Woodfield*
Long Term Forest Plan

2016 - 2025

*Based on Brucefield Estate, Clackmannanshire

Please refer to the Long Term Forest Plans (LTFP) Applicant's Guidance for more information on what should be included in this template. As a guide, your LTFP should be 15-20 pages long.

Please insert tables and charts as required, and append maps and ensure that maps are clearly labelled.

A. Description of Woodlands

A.1 Property Details			
Property Name:	Woodfield		
Business Reference Number:	123456	Main Location Code:	067/6271
Grid Reference: (e.g. NH 234 567)	NS 956 917	Nearest town or locality:	Alloa
Local Authority:		Clackmannan	
LTFP Plan area (hectares):		175.90 hectares	

Owner's Details			
Title:	Ms	Forename:	Xxxxx
Surname:	Xxxxxx		
Organisation:		Position:	
Primary Contact Number:	xxxxx xxxxx	Alternative Contact Number:	xxxxx xxxxx
Email:	xxx.xxx@xxx.xx		
Address:	Woodfield Estate, Clackmannanshire		
Postcode:	XX01 1XX	Country:	Scotland

Agent's Details			
Title:	Mr	Forename:	Gordon
Surname:	Inglis		
Organisation:	Inglis Forestry Group	Position:	Chief Executive
Primary Contact Number:	01234 56789	Alternative Contact Number:	09876 54321
Email:	g.inglis@inglisforestry.com		
Address:	10 Pleasance, Dunfermline		
Postcode:	KY10 1WE	Country:	Scotland

A.2 Location and Background

Provide details on the wider context of the LTFP area. Append a 1:25,000 or 1:50,000 map with contours and the grid reference of the main forest entrance. The map should show the estate boundary based on the Business Reference Number (BRN) and the woodland boundary, if different.

The location of the property is shown on Map 1, and the estate house is located at grid reference NS 956 917.

The estate is a mixture of agricultural land and woodland, located between the A866 to the north and the A806 to the South, approximately 7 miles to the east of Clackmannan. The woodland area (175.90ha) is a 60:40 mix of commercial and native species, with wide range of objectives including timber, biodiversity, amenity and archaeology.

Some commercial activity has occurred over the past ten years (two small compartments being felled and restocked and continuous cover being investigated). The Craigmad Wood SSSI is located in the north-east of the estate and is currently in favourable condition. As the property is close to Clackmannan there is regular public access by walkers, cyclists and horse riders.

The estate woodlands are relatively mixed and there is a move to enhance the diversity of the property. More details are provided in the following sections.

A.3 Existing Schemes

Provide details on any existing forestry permissions, grants, EIA approvals, previous plans, or cases in progress.

Type (e.g. Felling Licence)	Ref. No.	Details
Felling licence	033/01/08-09	Clear felling of compartments 1b and 16a.
SRDP – RP	3987654	Restructuring felling and regeneration

A.4 Stakeholder Engagement

Include a summary of the main points from Scoping and where they are addressed in the plan. Append scoping map(s), and the full Scoping Report.

Scoping – Main Points	LTFP Reference (section/page):
Preservation of archaeological features.	Two archaeological features have been identified, see C.2.10. They will be protected, and managed as open ground in line with UKFS guidance.
Maintain Craigmad SSSI in favourable condition.	See C.2.11. Scrub, bracken, beech and rhododendron will be manually controlled. Deer control will aid in natural

	regeneration in the SSSI.
Appropriate consideration given to protected species.	FC Guidance notes 31 and 32 will be followed during forestry operations. See C.2.11
Timber haulage – disruption, damage to C road, turning onto main road.	See C.2.8. Prior to harvesting operations these issues will be discussed with neighbours and the Local Authority Roads Dept.
Ensure forestry operations do not impact water quality.	See C.2.1. All UKFS and relevant legislation will be followed.
Ensure public safety during forestry operations.	HSE guidance will be followed. The woodland surrounding the core path will be managed to enhance the route and improve visibility. See C.2.9
Deer control (and other mammals and pests) will be essential for successful regeneration of the replacement crop and management of the SSSI.	A DMP has been written to address this (Appendix 2). Deer will be culled as the estate will not be erecting fences. We aim to get populations down to <7/km2.

A.5 Long Term Vision and Management Objectives

Tell us how you intend to manage the forest in the long term and your goals for its development.

Vision

Describe your long term vision for the LTFP area.

The long-term vision is to manage the forest with a balanced emphasis on commercial and biodiversity interests. Amenity and internal landscape interests must also feature in the management of the woodlands. There is a move to increase the species diversity of the conifer woodland whilst maintaining a valuable timber crop for saw logs and firewood material. The focus on diversity will assist with meeting the objectives and should help lessen the impact of climate change on the estate in the future.

Management objectives

Give your objectives of management and also how you will manage the forest area sustainably. Your objectives should be specific and you should also be able to measure their outcomes.

No.	Objectives (including environmental, economic and social considerations)	Indicator of objective being met
1	To manage a diverse range of species to produce sustainable timber and woodfuel products, including managing mixed broadleaved and conifer stands and employing Low Impact Silvicultural Systems where appropriate.	• 6000m3 of timber over phase 1 & 2 • 4000m3 of woodfuel over phase 1 & 2 • Natural regeneration present in LISS areas within 10 year plan period • Deer numbers reduced to 5/km to allow for soft conifer regeneration
2	To maintain and enhance the biodiversity value of the woodland, including maintaining the Craigmad Wood SSSI in favourable condition.	• SSSI stays in favourable condition and is not declining • Natural regenerating present in native woodlands in plan period • Bird surveys will be done at the start and end of the plan period
3	To maintain public access to the woodland and enhance the internal woodland landscape to make access more enjoyable.	• Improve woodland experience along core path with landscaping and signage
4	To manage the woodland as an effective carbon sink by growing quality timber and retaining mature broadleaved woodland.	• The number of mature broadleaves and veteran trees across the woodland will increase over 50 years • All products from the woodland will be utilised
5	To protect the archaeological sites within the woodland by creating open ground and maintain management of open ground.	• Both sites are managed accordingly • Signage will be erected at site near core path

A.6 General Site Description

Provide details under each of the headings below. Append maps if appropriate for each subsection.

A.6.1 Topography

The property lies between 40 and 90 metres above sea level. The terrain is intermittently rolling and the woodlands therefore have a variety of aspects but

these tend to northern. Topography is influenced by Bluther Burn.

A.6.2 Geology and Soils

The underlying geology is Passage Formation sandstones within the Clackmannan Group of carboniferous rock.

Approximately half the woodlands are on the Bath Moor soil type, which is characterised as being humus-iron podzols with well drained thin organic surface and a grey mineral layer. These soils have reasonable nutrient availability for tree growth and should not offer any serious resistance to root growth and development.

The remainder of the woodland soil is classed as basin peat, which is poorly drained with no mineral layer within 50cms of the surface. This is a very pessimistic description of these soils as the ground conditions in some areas are far better than this description suggests. However, there are some areas where waterlogging is an issue and tree growth has suffered as a result. These areas tend to be mainly broadleaved woodland.

A.6.3 Climate

The mean annual temperature ranges from about 7 – 8 degrees centigrade and the mean annual rainfall is in the region of 900 to 1200 mm per annum, both of which are in line with other lower lying areas of Scotland.

A.6.4 Hydrology

There are a number of watercourses that run through the Estate; the largest of these is the Bluther Burn. This has been identified by SEPA as having a current overall status of ‘good’.

A.6.5 Windthrow

The Windthrow Hazard Classification (WHC) across the site is fairly uniform and has been assessed as class 2 for almost all the woodlands; the WHC ranges from 1 (low risk) to 6 (high risk). There are some pockets of wind damage in the older stands across the woodlands but generally there is little overall damage across the Estate.

A.6.6 Adjacent Land Use

Adjacent land use is mainly agricultural. The agricultural land use classification ranges from 3.2 on the better drained soils to 5.2 on wetter soils, with the main limiting factor being soil quality. The classifications are defined as:

- 3.2 Land capable of production a moderate range of crops with limitations caused by climate and soil.
- 5.2 Land restricted to improved grassland only with limitations of climate, wetness, slopes, soil defects and erosion risks.

The land capability for forestry ranges from F2 to F5. The range is represented as follows:

- F2 Soils have no or only limited periods of seasonal waterlogging. Both

broadleaved and coniferous species may be planted but choice may be limited slightly.

- F5 Limited flexibility, generally poor to moderate soils constrained by topography and exposure. Species limited to Sitka spruce, larches and pines and the less demanding broadleaved species.

The soils information and land use classification suggests that land capability for forestry is variable but generally quite good. Some woodland on the Estate has shown slightly poorer growth but these are in the minority.

A.6.7 Access

There is one right of way recorded, which is classed as a core path that runs along the disused railway line. This route is very popular with walkers and cyclists. Other access includes informal woodland walks throughout the Estate, but mainly in the eastern woodland (cpts 6 – 8).

A.6.8 Historic environment

There are no scheduled monuments within the woodland; however the Stirling Council Archaeologist has noted two unscheduled sites of Slack Wood Enclosure and Chapel Knowe.

These two sites are described as: Slack Wood Enclosure (site 6272) is a small circular double ditch feature noted from aerial photographs; Chapel Knowe (site 1353) is believed to be a former chapel denoted on the ground by a mound.

The Historic Land-use Assessment identifies the immediate grounds of the main house as a designed landscape.

A.6.9 Biodiversity

A study of the Forestry Commission's Land Information Search for the property was carried out to identify any designated sites or features that may potentially be affected by management operations on the property.

Designated Sites and Species

Compartment 8 is designated as the Craigmad Wood SSSI. The notified natural features are:

Lowland heathland – Lowland dry heath – Favourable (Declining)

- This internationally restricted habitat supports chickweed wintergreen and cowberry, which are uncommon in this area. Objectives of management include keeping in check scrub and bracken encroachment.

Woodland – Upland oak woodland – Favourable (Maintained)

- The heath is surrounded on three sides by semi natural woodland. The main area of this feature is in the southern part of the SSSI along the Bluther Burn. The oak woodland includes some genuinely ancient trees and by the burn supports the locally uncommon remote sedge and narrow buckler-fern and several species of rare (in this area) bryophyte. Objectives of management include ensuring grazing/browsing levels are

compatible with achieving regeneration of appropriate native tree species across the woodland and controlling regeneration of non-native species, particularly beech and rhododendron.

Ancient Woodland

Many parts of the Estate woodlands are classed at 'long-establish woodlands of plantation origin' with the majority dating from the Ordnance Survey 1st Edition maps of 1860 and there are only two areas of this type that date from the Roy maps of 1750. One area of woodland, following the Bluther Burn is classed as 'Ancient Woodland of semi-natural origin' dating from Ordnance Survey 1st Edition maps of 1860.

The areas of 'long-established woodland of plantation origin' were planted with the current rotation of commercial crops between the 1940s and 1980s. During this time, little concern for ancient woodland was taken into account and these areas planted with little regard to ground damage and the loss of species diversity. The areas of pine have fared reasonably well, maintaining a fairly diverse ground storey however areas of spruce have resulted in the total shading of the ground and the general loss of any ground storey vegetation.

Native Woodland Survey of Scotland

The NWSS identifies several native woodlands across the Estate, including areas within the SSSI and woodland identified as mixed broadleaves on the species map. Woodlands are identified as upland birchwood, upland oakwood, or wet woodland. Deer damage is identified across all of the woodlands and is recorded as very high. This is of particular concern for the SSSI and natural regeneration.

A.6.10 Invasive Species

There are no invasive species recorded within the woodland, with the exception of rhododendron.

A.7 Woodland Description

Provide a brief description of woodland types and any relevant past management.

Also complete the Tables below, with reference to Appendix 2 of the Long Term Forest Plan – Applicant's Guidance.

The Estate woodlands are fairly contiguous within the larger fragmented landscape of woodland across Fife. The Estate contains a diverse range of woodlands resulting from a mixture of past management for pheasants, timber and biodiversity. Commercial woodlands are mainly comprised of Sitka spruce, Norway spruce, Scots pine and Japanese larch. These stands tend towards single species but mixtures are common. Mixtures also occur between conifers and broadleaves with much of the eastern woodland being birch and Scots pine. Native woodlands are upland birch, upland oak, or wet woodland. Some of the birch woodlands are young in age, probably due to a disturbance event, but the majority of native woodland is mature with little in the way of regeneration. There is a distinct lack of an understory throughout the woodlands.

The current species are shown on Map 3.

Several areas of conifer woodland have been felled and restocked over the past 20 – 30 years. These restocks have been very successful. Thinning activities have also taken place throughout the mixed conifer woodlands on the estate. In 2006 surveys were undertaken to identify Continuous Cover Forestry options. Native woodland management also featured during this period.

Landscape character description:

Due to the estates location and the subtle landforms, it was felt that a landscape character description would be desirable, but that an in-depth analysis and visual perspectives were not necessary.

Woodfield Estate is located within the Valley Fringes landscape character classification. This is a landscape lying between the Forth Estuary and the river Devon at the foot of the Ochils. The area is broad, lying on elevated and strongly rolling ground with undulating fields with crops varying from rough grassland, lusher pasture and crops. Woodlands are also varied with large coniferous blocks merging with mixed woodlands and farm woodland. There are panoramic views of the sprawling floodplain of the Forth and the dominance of the Ochil hills to the north.

The local character assessment highlights the desire to promote further woodland expansion interlinking existing plantation with semi-natural woodland and to restock and manage large commercial forestry blocks as well as over-mature, neglected or declining woodland.

Table 1 - Area by species

This shows the current and future species composition within the entire Long Term Forest Plan area.

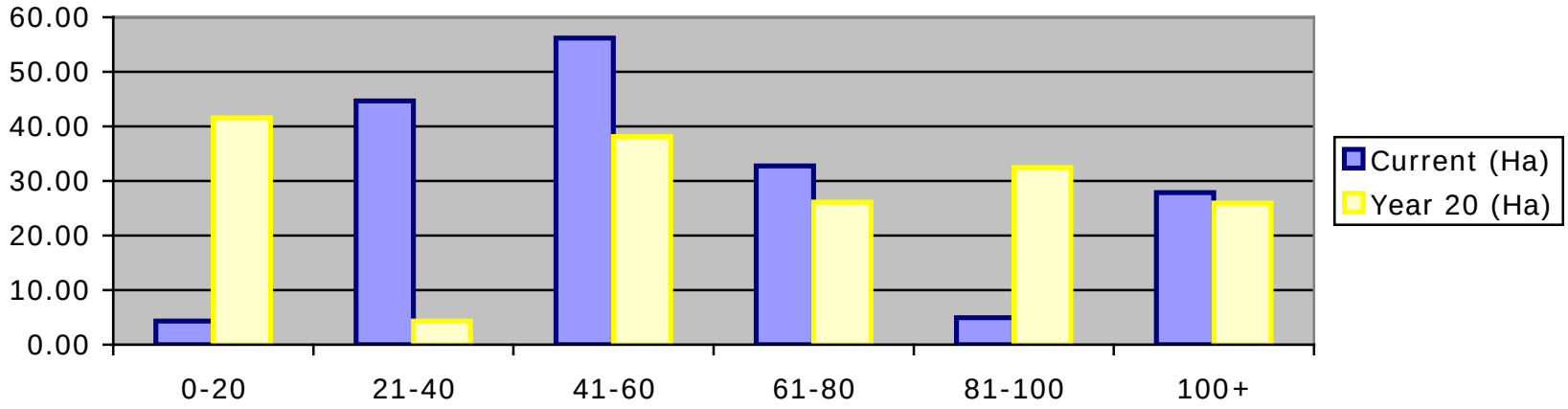
Area by species						
Species	**Current***		**Year 10***		**Year 20***	
(Add relevant species groups, or OG/OL)	**Area (ha)**	**%**	**Area (ha)**	**%**	**Area (ha)**	**%**
SS	35.68	20.3	15.90	9.1	8.27	4.7
SP/BI	19.31	11.0	19.31	11.0	20.42	11.6
SP	25.57	14.5	26.66	15.2	29.65	16.9
JL	14.93	8.5	16.13	9.2	16.13	9.2
NS	1.35	0.8	6.68	3.8	6.68	3.8
NS/SP	3.84	2.2	3.84	2.2	3.84	2.2
MC/MB	12.43	7.1	12.43	7.1	6.64	3.8
DF	0.00	0.0	3.48	2.0	3.48	2.0
BI	10.00	5.7	10.00	5.7	10.00	5.7
MB	26.20	14.9	28.65	16.3	30.31	17.2
NBL	0.00	0.0	0.00	0.0	0.74	0.4
OG	5.17	2.9	6.12	3.5	7.40	4.2
Total	175.90	100	175.90	100	175.90	100

* Of whole Forest Plan area (including open ground (OG)). Any mixtures such as Mixed Conifer (MC) should be broken down and included as an individual species component where a species occupies more than 10%.

Table 2 – Area by age

This shows the woodland area broken down by age class and will show how well the woodland is distributed across the age classes. This information can be provided as a chart below. Double click on the chart below and paste your area figures into the spreadsheet that appears.

Age class (years)	Current Area (ha)	Year 20 Area (ha)
0-20	4.33	41.59
21-40	44.68	4.33
41-60	56.18	38.12
61-80	32.73	26.10
81-100	4.93	32.47
100+	27.89	25.95
Total	170.74	168.55



A.8 Plant Health
Provide details on any known plant health issues within the LTFP area and their effect on the forest plan.
There are no plant health issues on the Estate, and it has been decided, for diversity reasons, that larch will be used in some restocking as the *P ramorum* risk is low in this area. The area of larch increases over the next 20 years but will be reduced in the longer term (following phase 5).

B. Analysis of Information

B.1 Constraints and Opportunities

Identify constraints and opportunities. Append maps as appropriate and provide map reference.

Factor	Constraint	Opportunity
Soils	Some areas of woodlands are planted on waterlogged or peaty soils.	Mineral soils and forest brown earths are present in some woodland, particularly around watercourses. Open ground can be increased in appropriate areas.
Crop Stability	Trees growing on wetter and peaty soils are at slightly greater risk, but overall the risk of wind damage is low.	Species selection to best suit ground conditions. Felling in phase 1 and 2 can remove trees at risk of Windthrow.
Water Courses	A number of watercourses rise and flow through the estate limiting access.	Areas of LTR can protect water quality and enhance habitat networks. Crossing points will be bridged with logs to provide access for operations if required.
Landscape	Some of the woodlands are highly visible from, or adjacent to, roads or the core path (old railway).	Use of LISS management and schedule timing of clear felling to reduce visual impact of felling. Improve landscape by increasing open space and improving edges.
Archaeological sites	Two unscheduled sites highlighted in scoping report: Chapel Knowe and Slack Wood enclosure will impact harvesting operations.	Improve site with open ground and landscape setting. Signage for local interest/knowledge.

Habitats	Impact of forest operations on woodland habitats. Craigmad SSSI currently in favourable condition but the open ground feature is declining.	Manage appropriate areas as LTR, to maintain and enhance the biodiversity value. Remove non-native tree species and unwanted shrubs from the SSSI. Protect veteran trees and promote natural regeneration.
Protected Species	Protected mammals may be present in the woodlands including otter, bats and badgers.	Carry out surveys and follow regulations as appropriate. Increase woodland diversity and age structure to benefit species.
Deer Management	Increased costs for culling during restructuring phases.	Management of deer essential for successful regeneration and LISS management. Control will benefit SSSI and native woodland understory and natural regeneration. A full DMP is in Appendix 2.
Timber Traffic	Minor road running through the Estate is narrow. Lorries will be turning onto busy main road (A907).	Use appropriate signage and consider timing for lorry movement. Discuss issues with Council roads department and use signage.
Public Access	Disused railway is a popular recreational route and is classed as a core path.	Appropriately located and worded warning signs displayed during all operations. Increase open ground along route to improve woodland experience.
Outline how you intend to incorporate the constraints and opportunities into the management objectives.		
The soils and crop stability factors have been taken into consideration through the planned felling for phases 1, 2 and 3 and the subsequent restocking. The removal of the stands more prone to windthrow will reduce future risk, and species selection for these sites should improve stability for future. Restructuring of these woodlands will also address some of the edge concerns and will provide opportunities to create open space around archaeological sites. Operations around water courses, or that affect the public, traffic management, or protected species will all be managed in accordance with best practice and the provided guidance so as to meet required legislation. The landscape analysis has helped to design the restocking of phases 1 to 4 and		

improvements will be made to LISS managed woodlands so as to improve the public's experience of the woodland when using the core path.

Open ground will also be maintained and improved within the relevant areas of the designated SSSI. The owner recognises that the requirement of the UKFS for 10 per cent open ground has not been met within the 20 years of this plan. As identified in the landscape analysis, it would not be in keeping with the enclosure pattern of the surrounding landscape to further increase open ground in the restock areas for the phases in this plan and so further open ground will be proposed in later phases (5 and 6) along the core path (railway).

A Deer Management Plan has been appended and every opportunity to control deer will be taken in the interest of establishing soft conifers and restoring and understory, and natural regeneration, to the native and mixed woodlands on the estate. The culls have been set to achieve 5 deer / km2 within 5 years. Immigration will be an issue and populations and damage will be monitored.

C. Management Proposals

C.1 Silvicultural Practice

Outline silvicultural practice and management prescriptions. Include any past management practice that is relevant and the strategies to address the issues identified during the analysis phase.

Felling to date has been minimal, with only two compartments felled in the last ten years. Silvicultural policy over the next twenty years will continue the sequential felling and restocking of the first rotation crops which are unsuitable for Low Impact Silvicultural Systems (LISS) management given their size, age and risk of wind damage. Other crops will be thinned under LISS management. The use of LISS is not a realistic silvicultural option for the older and more mature conifer crops. Successor crops planted following clear felling can be thinned more regularly and this would probably enable the use of LISS management in the future, subject to individual site constraints such as wind-firmness.

Both the thinning and felling will provide an opportunity to produce timber for the sawmilling industry as well as wood fuel markets.

The policy will build on previous management undertaken in the Estate woodland.

The woodlands are currently varied in both species and age, although many of the more commercial species were planted at a similar time. The difference in species growth rate has aided the coupe separation of this forest plan as some of the crops will continue to grow after adjacent stands of different species have been felled and restocked.

Restocking will aim to maintain some of the commercial element of the woodland while retaining and enhancing amenity, landscape and biodiversity values. Over time JL areas will be reduced but Douglas fir will be introduced. Young commercial crops with higher yield classes (of any species) will be managed to maximise the production of quality timber under the guidelines of the UK

Forestry Standard.

Felling, thinning and restocking proposals are shown on Maps 4, 5 and 7.

It is recognised that the requirement of the UKFS for 10 per cent open ground has not been met within the 20 years of this plan. Open ground will be incorporated into the LISS management where appropriate, and a further increase in open ground will occur in the later phases (5 and 6) along the core path (railway) and around the archaeological sites.

The age class gap created following the next two phases of felling is unfortunate but is a direct result of the felling for crop stability in phase 1 and 2 and the somewhat even age of these stands. The timber output will therefore decrease in future years. To address this some felling has been delayed. The use of LISS management should, in future, create a more diverse age range within conifer stands. The future age range does however show a sufficient spread of other age classes within the woodland to provide diversity.

The local authority forest strategy has been considered in the preparation of this LTFP and the proposals within this meet the objectives of the strategy. The UKFS and all relevant legislation will be followed during the implementation of this plan, including guidance on water, soils, archaeology, biodiversity, landscape and climate change. This includes authorisation which may be required under the Water Environment (Controlled Activities) (Scotland) Regulations 2011.

C.2 Prescriptions

Please provide maps as set out in Appendix 2 of the Forest Plan Applicant's Guidance and complete the associated Tables. Provide any further details required along with the map references.

C.2.1 Felling

The areas of clear felling for each phase are relatively small with the majority of felling coupe areas being less than 10 hectares. This will reduce the visual impact of the felling although much of the work will not be particularly visible, with the exception of the coupes adjacent to the A907. If there are broadleaved trees within existing conifer stands they will be retained to maintain biodiversity and to reduce the visual impact of felling operations.

The design of felling coupes will follow existing wind-firm edges, where possible, to reduce the risk of wind damage to remaining stands.

Adjacency of phases 1 and 2 areas in the south of the woodland will be addressed through the felling and restocking years. Phase 1 areas will be felled and restocked within the first two years of the plan. Phase 2 areas will be delayed, so as to be felled and restocked near the end of Phase 2 – this will provide 8 years of growth for the Sitka spruce before adjacent compartment is restocked. The trees in cpt 1b were planted in 2012 and so will be 6 years old before the Phase 1 area is restocked.

Relevant water environment regulatory advice and rules will be followed during all operations and all operations must follow the Forest and Water Guidelines.

C.2.2 Thinning

The thinning regime includes most of the stands that are not scheduled for clear felling and restocking in phases 1 and 2. The thinning operation is designed to improve the timber quality of the crop as well as provide a primary resource of smaller-sized material.

The exception is compartment 8c which is part of the Craigmad SSSI, the thinning scheduled will remove the non-native (including non-locally native) tree species.

Stands of older mixed broadleaves and conifers will be thinned once in the 10 year period whilst younger conifer stands with a higher yield class will be thinned twice in this period. This is displayed in the production forecast.

C.2.3 LISS

LISS management will be used for compartments 5c, 5d, 6b, 6c, 11a and 16b. The total LISS area is 25.81ha (14.7% of the woodland).

Compartments 6b and 6c will be selectively felled in order to create small coupes for regeneration; totalling approximately 20% of the compartment area. Restocking will be by natural regeneration from the surrounding Scots pine and Norway spruce, however, if after 5 years there is insufficient stocking then supplementary planting will be required. Annual monitoring for regeneration and any damage to regeneration will be done in each coupe.

Compartment 5c will be lightly thinned as these mature trees will only require a few removed to improve light levels for regeneration. Due to the small size of cpt 5d, it will also only be lightly thinned.

Compartment 11a will initially be thinned to aim for 300-500 stems per hectare. In the next plan period this compartment will also be selectively felled to promote natural regeneration. Selective felling coupes will be between 20 and 60m in width.

Compartment 16b will be thinned in this plan period and small coupe felling will be considered in phases 3 and 4.

It is envisaged that many of the new conifer stands that will be planted over the next 20 years will be managed on a LISS basis in future.

C.2.4 Long Term Retentions (LTR) / Natural Reserves

The majority of broadleaved woodlands on the Estate have been identified as long-term retentions with the expectation to manage these for the benefit of the landscape and biodiversity whilst retaining the option to actively manage the woodland should the requirement arise. This does not rule out operations such as thinning and felling in the future.

The conifer areas designated as long-term retentions are designed to retain some of the Scots pine crops beyond than their economic rotation, in order to provide habitat and structural diversity within the woodland. Thinning of the retentions is not a practical option due to the age and risk of further wind damage.

Compartments 6d and 6e have been identified as long-term retentions due to them covering the area designated as ancient woodland of semi-natural origin. The retention will be non-intervention for the plan period, however this allows for more active management in the future.

Two areas of broadleaves have been identified as natural reserves, these will be non-intervention areas and this should allow the broadleaved trees to develop a semi-natural woodland habitat.

C.2.5 Restocking Proposals / Natural Regeneration

The restructuring of felled areas is primarily concerned with continuing the timber production on the Estate and following United Kingdom Woodland Assurance Scheme (UKWAS) and United Kingdom Forestry Standard (UKFS). The current overall species distribution across the Estate woodlands fits very well with the UKWAS and UKFS requirements, except for open ground, which is very low. Outside of the woodlands, the land use is primarily agriculture, which does offer some open ground and woodland edge-effects; however this is not a substitute for internal woodland open ground.

The restocking will increase the overall area of open ground within the Estate by only 1.3% in 20 years, however as only 25% (43.77 hectares) of the total woodland area will have been restructured in this time period, this equates to 10% for the total area felled, and so goes some way to meet the UKFS requirements. Further open ground is planned for later phases. Once all of the Estate woodlands have been restructured from their first rotation, the overall species distribution and open ground within the woodlands will conform to the UKFS requirements.

The LISS selective felling areas are to be restocked by natural regeneration as per section C.2.3 and so are not included in the restocking table. Compartments being restocked through natural regeneration will be monitored and maintained throughout the establishment phase. Stocking densities will be a minimum of 2,500 per ha for conifer and 1100 per ha for broadleaves. If these densities are not be met by year 6 a beat up operation will be carried out to bring the coupes up to standard. Conifer species will be favoured in these areas.

Restocking will follow the Forests and Water Guidelines by holding back conifers from watercourse edges by 10 metres; this is too small to be mapped and is therefore not shown on Map 7.

All compartments will be restocked within 3 years of clear-felling. Stocking densities will be a minimum 2,500 per ha for Conifer and 1,100 per ha for Broadleaves. Restock compartments will be monitored and maintained throughout the establishment phase, with losses being replaced to maintain the stocking density.

Seed zone 203 will be used for all native stock. Should this seed zone be unavailable an adjacent seed zone will be used and the FCS guidance note followed. Prior to adjacent seed zones or any other seed being used FCS will be consulted to agree what zone should be used.

Table 3 Felling

This shows the scale of felling within the felling phases in the context of the whole Forest Plan. This includes any areas of 'LISS – Fell' (i.e. removal of final overstorey).

SCALE OF PROPOSED FELLING AREAS (including LISS final fell areas)												
Total Forest Plan Area:	175.90	hectares										
Felling	Phase 1	%	Phase 2	%	Phase 3	%	Phase 4	%	Long Term Retention	%	Area out-with 20yr plan period	%
Area (Ha)	13.72*	7.9	12.14*	6.9	6.55	3.7	12.35	7.0	39.42	22.4	91.72	52.1

*Includes LISS Selective Felling (Phase 1 – 0.22ha, Phase 2 – 0.77ha)

Table 4 Thinning

This shows the area of thinning over the first 10 years of the Forest Plan.

Species	Thinning (ha)
SS	12.05
SP/BI	6.50
SP	14.63
MC	20.68
MB	12.87
MC/MB	9.76
Total	101.42

Table 5 Restocking

This table provides information on the restocking proposals for the first 10 years of your Forest Plan. Restocking should be listed on a coupe by coupe basis.

Felling Phase	Map Identifier(s)	Species to be planted	Area (ha) to be planted
Phase 1	1c	SS	2.42
Phase 1	1d	SP	1.09
Phase 1	2e	JL	1.21
Phase 1	2f	SP	0.26
Phase 1	2g	MB (SOK 35%, PBI 35%, ROW 20%, WSH 10%)	0.39
Phase 1	2h	MC (DF 30%, SP 25%, NS 25%, JL 20%)	0.99
Phase 1	2i	MC (DF 30%, SP 25%, NS 25%, JL 20%)	0.77
Phase 1	2m	MB (SOK 50%, SBI 25%, ROW 15%, WSH 10%)	1.14
Phase 1	11e	SP	1.09
Phase 1	11f	NS	2.08
Phase 1	11g	NS	1.49
Phase 1	11p	MB (SOK 50%, SBI 25%, ROW 15%, WSH 10%)	0.33
Phase 2	1f	MC (JL 30%, DF 25%, SP 25%, NS 20%)	3.50
Phase 2	1n	DF	3.48
Phase 2	1o	NS	3.11
Phase 2	1p	MB (SOK 50%, SBI 25%, ROW 15%, WSH 10%)	0.60
Total Restocking Area			**23.94**

C.2.6 Protection
Deer pose the main browsing threat and control will be essential for successful regeneration. For phase 1 restocking, the broadleaved trees, which are more at risk compared to conifers, may be planted in tubes to offer additional protection from deer browsing. Once deer numbers have been reduced and this is evidenced through monitoring, tube protection will no longer be employed. Other maintenance operations will include beating up, weevil control and spot application of herbicide to control weeds if required. All operations carried out within the woodland will follow the latest version of the Forest and Water Guidelines. Other mammals and pests will be controlled as required, in line with best practice.

C.2.7 Fence erection / removal
No fencing is planned on the Estate.

C.2.8 Road Operations
Many of the Estate woodlands are accessible by public road. Internal roads are not currently suited for timber haulage and so these will be used to forward the wood only. The southern woodlands, which are scheduled to have the most harvesting, have frontage to the A907 and the C-class road that bisects the Estate. Historically this C-class road has been used successfully for timber haulage and it is not anticipated that this will be a problem for the duration of this plan. See Map 6. Prior to harvesting operations the condition of the C road and the junction with the A road will be discussed with the Local Authority. Appropriate signage will be used. Discussions with neighbours may lead to timber haulage times being limited to out with commuting/school run times.

C.2.9 Public Access
Public access is informal across the Estate, with the exception of the disused railway, which is a core path. The railway is outside the control and ownership of the Estate; however it cuts through the middle of the Estate and borders several of the compartments. During this plan period the Estate intends to erect signage for the benefit of users but otherwise no specific improvements will be made here. The route has been taken into consideration when designing the restocking of adjacent woodland. Within the LISS area open ground will be managed appropriately long the path. Informal paths from the railway and paths to and within the SSSI will be maintained but not formalised. Maintenance will include tree safety and clearing obstructions. Further access will be considered when planning restocking. Appropriate signage and procedures, as per HSE guidance, will be used during all felling operations. If any paths or tracks need to be closed for safety reasons a

detour will be found and if this is not possible the path closure will be kept as brief as possible.

C.2.10 Historic Environment

The two unscheduled sites, Slack Wood Enclosure and Chapel Knowe, will be protected during thinning/felling activities and will be cleared of any trees or shrubs at that time, after which the sites will be managed as open ground and information signage will be erected.

The veteran trees and woodlands within the designed landscape area around the grounds of the house will be managed to protect and maintain landscape features. Veteran trees throughout the woodland will also be managed in order to protect and retain them for as long as possible.

C.2.11 Biodiversity

The biodiversity value of the existing woodlands will be maintained and enhanced through the use of long-term retentions and natural reserves. The restructuring programme will maintain the structural diversity of the woodlands whilst meeting the production desires of the Estate.

In some areas, restocking will maintain an emphasis on growing commercial conifers, although the broadleaved element will be increased to enhance the forest edge habitats and along water courses. Internal open ground will also be increased.

Deadwood will be retained during harvesting operations, both standing and fallen, in line with current UKFS guidelines. Where there is little natural standing deadwood in a felling coupe, appropriate areas for deadwood will be identified and operators will be instructed to create deadwood by leaving small piles of larger diameter wood and by leaving some trees standing with their tops removed.

Prior to any felling or thinning operations a site assessment will be undertaken to establish if protected species, in this case bats and otters, are present. If present further surveys will be done to ensure that breeding/resting sites are not disturbed or damaged that that the protected species is not harmed in any way. During operations sites will be monitored and a contingency plan will be made available if there are any sightings of protected species. FC Guidance notes will be adhered to during all forest operations.

Designated Sites and Species

Within the Craigmad Wood SSSI scrub and bracken will be controlled so as to improve the habitat for chickweed wintergreen and cowberry. Beech and rhododendron will be removed from the upland oak woodland of the SSSI and natural regeneration will be encouraged. It is hoped that increased deer control will contribute to this objective.

Ancient Woodland

In order to balance the objectives of the woodland management, the areas that have been planted with conifers will be replanted with conifers to fulfil the

objective of continued timber production. However, broadleaved natural regeneration will be welcomed in the mix and good silvicultural management of the successor crop should enable the management through LISS so that the dramatic effects of clear-felling are reduced.

C.2.12 Tree Health

Routine inspections of the woodland, including operations inspections, will include a visual check for any general signs of plant health issues. Where issues relating to plant health are found within the woodland, these will follow the most recent guidance relating to the particular disease.

In the event of significant disease outbreak within the woodlands or other woodlands near the Estate, consideration will be made to planting alternative species to those under treat from disease.

C.2.13 Invasive species

There are no invasive species recorded within the woodland (with the exception of rhododendron) and so no management is required at this time. The estate will be monitored for any signs of Giant Hogweed or Himalayan balsam.

Rhododendron within the SSSI will be removed, see C.2.11.

C.2.14 New Planting

New planting has been considered around cpts 15a – d, but this will not be taken forward at this time. The potential area for woodland creation (of native broadleaves) is shown on Map 7. It is felt the proposed design would enhance the landscape as it would incorporate the current small compartments that are located there. Negotiations with tenants need to be undertaken and so this is only aspirational at this time.

C.2.15	

C.2.16	

C.3 Environmental Impact Assessment and Permitted Development Notifications

Please indicate the total area (hectares) for each project type and provide details as requested by sensitive or non-sensitive area.

Type of Project	Sensitive Area		Non-sensitive Area		Total
Afforestation	%Con	%BL	%Con	%BL	ha

Deforestation	%Con	%BL	%Con	%BL	ha
Forest Roads		ha		ha	ha
Quarries		ha		ha	ha
Provide further details on your project if required.					
Not applicable for this LTFP.					

C.4 Tolerance Table

	Map Required (Y/N)	Adjustment to felling period*	Adjustment to felling coupe boundaries**	Timing of Restocking	Changes to Restocking species	Changes to road lines	Designed open ground ***	Windblow Clearance* ***
FC Approval normally not required	N	Fell date can be moved within 5 year period where separation or other constraints are met	Up to 10% of coupe area	Up to 2 planting seasons after felling	Change within species group e.g. evergreen conifers or broadleaves		Increase by up to 5% of coupe area	
Approval by exchange of email and map	Y		Up to 15% of coupe area	Between 2 and 5 planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised		Additional felling of trees not agreed in plan Departures of more than 60m in either direction from centre line of road	Increase by up to 10% Any reduction in open ground within coupe area	Up to 5 ha
Approval by formal plan amendment may be required	Y	Felling delayed into second or later 5 year period Advance felling into current or 2nd 5 year period	More than 15% of coupe area	More than 5 planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised	Change from specified native species Change between species group	As above, depending on sensitivity	More than 10% of coupe area Colonisation of open areas agreed as critical	More than 5 ha

Note

*Felling sequence must not compromise UKFS in particular felling coupe adjacency. Felling progress and impact will be reviewed against UKFS at 5 year review.

** No more than 1 ha, without consultation with FCS, where the location is defined as 'sensitive' within the Environmental Impact Assessment (Forestry) 1999 Regulations (EIA).

*** Tolerance subject to an overriding maximum of 20% designed open ground.

****Where windblow occurs, FCS must be informed of extent prior to clearance and consulted on clearance of any standing trees.

D. Production Forecast

The production forecast is appended.

Appendices

Provide a list of appendices:

Item number	Title
Map 1	Location
Map 2	Concept map
Map 3	Current species
Map 4	Felling plan
Map 5	Thinning plan
Map 6	Timber haulage
Map 7	Restocking plan
1	Scoping report
2	Deer Management Plan**
3	Production Forecast**
	***Not contained in this example*

Inglis Forestry Group

N

Business Reference Number	123456
Location Code	067/6271

Woodfield

WIG - Planning Forest Plan

Map 1: Location

(Total Plan Area - 175.9 Ha)

Estate Boundary

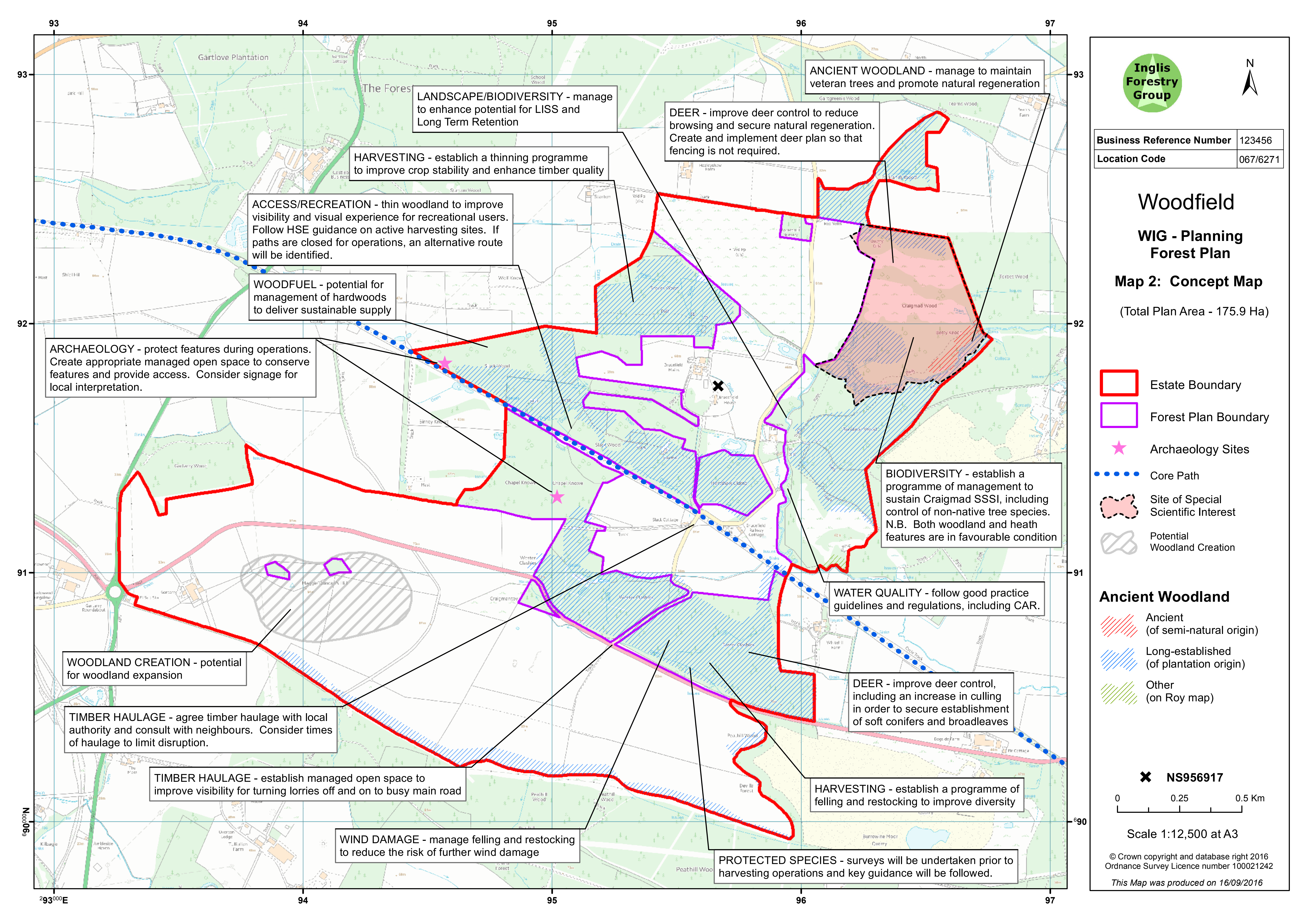
Forest Plan Boundary

✖ **NS956917**

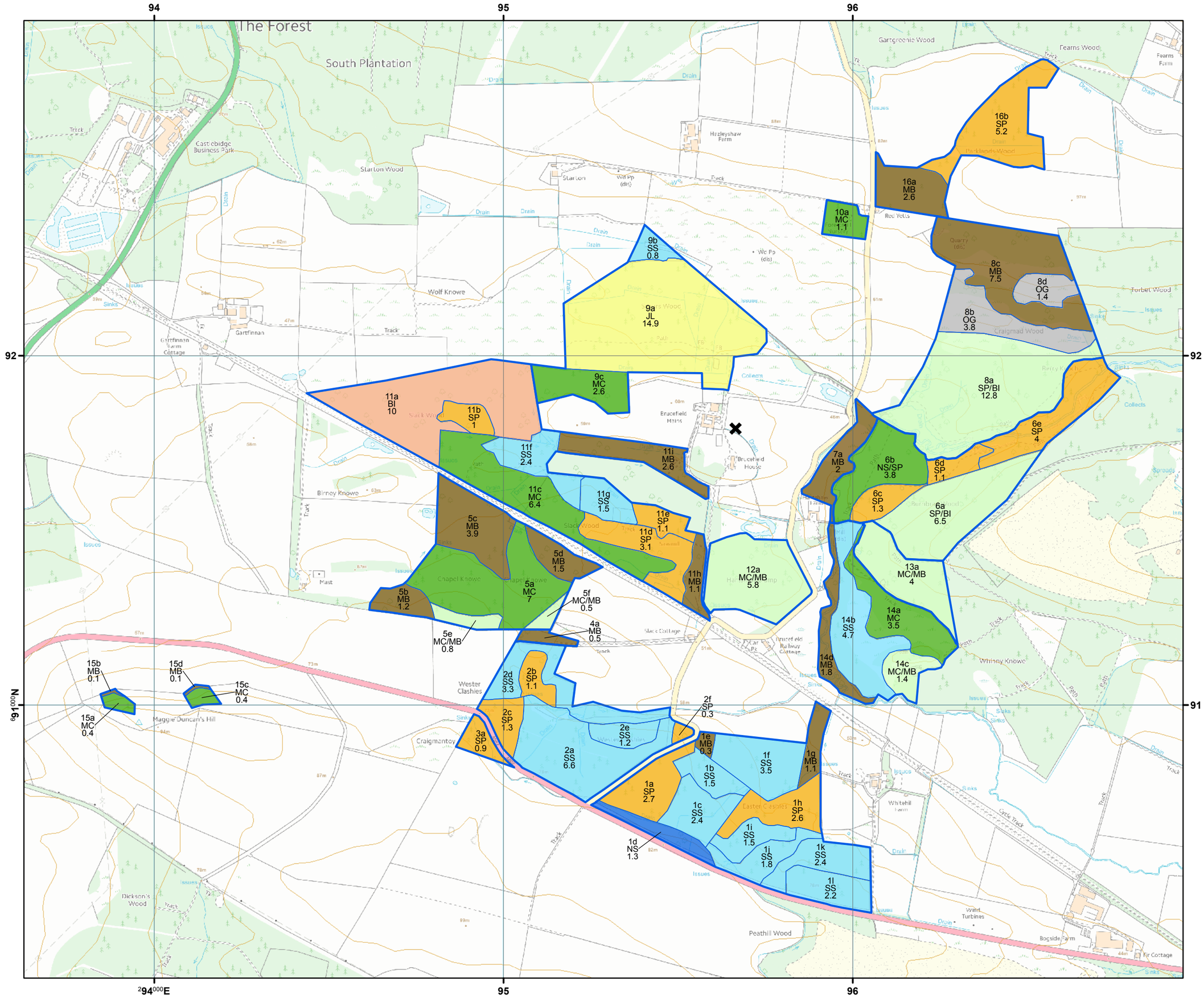
0 0.5 1 Km

Scale 1:25,000 at A3

This Map was produced on 24/08/2016



Inglis Forestry Group
N
Business Reference Number | 123456
Location Code | 067/6271
Woodfield
WIG - Planning Forest Plan
Map 2: Concept Map
(Total Plan Area - 175.9 Ha)
Estate Boundary
Forest Plan Boundary
Archaeology Sites
Core Path
Site of Special Scientific Interest
Potential Woodland Creation
Ancient Woodland
Ancient (of semi-natural origin)
Long-established (of plantation origin)
Other (on Roy map)
NS956917
0 0.25 0.5 Km
Scale 1:12,500 at A3
© Crown copyright and database right 2016 Ordnance Survey Licence number 100021242
This Map was produced on 16/09/2016
ANCIENT WOODLAND - manage to maintain veteran trees and promote natural regeneration
LANDSCAPE/BIODIVERSITY - manage to enhance potential for LISS and Long Term Retention
DEER - improve deer control to reduce browsing and secure natural regeneration. Create and implement deer plan so that fencing is not required.
HARVESTING - establich a thinning programme to improve crop stability and enhance timber quality
ACCESS/RECREATION - thin woodland to improve visibility and visual experience for recreational users. Follow HSE guidance on active harvesting sites. If paths are closed for operations, an alternative route will be identified.
WOODFUEL - potential for management of hardwoods to deliver sustainable supply
ARCHAEOLOGY - protect features during operations. Create appropriate managed open space to conserve features and provide access. Consider signage for local interpretation.
BIODIVERSITY - establish a programme of management to sustain Craigmad SSSI, including control of non-native tree species. N.B. Both woodland and heath features are in favourable condition
WATER QUALITY - follow good practice guidelines and regulations, including CAR.
WOODLAND CREATION - potential for woodland expansion
TIMBER HAULAGE - agree timber haulage with local authority and consult with neighbours. Consider times of haulage to limit disruption.
DEER - improve deer control, including an increase in culling in order to secure establishment of soft conifers and broadleaves
TIMBER HAULAGE - establish managed open space to improve visibility for turning lorries off and on to busy main road
HARVESTING - establish a programme of felling and restocking to improve diversity
WIND DAMAGE - manage felling and restocking to reduce the risk of further wind damage
PROTECTED SPECIES - surveys will be undertaken prior to harvesting operations and key guidance will be followed.
Gartlove Plantation
The Forest
Craigmad Wood
93
94
95
96
97
92
91
90
293000E
690000N



Inglis Forestry Group

N

Business Reference Number	123456
Location Code	067/6271

Woodfield

WIG - Planning Forest Plan

Map 3: Current Species

(Total Plan Area - 175.9 Ha)

Current Species

- Sitka Spruce (SS)
- Norway Spruce (NS)
- Japanese Larch (JL)
- Scots Pine (SP)
- Mixed Conifer (MC)
- Mixed Broadleaved (MB)
- Nat Mix Broadleaves (NBL)
- Birch (BI)
- Mixed Woodland
- Open Ground (OG)

1k
SS
2.4

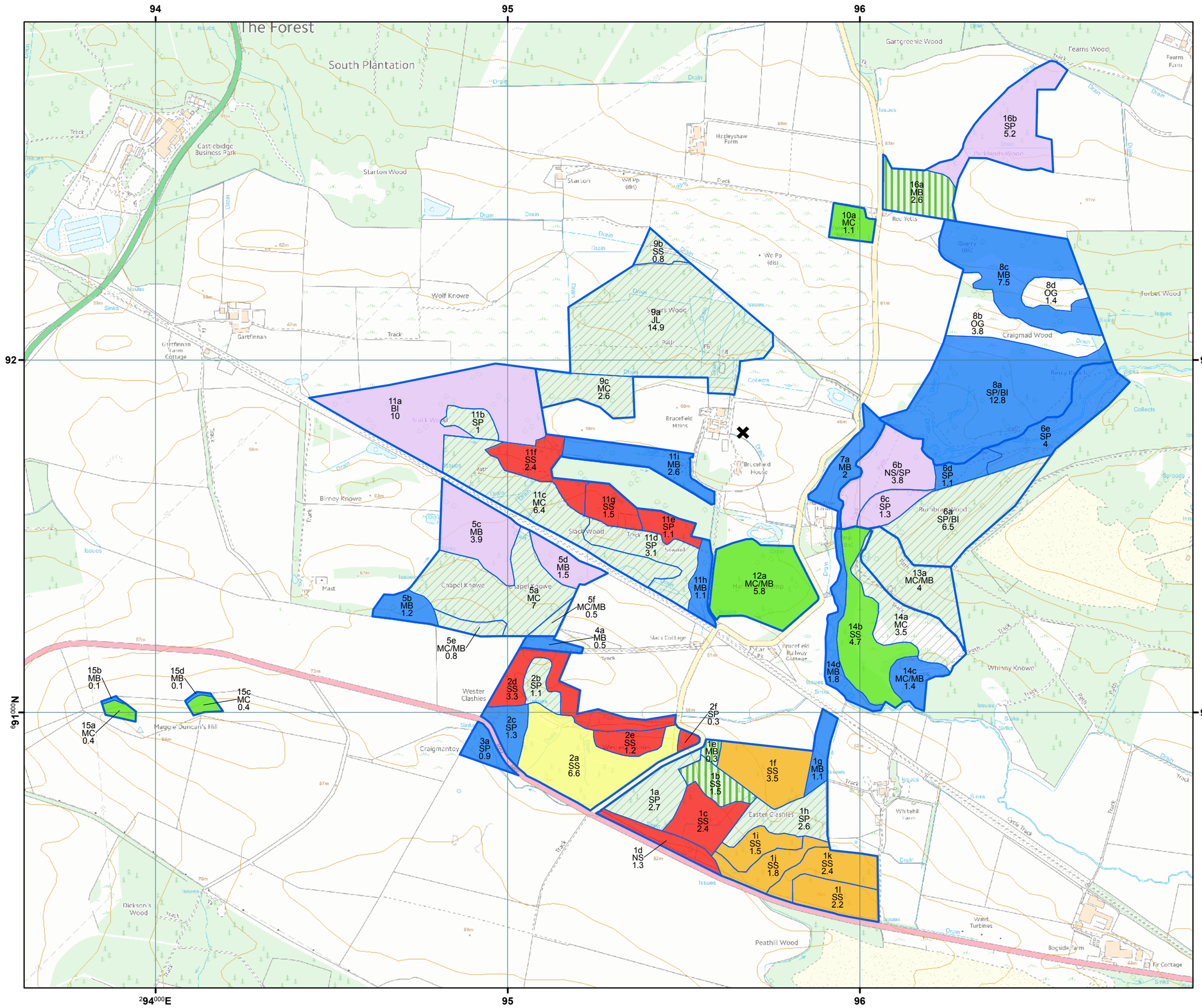
- Sub-compartment (Map letter)
- Species
- Area (hectares)

✖ **NS956917**

0 0.25 0.5 Km

Scale 1:10,000 at A3

This Map was produced on 24/08/2016



Inglis Forestry Group

N

Business Reference Number	123456
Location Code	067/6271

Woodfield

WIG - Planning Forest Plan

Map 4: Felling Plan

(Total Plan Area - 175.9 Ha)

Felling Phases

- Phase 1 13.50 Ha
- Phase 2 11.37 Ha
- Phase 3 6.55 Ha
- Phase 4 12.35 Ha
- Outside plan period
- Restocked
- LISS 25.81 Ha
- Long-term Retention 39.42 Ha

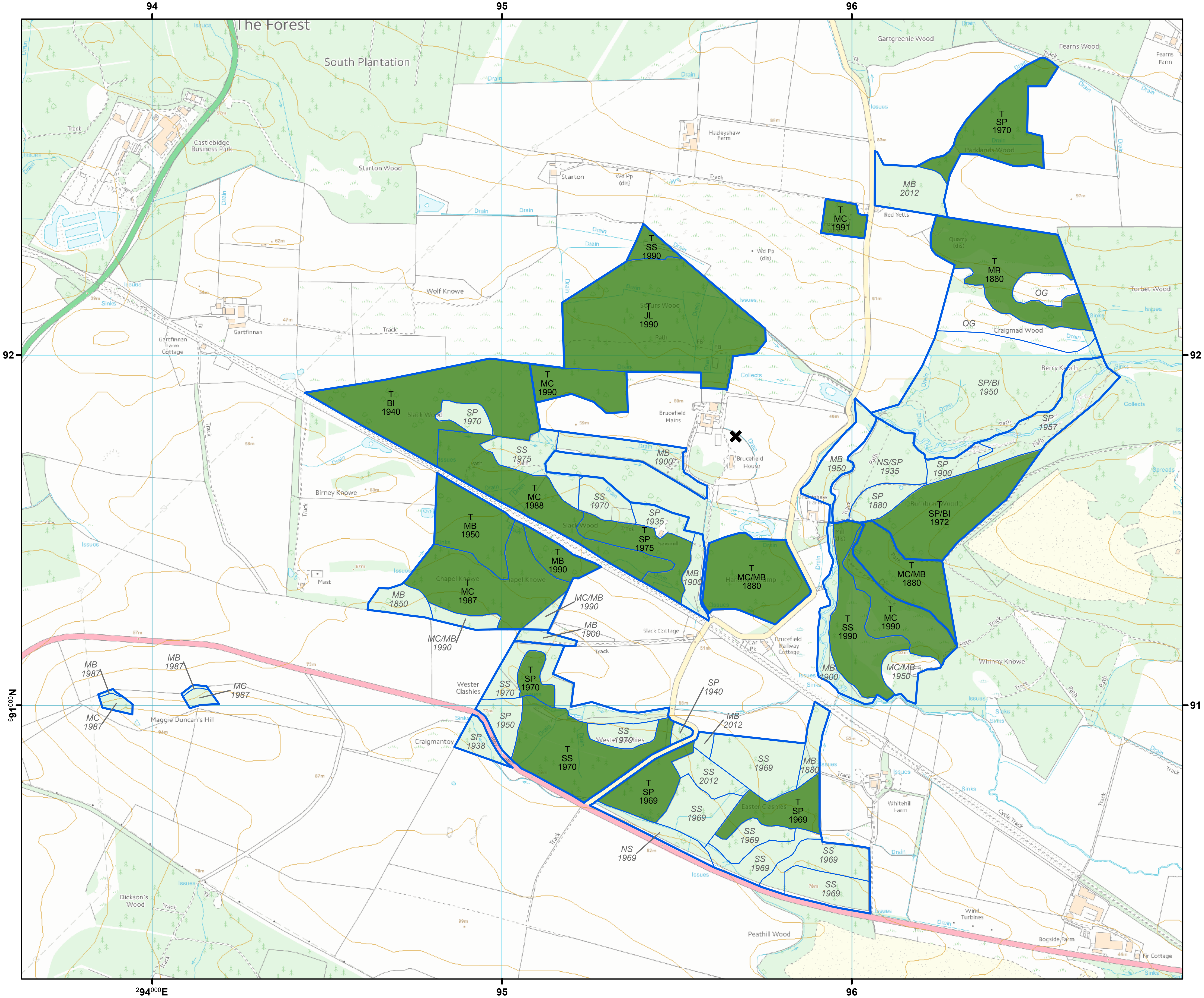
1f SS 3.5 — Sub-compartment (Map letter); Species; Area (hectares)

✖ **NS956917**

0 — 0.25 — 0.5 Km

Scale 1:10,000 at A3

This Map was produced on 07/09/2016



Inglis Forestry Group

N

Business Reference Number	123456
Location Code	067/6271

Woodfield

WIG - Planning Forest Plan

Map 5: Thinning

(Total Plan Area - 175.9 Ha)

Thinning - 101.41 Ha

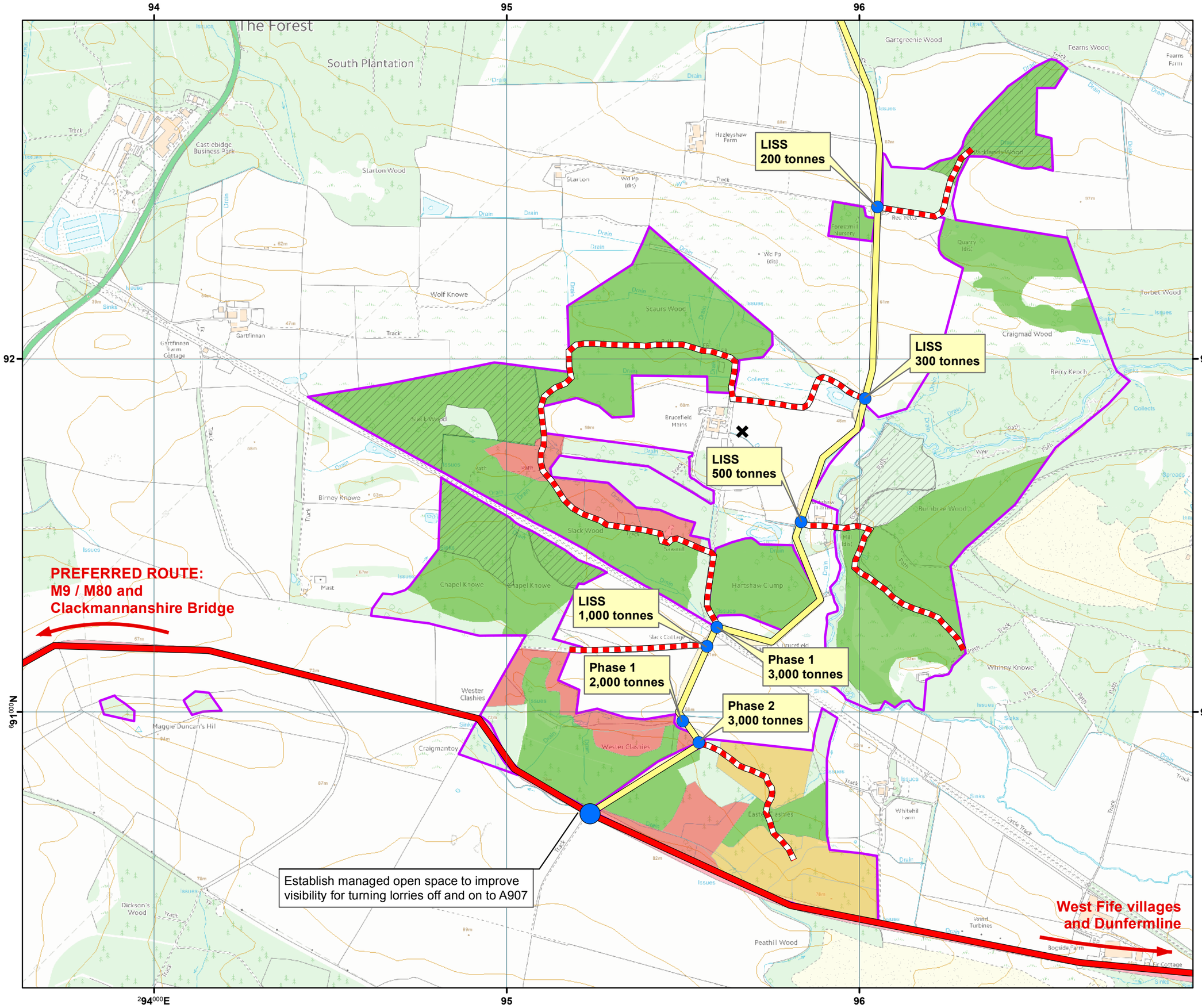
T – Thinning
SS – Species
1970 – Planting year

✖ NS956917

0 0.25 0.5 Km

Scale 1:10,000 at A3

This Map was produced on 24/08/2016



Inglis Forestry Group

N

Business Reference Number	123456
Location Code	067/6271

Woodfield

WIG - Planning Forest Plan

Map 6: Timber Haulage Estimated Extraction

(Total Plan Area - 175.9 Ha)

- Main Exit Point onto A Road
- Exit Point onto Minor Road
- Public A road (A907)
- Public minor road
- Forwarder Tracks
- Forest Plan Boundary

Felling Phases

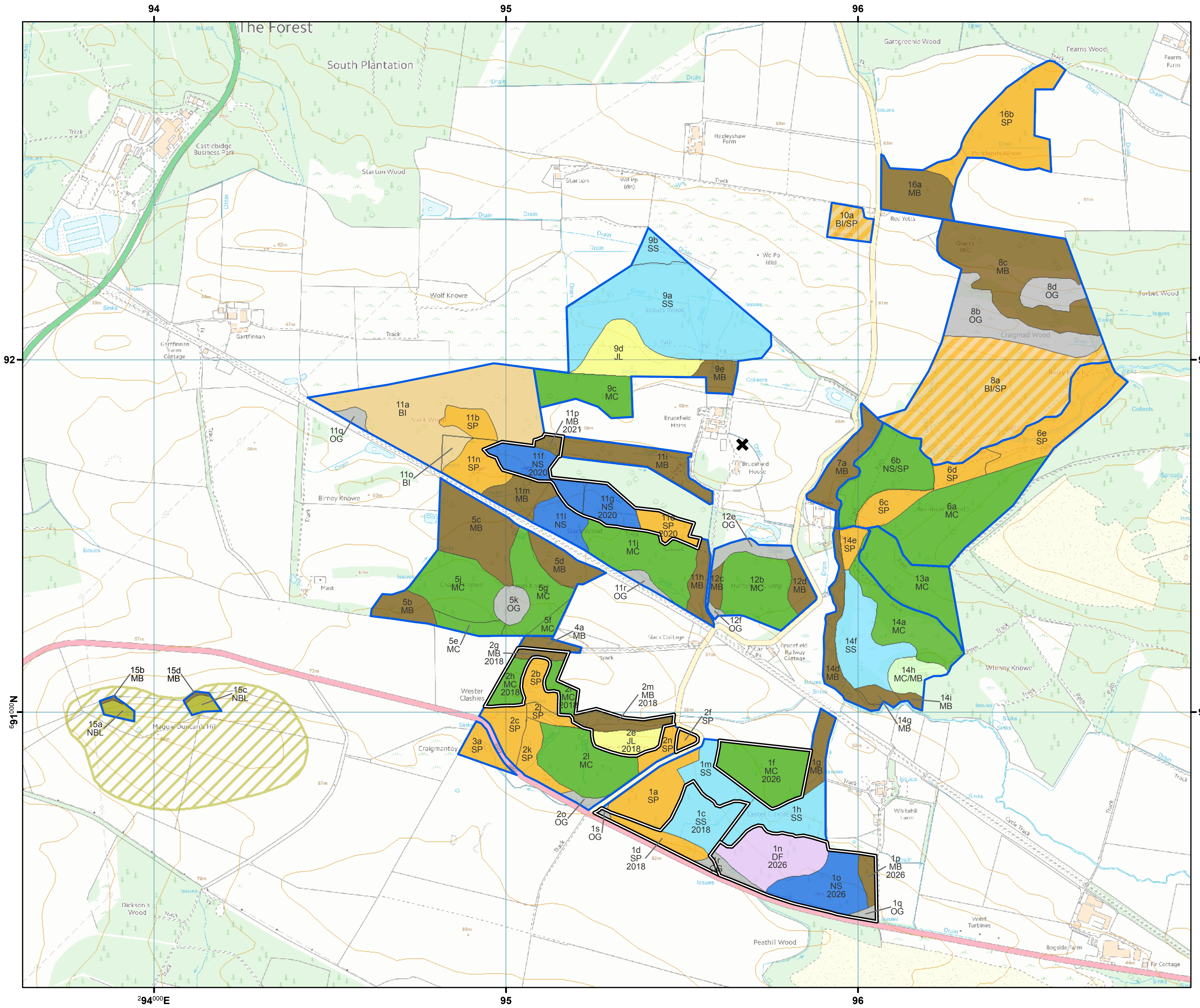
- Phase 1
- Phase 2
- LISS
- Thinning

✖ **NS956917**

0 0.25 0.5 Km

Scale 1:10,000 at A3

This Map was produced on 15/11/2016



Inglis Forestry Group

N

Business Reference Number	123456
Location Code	067/6271

Woodfield

WIG - Planning Forest Plan

Map 7: Restocking

(Total Plan Area - 175.9 Ha)

Restock Species

- Sitka Spruce (SS)
- Norway Spruce (NS)
- Douglas Fir (DF)
- Japanese Larch (JL)
- Scots Pine (SP)
- Mixed Conifer (MC)
- Mixed Broadleaves (MB)
- Nat Mixed Broadleaves (NBL)
- Birch (BI)
- Birch/Scots Pine (BI/SP)
- Mixed Woodland (MC/MB)
- Open Ground (OG)
- Restocking Phase 1 & 2
- Potential Woodland Creation Native Broadleaves

1q — Sub-compartment (Map letter)
SS — Species
2023 — Planting / restock year

✖ NS956917

0 0.25 0.5 Km

Scale 1:10,000 at A3

This Map was produced on 08/09/2016

Appendix 1
Scoping Report

Scoping Report

Part 1 – General Details	
Property Name:	Woodfield
FGS number:	15FGS00012
Forest Plan area:	175.9 hectares
Type of scoping:	Correspondence

Assessment of local impacts and key issues

Prior to the scoping we assessed the impacts of our potential proposals on the local community and local interests. This was discussed with our Woodland Officer during a meeting where we agreed key issues, and which stakeholders should be included in the scoping exercise. Scoping was undertaken by letter, and below is the list of stakeholders that we contacted.

The assessment of the impacts of our proposals highlighted two neighbours who would potentially be affected; this would mainly be from timber traffic. We also considered impacts to local access to the Estate and the core path. This fed into the key issues that we identified and agreed with our Woodland Officer, which were:

- Timber traffic on the C road
- Craigmad SSSI management
- Forestry operations and access on the core path and within the forest
- Control of deer, and other mammals and pests for successful regeneration
- Preservation of archaeological features

Part 2 – Key Issues includes a summary of issues as outlined in responses received from stakeholders. See Map 2 Concept Map for all of the post-scoping opportunities and constraints.

Stakeholders

A copy of the pre-scoping map and a summary of the woodland were sent to the following stakeholders.

Name	Organisation	Address	Response received
Planning and Roads Dept.	Clackmannanshire Council	Clackmannanshire Council, Sustainability, Kilncraigs, Alloa, FK10 1EB	Yes
Planning Dept.	Fife Council	Fife Council – Planning, North Street, Glenrothes, KY7 5LT	
Douglas Speirs	Archaeologist – Fife Council	Fife Council, Kingdom House, Kingdom Avenue, Glenrothes,	

		KY7 5LY	
	SNH Stirling	SNH, Beta Centre, Stirling University Innovation Park, Stirling, FK9 4NS	Yes
Callum Waddell	SEPA Stirling	SEPA, Erskine Court, The Castle Business Park, Stirling, FK9 4TX	Yes
Murray Cook	Archaeologist – Stirling Council	Stirling Council, Viewforth, Stirling, FK8 2ET	Yes
Yvonne Boles	RSPB Glasgow	RSPB Scotland, 10 Park Quadrant, Glasgow, G3 6BS	Yes, no comment
Ms Inness	Kincardine Community Council	6 Feregait, Kincardine, Alloa, FK10 4QR	
	FC – Scottish Lowlands District	Five Sisters House, Five Sisters Business Park, West Calder, EH55 8PN	
Mr & Mrs A	Neighbour	First House, Forestmill, Alloa, FK10 3QF	
Mr & Mrs B	Neighbour	Second Farm, Forestmill, Alloa, FK10 3QF	

Part 2 – Key Issues				
Key Issues	Raised by	Detail any likely impact	Action(s) to be taken to address key issues and identify location within Forest Plan	Notes
Archaeology – unscheduled sites: Chapel Know and Slack Wood Enclosure	Archaeologist – Stirling Council	Damage from harvesting operations.	Protect features during all operations and manage the sites as open ground, following Forests and historic environment guidelines.	Highlight location on appropriate maps for plan and future operations. Consider signage for local interpretation.
Craigmad Wood SSSI	SNH	Any work within woodland may require consent from SNH.	Potential to control non-native tree species in the woodland features.	Both woodland and heath features are in favourable condition (non-wood feature is declining).
Protected species	SNH	Damage, injury or death of protected species resulting from harvesting operations.	UKFS and key FC Guidance notes will be followed during forestry operations.	Surveys will be undertaken prior to planning harvesting operations.
Timber haulage	FCS	Disruption to neighbours. Damage to C road. Timber lorries turning onto main road.	Agree timber haulage with local authority and discuss with neighbours.	Timber haulage map will be supplied. Consideration will be given to haulage times.
Water quality	SEPA	Forest operations and run-off may impact the water environment.	Follow good practice guidelines and regulations, including CAR.	All UKFS guidelines and relevant legislation must and will be followed

Part 2 – Key Issues				
Key Issues	Raised by	Detail any likely impact	Action(s) to be taken to address key issues and identify location within Forest Plan	Notes
				as a matter of course.
Core path and access	Access Officer – Clackmannanshire Council	Health & Safety for users – signage, alternatives. Damage from operations.	Follow HSE guidance on active harvesting sites. If paths are closed for operations an alternative route will be identified.	Open space along the core path will be increased for visual and safety reasons.
Control of deer, mammals, and pests	SNH/FCS	Lack of natural regeneration and damage to restocked sites. Damage to native woodland understory.	Write a deer management plan and implement so that fencing will not be required and so that restocking and natural regeneration for the SSSI and LISS areas do not suffer from damage.	Best practice will be followed. DMP will be included in LTFP. Culling will be increased to meet management objectives.

Note: Copies of the responses received should be included in the Scoping Report, but they are not in this example.