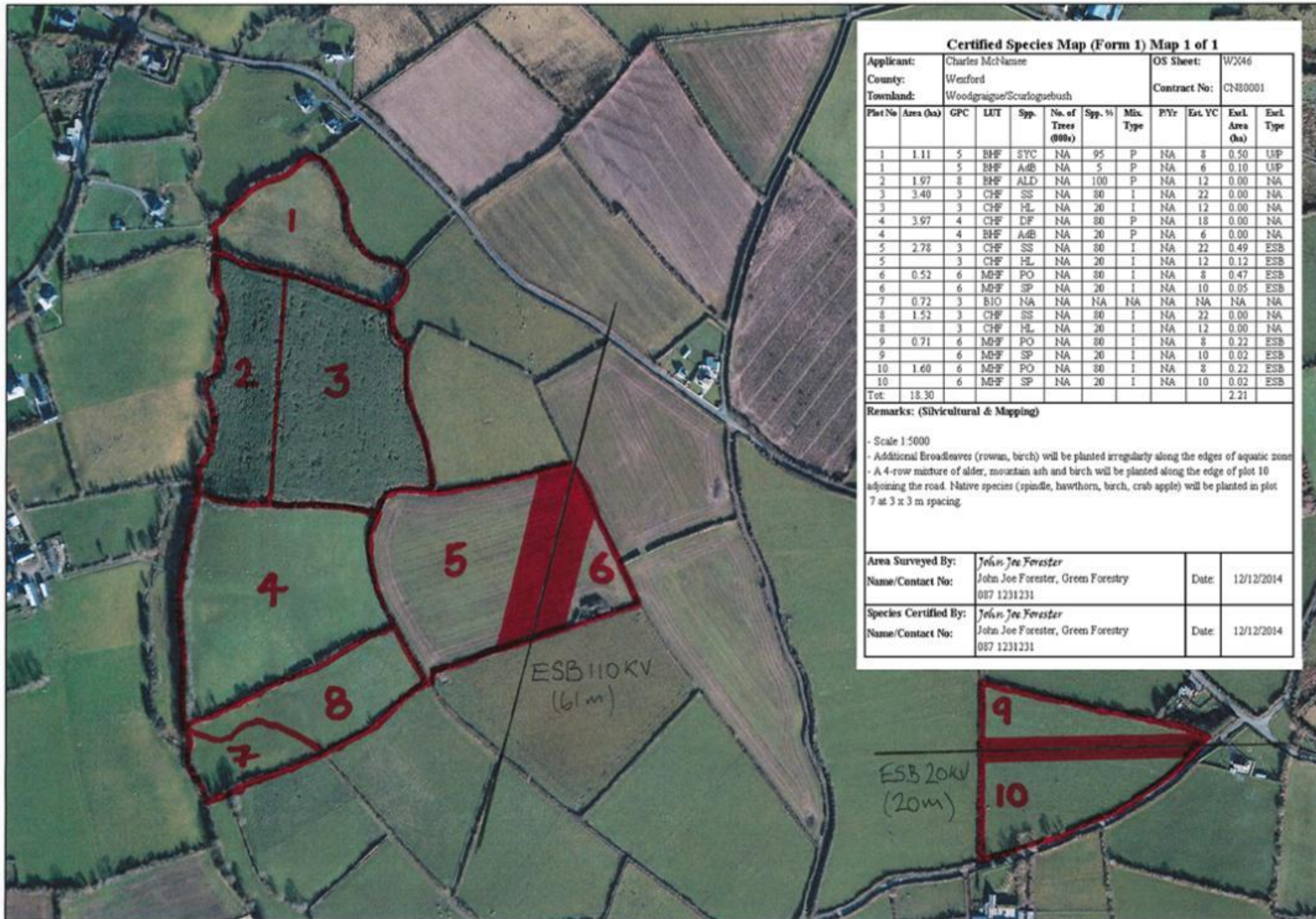
Date: 12/12/2014

Species Certified By: John Joe Forester
 Name/Contact No: John Joe Forester, Green Forestry
 087 1231231

Date: 12/12/2014

ESB 110KV
(61m)

ESB 20KV
(20m)



Certified Species Map (Form 1) Map 1 of 1

Applicant:	Charles McNamee	OS Sheet:	W246
County:	Westford	Contract No:	CN80001
Townland:	Woodgrange/Scurloguesbush		

Plot No	Area (ha)	GPC	LUT	Spp.	No. of Trees (000s)	Spp. %	Mix. Type	P.Yr	Est. YC	Excl. Area (ha)	Excl. Type
1	1.11	5	BHF	SYC	NA	95	P	NA	8	0.50	UMP
1		5	BHF	AdB	NA	5	P	NA	6	0.10	UMP
2	1.97	8	BHF	ALD	NA	100	P	NA	12	0.00	NA
3	3.40	3	CHF	SS	NA	80	I	NA	22	0.00	NA
3		3	CHF	HL	NA	20	I	NA	12	0.00	NA
4	3.97	4	CHF	DF	NA	80	P	NA	18	0.00	NA
4		4	BHF	AdB	NA	20	P	NA	6	0.00	NA
5	2.78	3	CHF	SS	NA	80	I	NA	22	0.49	ESB
5		3	CHF	HL	NA	20	I	NA	12	0.12	ESB
6	0.52	6	MBF	PO	NA	80	I	NA	8	0.47	ESB
6		6	MBF	SP	NA	20	I	NA	10	0.05	ESB
7	0.72	3	BIO	NA	NA	NA	NA	NA	NA	NA	NA
8	1.52	3	CHF	SS	NA	80	I	NA	22	0.00	NA
8		3	CHF	HL	NA	20	I	NA	12	0.00	NA
9	0.71	6	MBF	PO	NA	80	I	NA	8	0.22	ESB
9		6	MBF	SP	NA	20	I	NA	10	0.02	ESB
10	1.60	6	MBF	PO	NA	80	I	NA	8	0.22	ESB
10		6	MBF	SP	NA	20	I	NA	10	0.02	ESB
Tot:	18.30									2.21	

Remarks: (Silvicultural & Mapping)

- Scale 1:5000
- Additional Broadleaves (rowan, birch) will be planted irregularly along the edges of aquatic zone
- A 4-row mixture of alder, mountain ash and birch will be planted along the edge of plot 10 adjoining the road. Native species (spindle, hawthorn, birch, crab apple) will be planted in plot 7 at 3 x 3 m spacing

Area Surveyed By:	John Joe Forester	Date:	12/12/2014
Name/Contact No:	John Joe Forester, Green Forestry 087 1231231		
Species Certified By:	John Joe Forester	Date:	12/12/2014
Name/Contact No:	John Joe Forester, Green Forestry 087 1231231		

Certified Species Map (Form 2) Map 1 of 1

Applicant:		Charles McNamee						OS Sheet:		W2C24	
County:		Wexford						Contract No:		CN80099	
Townland:		Ballynabearna									

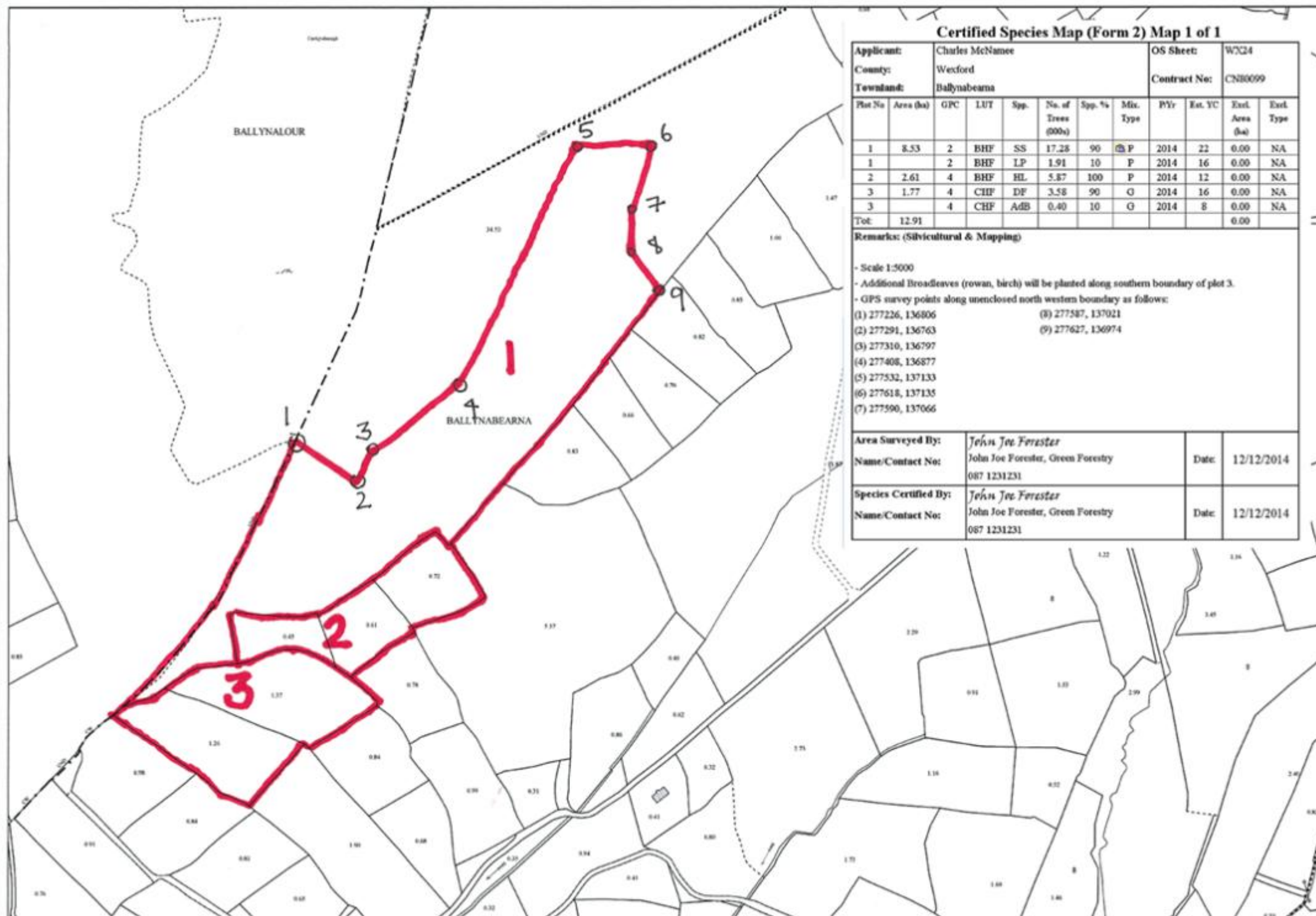
Plot No	Area (ha)	GPC	LUT	Spp.	No. of Trees (000s)	Spp. %	Mix. Type	PYr	Est. YC	Excl. Area (ha)	Excl. Type
1	8.53	2	BHF	SS	17.28	90	P	2014	22	0.00	NA
1		2	BHF	LP	1.91	10	P	2014	16	0.00	NA
2	2.61	4	BHF	HL	5.87	100	P	2014	12	0.00	NA
3	1.77	4	CHF	DF	3.58	90	G	2014	16	0.00	NA
3		4	CHF	AdB	0.40	10	G	2014	8	0.00	NA
Tot:		12.91								0.00	

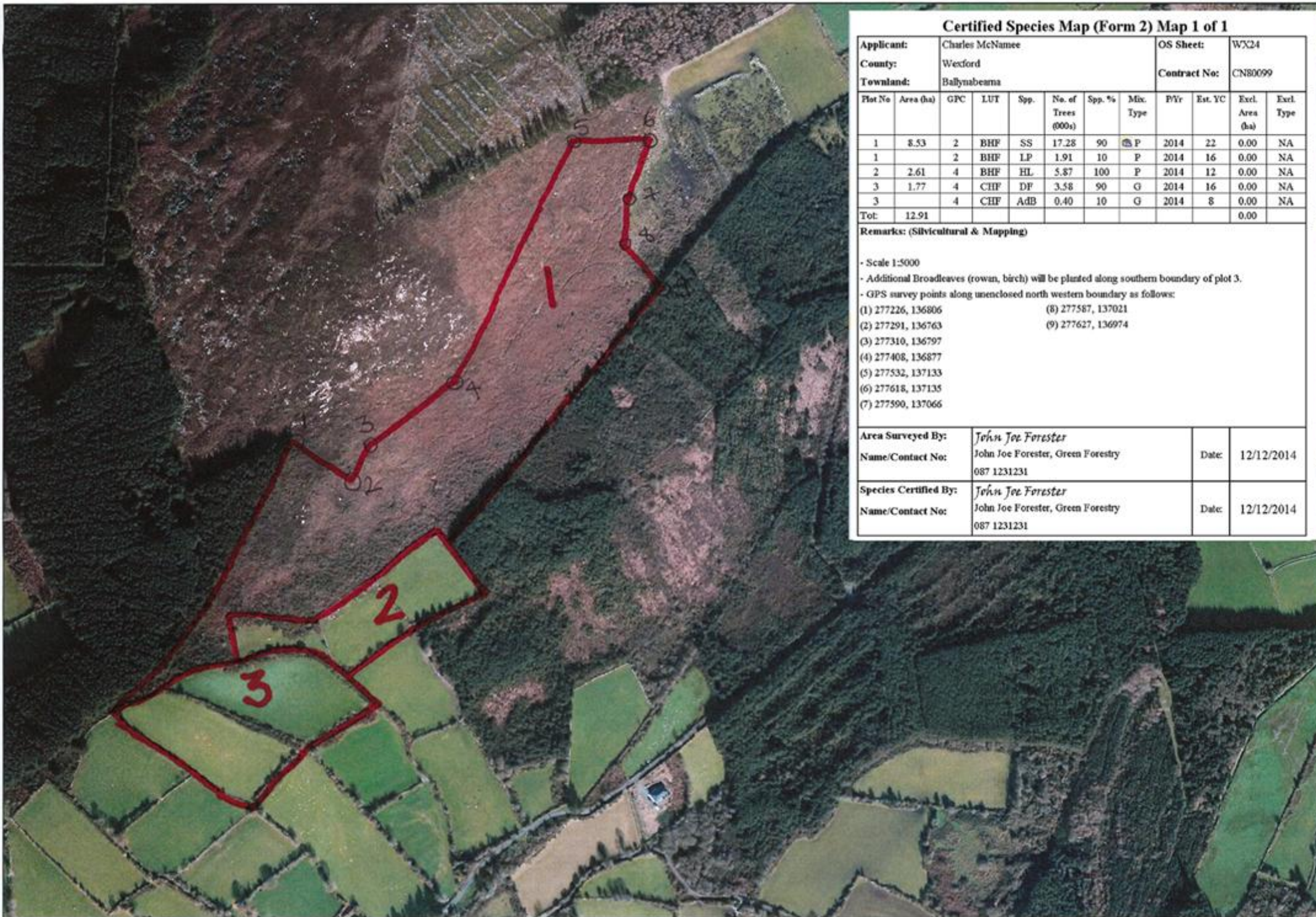
Remarks: (Silvicultural & Mapping)

- Scale 1:5000
- Additional Broadleaves (rowan, birch) will be planted along southern boundary of plot 3.
- GPS survey points along unenclosed north western boundary as follows:

(1) 277226, 136806	(8) 277587, 137021
(2) 277291, 136763	(9) 277627, 136974
(3) 277310, 136797	
(4) 277408, 136877	
(5) 277532, 137133	
(6) 277618, 137135	
(7) 277590, 137066	

Area Surveyed By:		John Joe Forester	
Name/Contact No:		John Joe Forester, Green Forestry 087 1231231	
Date:		12/12/2014	
Species Certified By:		John Joe Forester	
Name/Contact No:		John Joe Forester, Green Forestry 087 1231231	
Date:		12/12/2014	





Certified Species Map (Form 2) Map 1 of 1

Applicant:		Charles McNamee							OS Sheet:		WX24	
County:		Wexford							Contract No:		CN80099	
Townland:		Ballynabearna										
Plot No	Area (ha)	GPC	LUT	Spp.	No. of Trees (000s)	Spp. %	Mix. Type	PYr	Est. YC	Excl. Area (ha)	Excl. Type	
1	8.53	2	BHF	SS	17.28	90	P	2014	22	0.00	NA	
1		2	BHF	LP	1.91	10	P	2014	16	0.00	NA	
2	2.61	4	BHF	HL	5.87	100	P	2014	12	0.00	NA	
3	1.77	4	CHF	DF	3.58	90	G	2014	16	0.00	NA	
3		4	CHF	AdB	0.40	10	G	2014	8	0.00	NA	
Tot:	12.91									0.00		

Remarks: (Silvicultural & Mapping)

- Scale 1:5000
- Additional Broadleaves (rowan, birch) will be planted along southern boundary of plot 3.
- GPS survey points along unenclosed north western boundary as follows:

(1) 277226, 136806	(8) 277587, 137021
(2) 277291, 136763	(9) 277627, 136974
(3) 277310, 136797	
(4) 277408, 136877	
(5) 277532, 137133	
(6) 277618, 137135	
(7) 277590, 137066	

Area Surveyed By:		John Joe Forester	
Name/Contact No:	John Joe Forester, Green Forestry 087 1231231	Date:	12/12/2014
Species Certified By:		John Joe Forester	
Name/Contact No:	John Joe Forester, Green Forestry 087 1231231	Date:	12/12/2014

12.6 Fencing Map

A fencing map is required to support claims for proposed (Form 1) and erected (Form 2) fencing. In order to produce the Fencing Map the Certified Species Map should be photocopied. Annotations and symbols for proposed and erected fencing should be added to the Certified Species Map using a blue marker/pen. The total length in meters of each fencing type and the plots where proposed or new fencing is to be erected (Form 1) or where new fencing has been erected (Form 2) should be noted in the Fencing Map legend. Compliance (or non-compliance) of the fencing material erected with fencing standard IS436:2007 should be clearly indicated on the fencing map legend as in the example below.

An example of a Fencing Map prepared using a 1:5000 OSi map and a colour orthophoto printed from the Departments system at a scale of 1:5000 is presented below. Additional fence colours may be used in situations where there are more than 2 fencing types required for a given application. A legend template for the Fencing Map is available from the Departments website (<http://www.agriculture.gov.ie/forests-service/>). This should be attached to the Fencing Map submitted for all Form 1 and Form 2.

Fencing Map (Form 1) Map 1 of 1

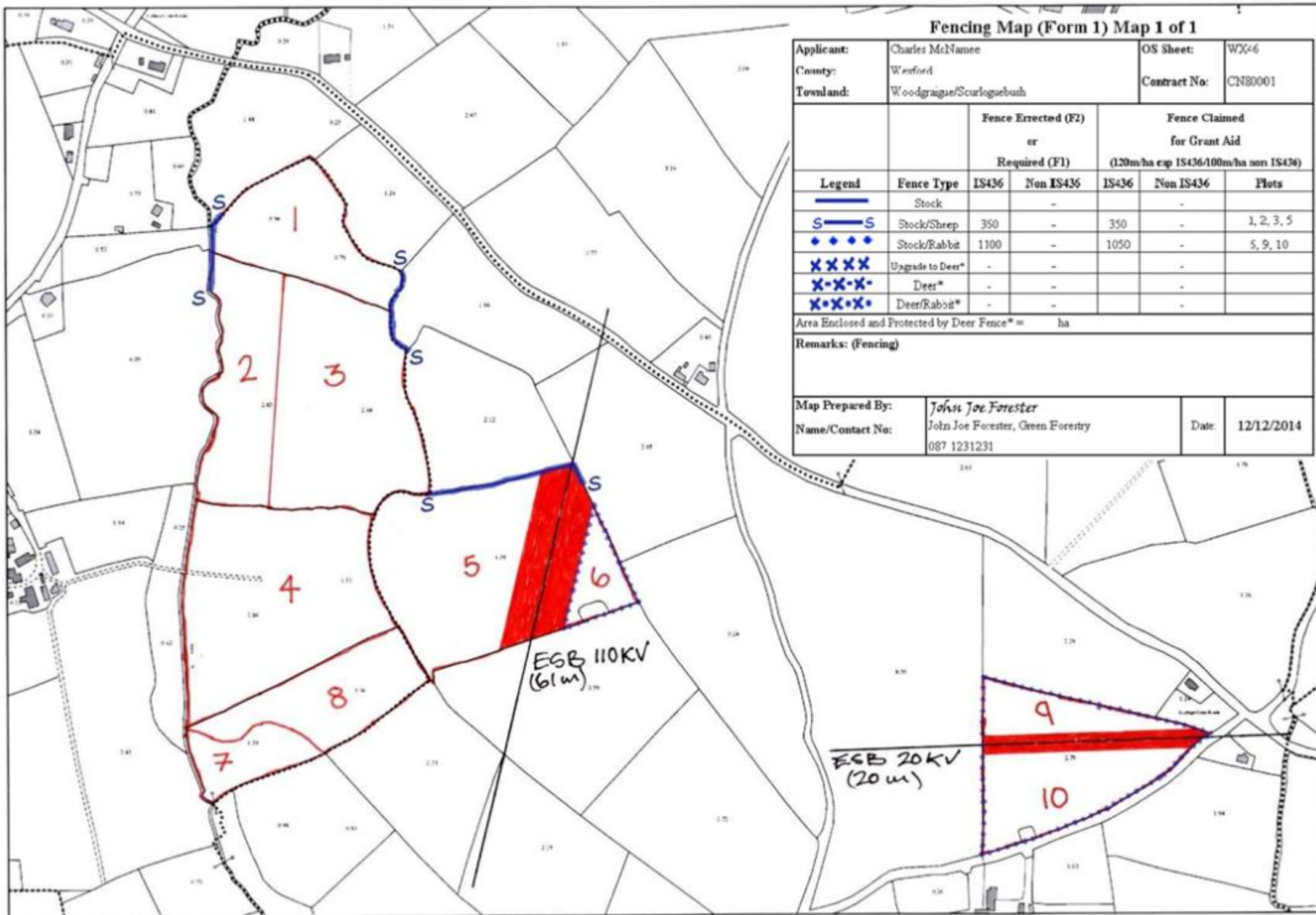
Applicant:	Charles McNamee	OS Sheet:	WX46
County:	Wexford	Contract No:	CN80001
Townland:	Woodgrange/Scurloguesbush		

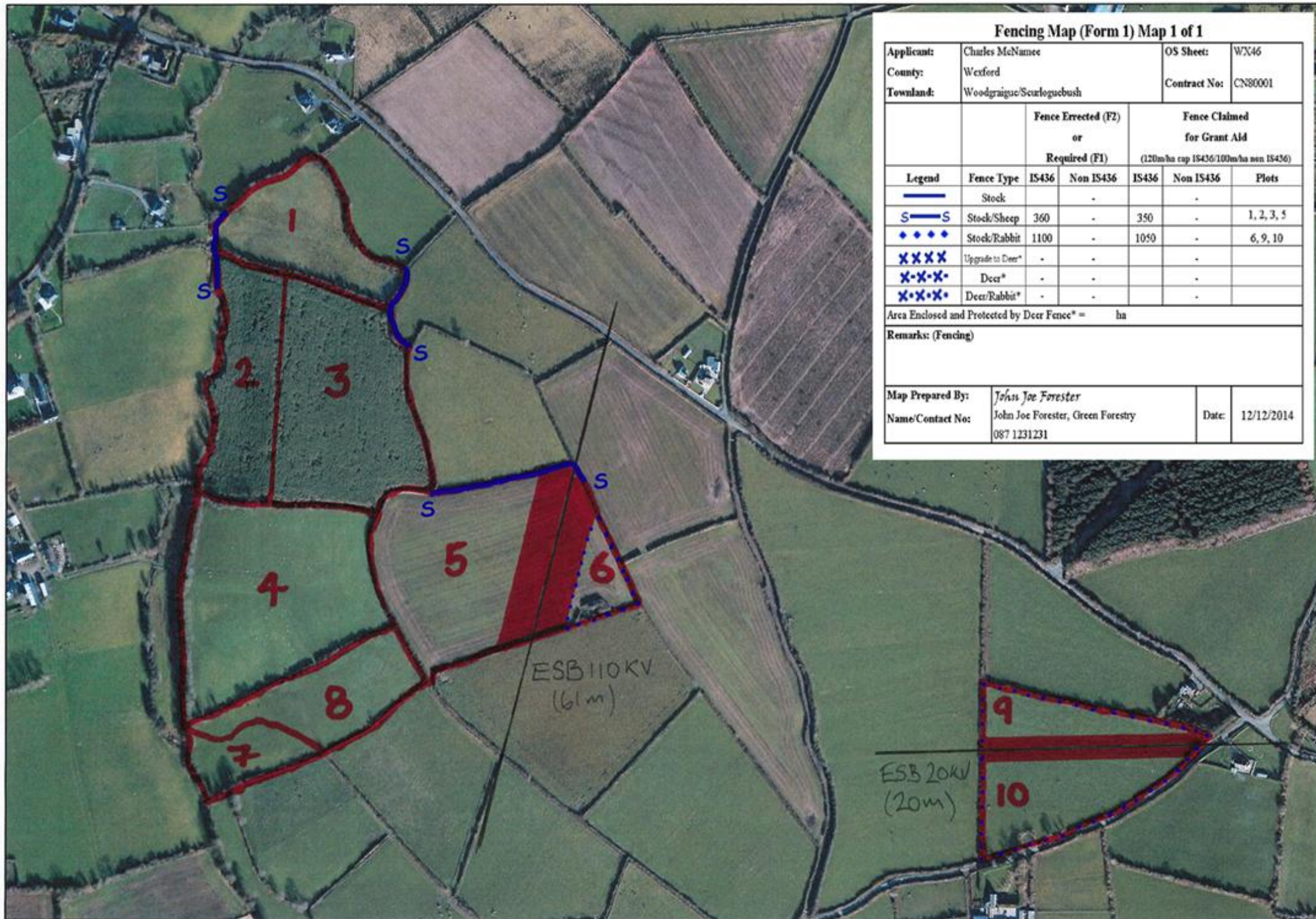
Legend	Fence Type	Fence Erected (F2) or Required (F1)		Fence Claimed for Grant Aid (120m/ha exp IS436/100m/ha non IS436)		Plots
		IS436	Non IS436	IS436	Non IS436	
	Stock		-		-	
	Stock/Sheep	350	-	350	-	1, 2, 3, 5
	Stock/Rabbit	1100	-	1050	-	5, 9, 10
	Upgrade to Deer*	-	-		-	
	Deer*	-	-		-	
	Deer/Rabbit*	-	-		-	

Area Enclosed and Protected by Deer Fence* = ha

Remarks: (Fencing)

Map Prepared By:	John Joe Forester	Date:	12/12/2014
Name/Contact No:	John Joe Forester, Green Forestry 087 1231231		





Fencing Map (Form 1) Map 1 of 1

Applicant:	Charles McNamee	OS Sheet:	WX46
County:	Wexford	Contract No:	CN80001
Townland:	Woodgrague/Scurloguebush		

Legend	Fence Type	Fence Erected (F2) or Required (F1)		Fence Claimed for Grant Aid (120m/ha cap IS436/100m/ha non IS436)		Plots
		IS436	Non IS436	IS436	Non IS436	
—	Stock		-		-	
S—S	Stock/Sheep	360	-	350	-	1, 2, 3, 5
♦ ♦ ♦ ♦	Stock/Rabbit	1100	-	1050	-	6, 9, 10
XXXX	Upgrade to Deer*	-	-		-	
X-X-X-	Deer*	-	-		-	
X-X-X-X	Deer/Rabbit*	-	-		-	

Area Enclosed and Protected by Deer Fence* = ha

Remarks: (Fencing)

Map Prepared By:	John Joe Forester	Date:	12/12/2014
Name/Contact No:	John Joe Forester, Green Forestry 087 1231231		

12.7 Biodiversity Map (BIO Map)

The submission of a BIO Map is required at pre-approval (Form 1) and first instalment (Form 2) stages for the Afforestation and Forest Road schemes. It is important that this map shows the presence of existing biodiversity features clearly (including relevant species and habitats) as well as those areas where biodiversity will be enhanced.

The features recorded on the Bio Map must meet with the terms and conditions of the scheme involved, must demonstrate the environmental suitability of the proposal in terms of maintaining and enhancing biodiversity and must be in adherence with Forest Service Guidelines and Code of Best Forest Practice. The BIO map may be sent to statutory and non-statutory referral bodies (e.g. NPWS, Inland Fisheries, An Taisce, Local Authorities, Fáilte Ireland) with the application for their comments and observations regarding the proposal.

The following features must be included (if present) on the BIO Map:

- Biodiversity features e.g. badger sett, heronry, hedgerows, scrub, aquatic areas and retained habitat/open space. Linear features should be labelled and point features indicated by a numbered cross (see BIO Map examples below) e.g. +1.
- ABE areas including linear features, point features and plotted bio areas must be clearly identified on the BIO map legend.
- An estimate of total bio-area (linear, point and area-based features) and bio plots comprising the application must be included in the remarks section of the BIO map legend.
- Buffer zones/set back distances associated with aquatic areas/houses should be clearly identified on the map legend. Sediment trap locations must also be clearly identified where possible either on the BIO map or the in the BIO map legend.
- Designated sites adjoining or overlapping proposed areas must be clearly identified using diagonal lines or cross hatching and labelled in the legend using the designation name and site code.
- Archaeological sites should be recorded in the legend with the monument type and Site and Monument Record Number of the site also noted where known, e.g. a ringfort. Monuments should be identified on the map with a numbered prominent red cross as shown in the BIO Map examples below.
- Vehicle and pedestrian access to the site must be identified.
- Planned and existing firelines should be labelled where required.
- Cultivation direction with cultivation type per plot indicated. The existing drainage network on the site should be indicated where possible.
- Exclusion zones (e.g. unplatable areas, rock outcrops) should be identified and clearly labelled.
- Hazards e.g. ESB lines, steep slopes, rough terrain should be identified.
- The remarks section of the BIO Map legend should be used to identify any relevant features or additional information that will help in the evaluation of the application. Additional legend text should also be included in instances where space on the map is insufficient to include all details related to biodiversity measures/features.

An example of a BIO Map prepared using a 1:5000 OSi map and a colour orthophoto printed from the Departments system at a scale of 1:5000 is presented below. The colour schemes used in the attached example must be used for all BIO Maps submitted. Additional colours may be used to identify other features not listed in the attached example.

A legend template for BIO Maps is available from the Departments website (<http://www.agriculture.gov.ie/forests-service/>). This should be attached to the BIO Map submitted for all Form 1 and Form 2 applications.

12.7.1 Identifying, Mapping and Recording ABE Features

Areas chosen as ABEs should represent the best areas for biodiversity enhancement within the new forest and must meet with the approval of the Forest Service. ABE's can be areas suitable for planting where the potential for a commercial forest crop is foregone for the purpose of retaining open spaces and habitats for biodiversity. An ABE plot must be included as an intrinsic part of the individual grant aided project (i.e. it cannot be a completely separate plot away from the main area comprising the grant aided plantation).

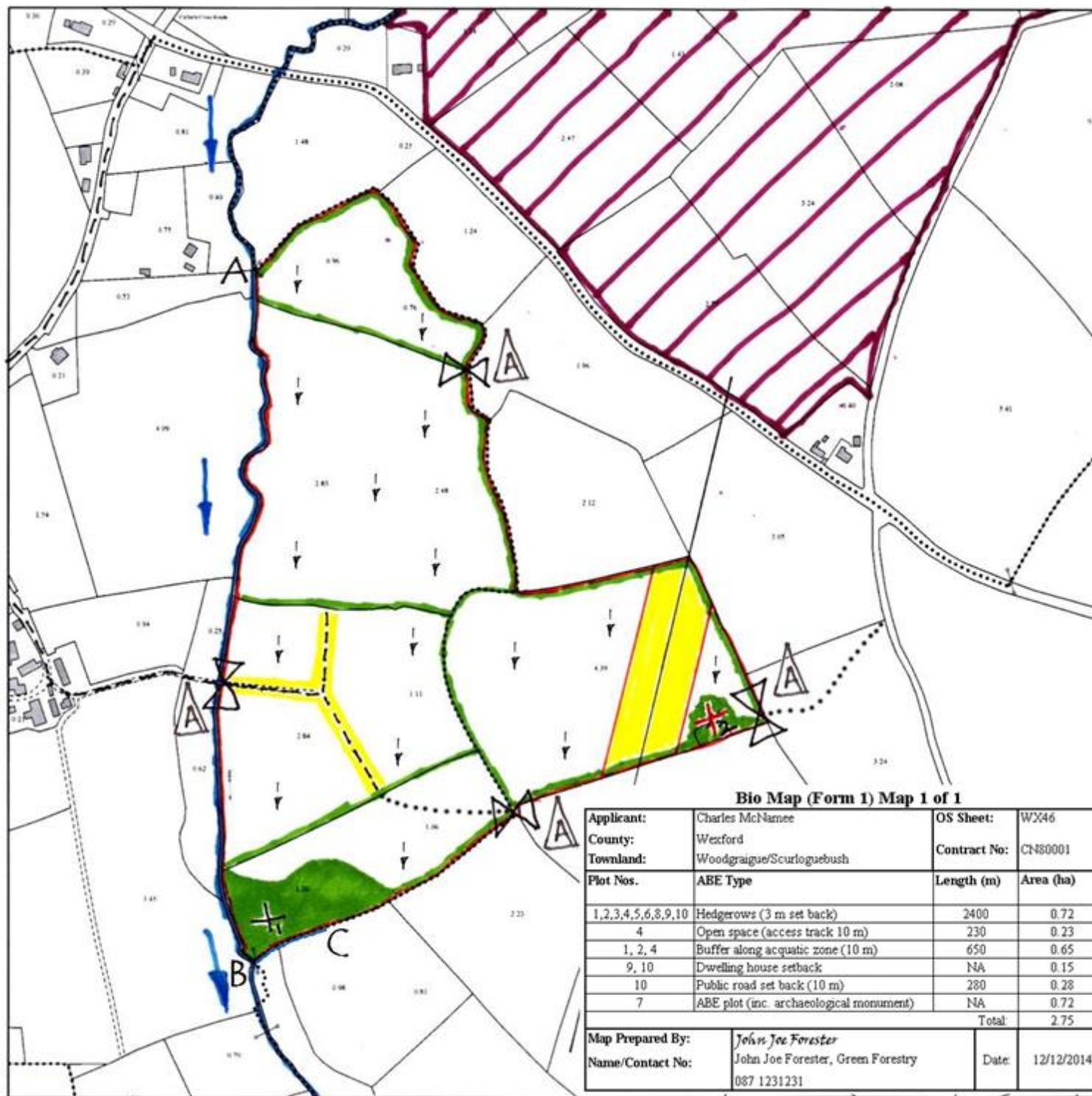
The Forest Biodiversity Guidelines require that 15% of the forest area must be treated with particular regard to biodiversity. In sites less than 10 hectares in area, the open space and retained habitat element of ABEs should be designed in conjunction with neighbouring land use and may be reduced. The area occupied by linear features (e.g. hedgerows, public road setbacks etc.), point features (e.g. archaeological sites) and plotted bio areas (i.e. bio plots) are grant aided up to a maximum of 15% of the area of the plantation in the case of the afforestation scheme.

A bio area summary table which includes the estimates of plantation biodiversity area (i.e. mappable and unmappable and bio area) comprising the application must be annotated in a legend appended to the BIO Map for all Form 1 and Form 2 applications. The bio area table must also include an estimate of the total bio area comprising all bio area features within the application. All bio areas claimed in support of grant aid must be clearly identifiable and verifiable on the ground. Bio areas will be verified and checked upon inspection.

The following biodiversity features should be included in the bio-area table (see also Chapter 6 for features eligible for ABE's, grants and premiums):

- Open space for landscape enhancement and biodiversity
- Hedgerows and their setbacks
- Eligible scrub vegetation
- Buffer zones along aquatic zones
- Archaeological sites and their exclusion zones
- Created lakes/reservoirs
- Former REPS habitats
- Public road set back
- Railway set back strip
- Ridelines and drains
- Internal roads and turning bay set back areas
- Dwelling houses and associated building set back areas
- Other areas with prior agreement of the relevant Forest Service inspector

A ready reckoner (Table 28) to facilitate the estimation of plantation bio areas is included in the table below e.g. (a 600 m length of stream running along the boundary of a plantation with a 15 m planting setback would amount approximately 0.90 ha of biodiversity area).



Bio Map (Form 1) Map 1 of 1

Bio Map (Form 1) Map 1 of 1

Applicant:	Charles McNamee	OS Sheet:	W246
County:	Wexford	Contract No:	CN80001
Townland:	Woodgrange/Scurlogebush		
Legend			
.....	Pedestrian Access	Access	
---	Vehicular Access		
△	Gate/Access Point into Plantation		
→	River/Stream Direction	Biodiversity	
→	River/Stream		
▨	Designation (SPA, Site Code: 1201)		
▨	Hedgerows/Grass/Bio-Plot Area		
+	Archaeology (Ring fort)	Openness	
+	Badger Sett		
→	Open Space		
→	Cultivation Direction		
---	ESB lines (110 kV and 20 kV)	Hazards (Specify)	

Remarks: (Biodiversity and Operational)

Scale 1:5000

Biodiversity

- 10 m aquatic buffer zone to be established at A-B and B-C. Sediment traps will be located outside the buffer zone where mounding takes place (i.e. 6 traps along west of Plot 2).
- No cultivation at badger sett marked +2. Badger sett to be identified with coloured tape prior to cultivation. Badger gate to be installed to allow access to/within plantation.
- No cultivation within 20 m of ring fort ditch. Exclusion zone to be fenced with two strands of wire and a 4 m wide access path leading from the nearby farm track.
- All hedgerows, existing trees to be retained. Native trees (spindle, hawthorn, birch, crab apple) to be planted at ABE/BIO plot at 3 x 3 m spacing in plot 7.
- Broodleaves (alder/birch) to be planted adjacent to aquatic zone A-B, B-C.
- Beech/alder/birch to be planted at margin of set back (30 m) at dwelling house, D, and along main road E-F for improved visual amenity.
- Total ABE area (set back, open space and BIO plot) estimated at 15% (2.75 ha).

Cultivation

- Plots 1, 4, 6, 9 and 10 to be ripped, plots 2, 3, 5 and 8 will be mounded.

Hazards

- Overhead power lines (110 kV and 20 kV) will provide additional open space within plantation.

Fire Risk

- Fire risk generally low. Setback from house at D will act as sufficient fire line.

Map Prepared By:	John Joe Forester	Date:	12/12/2014
Name/Contact No:	John Joe Forester, Green Forestry 087 1231231		



Table 28: Bio Area ready reckoner for areal bio features (road, stream, hedgerow setbacks)

	20 m	30 m	40 m	50 m	60 m	70 m	80 m	90 m	100 m	110 m	120 m	130 m	140 m	150 m	160 m	170 m	180 m	190 m	200 m	300 m	400 m	500 m	
3 m	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.09	0.12	0.15	3 m
5 m	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.15	0.20	0.25	5 m
7 m	0.01	0.02	0.03	0.04	0.04	0.05	0.06	0.06	0.07	0.08	0.08	0.09	0.10	0.11	0.11	0.12	0.13	0.13	0.14	0.21	0.28	0.35	7 m
10 m	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.30	0.40	0.50	10 m
15 m	0.03	0.05	0.06	0.08	0.09	0.11	0.12	0.14	0.15	0.17	0.18	0.20	0.21	0.23	0.24	0.26	0.27	0.29	0.30	0.45	0.60	0.75	15 m
20 m	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.26	0.28	0.30	0.32	0.34	0.36	0.38	0.40	0.60	0.80	1.00	20 m

Note: Area in ha of bio-area (length meters * width in meters) provided in the grey cells in the table above.

An example of the bio area table with ABE features and ABE plots by plot number is provided below and in the bio-map examples provided (above).

Plot Nos.	ABE Type	Length (m)	Area (ha)
1,2,3,4,5,6,8,9,10	Hedgerows (3 m set back)	2400	0.72
4	Open space (access track 10 m)	230	0.23
1, 2, 4	Buffer along aquatic zone (10 m)	650	0.65
9, 10	Dwelling house setback	NA	0.15
10	Public road set back (10 m)	280	0.28
7	ABE plot (inc. archaeological monument)	NA	0.72
Total:			2.75

12.7.3 Mapping ABE plots

An ABE of plot size should be mapped and recorded as a plot in the Certified Species Map legend. Bio plots must have a minimum width of 30 metres. The abbreviation “BIO” should be used on map legends. The GPC adopted should be that of the **largest planted GPC area** (i.e. the GPC making up the majority of the plantation) comprising the application with the exception of BIO plots located adjacent to unenclosed ground which will receive GPC 1 in all cases.

12.7.3 Claim reductions for plantation ABE areas in excess of allowable thresholds

Where ABEs or other unplanted areas add up to more than 15% of the total area the following calculation will be applied (see also Chapter 6):

$$\text{Claimed area} = \text{Actual Planted Area} \times 100/85.$$

For example, a site having a gross area of 18 hectares is planted following an approval. It contains the following ABE features:

Hedgerows, scrub and setbacks -	0.70 ha
Open Space (access management track) -	0.23 ha
Aquatic zone buffer -	0.90 ha
Dwelling house setback -	0.15 ha
Public road setback -	0.28 ha
<u>ABE plot -</u>	<u>0.72 ha</u>
Total:	2.98 ha

A total of 2.98 ha or 16.6 % of the plantation is made up of ABE area, leaving 15.02 ha of planted area. This is in excess of the allowable 15% threshold.

In this case the eligible claimed area is calculated as follows: **15.02 x 100/85 = 17.67 ha.**

The plot table must reflect the eligible claimed area, including adjustments for ineligible areas.

12.8 Forest Road Scheme Mapping Conventions

12.8.1 General


Forest road mapping requirements conform to the Forest Road Scheme published by the Department in December 2015. The Forest Road grant will be payable in two instalments of 90% and 10% respectively. The first grant instalment will be paid on successful completion of the road to the standard outlined in the approval letter and the COFORD Forest Road Manual (Second Edition, 2005). The second grant instalment will be paid when at least 20% of the area served by the road is harvested. The Forest Road Scheme is a cost based scheme and a maximum of 100% of total costs of building forest roads will be funded subject to the maximum payment of up to €40 per m (excluding VAT) to a maximum of 20 m per ha.

12.8.2 Forest Road Scheme Mapping Requirements

The Department's iNET system can be used to submit (Form 1) forest road pre-approval applications online. Alternately roads for approval and lengths claimed for grant aid can be clearly and accurately plotted on a 1:5,000 OSi map or 1:5,000 orthophoto map printed from the Departments iNET system. The Department will then digitise all grant aided roads into its mapping database.

The road features recorded on the forest road map should be annotated as follows for proposed

(Form 1 applications) and built roads (Form 2 and 3 applications):

- Harvesting road must be shown with a dashed red line (i.e. A B).
- Upgraded forest road must be shown cross and dash black line (i.e. A x-x-x-x B).
- Existing roads to/within the plantation must be shown by a continuous thick black line (i.e. )
- Species information and plot boundaries (use an existing Certified Species Map if available).

Form 1, 2 and Form 3 maps should clearly identify the location of bellmouths, t-turning areas and loading bays. The registered forester should ensure that adequate provisions have been made for equivalent road lengths arising from the extra work/quantities necessary due to road widening at bellmouths, t-turning areas and loading bays (i.e. bellmouth - 30 m, standard t turning area - 70 m, standard loading bay with internal turning area - 105 m, standard back in type loading bay - 30 m, circle turning area - 110 m, standard passing place - 45 m, see also COFORD Forest Road Manual, Second Edition, 2005).

Only the minimum amount of roadway required will be grant aided to ensure forwarding distances do not exceed a maximum of 500 m. In cases where the proposed forest road bell mouth is at least 2 m below the surface of the existing public road an additional 30 m will be allowed per forest entrance to contribute towards the cost of additional stone required. This means that bell mouths in this situation can include an additional 60 m of equivalent road length for grant purposes

Environmental features that may be potentially affected by the proposed road development (e.g. archaeology) should be included on the Form 1 pre-approval map where relevant. The harvest area (area to be harvested within the next three years) to be served by a proposed road

must be clearly identified and outlined in blue on the Form 1 Map. In addition to relevant applicant details and Contract Number, the Forest Roads Form 1 application map legend must contain the following information and be positioned on the top right hand corner of the map:

- Length of the proposed harvest road to be constructed (m).
- Length of proposed and eligible grant aided road to be constructed (m). (In cases where the length of the road to be constructed is in excess of the 20 m per ha threshold, the eligible grant aided road length will be less than the total constructed length).
- Area requiring harvesting within the next 3 years and served by the proposed harvest road (ha).
- Ages(s) of plantations served by the proposed road.

In the Form 1, example map presented below, the total length of proposed road is 280 m however the eligible road length for grant aid is 226 m based on 20 m per hectare threshold of the 11.3 ha plantation being serviced.

Under the new funding programme (2015-2020), a Special Construction Works (SCW) grant is being introduced at a maximum of 50 % of the cost subject to a maximum of €5,000 per application, whichever is the smaller. SCW will be limited to the following criteria:

- Permanent bridges.
- Large culverts greater than or equal to 1 metre in diameter and,
- Where the forest areas served exceeds 5 ha.

Sites of special construction works must be lettered and clearly identified on the legend attached to the pre-approval and Form 3/Form 3 maps. In addition, features such as archaeological sites and aquatic zones must be identified on a BIO Map using the mapping conventions detailed in Section 4.6.

Inventory information for the area to be harvested should be attached to the application. This information should support the claim that the area is suitable for harvesting. An updated Certified Species Map will suffice for existing grant aided plantations for area and species information. If the forest was not grant aided and no previous Certified Species Map is available, a new Certified Species map must be prepared and submitted with the pre-approval road application. Road specifications details (e.g. length/distance, peat depth, formation type, road etc.) associated with particular road sections should also be included (where required) by annotating the map along specific sections of the proposed road using letters (e.g. A-B, B-C, C-D etc). The format presented in the table below should be used where these road specification data are required.

	Section Location (on map)	A-B	B-C	C-D	D-E	E-F
1	Distance (m)					
2	Peat depth (mm)					
3	Formation (type)					
4	Well drained (Yes or No)					
5	Culvert (No. X size (mm))					
6	Pavement (total depth (mm))					
7a	Pavement base material type					
	Pavement base material depth (mm)					
7b	Pavement surface material type					

	Pavement surface material depth (mm)					
8	Road Gradient (% or ratio)					
9	Cross slope (% or ratio)					
10	Construction type					
Comments:						

NOTE: Section Location, Give a column to each road section (A-B, B-C, C-D, etc.).

Item 3, select the formation type that best matches from Table 12, FRM.

Item 4, a well drained site is one where the water table is more than 600 mm below formation level.

Item 5, for guidance on appropriate culvert sizing and layout – see section 11, Streams and Water Crossings, FRM.

Item 6, depending on item 3 and item 4 determine pavement depth from Table 12, FRM.

Item 7, see Section C.7. Construction Material and Appendix E.6 Specification for Road Material, FRM.

Item 10, e.g. 'excavate' formation or 'build on top' etc. See section C.3 Forest Road formation methods, FRM.

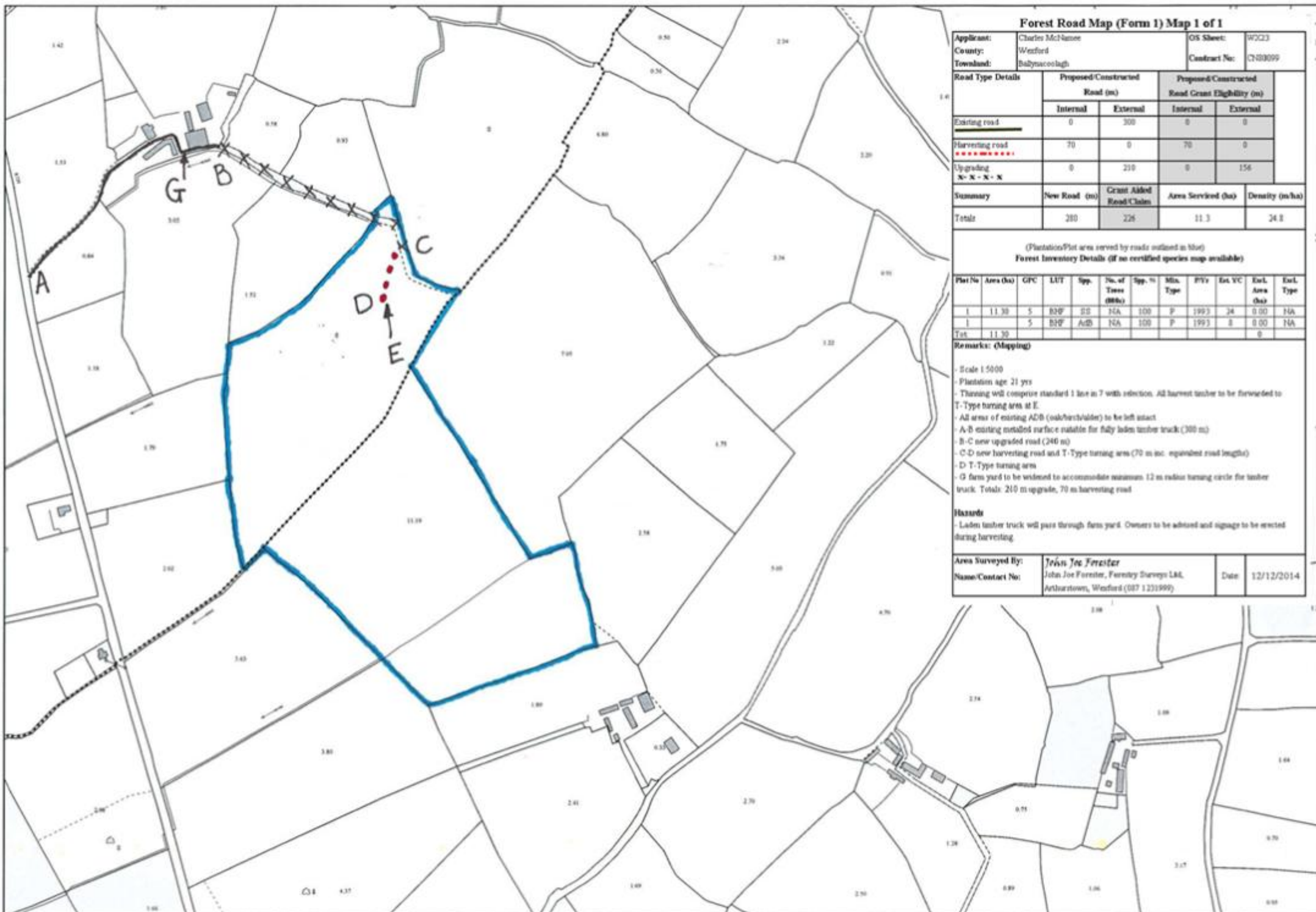
*FRM = Forest Road Manual. Guidelines for the construction and management of forest roads. Second edition. Authors Tom Ryan, Henry Philips, James Ramsay and John Dempsey. Published by COFORD, 2005 (Second Edition)

For Form 2 submissions, the forest road map must accurately represent the position and extent of the constructed road. The use of GNSS receivers for measuring the position and length of the completed road is encouraged and a GNSS survey may be requested by an inspector where there are any uncertainties as to the claim map(s) provided.

Where the services of an engineer/surveyor have been engaged at design stage, completed works must be certified as having met the specified standard for the road design and specification. The Forest Roads Form 2 Maps should include:

- Length of the built harvest road (m).
- Claim for the eligible grant aided road (m) constructed. (In cases where road constructed is in excess of the 20 m per ha threshold, the eligible grant aided road length will be less than the total constructed length).
- Area requiring harvesting within the next 3 years and served by the harvest road (ha).
- Ages(s) of plantations served by the constructed road.
- Locations of any Special Construction Works (SCW) lettered and annotated on the Map legend.

For Form 3 submissions, the harvest area (the area that was harvested) served by the built road must be clearly identified and outlined in blue. As per the conditions of Forest Road Scheme this must equate to at least 20% of the approved eligible area identified in the original Form 1 application. Examples of a Form 1 forest road application Map created using a 1:5,000 OSi map and a 1:5,000 orthophoto map are presented below at the bottom of this section.



12.9 Woodland Improvement Scheme - Mapping Conventions

12.9.1 Tending and Thinning of Broadleaves (WIS)

Element 1 of the Woodland Improvement Scheme applies to young broadleaved woodlands (planted post 1980) that are suitable for tending or thinning. Area and width criteria for minimum eligible plots are as per the Afforestation Scheme. Grant aid for the **treated area** is available for either tending or thinning operations depending on which is the most appropriate to the site. Note that the treated area does not include bio-plots or open space areas.

A Certified Species Map must be supplied along with all WIS Form 1 and Form 2 applications. A Certified Species Map should be prepared according to the standards as outlined in this Chapter. The Certified Species Map should indicate clearly the location of all relevant plot boundaries and be numbered sequentially (where possible matching the plot numbers of the original grant aided plantation). The Certified Species Map will be used to digitise boundaries of the proposed operations into the Departments mapping system.

Any relevant notes or remarks should be recorded on the map to aid the assessment of the application and its suitability for grant aid. If the area submitted for approval has received grant aid in the past the Contract Number for the area must be noted on the Certified Species Map. Example Certified Species Maps prepared using a 1:5,000 OSi A4 map and an orthophoto map printed (1:5,000 Scale) from the Departments iNET system are presented earlier in this Chapter.

12.9.2 Plantation access for fertiliser application/foliar analysis

Where funding is sought under the Woodland Improvement Scheme for 1) brashing to improve access for manual application of fertiliser (i.e. where aerial fertilisation is not possible) or 2) foliar analysis is required to establish nutrient status and determine the type and rate of fertiliser, a Certified Species Map should be prepared according to the standards detailed in this Chapter.

Any relevant notes or remarks should be recorded on the Certified Species Map to aid the assessment of the application and its suitability for grant aid. If the area submitted for approval has received grant aid in the past the Contract Number for the area must be noted on the Certified Species Map.

12.9.3 Environmental Enhancement of Forests (EEF)

The aim of the Element 2 of Woodland improvement, Environmental Enhancement of Forests, is to support various actions within existing forests, which effect structural changes that will proactively protect and enhance water quality, habitats and species, archaeological sites, sensitive landscapes and other environmental features.

A Certified Species Map must be supplied along with all EEF Form 1 and Form 2 applications. The certified species map must include all point feature locations and relevant

annotations on the Certified species map legend in relation to eligible operations to be carried out under the scheme e.g.

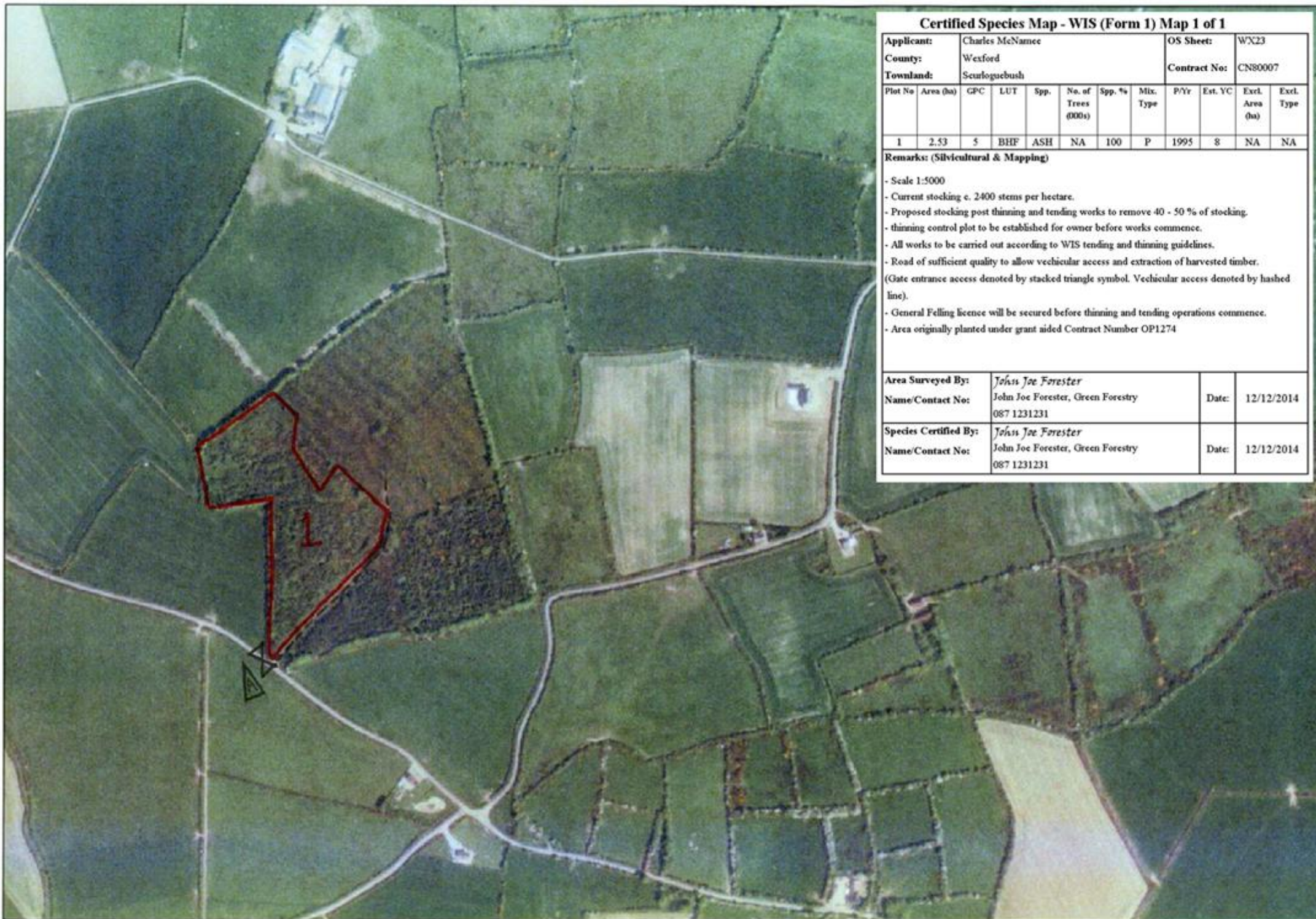
- The installation of silt traps/appropriate blocking of existing forest drains (location and number of silt traps/location and number of sites where drain blocking has been/is to be initiated).
- The retro-fitting, reinstatement or enhancement of setbacks and other open areas within existing forests (e.g. aquatic buffer zones, and archaeological exclusion zones and related access paths and setbacks to soften landscape impact of forest areas) (areas and or locations).
- Enrichment planting (e.g. the planting of groups of broadleaves and / or diverse conifers along highly visible forest edges for landscaping, or the planting of single or small groups of native riparian species within the aquatic buffer zone, for bank stabilisation and in-stream benefits (areas and or locations within plantation).
- The application of silvicultural treatments (e.g. heavy thinning, ring-barking) to encourage greater ground vegetation cover along aquatic zones well in advance of final clearfell (areas and or locations within plantation).

Any relevant notes or remarks should be recorded on the Certified Species Map to aid the assessment of the application and its suitability for grant aid. If the area submitted for approval has received grant aid in the past the Contract Number for the area must be noted on the Certified Species Map.

Applicant:	Charles McNamee						OS Sheet:	WX23			
County:	Wexford						Contract No:	CN80007			
Townland:	Scurloughbush										
Plot No	Area (ha)	GPC	LUT	Spp.	No. of Trees (000s)	Spp. %	Mix. Type	P/Yr	Est. YC	Excl. Area (ha)	Excl. Type
1	2.53	5	BHF	ASH	NA	100	P	1995	8	NA	NA

- Scale 1:5000
- Current stocking c. 2400 stems per hectare.
- Proposed stocking post thinning and tending works to remove 40 - 50 % of stocking.
- thinning control plot to be established for owner before works commence.
- All works to be carried out according to WIS tending and thinning guidelines.
- Road of sufficient quality to allow vehicular access and extraction of harvested timber.
- (Gate entrance access denoted by stacked triangle symbol. Vehicular access denoted by hashed line).
- General Felling licence will be secured before thinning and tending operations commence.
- Area originally planted under grant aided Contract Number OP1274

Area Surveyed By:	<i>John Joe Forester</i>	Date:	12/12/2014
Name/Contact No:	John Joe Forester, Green Forestry 087 1231231		
Species Certified By:	<i>John Joe Forester</i>	Date:	12/12/2014
Name/Contact No:	John Joe Forester, Green Forestry 087 1231231		



Certified Species Map - WIS (Form 1) Map 1 of 1

Applicant:	Charles McNamee	OS Sheet:	WX23
County:	Wexford	Contract No:	CN80007
Townland:	Scurloguebush		

Plot No	Area (ha)	GPC	LUT	Spp.	No. of Trees (000s)	Spp. %	Mix. Type	P/Yr	Est. VC	Excl. Area (ha)	Excl. Type
1	2.53	5	BHF	ASH	NA	100	P	1995	8	NA	NA

Remarks: (Silvicultural & Mapping)

- Scale 1:5000
- Current stocking c. 2400 stems per hectare.
- Proposed stocking post thinning and tending works to remove 40 - 50 % of stocking.
- thinning control plot to be established for owner before works commence.
- All works to be carried out according to WIS tending and thinning guidelines.
- Road of sufficient quality to allow vehicular access and extraction of harvested timber.
(Gate entrance access denoted by stacked triangle symbol. Vehicular access denoted by hashed line).
- General Felling licence will be secured before thinning and tending operations commence.
- Area originally planted under grant aided Contract Number OP1274

Area Surveyed By:	John Joe Forester	Date:	12/12/2014
Name/Contact No:	John Joe Forester, Green Forestry 087 1231231		
Species Certified By:	John Joe Forester	Date:	12/12/2014
Name/Contact No:	John Joe Forester, Green Forestry 087 1231231		

12.10 Reconstitution of Woodlands Scheme - Mapping Conventions

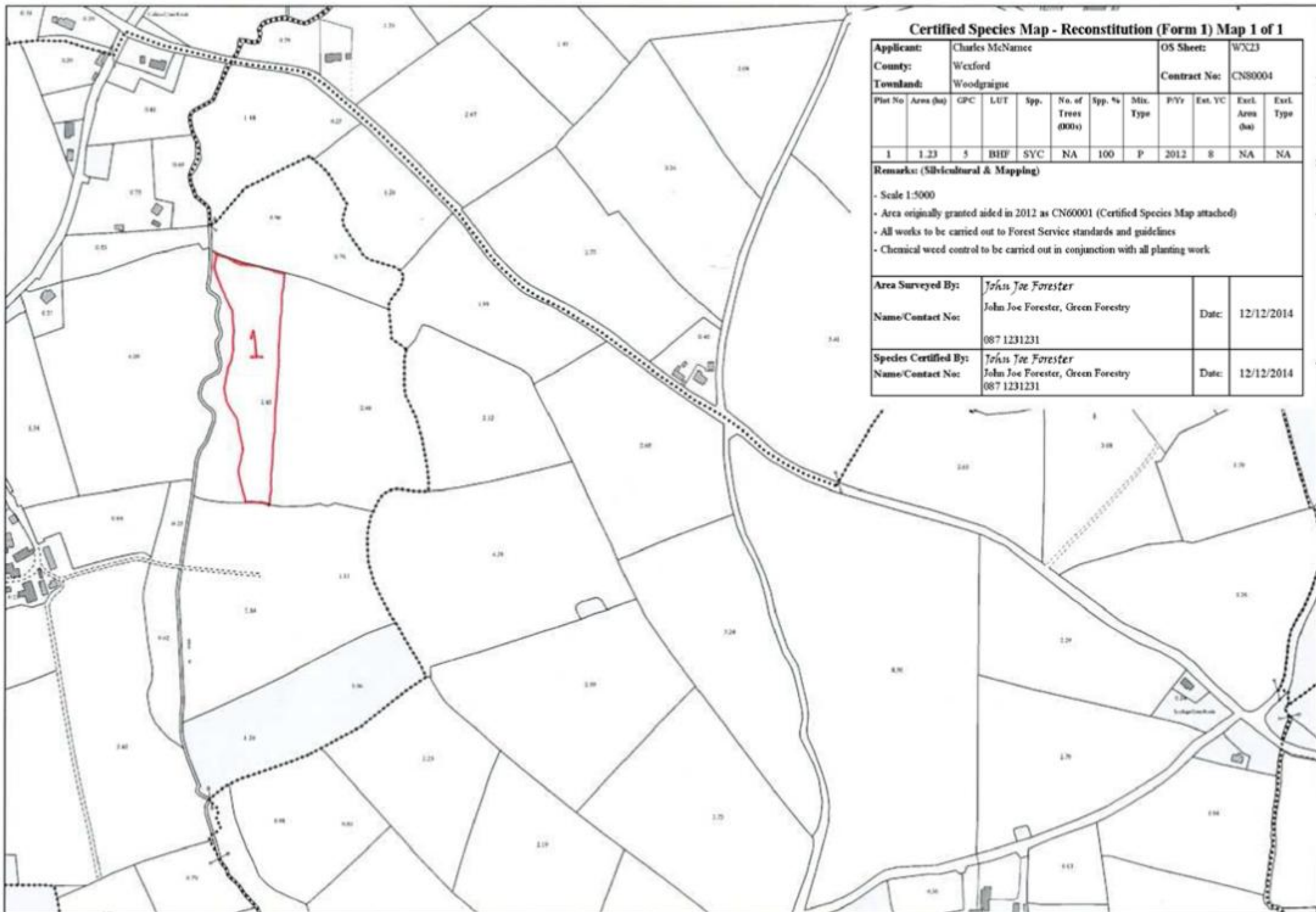
This grant scheme applies when damage to a plantation has occurred as a result of natural causes. The scheme supports the removal and destruction of trees infected by contagious pathogens, or trees likely to be so infected. Support may also be considered towards the restoration of forests damaged by other natural causes, catastrophic events and/or climate change related events, such as frost, wind, deer, grey squirrel and vole, where more than 20% of the forest potential has been damaged.

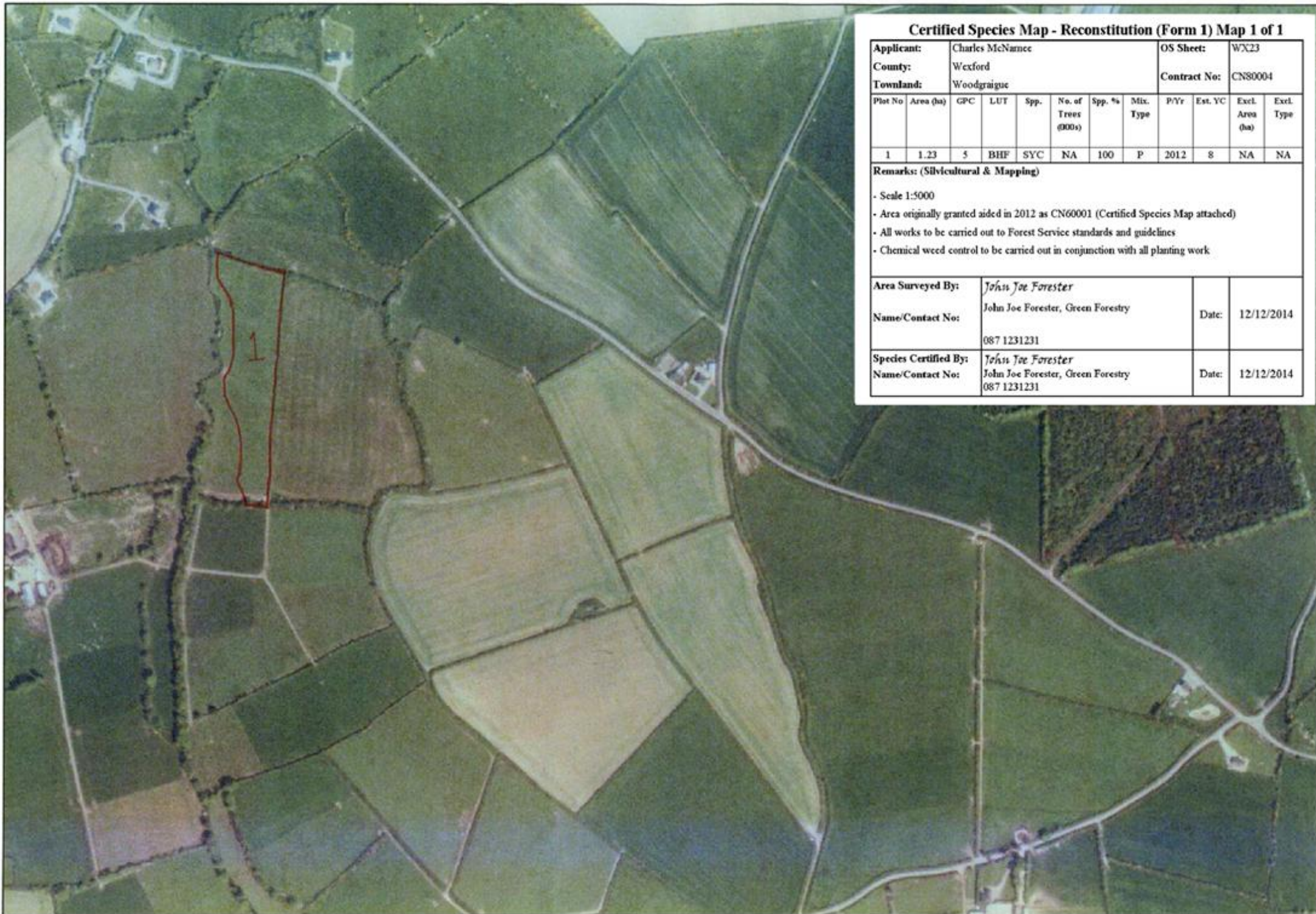
From January 2015 onwards reconstitution may be available for plantations that suffer from 'significant damage' due to disease (trees infected or likely to be so infected), frost, drought, deer, grey squirrel, vole, disease and insect damage. 'Significant damage' implies death or irremediable damage of 20% or more of the trees in the relevant plantation covered by one contract number.

A Certified Species Map must be supplied along with all Reconstitution Form 1, Form 2 and Form 3 applications. The Certified Species Map should be prepared according to the standards as outlined in this Chapter. A Fencing Map is also required for Form 1 and Form 2 applications where there is a new fencing requirement. A BIO Maps for Form 1 and Form 2 applications should be prepared as detailed in this Chapter.

The Certified Species Map should indicate clearly the location of all affected areas covered by the reconstitution grant application. Where the application covers more than one area/plot, plots should be numbered sequentially. The Certified Species Map will be used to digitise boundaries of the proposed reconstitution area into the Departments mapping system. Any relevant notes or remarks should be recorded on the map to aid the assessment of the application and its suitability for grant aid.

In addition to the Certified Species Map for the Reconstitution application, the original Certified Species Map to which the Reconstitution application refers must also be submitted. Example Certified Species Maps prepared using a 1:5000 OSi A4 map and an orthophoto map printed (1:5000 Scale) from the Departments iNET system are presented earlier in this Chapter. In the example below, a total of 1.23 ha of the sycamore plot (Plot 1 in the Reconstitution Certified Species Map) has suffered severe frost damage and must be restored to Forest Service Standards.





Certified Species Map - Reconstitution (Form 1) Map 1 of 1

Applicant:		Charles McNamee							OS Sheet:		WX23	
County:		Wexford							Contract No:		CN80004	
Townland:		Woodgrigue										
Plot No	Area (ha)	GPC	LUT	Spp.	No. of Trees (000s)	Spp. %	Mix. Type	P/Yr	Est. YC	Excl. Area (ha)	Excl. Type	
1	1.23	5	BHF	SYC	NA	100	P	2012	8	NA	NA	
Remarks: (Silvicultural & Mapping) <ul style="list-style-type: none"> Scale 1:5000 Area originally granted aided in 2012 as CN60001 (Certified Species Map attached) All works to be carried out to Forest Service standards and guidelines Chemical weed control to be carried out in conjunction with all planting work 												
Area Surveyed By:		John Joe Forester							Date:		12/12/2014	
Name/Contact No:		John Joe Forester, Green Forestry 087 1231231										
Species Certified By:		John Joe Forester							Date:		12/12/2014	
Name/Contact No:		John Joe Forester, Green Forestry 087 1231231										

12.11 Summary of Map Requirements by Scheme Type

The table below summarises the mapping requirements for Form 1 (F1), Form 2 (F2) and Form 3 (F3) maps for the Afforestation Scheme (Affor), Forest Roads Scheme (Roads), Woodland Improvement Scheme (WIP) and Reconstitution Scheme (Recon).

Table 29: Summary of map requirements by scheme type

Map type	Scheme Type											
	Affor			Roads			WIP			Recon		
	F1	F2	F3	F1	F2	F3	F1	F2	F3	F1	F2	F3
Certified Species Map	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Fencing Map	✓	✓								✓	✓	
BIO Map	✓	✓								✓	✓	

Mapping requirements for the Native Woodland Scheme (NWS) are discussed in detail in the Native Woodland Scheme Manual (Available on the Departments website).

13. Environmental Protection and Controls - Consultation Process

13.1 Overview

The Forest Service places great emphasis on a careful evaluation of the environmental implications of any afforestation proposal. Cases which give rise to particular environmental concerns should be dealt with on the basis of the sub-threshold EIA process, the Appropriate Assessment Procedure and the consultation process outlined in this Chapter. At development planning stage (Form 1 stage) all environmental considerations must be identified and plans drawn up with these in mind. Following approval of the application, work must be carried out as detailed in the application to ensure environmental best practice. The Forest Service, Department of Agriculture, Food and the Marine, has published the following set of guidelines:

Forestry and Water Quality
Forestry and the Landscape
Forestry and Archaeology
Forestry Biodiversity
Forestry and Aerial Fertilisation
Forest Harvesting and the Environment
Forest Protection
Forestry and Freshwater Pearl Mussel Requirements
Forestry and Otter
Forestry and Kerry Slug

The *National Forest Standard*, published by the Forest Service, outlines criteria and indicators relating to the national implementation of Sustainable Forest Management. Also the *Code of Best Forest Practice - Ireland* (the Code) describes, for each forest operation, the best operational practice and potential adverse impacts and is available from the Forest Service.

Failure to comply with the Code and the Guidelines (applicable at the time of approval) may result in grant and premiums being withheld and or penalties applied.

Environmental protection and control in relation to the Forest Service grant and premium schemes are achieved by the following:

Planning and design of each project in accordance with the Code and the Guidelines.
EIA sub-threshold screening process
Appropriate Assessment Procedure
Consultation process with prescribed bodies.
Public consultation process
Appeals procedure.
Forest Service inspections

The European Communities (Forest Consent and Assessment) Regulations (S.I. No. 558 of 2010) give legal basis to the consultation process that the Forest Service uses with prescribed bodies and the public in relation to specific environmentally sensitive sites. **Table 30** outlines the environmental considerations and the appropriate prescribed consultation bodies.

Table 30: Application form guidance (This section refers to Form 1, Page 3, heading “Environmental considerations”)

	Environmental Consideration	Afforestation Scheme		Referral for Other Schemes. Note: Public consultation only applies to Afforestation and Road schemes	
		Referral Body	Referral period	Roads	Recon*
1.	Water Quality				
1.1	Is the area designated potentially acid sensitive.	Subject to protocol which specifies consultation with the EPA in certain cases.			
1.2	Is the area >5.0 ha and sensitive for fisheries?	Inland Fisheries Ireland	4 weeks	4 weeks	4 weeks
1.3	Is the area non-sensitive for fisheries and >40.0 ha?	Inland Fisheries Ireland	4 weeks	4 weeks	4 weeks
1.4	Is the area >10.0 ha and within a catchment area of a Local Authority designated water scheme?	Local Authority	4 weeks	4 weeks	4 weeks
2.	Designated Habitats				
2.1	Is the area within a pNHA, NHA, SAC, SPA or National Park? Specify site code(s)	NPWS*	2 months	2 months	2 months
		Local Authority	4 weeks	4 weeks	4 weeks
		Inland Fisheries Ireland	4 weeks	4 weeks	4 weeks
		An Taisce	4 weeks		
2.2	If the area is within a NHA, is a completed Notifiable Action Form / Action Requiring Consent Form (consent from NPWS) included?				
2.3	If the area is within a Hen Harrier SPA, will operations occur between the 1 st April and 15 th August inclusive?	NPWS*	2 months	2 months	2 months
2.4	If the area within a NPWS referral zones for NHA, pNHA, SAC or SPA?	NPWS*	**	**	**
2.5	Is the area within 3km upstream of a NHA, pNHA, SAC or SPA of National Park? Specify site code(s)	NPWS*	**	**	**
2.6	Is the area within a Freshwater Pearl Mussel 6km zone? If YES, the Forestry and Freshwater Pearl Mussel Requirement Forms A and B should be included with the application.	NPWS*	**	**	**
2.7	Is the area within a Freshwater Pearl Mussel catchment?	NPWS	**	**	**
2.8	Does the area contain a REPS Plan habitat?	None			
3.	Archaeology				
3.1	Does the area contain an archaeological site or feature with intensive public usage?	NMS,	2 months	2 months	2 months
		Local Authority	4 weeks	4 weeks	
		An Taisce	4 weeks		
3.2	Does the area contain or adjoin a listed archaeological site or monument?	NMS	2 months	2 months	2 months
4.	Landscape				
4.1	Is the area within a prime scenic area in the County Development Plan?	Local Authority,	4 weeks	4 weeks	
		An Taisce	4 weeks		
4.2	Are there any other High Amenity landscape considerations	Local Authority	4 weeks	4 weeks	
5.	Size for Notification to Local Authority				
5.1	Is the area greater than 25.0 ha?	Local Authority	4 weeks	N/a	
6.	Other Environmental Considerations				
6.1	Specify	As necessary	4 weeks	4 weeks	

* Under State Aid rules the Forest Service will cannot approve an application in a designated Natura 2000 site unless the afforestation is consistent with the management objectives of the site and a positive response has been received from NPWS.

**The Department has agreed a referral matrix with NPWS where applications adjoining or upstream of Natura 2000 sites can be assessed for impacts without automatic referral as part of its EIS and AAP screening process

Note: If present, all items listed may require the Forest Service to consult with prescribed bodies. Consultation is dependent on type and scale of operations proposed and determined on a case by case basis. Referral periods listed are the minimum applicable. Other schemes may be subject to the referral process described above on a case by case basis.

Explanatory Notes in Relation to Form 1 Applications

Water quality

Q 1.1 Is the area designated potentially acid sensitive by the Forest Service?

Where proposed planting sites fall into areas designated as acid sensitive by the Department, the water sampling and testing protocol must be consulted and, where appropriate, question 1.1 should be ticked in the yes column. The 6'' Ordnance Survey (scale 1:10,560) map numbers that have been designated in this way are listed in Appendix 15.

Where a site is completely free draining with no aquatic zones (aquatic zones are all streams, rivers and lakes indicated on the 6 inch maps) and therefore cannot provide water samples for testing, it is necessary to establish whether there is an aquatic zone or zones on the same holding down slope from the proposed planting site. If such an aquatic zone exists on the same holding, then sampling and testing for Calcium carbonate (CaCO_3) must be carried out in that zone. If no aquatic zone exists on the holding down slope of the proposed planting site, the protocol does not apply and normal approval procedures apply for that site, subject to inspection and confirmation of such by the Forestry Inspector.

Q 1.2 Is the area > 5 ha and sensitive for fisheries?

Where all three bullet points below are satisfied, Q1.2 should be ticked in the yes column:

- one (or more) aquatic zone(s) (lake, river, or stream shown on a 6'' Ordnance Survey Map, scale 1:10560m or the rivers dataset on iNET) traverses or is adjacent to the proposed planting site
- the proposed planting site is in an area designated as sensitive to fisheries by Inland Fisheries Ireland
- the proposed planting site is greater than 5 hectares.

Registered foresters or applicants may arrange for a notice commenting on the proposed afforestation, and signed by an authorised officer of Inland Fisheries Ireland, to accompany the application in these instances. Otherwise the Forest Service will carry out all necessary consultations. Areas which may be sensitive to fisheries are listed in Appendix 18.

Q 1.3 Is the area non-sensitive for fisheries and > 40.0 ha?

Where all three bullet points below are satisfied, Q1.3 should be ticked in the yes column:

- one (or more) aquatic zone(s) (lake, river, or stream shown on a 6'' Ordnance Survey Map, scale 1:10560m, or the rivers dataset on iNET) traverses or is adjacent to the proposed planting site
- the proposed planting site does not fall into an area designated as sensitive to fisheries by Inland Fisheries Ireland
- the proposed planting site is greater than 40 hectares.

Registered Foresters or applicants may arrange for a notice, signed by an authorised officer of Inland Fisheries Ireland, commenting on the proposed afforestation to accompany the application in these instances. Otherwise the Forest Service will carry out all necessary consultations.

Q 1.4 Is the area > 10.0 ha and within a catchment area of a Local Authority designated water scheme?

Where the proposed planting site falls within a catchment area of a water scheme designated as sensitive to forestry in the County Development Plan and is greater than 10 hectares, question 1.4 should be ticked in the yes column.

Note: It is necessary to adhere to the Forestry and Water Quality Guidelines on all sites, including those that do not have an aquatic zone.

Designated habitats

Q 2.1 Is the area within a NHA, pNHA, SAC, SPA, or National Park? Specify site code(s).

Where the proposed planting site falls within a Natural Heritage Area (NHA), proposed Natural Heritage Area (pNHA), Special Area of Conservation (SAC), Special Protection Area (SPA) or National Park, question 2.1 should be ticked in the “yes” column. A note must be made of the site code or name associated with the NHA, pNHA, SAC, SPA or National Park.

“The conservation of biodiversity in Ireland has been strengthened and expanded by EU law, most notably by the

- *Birds Directive [79/409/EEC as amended 2009/147/EC]*
- *Habitats Directive [92/43/EEC]*
- *Water Framework Directive [2000/60/EC]*
- *EIA Directive [85/337/EEC]*

In 1997, the Habitats Directive was transposed into Irish national law and the relevant Regulations, the European Communities (Natural Habitats) Regulations, SI 94/1997, represent a fundamental shift in nature conservation policy and law. These Regulations have since been amended by SI 233/1998 & SI 378/2005. The Regulations were subsequently revised and consolidated in the European Communities (Birds and Natural Habitats) Regulations 2011, SI 477/2011 (NPWS website)”

The Habitats Directive provides for the establishment of Natura 2000 sites which are composed of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). Further information on designated sites in Ireland is available on the National Parks and Wildlife Service website (www.npws.ie).

All applications within areas designated as a NHA, pNHA, SAC, SPA or National Park must be referred to NPWS for their observations.

Note: Under State Aid rules the Forest Service cannot approve an application in a designated Natura 2000 site unless the afforestation is consistent with the management objectives of the site and a positive response has been received from NPWS.

Q 2.2 If the area is within a NHA, is a completed Notifiable Action Form/Action Requiring Consent Form (consent from National Parks and Wildlife Service) included?

Where the proposed planting is within a NHA, a completed Notifiable Action Form must be included with the application to the Forest Service and Q2.2 should be ticked in the “yes” column.

A dual consent process exists for the planting or cutting of trees within Natural Heritage Areas (NHAs). Therefore an applicant must obtain both the consent of the Minister of Arts, Heritage and the Gaeltacht and the Minister for Agriculture, Food and the Marine. The consent of the Minister of Arts, Heritage and the Gaeltacht is obtained by submitting a Notifiable Action Form/Action Requiring Consent Form (i.e. Application for permission to carry out an operation or activity on a site to which the Wildlife (Amendment) Act 2000 (Section 19) applies) to National Parks and Wildlife Service, who complete the form and return it to the applicant. The Notifiable Action Form is available to download on the NPWS website (www.npws.ie).

Q2.3 If the area is within a Hen Harrier SPA, will operations occur between the 1st of April and the 15th of August inclusive?

The Hen Harrier nesting season is from the 1st of April to the 15th of August inclusive. Where the proposed planting will occur between those dates, question 2.3 should be ticked in the “yes” column.

If mechanical operations are to occur in this time period there is the potential to disturb nesting Hen Harriers and a habitat and/or bird survey may be required.

Q2.4 Is the area within a NPWS referral zone for NHA, pNHA, SAC or SPA? Specify site code(s).

Where the proposed planting site is within a NPWS referral zone (0.5km referral zone or 3km referral zone - upstream and with hydrological connectivity) for a NHA, pNHA, SAC or SPA, question 2.4 should be ticked in the “yes” column. The Forest Service may refer these applications to NPWS for their observations.

Please note that it is an offence to contravene the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) and a person may be liable; on summary conviction to a Class A fine or imprisonment for a term not exceeding six months or both or on conviction on indictment, to a fine not exceeding €500,000 or imprisonment for a term not exceeding three years or both.

See also Forest Service Penalties documentation.

Q2.5 Is the area within 3 km upstream of a NHA, pNHA, SAC, SPA, or National Park? Specify site code(s).

Where the proposed planting site falls within 3 km upstream of a NHA, pNHA, SAC, SPA, or National Park, question 2.5 should be ticked in the “yes” column. The answer to this question will help inform the answer to Q2.4 (i.e. determining whether applications within the NPWS 3 km referral zone are upstream).

Q2.6 Is the area within a Freshwater Pearl Mussel 6km zone? If YES, the Forestry and Freshwater Pearl Mussel Requirements Forms A and B should be included with the application.

The Forestry and Freshwater Pearl Mussel (FPM) Requirements were published in 2008 and apply to all impacting forest operations within the catchments of FPM populations in rivers designated Special Areas of Conservation for the species (27FPM populations, 19 SACs). Table 4 of the

Requirements outlines various catchment sensitivities and specifies the correct element of the Requirements to be applied in each particular instance.

If an application is within a FPM 6km zone and the Requirements apply, Form A (FPM Site Assessment – Site Description) and Form B (FPM Site Assessment – Mitigation Measures) must be submitted with the application. The Forestry and FPM Requirements are available on the Forest Service website:

<http://www.agriculture.gov.ie/forests-service/environmental-information/>

Q2.7 Is the area within a Freshwater Pearl Mussel catchment?

If an application is within the FPM catchment, but not within the FPM 6km zone, the Forestry and FPM Requirements only apply if:

- the application increases the total cumulative area of an operation in a 3 year period to >10% of the FPM catchment
- afforestation application >50ha
- clearfelling >25ha.

Q 2.8 Does the area contain a current REPS habitat?

Where the proposed planting site contains a current or historical REPS habitat, question 2.8 should be ticked in the “yes” column. Please refer to Chapter 13 for further information.

Q 3.1 Does the area contain an archaeological site or feature with intensive public usage?

Where the proposed planting site contains an archaeological site or feature with intensive public usage, question 3.1 should be ticked in the “yes” column and the location of the site appropriately marked on the Biodiversity Map. Although not required, a speedier processing of the application may be facilitated if the archaeological site’s Record of Monument and Places (RMP) number is included in the Biodiversity Map Legend.

Q 3.2 Does the area contain or adjoin a listed archaeological site or monument?

Where the proposed planting site contains or adjoins a listed archaeological site or monument, or an unlisted but suspected archaeological site, question 3.2 should be ticked in the “yes” column and the location of the site appropriately marked on the Biodiversity Map. Although not required, a speedier processing of the application may be facilitated if the archaeological site’s Record of Monument and Places (RMP) number is included in the Biodiversity Map Legend.

Damage to archaeological sites is irreversible. The constraints relating to such sites are summarised in the Forestry and Archaeological Guidelines published by the Forest Service.

Details of the public venues for inspecting the hardcopy Record of Monument and Places (RMP) lists and maps identifying the locations of these sites as well as other sources of information are available from NMS, DAHG (www.archaeology.ie, See also Appendix 19).

The Forestry and Archaeological Guidelines also summarise the actions and reporting procedures that must follow any archaeological find in the course of forestry work, as well as the exclusion zones to be observed around non-archaeological sites.

Landscape

Q 4.1 Is the area within a prime scenic area in the County Development Plan?

Where the proposed planting site falls within an area which (i) is subject to an Area of Special Amenity Order confirmed by the Minister for Arts, Heritage and Gaeltacht, and/or (ii) designated with the highest landscape sensitivity in the County Development Plan (*often classified as Areas of Outstanding Natural Beauty or High Amenity Areas*), the conservation of which is an objective of the County Development Plan, question 4.1 should be ticked in the “yes” column.

Q 4.2 Are there any other High Amenity Landscape considerations?

Where the proposed planting site falls within other landscape categories (e.g. moderate sensitivity) in the County Development Plan, Question 4.2 should be ticked in the “yes” column and a brief note included stating the consideration.

Areas adjacent to the sea, lakes, dwellings or roads are particularly sensitive and special attention should be paid to the Forestry and the Landscape Guidelines in these areas.

Size for notification to Local Authority

Q 5.1 Is the area greater than 25 ha

If the gross area of the proposed planting site is greater than 25 hectares, Question 4.2 should be ticked in the “yes” column.

Other environmental considerations

Q 6.1 Specify

Where there are any other known local historical interests (i.e. old sport fields etc.) water, habitats, archaeology or landscape considerations, or any other environmental considerations not covered above, Question 6.1 should be ticked in the “yes” column. The details of the consideration should be specified.



Photo 13: Environmental considerations such as archaeology, water and landscape must be identified on applications proposed.

13.2 Public Consultation Process

When the Department receives an application under the proposed Afforestation or Road Scheme, a public notice of the application will be placed on the Departments website detailing (i) the contract number of the application; (ii) the location of the proposed afforestation site (Townland and County); and (iii) size of the proposed afforestation project. Applications which require the submission of an EIS to enable the Department to undertake an EIA may also have notices of the application, the EIS, and any significant additional information submitted, placed in one or more local newspapers.

Members of the public, including non-governmental organisations promoting environmental protection, may make a submission or observation in relation to the application within four weeks of the date of publication of the notice. The Forest Service when considering the application must, *inter alia*, have regard to any submission or observation received. When the Forest Service makes a decision on an application, any person or organisation that made a submission will be notified of the decision and the application is held for a further 21 days during which time the person or organisation who made the submission can appeal the decision.

The Department may also consult with relevant consultation bodies including National Parks and Wildlife Service, the National Monuments Service, the Environmental Protection Agency, Inland Fisheries Ireland, the relevant local authority and An Taisce. Other bodies may also be consulted with, as required.

13.3 Appeals Process

This procedure involves an Appeals Committee which considers appeals to Forest Service decisions on afforestation applications.

The Forest Service Appeals Committee was set up on a non-statutory basis to coincide with the introduction of the enhanced consultation procedure referred to earlier. The issue of appeals is currently under review.

Table 31: Other consultation / referral procedures

Areas	Consultation type	Consultation Period
Afforestation of areas of 50ha or more	Mandatory EIA required as per European Communities (Environmental Impact Assessment) Regulations 1989 (S.I. No. 349 of 1989), as amended	N/A
Forest road works exceeding 2,000 meters in length	Mandatory EIA required as per Planning and Development Regulations 2001 (S.I. No. 600 of 2001) as amended by Planning and Development Regulations 2008 (S.I. No. 235 of 2008)	
New entrances onto public roads	Planning permission required	
Areas of all sizes within 60m of a dwelling or associated building	Applicant must consult with owner-occupier of a dwelling.	N/A
Airport	Applications are referred to appropriate aviation authority.	normally 1 month

13.3 Environmental Impact Assessment (EIA)

The EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU) requires that certain types of development must be assessed to determine the likely environmental effect of the development before consent can be granted.

The type of development projects which are covered by the EIA Directive are listed in the Annex I and II of the Directive and includes, inter alia, initial afforestation, deforestation and construction of roads (Annex II).

An Environmental Impact Statement (EIS) is a statement of the effects, if any, which the proposed development, if carried out, would have on the environment. An Environmental Impact Assessment (EIA) is the process of examining the environmental effects of the proposed development (including aspects at design stage, preparation and evaluation) by a competent authority before deciding to approve the EIS or not, and the public response to that decision. (Note: Approval of the EIS does not constitute approval for consent, grant aid or licence.)

The forest consent system operated by the Forest Service provides for an environmental impact assessment to be carried out in certain cases, in accordance with the EIA Directive. The transposing legal instrument in the Irish context is the European Communities (Forest Consent and Assessment) Regulations 2010 (S.I. No. 558 of 2010), as amended (by S.I. No. 442 of 2012) which designates the Minister for Agriculture, Food and the Marine (Forest Service) as the Competent Authority (as defined in the Directive) in such cases.

Under Irish legislation, EIA is mandatory for the following forestry schemes:

- Initial afforestation which would involve an area of 50 hectares or more (*S.I. 349 of 1989, as amended by S.I. 538 of 2001*)
- Private roads which would exceed 2,000 meters in length (*S.I. 600 of 2001, as amended by S.I. No. 235 of 2008*)

Under S.I. 558 of 2010 all applications for approval to carry out afforestation and forest road construction projects above the mandatory thresholds listed above must be accompanied by an EIS to enable the Minister to undertake an EIA of the project.

In addition, the Regulations provide that all afforestation and forest road construction projects below the mandatory thresholds must be screened for EIA by the Forest Service and, where a proposed sub-threshold development is considered likely to have a significant environmental effect, the Minister will request the developer to submit an EIS to enable an EIA to be undertaken.

13.4 Appropriate Assessment Procedure

The Habitats Directive (92/43/EEC) and Birds Directive (2009/147/EC) set out various procedures and obligations regarding nature conservation management in EU Member States, with a strong focus on Natura 2000 sites, i.e. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). A key protective measure required is to undertake an appropriate assessment screening, and if required appropriate Assessment to ensure that any possible nature conservation impacts on a Natura 2000 site arising from a plan or project are considered, before a decision is taken to grant (or refuse) consent for the plan or project.

There are four stages to the Appropriate Assessment Procedure namely:

Stage 1 Screening

Stage 2 Appropriate Assessment

Stage 3 Alternative Solutions

Stage 4 Imperative Reasons of Overriding Public Interest (IROPI)

The Forest Service Appropriate Assessment Procedure (AAP) applies to applications for Forest Service grant schemes, licences and consents in respect of forestry operations within Natura 2000 sites (SAC or SPA) or within the NPWS 0.5 km or 3 km (with hydrological connectivity) referral zone of Natura 2000 sites. Further information is available in the Forest Service Appropriate Assessment Procedure Information Note (see Forest Service website).

13.5 European Communities (Forest Consent and Assessment) Regulations 2010

The **European Communities (Forest Consent and Assessment) Regulations 2010** (S.I. No. 558 of 2010), as amended by the **European Communities (Forest Consent and Assessment) (Amendment) Regulations 2012** (SI 442 of 2012) came into effect from **14th October 2010**.

The Regulations update and replace Part 5 of the European Communities (Environmental Impact Assessment) (Amendment) Regulations 2001 (S.I. No. 538 of 2001) (which have been revoked), to take account of Ireland's obligations under the EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU).

All persons operating in the forestry sector should familiarise themselves with the provisions of these Regulations. They can be purchased from the Government Publications Sales Office or can be viewed at www.irishstatutebook.ie.

The Regulations largely restate the previous provisions contained in S.I. No. 538 of 2001 and introduce a number of new provisions in relation to forest road projects and public participation in the decision making process, along with the introduction of a number of offences and penalties for breaches of the Regulations.

The main changes are summarised below:

13.5.1 Obligation to obtain approval

The obligation to obtain the prior approval of the Minister for Agriculture, Food and the Marine in respect of afforestation (*which was required under S.I. No. 538 of 2001*) has been extended to include "forest road works".

"forest road works" is defined as "*the construction of a forest road or works ancillary to such construction (whether or not such construction involves the removal of trees), but not where such construction consists of the provision of access to a public road*".

"afforestation" is defined "*the conversion of land to a forest with a minimum area of 0.1 hectares and tree crown cover of more than 20 per cent of the total area, or the potential to achieve this cover at maturity*"

It should be noted that the approval of the Minister is required for **ALL** afforestation and forest road construction projects, whether grant aided or not.

Further guidance in relation to approval procedures for forest road projects is provided in the section below

13.5.2 Public Consultation

The Regulations place a statutory obligation on the Minister to notify the public of all applications received and allow the public a minimum of 4 weeks in which to make a submission.

13.5.3 Offences

The Regulation introduces a number of offences, including offences for undertaking afforestation or forest road construction projects without the approval of the Minister.

13.5.4 Penalties

A person who commits an offence under the Regulations is liable to prosecution and may face fines of up to €5,000 on summary conviction or up to €250,000 on conviction on indictment

13.5.5 Directions in respect of certain work

If a development is undertaken without prior approval, the Minister is empowered to direct the landowner to (i) in respect of afforestation, to remove trees planted and (ii) in respect of forest road works, to remove the forest road, and (iii) to restore the land to its condition prior to the commencement of the development.

13.5.6 Further information

Enquiries in relation to the operation of Regulations should be made in writing (by post or e-mail) to:

Approvals Section,
Forest Service,
Department of Agriculture, Food and the Marine,
Johnstown Castle Estate,
Co. Wexford
E-mail: forests@agriculture.gov.ie

13.6 Forest Road Approval System

13.6.1 Guidance for seeking approval for the construction of forest roads

Provisions have been introduced to provide a statutory basis for ensuring that forest road construction projects are assessed in accordance with the requirements of the EIA Directive and are only approved if they will not have a significant environmental impact.

13.6.2 Forest Road Grant Scheme

For forest road works approved under the Forest Road Grant Scheme, the existing environmental assessment and approval procedures operated under the Scheme, will satisfy the requirements of the Regulations as EIA screening and the prior approval of the Minister are already conditions of the Scheme.

The requirement for an EIA for any road construction project equal to or greater than 2,000 metres remains in place.

13.6.3 Other Forest Road projects

Where no grant assistance is being sought in respect of a new forest road development, the developer will need to ensure that the project is undertaken in compliance with the Regulations and that, where required, the prior approval of the Minister is obtained for the development.

Applications for approval of non grant-aided forest road developments are being facilitated via the existing IFORIS iNET system.

13.6.4 Definition of “forest road works”

Under the Regulation,

‘forest road works’ is defined as “the construction of a forest road or works ancillary to such construction (whether or not such construction involves the removal of tree) but not where such construction consists of the provision of access to a public road”.

‘forest road’ is defined as “a road (other than a public road) that serves a forest”

The Regulations apply to all new forest road construction projects and works ancillary to such construction, whether or not a grant is being sought for the development.

It is considered that the following activities do not fall within the scope of the Regulation and do not, therefore, require the prior approval of the Minister:

- a) Construction of forest roads (*including works ancillary to such construction*) where the works commenced before 14th October 2010,
- b) Upgrade or repair to existing roads and works ancillary to such upgrade or repair,

- c) Construction of tracks and paths (*less than 2.9 metres wide*) to facilitate forest management and other forest activities (*but not including new forest roads constructed to a standard which would allow the haulage of timber by lorries*)
- d) Construction of stacking areas (see note below)
- e) Construction of turntables (see note below)
- f) Construction of lay-bys (see note below)
- g) Construction of culverts (see note below)
- h) Tree felling to facilitate or enable road works - This felling is subject to the Forestry Act 1946
- i) Construction of roads constructed for reasons other than to serve a forest (e.g. to serve a wind farm) Note: Permission under the Planning and Development Act 2000 may be required for such roads.
- j) The extension of an existing forest road by up to one third of its length, provided any such extension does not exceed 90 metres, but excluding any extension that would be situated in an SAC, SPA, pNHA or NHA, or is within 100 metres of:
 - *A Registered Historic Monument or Archaeological Area under Section 5 of the National Monuments (Amendment) Act 1987*
 - *A Recorded Monument under Section 12 of the National Monuments (Amendment) Act 1994*
 - *A National Monument in State or Local Authority ownership or guardianship or with a Preservation Order under the National Monuments Acts 1930-2004*

Note: The works listed d, e, f and g above will require approval if undertaken as part of the construction of a new forest road and are ancillary to such construction or if situated in an SAC, SPA, pNHA or NHA, or is within 100 metres of:

- *A Registered Historic Monument or Archaeological Area under Section 5 of the National Monuments (Amendment) Act 1987*
- *A Recorded Monument under Section 12 of the National Monuments (Amendment) Act 1994*
- *A National Monument in State or Local Authority ownership or guardianship or with a Preservation Order under the National Monuments Acts 1930-2004*

13.6.5 Definition of “works ancillary to road construction”

This definition includes:

- Construction of stacking areas, turntables, lay-bys, bridges and culverts that are constructed as part of the construction of a forest road
- Road formation (construction of road base)
- Barrow pits (sources of road material that do not require planning permission) on lands adjoining the road construction site

It is envisaged that, as the approval system evolves, further clarification may be issued, as required, in relation to the operation of the Regulations and their impact of forest road projects.



Photo 14: Forest roads are required to transport timber to markets

14. Interaction of Afforestation Scheme with Agriculture Schemes

14.1 REPS (Rural Environmental Protection Scheme)

The REPS Scheme was closed to new applicants in April 2009. However, a significant number of applicants successfully entered REPS 4 whose participation in that Scheme will continue up to the end of 2015. The Forest Environment Protection Scheme (FEPS) is now closed to new applicants but the scheme will continue for existing FEPS applicants for the term of their FEPS contracts and for as long as they remain in REPS. If the site proposed for afforestation contains a current or former REPS habitat (Question 2.3 on page 3 of Form 1 is ticked 'yes') the registered forester must state the type of habitat.

14.2 GLAS (Green, Low-Carbon, Agri-Environment Scheme)

GLAS is the proposed agri-environment scheme, which is part of the Rural Development Programme 2014-2020. Unlike REPS and FEPS there will be no additional payments where a landowner plants land and subsequently joins GLAS. Further information on this scheme can be obtained by contacting the Department of Agriculture, Johnstown Castle, Co. Wexford.

14.3 Early Retirement Scheme (ERS)

The Early Retirement Scheme (ERS) is now closed to new entrants. However, the following general rules apply to participants who retired under that Scheme.

A transferor (i.e. the farmer retiring under ERS) who already had forest land planted before retiring from farming and is entitled to a forestry premium may retain that land and continue to receive the premium. If this forest land is transferred with the holding, the transferee who obtains it can apply for the premium (see Chapter section 3.6 for further information on change of ownership).

The question also arises as to whether someone involved in ERS can plant under the new Forestry Programme. First of all it is important to remember that when a farmer is approved under the Early Retirement Scheme he/she agrees to stop all agricultural activity definitively i.e. he/she will not resume agricultural activity at any future date. To be compliant with the scheme his transferee would have to be actively farming the pension lands therefore the transferor could not plant the land if this were the case. However, if he/she is finished in ERS he/she can plant the land under the afforestation scheme. This would typically occur when the land has been leased and returns to the transferor. In this situation no penalties would occur in relation to the Early Retirement Scheme.

Furthermore if the ERS pensioner during the pension period, acquires additional non pension lands, he/she can plant the additional non pension lands.

14.4 Basic Payment Scheme

Following changes to EU Regulations governing the Single Payment System now called the Basic Payment Scheme, land which was afforested since 2009 is eligible to draw down a SPS payment provided that the afforested land meets the following requirements:

- The land to be afforested was declared on a 2008 SPS application form;

- The applicant who declared that land on a 2008 SPS application form was paid under the 2008 Single Payment Scheme;
- The land to be afforested was eligible to draw down an SPS payment in 2008.

Applicants who afforest part of their holding from 2009 onwards, and wish to benefit from the Basic Payment, must retain at least 10% of the eligible hectares declared in 2008 (by the applicant or their predecessor) in an agricultural activity subject to a minimum of 3 hectares.

If the applicant is a new entrant to farming, the minimum area to be retained in an agricultural activity will be fixed by the Department on a case by case basis. Applicants who wish to benefit from the Basic Payment on afforested land must be the person or persons in joint management or in receipt of an afforestation premium. This applies to members of the same family. The afforested land must meet all the requirements of the Afforestation Scheme. Eligible forestry parcels that are declared on BPS applications to activate entitlements will also be subject to cross-compliance requirements.

Appendix 1: Provenance Declaration Form

Appendix 1: PROVENANCE DECLARATION FORM (For use with Forest Service Grant Schemes)

PART A Supplier's Document (To be completed by the Nursery/Supplier -Issued in accordance with Council Directive 1999/105/EC)

Supplier's Official Registration Number: Supplier's Document Number:

Species: Common Name: _____ Botanical Name: _____

Master Certificate of Provenance Number : _____ Country of Issue: _____

Note: The Master Certificate of Provenance Number refers to the number of the original seed Certificate of Provenance issued by a designated National Regulatory Authority.

Provenance Details : Country: _____ Provenance: _____

Origin: Indigenous ☐ Unknown ☐ If Non-Indigenous: Country: _____ Region: _____

Category: Source Identified ☐ Selected ☐ Qualified/ Untested Seed Orchard ☐ Tested ☐ Less stringent requirements/Derogation ☐

Type of Basic Material: Seed source ☐ Stand ☐ Seed Orchard ☐ Parents of families ☐ Clone ☐ Clonal mixture ☐

National Register Reference or identity code for region of provenance: _____

Purpose: Multifunctional forestry ☐ Other specific purposes (please indicate) ☐ _____

Length of time in nursery and production type: _____

Unique identity/batch no. assigned by the Supplier: _____ Quantity dispatched: _____ Date of Dispatch: _____

Name and Address of Purchaser: _____

Delivery Address (if different): _____

Plant Passport Details (where applicable): EU Plant Passport IRL/DAF/Registration Number: _____ PZ Code: _____

Replacement Passport Details: Country: _____ Reg. No: _____ Batch No: _____

It is hereby declared that all of the above details are correct, that the origin/provenance complies with the accepted origin/provenance list in the Forest Service Forestry Schemes Manual and/or The Native Woodland Scheme Manual, and that where applicable the original Supplier's document is available for inspection.

Name and address of Nursery/Supplier: _____

Authorised Person: _____

Authorised Person's signature: _____

Date: _____

Nursery/Supplier Stamp

PART B To be completed by the Contractor/Applicant

Contract No: Applicant's Name: _____

PART A is an Original: ☐ PART A is a Photocopy: ☐

This Provenance Declaration Form accounts for:

All of the trees planted of the above species on this contract: ☐ **Part** of the quantity planted of the above species on this contract: ☐

If **Part** indicate the number planted and complete a separate Provenance Declaration Form for the remainder:

If **Part** state the Plot Number(s) applicable to this Provenance Declaration Form:

It is hereby declared that all of the above provenance details for the above contract are correct and that where the Nursery/Supplier Declaration (Part A) is a copy the original is available for inspection.

Applicant's signature: _____

or

Name of Contractor: _____

Contractor's Authorised Person: _____

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Authorised Person's signature: _____

Date: _____

Contractor Stamp (where applicable)

Appendix 2: Mandate of Grants

Mandates /assignments of payments to Registered Foresters / Forestry Companies must comply with the following:

- 1 All mandate / assignment forms must be properly and fully completed, signed and dated.
- 2 The file reference (Contract number), location (townland and county) and the area (hectares) of the development must be stated.
- 3 The parties referred to in the mandate / assignment must be clearly identified.
- 4 The signature of the grant applicant should be independently witnessed on the form.
- 5 The mandate / assignment should also be signed by the party in whose favour it is made. In the case of a company, the mandate / assignment must be signed by the company secretary and must bear the company seal.
- 6 The mandate / assignment must include the following sentence:- *“This mandate / assignment in favour of ‘X’ applies only on the satisfactory completion of the work by ‘X’.”*
- 7 The mandate / assignment must state clearly whether one or both instalments of the grant is referred to.
- 8 The grant applicant should be independently advised as to the nature and extent of the mandate / assignment and the following sentence included:- *“I have been independently advised as to the nature and extent of this mandate / assignment and I am aware of its contents”* or *“I have been given an opportunity to seek independent advice”*.
- 9 The mandate / assignment should state when and how it expires and if and how it can be terminated.
- 10 All mandates / assignments should include the following disclaimer signed by the grant applicant and the party in whose favour it is:-

“ I understand that should the Minister fail to make payments in accordance with this mandate / assignment (when they become certified as due) no liability whatsoever shall attach to the Minister and the applicant hereby indemnifies and keeps indemnified the Minister in respect of all claims, losses and damages howsoever arising there from.”

Appendix 3: Mandate /Assignment of Grant to Registered Forester/Company

(Sample)

Forest Service Contract No.

WHEREAS I/We _____ (Name of Applicant)

Of _____

Have applied to the Department of Agriculture, Food and the Marine (Forest Service) for a Forestry Grant in respect of my / our Forestry Development more particularly described in Part 1 of the Schedule hereto.

NOW I / WE FURTHER AUTHORISE AND DIRECT the Department of Agriculture, Food and the Marine (Forest Service) (or the Minister from time to time responsible for the administration of the scheme of Forestry Grants) to pay the Afforestation / 2nd Instalment Grant Moieties as specified in Part 2 of the Schedule hereto to

(Name of Company)

I/WE FURTHER AUTHORISE AND DIRECT the Department of Agriculture, Food and the Marine (Forest Service) to accept and abide by any notice from this company calling for payment of such Grant monies.

This Authorization is irrevocable without the prior written consent of _____ (the Company)

This Mandate / Assignment in favour of _____ (the Company) applies only on

satisfactory completion of the work by _____ (the Company aforementioned)

I have been independently advised as to the nature and extent of this mandate / assignment and I am aware of its contents.

I understand that should the Minister fail to make payments in accordance with this mandate / assignment (when they become certified as due) no liability whatsoever shall attach to him and the applicant* hereby indemnifies and keeps indemnified the Minister in respect of all claims, losses and damages howsoever arising there from.

**alternatively the Company may indemnify the Minister in this regard.*

Signature of Applicant _____

Signature on behalf of the Company _____

SCHEDULE

Part 1: Description of Development : Approx _____ hectares at _____ County _____

Part 2: Afforestation Grant 2nd Instalment Grant

Signed (Applicant) _____ **Date** _____

Address: _____

Independent Witness _____ **Date** _____

FOR COMPLETION BY COMPANY

We hereby authorise and direct the Department of Agriculture, Food and the Marine (Forest Service) to pay the afforestation / 2nd Instalment (*delete as appropriate*) grant monies for the above development direct to:

BANK ACCOUNT NO: _____

BANK NAME: _____

BANK SORT CODE: _____

BaBA _____

SORT

Signed: _____ Date: _____

(To be signed by the Company Secretary)

Name(Block Capitals) _____

Company Seal

Appendix 4: Management plan (Form 2)

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FOREST MANAGEMENT OBJECTIVE

Forest management Objective	
<input type="checkbox"/>	1 Commercial timber production while adhering to principles of SFM
<input type="checkbox"/>	2 Provide commercial non timber benefits
<input type="checkbox"/>	3 Provide environmental benefits and services
Other: _____	

FOREST MANAGMENT PLAN DETAIL

[illegible]

Forest Type The user is prompted by a drop down menu and/or check box to select the most appropriate category to describe the plot. Only one forest type is allowed per plot / sub-compartment. These are:-

BHF	Broadleaf High Forest
CHF	Conifer High Forest
COP	Coppice forest
MHF	Mixed High Forest
NON	Non forest area

Mgmt Obj This refers to the primary management objective for the plot. It can be different to the overall high level objective for the forest. The user is prompted by a drop down menu to select one objective. The possibilities are:-

Biodiversity - Areas managed for biodiversity
Hunting - Includes areas managed for hunting and sporting leases
Landscape - Areas managed primarily for landscape purposes
Protection - Includes buffer areas around features (excludes water)
Recreation - Areas managed primarily for the provision of recreation
Riparian -Protection of water quality including riparian buffer zones
Timber - Primary purpose is production of saleable timber
Other - None of the above and the user can specify

Plan Yr The system should provide a drop down list of 12 individual years from the current year in question e.g. 2014 to 2025 from which the user selects one.

1st Act/2nd Act A list of activities with associated heading (in red) follows:

Aerial Fert *
Drain Repairs
Fence Repairs
Fertilise
Firelines
Harvesting *
Inventory
None
Other
Paths
Protection
Pruning
Road Constr *
Road Upgrade
Road Repairs
Shaping

First Thin This is the year when it is planned to undertake the first thinning or in the case of thinned crops the year in which the first thinning took place or is estimated to have taken place. The user is prompted to enter a year which is a four digit numeric value.

Rot Type The user is prompted to select a value from a drop down list. There are six possibilities. **MMAI** is the rotation of maximum mean annual increment and is equivalent to the rotation of maximum volume production. **Standard** is the rotation age specified by the Forest Service in the late 1970s and is age of MMAI¹ less 20% for Sitka and Norway, age of MMAI less 30% for Lodgepole and age of MMAI for all other conifer species. It was an approximation of the financial rotation. As there was no Standard rotation for broadleaves specified at that time, the rotation of MMAI is taken by default as the nearest approximation. As the values for Standard have not been revised, it would be prudent to undertake such a review prior to the implementation of the FMP. **Reduced** is a rotation less than standard (-2 or more) and is usually prescribed due to concerns about crop stability. **Technical** is a technical rotation which is normally prescribed in order to produce a standard product or tree size at the age of clearfell e.g. rotation to produce 0.7m³ average tree size at clearfell. **CCF** indicates continuous forest cover and as such it is not a rotation type but classifies the plot / sub-compartment as never being felled but rather under a continuous thinning regime. **Extended** indicates an extended rotation (+ 4 years or more) over a standard rotation. This could be for a variety of reasons including landscape, biodiversity or to await the felling of a more attractive adjoining or close by area.

MMAI
Standard
Reduced
Technical
Extended
CCF

Fell Year Once the user has selected the rotation type, they are prompted to enter a fell year.

Timing This indicates at what time during the year the planned harvesting can take place. Some sites due to a combination of soils, site factors can only be thinned during summer months, while others due to restrictions around designated areas and protected species and/or protected habitats can only be harvested at specific times during the year (summer or winter). The user should select the relevant timing of harvesting from a drop down list. There are three possibilities - Summer, Winter and All Year.

Road Status This indicates whether there is adequate/sufficient roading to allow the harvesting to take place. There are two possibilities. **Adequate** means that there is sufficient roading infrastructure for the planned harvesting to go ahead. **Inadequate** means that harvesting cannot proceed until such time the either (a) the roading infrastructure is upgraded to a sufficient standard e.g. an existing track is upgraded to a road or a ROW or (b) a new road is constructed.

Harvest Area This is an estimate of the percentage of the plot area that will be subject to harvesting. This can vary from 100% to as low as perhaps 50% for a number of reasons. The user is prompted to select a value from a drop down list within the range 50 to 100 in five point intervals.

¹ The age when the mean annual increment is at a maximum i.e. volume production is maximised

Appendix 5: Management Plan Year 12 – End of Rotation

An online Management Plan will be developed by the Department following recommendations from the COFORD Forest Management Plan Working Group. Existing templates will be replaced as soon as the online system is available

Appendix 6: Certification of Land Transfer
(to be completed by a Solicitor)

To: Minister for Agriculture, Food & the Marine
Forest Service

Contract Ref

The transfer of lands in Folio(s) _____, County _____
from _____ to _____
was effected on _____ (see attached copy of Deed of Transfer and Map)

I hereby certify that:

The Deed of Transfer* / Assent & Application* has been submitted to the Revenue Commissioners for stamping and I undertake to submit it to the Property Registration Authority of Ireland for registration in the current owner's name as soon as it is returned by the Revenue Commissioners.

☐

Or

The Deed of Transfer* / Assent & Application* has been submitted to the Property Registration Authority of Ireland for registration in the current owners name.

☐

** Please delete as appropriate and Please tick appropriate box above*

I undertake to forward certified copies of Folio(s) registered in the name of the new owner(s) to the Forest Service as soon as they become available.

My/Our firm currently holds Professional Indemnity Insurance Cover with a qualified Insurer as defined under Statutory Instrument No. 312 of 1995.

Signed

Solicitor for Purchaser

Name of Solicitor _____

Name of Firm _____

Date: _____

Solicitor Stamp

Appendix 7: Commonage Consent Form

To: Minister for Agriculture, Food and the Marine

We, the undersigned, are the registered owners of the Commonage property described in the Schedule below.

Name	Address	Signature	Date

We hereby consent to the application made to the Forest Service for an Afforestation Grant* in respect of the parcel of land(s) described in the schedule below on our behalf by -

Name :	
Address :	
County :	

**Note: Each of the owners of commonage may apply for payment of forest premium in his/her own behalf*

SCHEDULE

Area (ha)	
Townland(s)	
District Electoral Division	
County	
Folio Number(s)	
Registry of Deeds	

The commonage property is described in the schedule above and delineated on the map attached with the boundaries marked in red.

Signed and Sealed in my presence _____ Date _____
(Signature of Solicitor)

Name of Solicitor _____

Address : _____

Solicitor's stamp

Appendix 8: Joint Management Consent Form

Department of Agriculture, Food and the Marine

J M C Form

CONSENT by LAND OWNER/s for an immediate family member* to use the land for purposes of the forestry Schemes. The Applicant shall be the sole claimant for payments under the Schemes.

Contract Ref.

I / We (NAME/S IN CAPITALS) _____

as owner /s of the lands covered in Folio number/s _____

in the Townland of _____, Co. _____

including the _____ hectares planted or to be planted under the Afforestation // NWS

Schemes, hereby consent to the acceptance by the Department of claims for payment of forestry

grants and premiums by the **applicant named overleaf**, who will jointly manage the plantation

and who is my/our (*state relationship to owner/s*) _____

DECLARATIONS AND UNDERTAKINGS BY THE OWNER/s of the LAND

I declare that -

I am over 18 years of age

I have read and understood the conditions of the scheme and the Notes overleaf

I hold a current tax clearance certificate, enclosed herewith, valid until

The details which appear on this form are correct to the best of my knowledge

I understand that all plantations in the State are protected under the Forestry Act 1946.

I undertake -

to notify the Department in advance of offering any part of the planted land for sale or if ownership is to be transferred for any reason

ultimate liability to repay the Department if grants or premiums have to be recovered from the Applicant for failing to meet the conditions of the Schemes, or if, on change of ownership during the term of the scheme, new owners do not commit to observe all of the same conditions.

Signed _____ PPS No. _____ Date _____
Owner of the Lands *Owner's PPS No.*

Signed _____ PPS No. _____ Date _____
Owner of the Lands *Owner's PPS No.*

Address : _____

Herd Number (if any) _____

* Under these Schemes **immediate family** means only: Husband / Wife / Father / Mother / Son / Daughter / Sister / Brother

PLEASE COMPLETE OVERLEAF

Applicant (the joint manager who will claim the grants & premiums in his / her own name)

Name _____

Address _____

Herd No. _____

Notes

1. A separate JMC Form is to be completed by each owner named on the folio/s, except for joint full owners who should use a single JMC form.
2. JMC arrangements are allowed only between members of the immediate family of the landowner/s defined for these schemes as only: Husband / Wife / Father / Mother / Son / Daughter / Sister / Brother
3. The person named as Joint Manager will be registered as Applicant under the Scheme(s). As such, all correspondence and claim forms will issue to him /her. The Department will not normally contact the landowner/s, except in the case of debt being declared against the Applicant for breach of the Scheme(s).
4. The land owners shall be ultimately liable for any debts incurred under the schemes by the Applicant if the Applicant fails to repay such debts. Debts due to the Department may be recovered by offsetting them against payments due to the customer under any other scheme administered by the Department.
5. Land owner/s who wish to end a Joint Management arrangement should give written notice to the Department. Such termination will be accepted only if the land owner/s sign the necessary commitment to take over the obligations of the scheme to maintain the plantation for the remainder of the term and to repay all grants and premiums already paid in the event of breach of the terms of the scheme.
6. No ineligible claim for payment on the afforested area may be made under other area-based schemes.

As this Consent to Payment involves matters of legal title it must be witnessed by your Solicitor.

Witness _____ Date _____

Solicitor's signature

Name _____

Name of Firm _____

Address _____

Solicitor's stamp

Appendix 9: Release of Turbary Rights Consent Form

To be completed by the holder/s of turbary rights to enable the registered owner/s to afforest the land under the Forest Service Grants and Premiums Scheme

I, _____ (Holder of the Turbary Rights)
Address _____
County _____

being the successor in title of _____ to whom the turbary rights over the property described in the Schedule hereto were allocated by the Congested Districts Board for Ireland in or around the year 1817 hereby **TRANSFER, ASSIGN AND RELEASE** all my right title estate and interest in and to the said turbary rights to

Name _____
Address _____
County _____

who is the registered owner of the property described in Folio No. _____ of the Register of County _____.

SCHEDULE

ALL THAT part of the lands of _____ (townland) more particularly described and delineated on the map thereof annexed hereto and thereon edged yellow and numbered _____

Signed and Sealed by the said _____
(Holder/s of Turbary Rights)

Dated this _____ day of _____, in the year _____.

As this consent form concerns legal title to lands it must be witnessed by a Solicitor.

Witness _____ Date _____
Signature of Solicitor

Solicitor's Name _____
Name of Firm _____
Address _____
County _____

Appendix 10: Release of Grazing Rights Consent Form

To be completed by the holder/s of grazing rights to enable the registered owner/s to afforest the land under the Forest Service Grants and Premiums Scheme

I, _____ (Holder of the Grazing Rights)
Address _____
County _____

being the successor in title of _____ to whom the grazing rights over the property described in the Schedule hereto were allocated by the Congested Districts Board for Ireland in or around the year 1817 hereby **TRANSFER, ASSIGN AND RELEASE** all my right title estate and interest in and to the said grazing rights to

Name _____
Address _____
County _____

who is the registered owner of the property described in Folio No. _____ of the Register of County _____.

SCHEDULE

ALL THAT part of the lands of _____ (townland) more particularly described and delineated on the map thereof annexed hereto and thereon edged yellow and numbered _____

Signed and Sealed by the said _____
(Holder/s of Grazing Rights)

Dated this _____ day of _____, in the year _____

As this consent form concerns legal title to lands it must be witnessed by a Solicitor.

Witness _____ Date _____
Signature of Solicitor

Solicitor's Name _____
Name of Firm _____
Address _____
County _____

Appendix 11: Land Types for Afforestation

Introduction

Forest Service afforestation scheme provide premiums to incentivise the planting of agricultural land. The different rates of premium available under these GPC's schemes reflect differences in existing levels of agricultural output associated with land quality.

Agricultural land in Ireland can be broadly divided into two types: (i) enclosed/improved land and (ii) unenclosed/unimproved land. While most land will clearly be in one type or the other, borderline cases will arise. These borderline cases must be ascribed to one or the other type, based on which of the following definitions most applies.

Enclosed/Improved (E/I) land

The E/I land type generally includes land that is enclosed and improved for agricultural use by cultivation and manuring, and which is completely surrounded by man-made boundaries. These lands are usually shown as being enclosed on 6 inch Ordinance Survey maps (1:10,560), and this can be indicative of existing agricultural use.

E/I land includes land that has been under intensive agricultural use since prior to 1st January 2004 and carries vegetation predominately of pasture grasses and herbaceous plants. On wet soils, there may be a high proportion of rushes. E/I land is typically associated with fertile soil types suitable for a wide range of tree species, and will normally have a plough layer in the soil profile, i.e. a distinctive dark surface horizon in which organic matter has been incorporated with mineral matter. Vegetation on E/I land will typically be that associated with commercial agricultural use, e.g. pasture, grass-herb, grass-rush, tillage crops.

This land type may also include grass lands which have partly reverted to bracken and furze. Recent tillage land would also be included in this type. E/I land type does not normally require phosphorus fertiliser for successful tree growth. Enclosed agricultural land on midland fen peats currently in grass may require an application of potassium and is eligible to be considered as E/I land.

E/I land can be considered for Grant & Premium Categories (GPCs) 2 to 12. The higher rates of premium associated with these GPCs reflect the existing levels of agricultural output forgone if these lands were afforested.

Unenclosed/Unimproved (U/U) land

U/U land is normally associated with peat soils or other poor soils and includes areas that have not been cultivated or brought under intensive commercial agricultural use successfully over a sustained period. These lands are generally used for extensive grazing and have low levels of existing agricultural productivity. In practice, almost all land not classifiable as E/I will be U/U land.

The U/U land type generally includes sites with natural vegetation associated with heath land or peat land, e.g. Purple Moor Grass (*Molinia caerulea*), Cross Leaved Heath (*Erica tetralix*), Ling heather (*Caluna vulgaris*), Moss (*Sphagnum* and *Hylocomium* spp.), Cotton grass (*Eriophorum vaginatum*), Deergrass (*Trichophorum caespitosum*), Black bog rush (*Shoenus nigricans*), Bilberry (*Vaccinium* spp.), Sedge (*Carex* spp.), Bog Myrtle (*Myrica gale*). The presence and distribution of certain species are indicative of a site's low fertility. Land which met the definition

of E/I above at some point in the past but which has since reverted or is reverting to the original natural vegetation (excluding rushes / bracken / gorse in fields enclosed by banks, walls or ditches) in most of the sward will also be classified as U/U land.

As phosphorus is often deficient on U/U land, this land type will normally require an application of phosphorus fertiliser at establishment for successful tree growth. Nitrogen may also be deficient on many U/U sites.

Former U/U land that has been modified (e.g. by ploughing, re-seeding, fertilising, by enclosing by fencing) since 1st January 2004 may not be classified as E/I land for the purpose of the Department's afforestation schemes.

U/U land can be considered for GPC 1. The premium rate associated with GPC 1 reflects the current low levels of agricultural output forgone if these lands were afforested.

Lands not eligible for grant aid (under GPC 1 to 12)

For the purposes of the afforestation schemes, E/I land or U/U land generally not eligible for grant aid under any GPC on silvicultural or environmental grounds include the following:

- High elevation areas over 300 m above sea level in the west and over 400 m above sea level in the east of Ireland
- Infertile blanket and midland raised bogs, e.g. vegetation predominately consisting of heather (*Calluna vulgaris*), bog cotton (*Eriophorum vaginatum*), deergrass (*Trichophorum caespitosum*-formerly called *Scirpus caespitosus*) and sphagnum, and also vegetation – often pool studded. Also containing sundews (*Drosera rotundifolia*) and Bog asphodel (*Narthecium ossifragum*)
- Unmodified raised bogs.
- Designated blanket and raised bogs.
- Plots with rock outcrop and associated shallow soils in excess of 25% of the plot area.
- Severely exposed sites and some sea facing locations.
- All areas outlined in the Forestry Standards and Procedures Manual as being ineligible for grant aid, e.g. shell marl or sites which cannot be adequately drained.
- Sites not capable of producing a commercial crop of timber. The land must be capable of producing at least yield class 14 for Sitka spruce. The use of Sitka spruce as an indicator species recognises that other conifers may not achieve the same level of production on the same site.
- Very poor U/U sites where a standard application of phosphorus fertiliser (e.g. 350 kg/ha GRP) at the time of establishment is unlikely to provide sufficient phosphorus input to bring the forest to full rotation. (A split application not exceeding a total of 400 kg /ha GRP would be acceptable instead, within the establishment period).
- Sites where it is not practical to access or construct forest roads to facilitate the harvesting of timber to a suitable public road network. Cooperative roads and shared access routes may allow difficult sites to be considered for approval on application.

Mapping conventions

The Forest Service mapping conventions apply to all afforestation applications submitted for consent or grant aid. Any U/U area 0.2 ha or greater must be mapped and numbered as a separate plot and claimed as GPC 1. For example, a 2.0 ha area containing a section of 0.2 ha of U/U land and 1.8 ha of E/I land must be mapped as two separate plots. Areas of a land type less than 0.2 ha should be ascribed the neighbouring land type.

Appendix 12: Shell Marl and Calcareous Soils

Deposits of marl and calcareous mud in flat area surrounded by limestone are often found beneath midland peats. Trees planted where the rooting zone is influenced by marl rarely thrive and there is no technique known by which this condition can be overcome.

Marl is recognised when moist by its olive to pale olive colour, ranging through light grey to white, and its softness. When it is dry it is whitish in colour, of friable consistency and powdery. It effervesces strongly and audibly when treated with dilute (10%) hydrochloric acid (HCL). Marl varies in depth from around one centimetre to two metres and generally, but not always, contains quantities of small shells. Marls have pH values in the region of 8.0. Marl occurs as deposits over calcareous silty clays or boulder till. It also occurs as layers or lenses (discontinuous layers) of varying thickness within peat horizons. Calcareous muds contain variable quantities of organic matter and, because of this, are usually darker in colour than the whitish coloured marls.

Marls and calcareous muds were formed in lime-rich post-glacial fresh water lakes through the precipitation of calcium carbonate by species of Characeae (stoneworts) and Potamogeton (pondweed). The plants became coated with calcium carbonate and, with their death and decay, the calcareous material accumulated on the lake bottom.

Where marl occurs within 70 cm of the soil surface, the site is classed as unplantable. Marl may not always be detectable by means of the standard peat sampler, particularly where it occurs in the form of intra-peat layers or lenses, but is easily seen and identified in stream-banks, drains or other excavations.

Other mineral horizon, not being marl or calcareous mud, but which are to a greater or lesser extent calcareous, may be found under peat, or under various mineral soils. If such material, displaying vigorous effervescence when treated with 10% HCL, occurs within the rooting zone (50 cm approximately), then the surface and sub-surface horizons should be assessed for pH and CaCO_3 . Soil samples should be collected by a registered forester and assessed by an accredited forest soils laboratory. Sampling should distinguish between visibly different soil horizons, and each sample for the laboratory should be made up of at least 12-15 sub-samples and should be fully representative of the site and horizon being sampled. A careful description of all aspects of the sampling procedure should be recorded. Consult the laboratory before collecting the samples. Subsequent selection of species should reflect the laboratory results.



Photo 13: Soil core displaying vigorous effervescence with 10% HCL

Appendix 13: Soil Sampling Procedures

1. The area to be sampled should be divided into homogeneous soil sampling units (SSU) based on soil type, distinct differences in vegetation or obvious site boundaries. Note that each SSU should be sampled separately.
2. The total area under the proposal should be marked on an 6 “ OS map or 1:5,000 scale, clearly indicating the pattern of sampling and which samples are representative of the SSU(s) sampled.
3. For each SSU, if there are clearly defined soil horizons evident, sample each horizon separately. Otherwise, take separate samples from the layers 0-20cm (surface) and 20–40cm (sub- surface).
4. From each horizon or layer, collect samples from at least 12–15 locations within the SSU. Each of these is treated as a sub-sample.
5. Record the depth of any apparent calcareous layer in the soil profile.
6. Collect the sub- samples by travelling across the area to be sampled using a zigzag or “S” shaped route. All sampling locations should be identified on ½ “ OS map, if available.
7. Making sure to keep the samples from the different horizon or layers separate, combine the 12–15 sub-samples from the same horizon or layer in a large clean bag and mix thoroughly. Clearly label the sample bags with an indelible black marker. Repeat this process for each horizon or layer sampled.
8. For each horizon or layer, take a portion of the mixed sub-samples, at least 100g, and submit to the laboratory with the completed sample background form (see below).
9. The samples should be assessed in the laboratory for at least pH (in water), calcium (after extraction with 2.5 % acetic acid and reported on a dry weight basis @ 105 degrees C) and free CaCO₃.
10. Sampling should be done preferably by a registered forester, who is fully acquainted with the recognised and accepted forestry soil sampling techniques.
11. A brief interpretative and advisory report is required, based on the laboratory test report received on the submitted samples, assessing site suitability for commercial forest planting, species recommendations and site cultivation/drainage requirements signed by a professional forest nutrition & soil expert.
12. The following information must be forwarded to Forest Service, Johnstown Castle, Co Wexford;
 - A copy of the fully completed soil sampling form and the soil sampling map showing the sampling areas or units. Each sample must be related to a plot number and each zone of sampling clearly identified.
 - A copy of the laboratory soil analysis report plus advisory report.
13. The procedures, as outlined above, do not cover highly disturbed soil types, e.g. land fill, or where there has been extensive reclamation, levelling, drainage or disturbance of some kind. In such instances, the sampler will need to consult with a forest soil and nutrition expert on the best soil sampling procedures to be adopted. Contact details for specialist consultancy services on forest soils and nutrition are provided below.

Explanatory Notes

If the crop fails or does not perform satisfactorily and this performance is shown to be related to soil conditions, then the soil sampling procedures and analysis will be questioned. The responsibility rests with the land owner, the site developer, soil sampler and the soil analysis laboratory. Because of the possibility of crop failure, it is recommended that an independent third party take the initial soil samples.

Where considered necessary, the Forest Service may conduct its own independent site investigation, including soil sampling and testing of the problematic site. Should the review findings be at variance with the initial assessment conducted by the land owner, he/she will be advised by the Forest Service.

The “*Terms & Conditions For the Registration of Foresters and Forestry Companies*” detail various sanctions which may be applied if an application, and accompanying information, was not in accordance with scheme requirements, guidelines and procedures.

Furthermore if, in the opinion of Forest Service, the land does not have the potential to produce a crop of minimum YC 14 Sitka Spruce, grant aid and premiums will have to be refunded to the Department.

The following forest soil laboratory offers a soil analysis service.

Southern Scientific Services Ltd
Dunrine
Killarney
County Kerry
Tel: 064 6633922

James Hutton Institute
Craigiebuckler
Aberdeen AB15 8QH
Scotland UK Tel: +44 (0)844 928 5428.
Fax: +44 (0)844 928 5429

The Forest Service will accept other accredited laboratories which carry out analysis soils using the preferred Macaulay Extraction method i.e. extraction using with 2.5% Acetic Acid and reported on a dry weight basis @105 degrees C.

Specialist Consultancy Services on Forest Soils and Nutrition are available from the following contacts:

Dr. Michael Carey, M.S.I.F.
Forestry & Management Consultant
Furze Lodge
Newcastle
Greystones
Co. Wicklow

Richard MacCarthy, BSc(For.), MSc(For.), PhD.
Specialist Consultant in Forest Soils, Nutrition & Environment
31 Sidmonton Gardens
Bray
Co. Wicklow

Tel: 01 2811217
Mob: 087 2381060
Fax: 01 2811217
E-mail: careym@eircom.net

Tel: 01 2867902
Mob: 086 2481847
Fax: 01 2811217
E-mail: richmac20@gmail.com

Other specialist consultants’ in Forest Soils and Nutrition can contact the Forest Service for inclusion in subsequent editions of this manual.

SOIL SAMPLING FORM

CLIENT DETAILS

Name & Address (client receiving report/Invoice)		
Telephone No.	Email:	Mobile No.
Your Reference	Contract No.	
Sampled by		Date Sampled
Townland		OS Grid Ref.
Name of Registered Forester	Name & Address of land Owner (if different):	

SITE DETAILS

Is it currently planted?	Year planted?	What species?
Area: (Ha)		
Dominant Ground Vegetation	Grass <input type="checkbox"/> Grass/Rush <input type="checkbox"/> Sedge rush <input type="checkbox"/> Bracken/Briar <input type="checkbox"/> Molinia/Calluna <input type="checkbox"/> Eriophorum/Heather <input type="checkbox"/> Other <input type="checkbox"/>	
Aspect: (facing N,S,E,W, or flat)		Elevation: (1) ft or (2) m

PREVIOUS LAND USE

Farming Practices before		
Previous Crop		
Fertilised/limed Yes/No	Year	Type/Rate
Reclaimed Yes/No	Year	Type

SOIL SAMPLING DEPTHS

Topsoil depth: (cm)		SUBSOIL DEPTH: (CM)
Situation 1. Depth to <i>Calcareous</i> material in mineral (i.e. absence of peat) soils (cm)) 1__2__3__4__5__6__7__8__9__10__11__12__13__14__15__16___.		
Situation 2. Depth of Peat over <i>Calcareous</i> material Depth to <i>Calcareous</i> material (cm) 1__2__3__4__5__6__7__8__9__10__11__12__13__14__15__16___.		

ANY OTHER COMMENTS

--

SITE DETAILS: (TICK AS APPROPRIATE)

TOPOGRAPHY		SOIL TYPE	CALCAREOUS MATERIAL	EXPOSURE	
Flat		Brown Earth	Shell Marl	Very exposed	
Concave		Brown Podsol	Marl (shells)	Mod. exposed	
Convex		Podsol	Till	Mod. sheltered	
Bottom-slope		Podsol+pan	Course (+boulders)	Sheltered	
Mid-slope		Lithosol	Fine (-boulders)		
Top-slope		Peaty Gley	Esker		
		Gley			
		Blanket Bog			
		Raised Bog			
		Fen peat over calcareous			

SITE FERTILITY*	SOIL DRAINAGE			SITE SUBJECT TO	
	Present	Potential			
Class A []	[]	Poor	[]	Flooding	[]
Class B []	[]	Mod.	[]	Frost	[]
Class C []	[]	Good	[]		
Class X []					
	Out fall? Yes [] No []				

***EXPLANATION OF SITE FERTILITY**

Class A: *Fields and ornamental ground*. These are areas, which have been in intensive agricultural use up to relatively recent times, so that they carry characteristic agricultural vegetation (pasture grasses and herbaceous plants, often with high proportion of rushes. They are among the most fertile site types.

Class B: *Furze or whin*. These are sites that were once enclosed by banks, walls or ditches. This indicates that at one time they were considered sufficiently fertile to justify bringing them under agricultural use, and were probably cultivated. The class would include all long-abandoned agricultural land (indicated by the presence of *Ulex* or bracken). It might also be extended, on the basis of local knowledge, and experience, to include unenclosed areas on mineral soils derived from parent materials of shale, mica-schist or granitic origin.

Class C: *Rough pasture, with or without cropping rock*. These are areas of unenclosed ground, which have never been cultivated or brought under any form of intensive agricultural use. Sites to include are those on unenclosed land, usually upland or bogland, carrying typical unimproved heath land or peat land vegetation.

Class X: *Woodland*. Sites to be included are coniferous, broadleaved and mixed woodland.

LABORATORY TESTS: TICK THE TEST THAT YOU REQUIRE ON YOUR SOIL SAMPLE

pH, Calcium, Free Lime test: For the purpose of determining site suitability and species selection for forestry	<input type="checkbox"/>
pH, Calcium, Magnesium, Potassium, Phosphorus, Free Lime test: For the purpose of determining growth problems and preparing fertiliser prescriptions	<input type="checkbox"/>
pH, Calcium, Magnesium, Potassium, Phosphorus, Free Lime Test, % Organic Matter: For the purpose of screening nursery soils.	<input type="checkbox"/>
Do you require a consultation report?	<input type="checkbox"/>

*Please note that a "topsoil" and a "subsoil" constitutes two samples.

Appendix 14: Sample Collection for Foliar Analysis

Foliage nutrient levels vary with the season of the year and position of foliage in the crown. Therefore sampling should follow rigid guidelines.

1. Conifer foliage samples should be collected during the dormant season, ideally in the period from mid-November to the end of December but can be extended to the end of February at the very latest.
2. Broadleaves and deciduous conifers should be sampled in August after shoot growth has terminated and before the onset of colour change.
3. Foliage samples should be collected from the current season's growth on secondary branches and from the upper third of the tree.
4. Collect sub-samples from at least 20 trees that are representative of the area proposed to be fertilised.
5. Combine the sub-samples to form a single sample for analysis.
6. Place sub-samples in a clean, labelled, plastic bag and send to a professional laboratory specialising in foliar analysis.
7. The foliage should be tested for at least nitrogen, phosphorus and potassium content.
8. Growers should use the same laboratory over a stands rotation, as laboratories use differing analytical tests and report results in different ways.
9. A fertiliser prescription, based on the laboratory test report, must be prepared by an experienced forestry consultant advising on the most suitable fertiliser and application rate required.
10. The following information must be sent to the Forest Service
 - Copy of Foliar sampling form completed
 - Results of Foliar Analysis for N, P and K
 - Recommendation
 - Type of fertiliser(s)
 - Concentration of fertiliser
 - Rates of application per hectare (ha)
11. Foliar Analysis in support of an application for an Aerial Fertilisation Licence must also include supporting documentation as outlined in the Forestry and Aerial Fertilisation Guidelines and the European Communities (Aerial Fertilisation) (Forestry) Regulations (S.I. No. 592 of 2006), as amended.

The following laboratories offer a foliar analysis service. Southern Scientific Services Ltd
Dunrine
Killarney
County Kerry
Tel: 064 6633922

Forest Research
Alice Holt Lodge
Farnham Surrey
England
GU10 4LH
Tel: 01420 22255
Fax: 01420 23653

FOLIAGE SAMPLING SITE/CROP FORM

ONE FORM TO BE COMPLETED PER SAMPLE

CLIENT DETAILS (client receiving report/Invoice)

Surname					
First Name (s)	Mr [] Ms []				
Address (<i>postal</i>)					
Telephone No.		Mobile No.		E-mail Address	
Contract No.		Area (ha)			
Name of Registered Forester				Name/Address of Landowner (if different):	

SAMPLE/SITE DETAILS

County		Townland(s)		O.S. 6" Map No.	
Species for analysis		Year planted		Forest type	Mixed [] Pure []
Mixtures (if applicable)	1 st Species		2nd species		Intimate [] Non Intimate []
Dominant Ground Vegetation	Grass [] Grass/Rush [] Sedge rush [] Bracken/Briar [] Molinia/Calluna [] Eriophorum/Heather [] Other []				
Aspect	N [] S [] E [] W [] Neutral []			Elevation (m)	

CROP HISTORY

Herbicide/fertiliser	Yes [] No [] N/A []	YEAR(S)		TYPE	
				RATE	
Suspected cause(s)					
Herbicide [] Frost [] Nutrient [] Aphid [] other (specify) [] _____					

ANY COMMENTS

--

FILL IN AS APPROPRIATE, TICK AS APPROPRIATE

% of Crop Type	Thriftness (%)	*Site Fertility	Soil Type	Soil Drainage	Exposure
Pre-thicket []	Healthy []	A []	Brown Earth []	Poor []	V.exposed []
Thicket []	Mod. Unthrifty []	B []	Podsoil []	Moderate []	Mod. Exposed []
Irregular []	Very unthrifty []	C []	Gley []	Good []	Mod. Sheltered []
	Yellow []	X []	Alluvium []		Sheltered []
	Dead tops []		Lithosol []		
	In check []		Coastal sand []		
			Blanket peat []		
			Raised peat []		
			Fen peat []		
			Fen/Marl []		

EXPLANATION OF SITE FERTILITY

Class A: *Fields and ornamental ground*. These are areas which have been in intensive agricultural use up to relatively recent times so that they carry characteristic agricultural vegetation (pasture grasses and herbaceous plants), often with high proportion of rushes. They are among the most fertile site types.

Class B: *Furze or whin*. These are sites that were once enclosed by banks, walls or ditches. This indicates that at one time they were considered sufficiently fertile to justify bringing them under agricultural use, and were probably cultivated. The class would include all long-abandoned agricultural land (indicated by the presence of Ulex or bracken). It might also be extended, on the basis of local knowledge and experience, to include unenclosed areas on mineral soils derived from parent materials of shale, mica-schist or granitic origin.

Class C: *Rough pasture, with or without cropping rock*. These are areas of unenclosed ground, which have never been cultivated or brought under any form of intensive agricultural use. Sites to include are those on unenclosed land, usually upland or bogland, carrying typical unimproved heath land or peat land vegetation.

Class X: *Woodland*. Sites to be included are coniferous, broadleaved and mixed woodland.

LABORATORY TESTS: TICK THE TEST THAT YOU REQUIRE ON YOUR FOLIAGE SAMPLE

1. Nitrogen, Phosphorus & Potassium, e.g. for the purpose of determining growth problems and preparing fertiliser prescriptions. []
2. Nitrogen, Phosphorus, Potassium, Calcium & Magnesium, e.g. for nutrient assessment of Christmas Trees. []
3. Nitrogen, Phosphorus, Potassium, Calcium, Magnesium & Trace elements, e.g. for nursery plant production. []

Appendix 15: Protocol for the determination of the acid sensitivity of Surface water

in the context of Afforestation

Applications for grant aid for afforestation in areas outlined on maps of acid-sensitivity as being acid-sensitive, and included in the list of County O.S. maps scale 1: 10560, require an assessment of acid sensitivity for all areas which are the subject of grant aid applications. These procedures also apply to afforestation applications received for approval / consent under the European Communities (Forest Consent and Assessment) Regulations, 2010 (S.I. No. 558 of 2010).

This sensitivity of the water to acidic inputs is to be determined by the measurement of alkalinity.

Sampling and analysis shall be carried out on a minimum of four occasions at intervals not greater than four weeks in the period February to May inclusive. The analysis will be carried out by a Laboratory, independent of the applicant, and participating currently in relevant national or international inter-comparison exercises. Samples to be taken from, and measurements to be made on, all watercourses shown on Ordnance Survey 6" Maps within the area of the proposed afforestation. If there are no watercourses within or adjacent to the site proposed samples must be taken from watercourses on the applicant's property. Where applications consist solely of GPC 9 and 10 (Native Woodland) within acid sensitive areas there is no requirement for water sampling.

Sampling procedures are outlined below.

Alkalinity to be measured using the Gran Titration Method.

The minimum acid-sensitivity measured will determine the overall sensitivity of the site.

There will be no afforestation in areas where the minimum alkalinity of the run-off water is $<8 \text{ mg CaCO}_3 \text{ l}^{-1}$.

Where the minimum alkalinity of the run-off water is in the range $8\text{--}15 \text{ mg CaCO}_3 \text{ l}^{-1}$, full, partial or no afforestation may be allowed, following discussion and agreement between the Environmental Protection Agency, the Forest Service of the Department of Agriculture, Food and the Marine and Inland Fisheries Ireland (*formerly the Regional Fisheries Board*).

Afforestation may be approved in areas where the minimum alkalinity of the run-off water, measured in the above manner, is $>15 \text{ mg CaCO}_3 \text{ l}^{-1}$.

Any attempt to change the chemical composition of the water taken, or to be taken, for analysis by the addition of material(s) designed to so do, will immediately render the application void.

The results of the analysis of all samples carried out in the context of this protocol shall be available to the applicant, the Forest Service of the Department of Agriculture, Food and the Marine, Inland Fisheries Ireland, the appropriate Local Authority and Environmental Protection Agency.

Persons taking water samples must notify the Forestry Inspector prior to sampling stating the location, proposed date and time of sampling. The Forest Service may take additional samples to compare with alkalinity results submitted with each application. Water samples submitted without prior notification will not be accepted and repeat sampling will be required. Registered Foresters must keep a record of the date and time notification was made to the Forestry Inspector.

Samples not taken in accordance with the procedures outlined in this document must not be submitted.

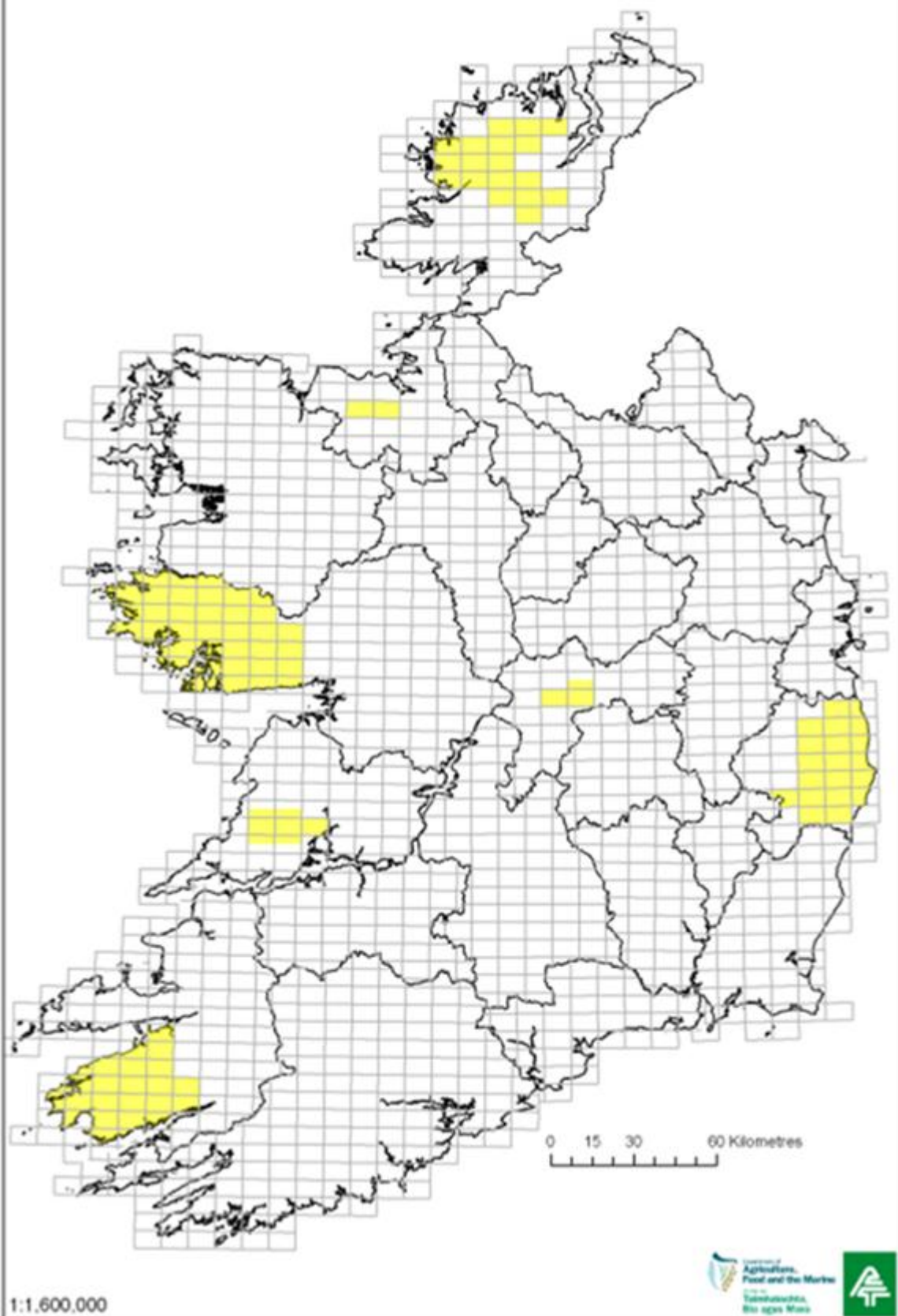
Potentially Acid Sensitive Areas.

The following list of 6 inch O.S. sheet reference areas have been identified as acid sensitive.

Wicklow	O.S. sheet nos.	7 and 8
		11 to 13 inclusive
		17 to 19
		23 to 25
		29 to 31
		33 to 36
		39 and 40
Kerry	O. S. sheet nos.	56
		62 to 64 inclusive
		69 to 72
		78 to 83
		87 to 92
		96 to 100
		105 to 107
Clare	O.S. sheet nos.	Southern half 31 and 32
		All 39 to 41 inclusive
		Northern half 48 and 49
Offaly	O. S. sheet nos.	Southern half 16
		All 23 and 24
Galway	O.S. sheet nos.	9 to 13 inclusive
		21 to 27
		34 to 40
		48 to 55
		62 to 68
		75 to 81
		89 to 93
Sligo	O.S. sheet nos.	24 and 25
Donegal	O.S. sheet nos.	34 to 36 inclusive
		41 to 44
		49 to 51
		57 to 60
		67 to 69
		77

Potentially Acid Sensitive Areas

• Potentially Acid Sensitive Areas



Sampling procedure for Rivers and Streams

Equipment Required

1. Six inch (6") map, or 1:5000 map of area to be sampled.
2. Waterproof notebook and record sheets.
3. GPS, if available.
4. 2 L HDPE Plastic Sample bottles. The number of bottles determined by the number of sampling points plus some additional spare bottles. For the initial sampling, the sampler should examine the 6" map outlining the proposed development and count the number of sampling points. This should indicate the number of bottles required. For subsequent sampling, samples should be taken at the same points as the initial sampling.
5. Sampling bucket with rope.
6. Funnel.
7. Disposable gloves.
8. Waterproof markers.
9. Adequate protective clothing and footwear.
10. Coolbox.

Before leaving the work station or laboratory ensure that you:

1. Have sufficient information on the location of sampling area to ensure that sample(s) is/are taken from correct watercourses at exact location.
2. Have a map of the area to be sampled, of an adequate scale and sufficient detail to ensure easy direction to the exact location where water sampling is to be carried out.
3. Request permission of land-owner to enter onto land and inform landowners of your purpose to take samples.
4. Have contacted the Forestry Inspector at least the day before sampling to give him/or the opportunity to decide if an additional Department water sample(s) will be taken. Have an adequate number of new sampling bottles, including some spare bottles.
5. Have enough field sheets to record details of sampling site.
6. Are familiar with safety regulations and procedures dealing with the taking of water samples.

On arrival at the sampling Area

1. Confirm correct location
2. Advise landowner of your presence and request permission to sample.
3. Confirm, with landowner(s), the area of the proposed plantation.
4. Advise landowner of approximate time of return.

On arrival at the sampling location

1. Observe area of proposed plantation, compare with map and identify sampling locations.
2. Proceed to first sampling location.
3. Record co-ordinates with GPS, if available, otherwise mark clearly on map.
4. Label sample bottle with the Stream/River name, sample number, location, date and time using a permanent water-resistant marker.
5. Using a plastic bucket (and rope to lower the bucket into the river where necessary) take up a sample. Rinse the bucket with the sample and empty it. Repeat this procedure at least twice, more times when necessary.
6. Facing upstream and in mid-channel where river/stream is shallow (less than 50cm deep), otherwise at side of stream or off a bridge, lower the bucket into the water and take up a sample of the water. Make sure that water flowing into bucket does not contain

sediment from river disturbed by feet. Sample should be taken upstream of point of their entry to river.

7. Rinse the (2-litre) sample bottle and funnel thoroughly (three times) with the water from the bucket, then fill the bottle with the water remaining in the bucket. Ensure you fill the bottle leaving only 1 – 2 cm headroom.
8. Place lid tightly on the bottle. Squeeze the bottle to ensure there are no leaks present.
9. Recheck that the labelling on the bottles is correct.
10. Place the sample bottles into their relevant crates.
11. Each time a water sample is taken, a field sheet should be completed (see sample below). Note the Stream/River name (if any, otherwise mark clearly on map), sample number, location, date and time that the sample was taken on the field sheet.
12. Between sampling and dispatch, all samples must be kept cool and in the dark. Do not leave samples in the car/van where they are liable to become warm. Dispatch samples together with field sheet(s) to laboratory for immediate analysis.

At all times use common sense.

Primarily use a course of action to ensure personal safety.

Be mindful not to contaminate sample by allowing sedimentary or material other than the water flowing in the river into the sampling bucket and the sample bottle. No smoking is allowed on site.

At all times avoid body contact with water intended for analysis.

Alkalinity Testing Laboratories

BHP Laboratories Ltd. New Road Thomond Gate Co. Limerick Tel: 061-455399	TMS Environment L.td 53 Broomhill Drive Tallaght Dublin 24 Tel: 01-4626710
Southern Scientific Services Ltd Dunrine Killarney County Kerry Tel: 064-33922	Fitz Scientific Unit 35 Boyne Business Park Drogheda Co Louth Tel: 041-9845440
<p>Other laboratories :</p> <p>In addition to the laboratories listed above samples can also be submitted to any laboratory accredited by the Irish National Accreditation Board (INAB) and/or United Kingdom Accreditation Service (UKAS) to undertake testing in compliance with the International Standard ISO/IEC 17025:2005.</p>	

Water Sampling Field Sheet

Applicant		Contract No.	
County		6" OS No.	
Townland			

Sample No.	Date collected	Time of collection	Water temperature C°	Remarks

Weather conditions on date of collection
General weather, recent conditions

Comments

Samples collected by: _____
Signature

State Name: _____
 BLOCK CAPITALS

Date: _____

Appendix 16: Statement of Total Costs

There is no requirement to submit a statement of costs under the Fixed Grant Scheme for the Afforestation Scheme. The fixed grant scheme also applies to the tending and thinning element of the Woodland Improvement Scheme.

For all cost based schemes, the “*Costs of Works Carried Out*” table must be completed in the Form 2 grant application. Please refer to the scheme documents for more detail. The following schemes are cost based

Reconstitution Scheme

Forest Roads Scheme

Native Woodland Conservation Scheme

NeighbourWood Scheme

Woodland Improvement Scheme (excluding thinning and tending element)

Appendix 17: Statement of Costs (Applicants)

(Applicant's costs)

All applicants who have completed work themselves must complete this statement of costs.

Contract Number:	
Townland:	
County:	
Name:	
Address:	
Scheme name:	
Detailed Description of Works Carried out:	

Please complete the boxes below:

Hourly rate for labour:	€
Total number of hours worked:	
Total labour costs:	€

Please sign and date this form:

Applicant's signature: _____ Date: _____

Please note that materials supplied and work carried out by Contractors must be invoiced separately.

Appendix 18: Areas of Potentially Sensitive to Fisheries

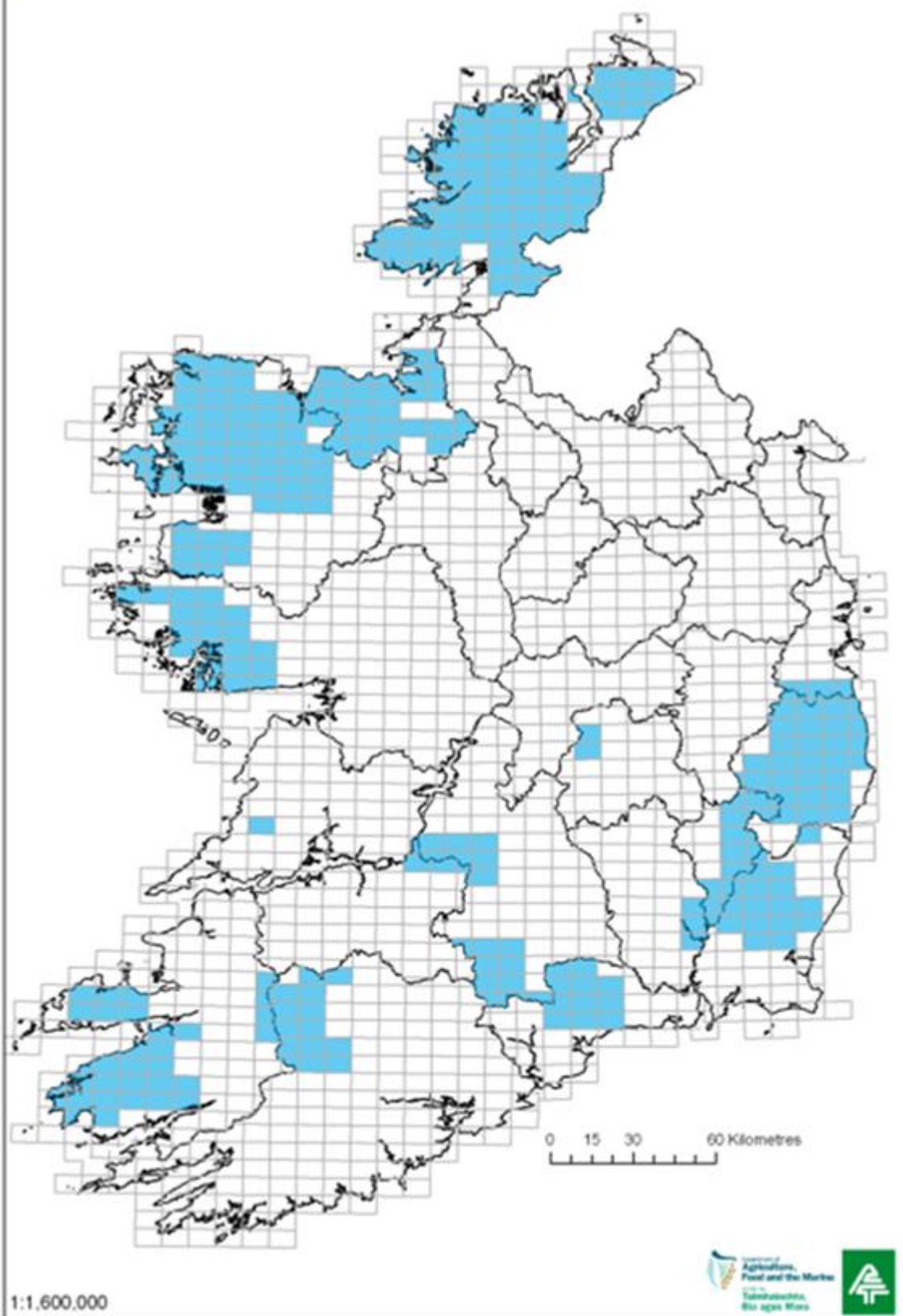
Carlow	O.S sheet nos	3 to 5 inclusive 8 to 10 inclusive 13 to 14 inclusive 17 to 18 inclusive 20 to 26 inclusive
Clare	O.S sheet nos	39
Cork	O.S sheet nos	5 and 6 12 to 14 inclusive 21 and 22 inclusive 29 and 30 inclusive 38 to 40 inclusive 47 to 49 inclusive
Dublin	O.S sheet nos	24 to 28 inclusive
Donegal	O.S sheet nos	10 to 12 inclusive 18 to 21 inclusive 23 to 26 inclusive 29 to 31 inclusive 32 to 36 inclusive 40 to 45 inclusive 48 to 53 inclusive 56 to 71 inclusive 73 to 92 inclusive 94 to 98 inclusive 100 to 102 inclusive 104 to 105 inclusive
Galway	O.S sheet nos	22 to 25 inclusive 37 to 39 inclusive 51 to 53 inclusive 64 to 67 inclusive 78 to 80 inclusive 90 to 92 inclusive
Kerry	O.S sheet nos	32, 34 to 36 inclusive
41, 43 to 45 inclusive		50, 56 and 57 60, 62 to 64 inclusive 69 to 72 inclusive 78 to 83 inclusive 87 to 92 inclusive 96 to 98 inclusive
Kilkenny	O.S sheet nos	29 , 33, 37
Limerick	O.S sheet nos	1, 6 to 8 inclusive
Laois	O.S sheet nos	6 and 11
Mayo	O.S sheet nos	4 to 6 inclusive 11 to 13 inclusive 18 to 22 inclusive 25 to 32 inclusive 34 to 39 inclusive

		42 to 49 inclusive 54 to 61 inclusive 65 to 71 inclusive 78 to 80 inclusive 86 96 to 98 inclusive 106 to 108 inclusive 115 and 116 inclusive
Waterford	O.S sheet nos	1, 2, 5 to 7 inclusive 13 to 15 22 to 24
Wexford	O.S sheet nos	1,2,4, 8 to 10 inclusive 13 to 15 inclusive 18 to 21 inclusive 24 to 27 inclusive 31 to 32 inclusive
Wicklow	O.S sheet nos	1 to 8 inclusive 10 to 13 inclusive 16 to 19 inclusive 21 to 30 inclusive 32 to 35 inclusive 38 to 40 inclusive 44
Sligo	O.S sheet nos	8 to 25 28 to 38 40 to 42
Tipperary	O.S sheet nos	31 to 33 37 to 39 44 to 45 73 to 75 80 to 81 86 to 87 89 to 91

(Forest Service 1992 - Areas potentially sensitive to fisheries as agreed by the Forest Service and Regional Fisheries Boards.)

Areas Potentially Sensitive to Fisheries

 Areas Potentially Sensitive to Fisheries



Appendix 19: Archaeology: Scheduled venues to view Record of Monuments and Places

In accordance with relevant regulations made under the National Monuments Acts 1930-2004, lists of, and maps showing, monuments protected under Section 12 of the National Monuments (Amendment) Act, 1994 (i.e. monuments and places included in the Record of Monuments and Places) are available for inspection by members of the public during normal opening hours at a variety of venues. These include local authority planning offices, county libraries, and various Teagasc offices.

The National Monuments Service maintains a web-based Map Viewer where details and locational information on most known or suspected monuments recorded by the Archaeological Survey of Ireland (ASI) in its Sites and Monuments Record (SMR) can be viewed.

Electronic copies of the Record of Monuments and Places (RMP) lists and maps are also available to download from the same website, listed below.

There are also a number of other ways in which monuments may be protected under the National Monuments Acts, in addition to the Record of Monuments and Places. Monuments may also be entered in the Register of Historic Monuments (under Section 5 of the National Monuments (Amendment) Act 1987), be in the Ownership or in the Guardianship of a Local Authority or the Minister for Arts, Heritage and the Gaeltacht, or the subject to a Preservation Order or Temporary Preservation Order made by the Minister.

If further information on any of these topics is required it is advisable to contact National Monuments Service directly:

National Monuments Service,
Department of Arts, Heritage and the Gaeltacht,
Room G50,
Custom House,
Dublin 1.

Email: nationalmonuments@ahg.gov.ie

Phone: +353 (0)1 888 2178

Fax: +353 (0)1 888 2689

Web: <http://www.archaeology.ie>

Appendix 20: Standard Annuity Table

FACTORS FOR CALCULATING PRESENT VALUE OF AN ANNUITY

Net Interest Rate Assumed %													
	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
YEARS													
1	0.96	0.96	0.95	0.95	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.91	0.91
2	1.89	1.87	1.86	1.85	1.83	1.82	1.81	1.80	1.78	1.77	1.76	1.75	1.74
3	2.78	2.75	2.72	2.70	2.67	2.65	2.62	2.60	2.58	2.55	2.53	2.51	2.49
4	3.63	3.59	3.55	3.51	3.47	3.43	3.39	3.35	3.31	3.28	3.24	3.20	3.17
5	4.45	4.39	4.33	4.27	4.21	4.16	4.10	4.05	3.99	3.94	3.89	3.84	3.79
6	5.24	5.16	5.08	5.00	4.92	4.84	4.77	4.69	4.62	4.55	4.49	4.42	4.36
7	6.00	5.89	5.79	5.68	5.58	5.48	5.39	5.30	5.21	5.12	5.03	4.95	4.87
8	6.73	6.60	6.46	6.33	6.21	6.09	5.97	5.86	5.75	5.64	5.53	4.95	4.87
9	7.44	7.27	7.11	6.95	6.80	6.66	6.52	6.38	6.25	6.12	6.00	5.88	5.76
10	8.11	7.91	7.72	7.54	7.36	7.19	7.02	6.86	6.71	6.56	6.42	6.28	6.14
11	8.76	8.53	8.31	8.09	7.89	7.69	7.50	7.32	7.14	6.97	6.81	6.65	6.50
12	9.39	9.12	8.86	8.62	8.38	8.16	7.94	7.74	7.54	7.34	7.16	6.98	6.81
13	9.99	9.68	9.39	9.12	8.85	8.60	8.36	8.13	7.90	7.69	7.49	7.29	7.10
14	10.56	10.22	9.90	9.59	9.29	9.01	8.75	8.49	8.24	8.01	7.79	7.57	7.37
15	11.12	10.74	10.38	10.04	9.71	9.40	9.11	8.83	8.56	8.30	8.06	7.83	7.61
16	11.65	11.23	10.84	10.46	10.11	9.77	9.45	9.14	8.85	8.58	8.31	8.06	7.82
17	12.17	11.71	11.27	10.86	10.48	10.11	9.76	9.43	9.12	8.83	8.54	8.28	8.02
18	12.66	12.16	11.69	11.25	10.83	10.43	10.06	9.71	9.37	9.06	8.76	8.47	8.20
19	13.13	12.59	12.09	11.61	11.16	10.73	10.34	9.96	9.60	9.27	8.95	8.65	8.36
20	13.59	13.01	12.46	11.95	11.47	11.02	10.59	10.19	9.82	9.46	9.13	8.81	8.51

Example:

Use of Ready Reckoner for making lump sum payments

Annual Payment (€)	120.00
Number of Years	20.00
Discount Rate	7%
Total Lump Sum (Capitalised) : €120 X 10.59	1,270.80