Benhar & Fauldhouse

Land Management Plan

Scottish Lowlands Forest District

Approval date:	21 September 2018
Plan Reference No:	032/18/03
Plan Approval Date:	.....
Plan Expiry Date:	20 September 2028

We manage Scotland's National Forest Estate to the United Kingdom Woodland Assurance Standard – the standard endorsed in the UK by the international Forest Stewardship Council® and the Programme for the Endorsement of Forest Certification. We are independently audited.

Our land management plans bring together key information, enable us to evaluate options and plan responsibly for the future. We welcome comments on these plans at any time.

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FOREST ENTERPRISE - Application for Land Management Plan Approvals in Scotland

Forest Enterprise - Property

Forest District:	Scottish Lowlands
Woodland or property name:	Benhar & Fauldhouse
Nearest town, village or locality:	Shotts and Fauldhouse
OS Grid reference:	NS
Local Authority district/unitary Authority:	North Lanarkshire/West Lothian

Areas for approval

Hectares	Conifer	Broadleaf
Clear felling	95.8	
Selective felling	0	
Restocking	79.0	
Deforestation (bog restoration)	16.8	

1. I apply for Land Management Plan approval*/amendment approval* for the property described above and in the enclosed Forest Design Plan.
2. I apply for an opinion under the terms of the Environmental Impact Assessment (Forestry) (Scotland) Regulation 1999 for afforestation*/ deforestation*/ roads*/ quarries* as detailed in my application
3. I confirm that the initial scoping of the plan was started with FC staff on 16/01/15
4. I confirm that the proposals contained in this plan comply with the UK Forestry Standard.
5. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which the FC agreed must be included.
6. I confirm that consultation and scoping has been carried out with all relevant stakeholders over the content of the of the design plan. Consideration of all of the issues raised by stakeholders has been included in the process of plan preparation and the outcome recorded on the attached consultation record. I confirm that we have informed all stakeholders about the extent to which we have been able to address their concerns and, where it has not been possible to fully address their concerns, we have reminded them of the opportunity to make further comment during the public consultation process.
7. I undertake to obtain any permissions necessary for the implementation of the approved Plan.

Signed ……. Forest District Manager

Signed ……. Conservator

District …….

Conservancy …….

Date …….

Date of Approval …….

Date approval ends:…….

*delete as appropriate

Environmental Impact Assessment Determination Enquiry Form

Complete this form to find out if you need consent, from the Forestry Commission (under the EIA Regulations 1999), to carry out your proposed work.

Section 1 Proposed work							
Please put a cross in the box to indicate the type of work you are proposing to carry out. Give the area in hectares and where appropriate the percentage of conifers and broadleaves.							
Proposed work	cross	Area in hectares	% Conifer	% broadleaves	Proposed work	cross	Area in ha
Afforestation	-	-	-	-	Forest roads	-	-
Deforestation	X	16.8	100	0	Forest quarry	-	-
Location and District			Benhar & Fauldhouse, Shotts/Fauldhouse, North Lanarkshire – Scottish Lowlands Forest District				

Please attach map(s) showing the boundary of the proposed work and also give details of the operations.

Section 2 Property details	
Property Name	Benhar & Fauldhouse
Grid Reference (e.g. AB 123/789	NS 8854 6137
Local Authority	North Lanarkshire
Nearest Town	Shotts

Section 3 Applicant's category ***(please put a cross in one box)***			
PE Personal occupier	-	PU Public ownership	X
BU Business occupier	-	OT Other	-
VO Voluntary organisation	-	CT Crofting tenant	-

Section 4 Applicant's type *(please put a cross in one box)*			
LS Lessee		OW Owner	X
TE Tenant		TR Trust	

Section 5 your agent or woodland manager's details					
Title	Mr	Initials	R	Surname	Clamp
Organisation	Forestry Commission Scotland – Scottish Lowlands Forest District				
Address	Five Sisters House				
Five Sisters Business Park					
West Calder			Postcode	EH55 8PN	
Tel No	0300 067 6725		Mobile	07801 213 304	
Fax	-		e-mail	robert.clamp@forestry.gsi.gov.uk	
Is this the address for correspondence?		yes	X	No	

Section 6 Applicant's details					
Title	Mr	Initials	S	Surname	Gordon
Organisation	Forestry Commission Scotland – Scottish Lowlands Forest District				
Address	Five Sisters House				
Five Sisters Business Park					
West Calder			Postcode	EH55 8PN	
Tel No	0300 067 6734		Mobile	07990 838 275	
Fax	-		e-mail	scott.gordon@forestry.gsi.gov.uk	
Is this the address for correspondence?		yes	X	No	

Section 7 Sensitive Areas: Give the area of the proposal that is covered by any of the following designations	
Sensitive Area as listed in "Schedule 2" of the 1999 EIA Regulations Area (ha)	Area in hectares
a. Sites of Special Scientific Interest (SSSI) or Proposed Sites of Special Scientific Interest (PSSSI)	N/A
b. SSSI's with a Nature Conservation Order (Section 29 of the Wildlife and Countryside Act 1981)	N/A
c. National Park (NP)	N/A

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Summary of Proposals

This plan is a review, renewal and amalgamation of Forest Enterprise Scotland's management of West Benhar & Fauldhouse forest blocks and incorporates the acquisition (2008) of the Fauldhouse Hills an extension of the West Benhar block, purchased by the district during the second phase of the previous plan.

The purpose of this plan is to set out management objectives and prescriptions for these forests over the next ten years in detail, and in more broad terms for the following ten years, which will fulfil the requirements of the UK Woodland Assurance Scheme and the UK Forest Standard.

West Benhar from this point forward will be referred to as Benhar. Benhar and Fauldhouse are multi beneficial forests and the aim is to maintain as many of these benefits as is possible.

Main Priorities

The Main Priorities for this woodland are:

- To retain where reasonably practical the production of a sustainable timber crop of conifer & broadleaves for both local and national markets.
- Assist in business development and the local economy through the development of a windfarm and creating additional employment in the forestry, timber and wood processing industries.
- Maximise biodiversity value and environmental quality of both woodland, water and open habitats including bogs.
- Manage woodland sustainability to assist with Government targets on climate change.
- Increase and improve both formal and informal access to promote responsible recreation.
- Preserve historical, enhance industrial and cultural features within the forest.
- Manage the forest in a way that reduces the potential impact of climate change and increased vulnerability to disease.

1.0 Introduction:

1.1 Setting and context

Benhar & Fauldhouse forest blocks lie 1 mile south of the M8 motorway (Jtn. 5) approximately mid-way between Glasgow and Edinburgh. There are a number of settlements surrounding these blocks including Shotts, Harthill, Whitburn and Fauldhouse which are 1-4 Km from the centre of the site, with the exception of Fauldhouse which lies on the south-eastern boundary of the site.

The LMP area spans 5 km west to east and 3 km north to south at its greatest extents. The forests stretch from the North Shotts Moss (B717) in the west encompassing Fauldhouse Moor to Polkemet Moor in the north and east extending south over the Fauldhouse Hills to the village of Fauldhouse. The total area of the plans covers a land area of 596ha.

The forest blocks straddle the local authority boundary between North Lanarkshire and West Lothian

See **Map 1 - Location** & **Map 2 - Context**.

1.2 History of the Forest

These two blocks were separated in the early 1990's into two individual design plans to address the slightly differing objectives for each site. These are being brought back together again to facilitate efficiencies and the ease of management of sites with similar objectives and characteristics. Both sites comprise of a combination of former blanket bog with a history of mining which has left the site intersected with old mineral railway lines and several unrestored bings.

The total land area (596ha) was purchased by the Forestry Commission as the land became available over a number of decades from 1956 until the most recent acquisition of Falahill/Fauldhouse Hills in 2008 (71 ha), and comprises of former National Coal Board and agricultural holdings and was for the most part planted prior to acquisition (P98-02) with a mixture of commercial and amenity woodland. An area of 63ha on the eastern edge of the block was sold off in 2004 to enable opencast restoration works.

The Benhar block received a planning consent from North Lanarkshire Council to construct an 8 turbine windfarm in November 2014 (Planning reference 13/1037/FUL). The windfarm is contained entirely within the North Lanarkshire local authority area.

2.0 Analysis of Previous Plans

2.1 How Previous Plan Relates to Todays Objectives

The previous plan relates well against a few of today's objectives as follows:

Environmental Quality – 'enhance the value of the area to wildlife by increasing age and species diversity and developing an extensive area of wet, mixed woodland and protect water quality and the physical integrity of streams.'

Access Health & Biodiversity – 'improve the recreation value of the forest and preserve features of archaeological interest.'

Timber – 'In the period 2003 - 2013, an average 1200 tonnes per annum was produced from the plan area.'

The previous plans are more specific in highlighting the need to improve internal and external views and also to minimise the extent of damage caused by fires.

2. Aims of Previous Plans and Achievements

West Benhar

Aims & Objectives	Achievements
Enhance the value of the area to wildlife by increasing age and species diversity and developing an extensive area of wet mixed woodland.	Restocking of wet woodland areas has primarily been through regeneration of L.pine, birch & willow some areas have also been planted with rowan to increase diversity with varying success.
Improve the recreation value of the forest and preserve features of archaeological interest.	Improvements at the main access points to deter unauthorised vehicle access have proven ineffective. Minimal archaeological interest in Benhar Former industrial areas have remained as open ground.
Improve the external and internal views of the forest.	Internal views are now much more open and welcoming. External views of the site are harder to assess due to the linear plateau nature of the site.
Protect water quality and the physical integrity of streams	Large forest drains have been kept clear of trees and recent surveys have shown an increase in water vole activity in the area.
Minimise the extent of damage caused by fires.	The frequency of fire raising has reduced over the period of this plan due to improved education and ranger input.

Fauldhouse

Aims & Objectives	Achievements
Provide a sustainable source of timber to the industry	All the largest coupes identified in the previous plan were felled. Areas (5ha) have been planted with a biomass crop, predominantly alder, this is starting to die back as a result of suspected soil compaction.
Enhance the value of the area to wildlife, by increasing age and species diversity.	The increased use of broadleaves at restocking has significantly increased species diversity. Age diversity will be more gradual.
Improve the external views of the forest and internally to enhance the views from the forest walks and principle forest roads.	External views of the forest from the Fauldhouse Harthill road have been improved by brashing back roadside trees and leaving more open areas at roadside.
Protect water quality and the physical integrity of streams	Large forest drains have been kept clear of trees.
Minimise the extent of damage caused by fires.	The frequency of fire raising has reduced over the period of the previous plan due to improved education and ranger input.

Fauldhouse Hills acquisition was not covered by either of the previous plans for West Benhar or Fauldhouse.

Given the level of fire raising that has occurred predominantly in the first phase of the previous plan it has been difficult to realise the full potential of the timber elements of the original objectives however that said the majority of objectives for diversity have been achieved.

3.0 Background information

3.1 Physical site factors

3.1.1 Geology Soils and landform

British Geological Survey (BGS) mapping shows that the underlying geology of the site to be Scottish Lower Coal Measures Formation throughout. The soils throughout the vast majority of the site are deep peat, where this is below 50cm podzolic peaty surface water gleys are evident. At the north and southern reaches of the eastern end of the block typical surface water gleys can be found.

Throughout the site are sporadic instances of 'Artificial Deposits' from the coal, shale and iron ore extraction industries, these deposits take the form of bings a few of these have been planted in the past.

FC Soil Code	Description
11b	Calluna, Erioph,Vag, Blanket Bog
6z	Podzolic, peaty surface water gley
7	Typical surface water gley

The soil moisture regime (SMR) for the site is wet with a soil nutrient regime (SNR) that is poor.

See **Maps 4a – Soils**, **4b - SNR** & **4c – SMR**

The elevation of the site is undulating, increasing from 230m above ordnance datum (AOD) at the western edge to 284m at the highest point of the Fauldhouse Hills then gradually falling back to 250m where the forest edge meets the village Fauldhouse in the south east.

The central plateau only varies between 267m and 261m and encompasses approximately 350ha, which is slightly more than half the total area of the blocks.

3.1.2 Water

In terms of water and hydrology the site lies within the catchment areas of the River Clyde to the south and west and the majority of the site to the North & east falls within the River Almond catchment area.

There are no significant water courses within the bounds of the site. Some larger forest drains within the site could be considered small water courses, which drain to the headwaters of the River Almond to the north and the South Calder Water to the south. The site also contains a small number of roadside fire ponds.

The ground water levels on the site fluctuates with precipitation and in periods of prolonged wet weather the water table on the main plateau of the site can be at surface level.

3.1.3 Current Climate & Exposure

Winters in in this area are usually cold for Scotland, with January daily temperatures of about 5.2°C and nights cooling off to 0.1°C in the coldest month. Summers are warm, with daytime temperatures in July typically reaching 18.2°C and nights dipping to 10.0°C. Rainfall is typical, totalling 1074 mm in a typical year providing 465mm of summer rainfall and 581mm of winter rainfall. Precipitation is distributed evenly, falling over about 167 days per year. There are average sunshine totals, with 1254 hours of sunshine recorded in a typical year.

The average windiness of a site is measured using Detailed Aspect Method Scoring (DAMS). DAMS is based on location, elevation and topographic exposure, and gives a good representation of both the average wind speed and the frequency of strong winds at a site. Values of DAMS in Britain typically range from 10 (sheltered) to 24 (exposed). Small differences in DAMS can result in large differences in predictions of wind damage. Given the elevated plateau nature of much of the site it is openly exposed to the prevailing west and south westerly winds and the DAMS for this site rage from a minimum of **17** to a maximum of **18** and as such is in the **highly exposed** category. This limits the choice of species suited to these conditions.

See Map 4d - DAMS

3.2 Biodiversity and Environmental Designations

3.2.1 Statutory Designations

On the opposite side of the B717 road from the block lie ‘North Shotts Moss Special Area of Conservation (SAC)’ and ‘Hassockrigg and North Shotts Mosses Site of Specific Scientific Interest (SSSI)’. North Shotts Moss SAC is designated for its active and degraded raised bog habitat, whilst Hassockrigg and North Shotts Mosses SSSI is designated for its raised bog habitat.

3.2.2 Local Nature Conservation Sites

Part of the site falls within a Site of Interest for Nature Conservation (SINC) ‘96/01 Balbackie Plantations’. The SINC is noted for its small pearl borderd fritillary and pools and covers some 30ha within the block

See **Map 2 - Context**

3.2.3 Important Species

Further to the FES records for the site a survey for European protected species (EPS) was undertaken by the windfarm developer during the course of its site investigations for the environmental statement and concluded that there are currently no EPS within the bounds of the site.

Although not a European protected species, Water Vole have been recorded within the plan area.

3.3 The Existing Forest:

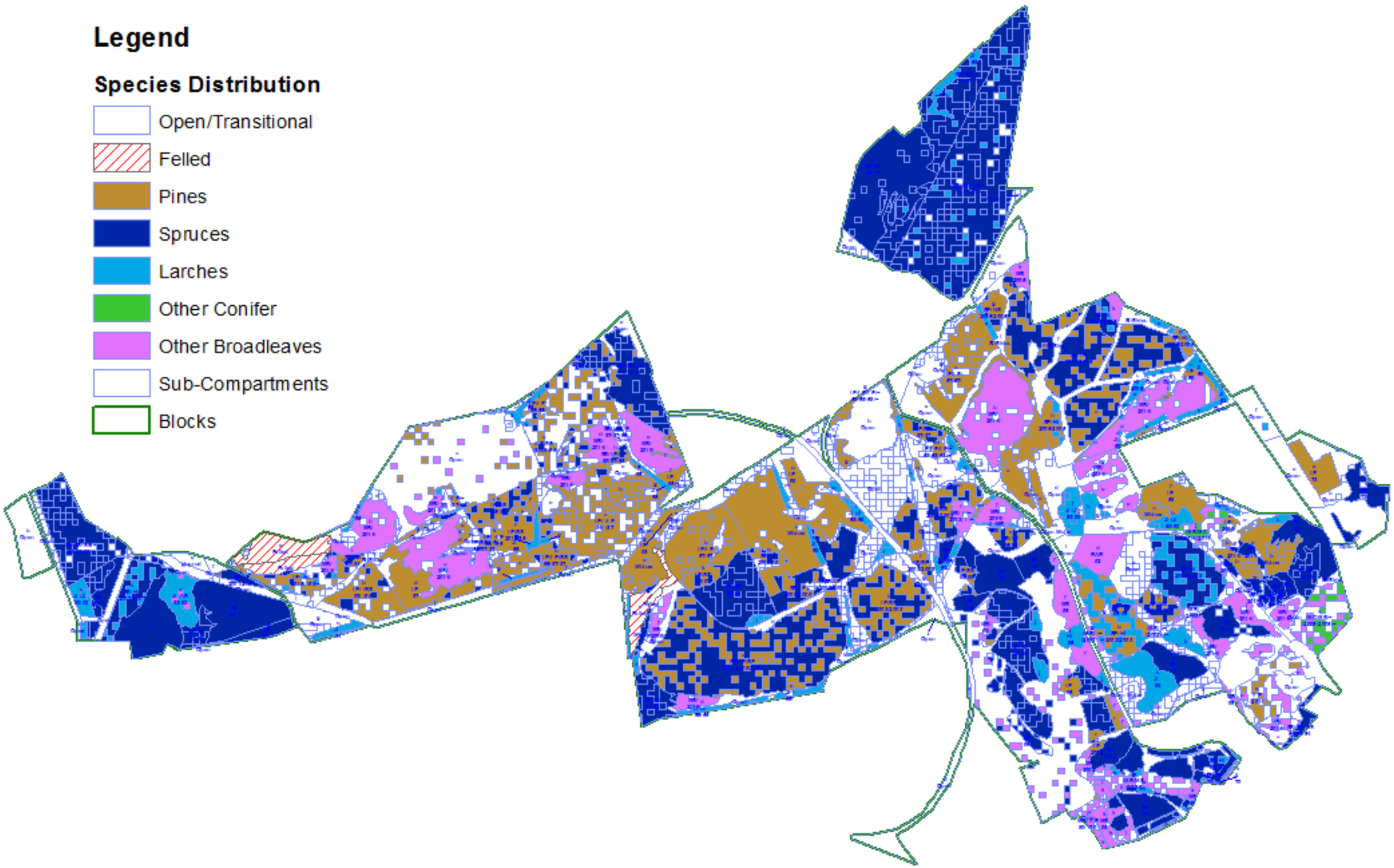
Benhar & Fauldhouse are largely coniferous plantations consisting mainly of Sitka Spruce (Picea sitchensis) and Logdepole Pine (Pinus contorta) these two species make up almost 45% of the forest block areas, other conifer species (Larch & Scots pine) makeup a further 6% of the coniferous element. Mixed broadleaves account for a further 10% of the planted area consisting of predominantly wet woodland spp (Alder, Birch, Willow Spp & Rowan) a small area representing around 1% has been planted with red alder as a biomas and soil ameliorant crop there are no other commercial broadleaves in the blocks.

Open ground accounts for nearly a third of the forest block area, with the remainder comprising of implantable ground, stream sides (large forest drains) open water and recovering previously fire damaged areas.

The Benhar and Fauldhouse forest blocks are physically separated by the unclassified Harthill Road leading from Fauldhouse to Harthill. The western end of Benhar is bounded by the B717 Benhar road.

3.3.1 Age Structure, Species Distribution, Yield Class

The following pages contain maps tables and a chart which detail the age structure, yield class and species distribution and composition.


Legend
Species Distribution
Open/Transitional
Felled
Pines
Spruces
Larches
Other Conifer
Other Broadleaves
Sub-Compartments
Blocks

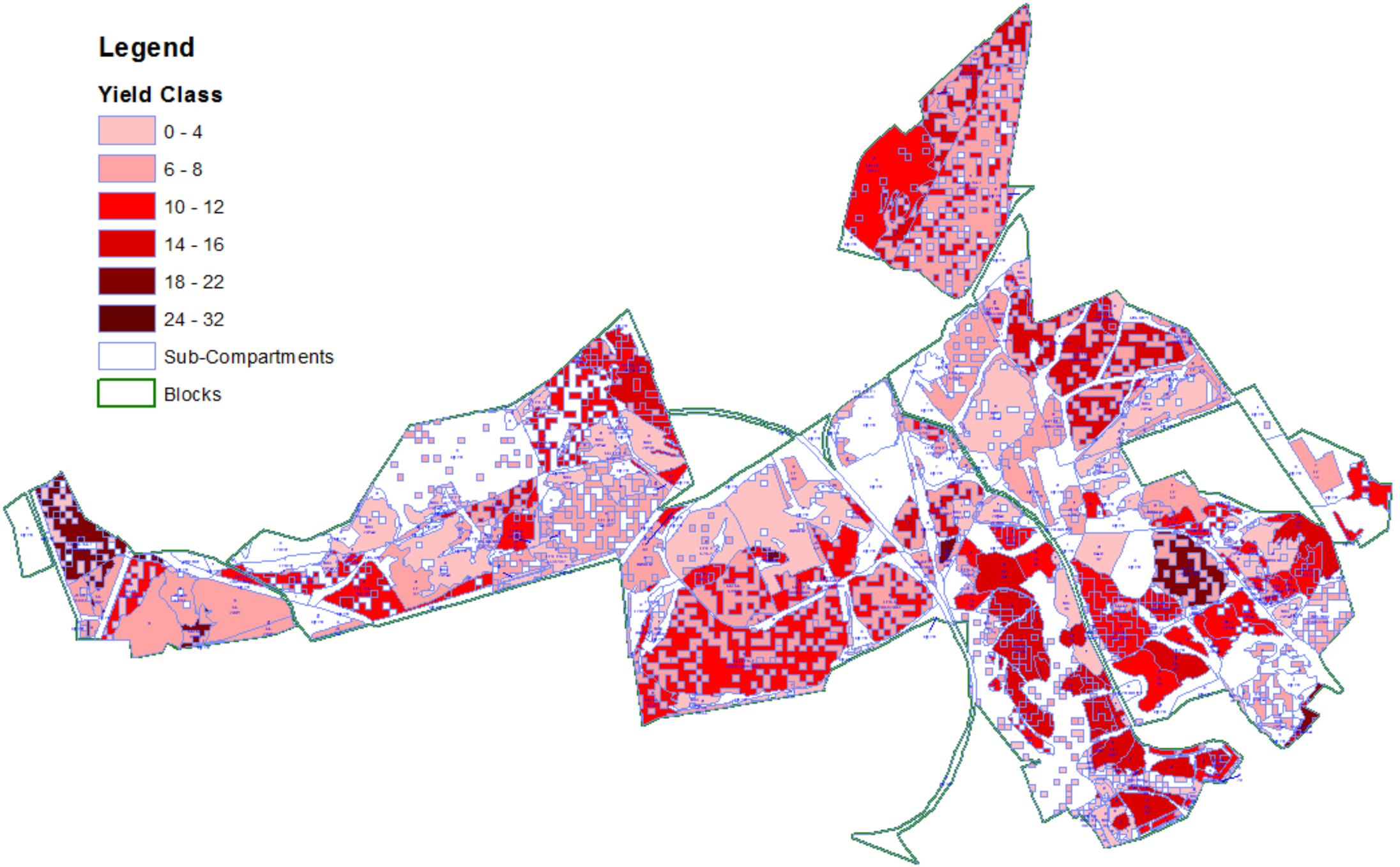

Legend
Yield Class
0 - 4
6 - 8
10 - 12
14 - 16
18 - 22
24 - 32
Sub-Compartments
Blocks

Table 1 below shows the full details of the species composition and land use types.

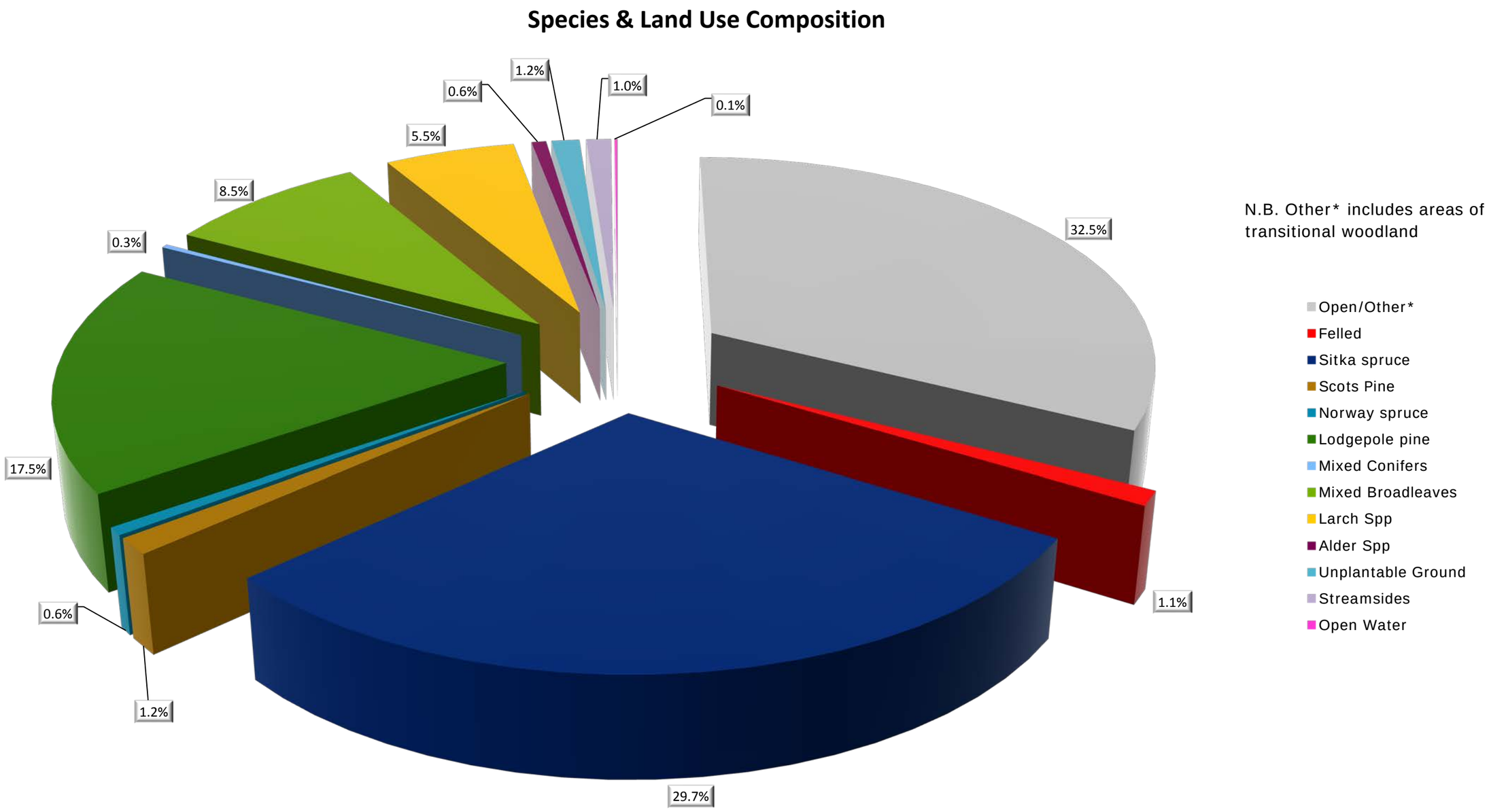
Species & Landuse composition 2018	Area (Ha)	% of Block
Open	194.00	32.55
Felled	6.68	1.12
Sitka spruce	177.18	29.72
Scots Pine	7.41	1.24
Norway spruce	3.52	0.59
Lodgepole pine	104.35	17.51
Mixed Conifers	1.68	0.28
Mixed Broadleaves	50.74	8.51
Larch Spp	32.82	5.51
Alder Spp	3.68	0.62
Unplantable Ground	7.03	1.18
Stream sides (riparian)	6.25	1.05
Open Water	0.73	0.12
	596.07	**100.0**
Total Productive area	**388.06**	**65.0**

Table 2 below shows the areas of windblow by species and overall percentage of the planted area.

Windblow	Area (ha)	% by Spp
Larch	0.43	1.31
Lodgepole pine	20.3	19.45
Sitka Spruce	0.51	0.29
Total crop area windblown	21.24	
Total % age of productive crop area		**5.57**

For a detailed overview see **Map 3 – Stock Map**

Figure 1 below is a pictorial representation of species and land use



3.3.2 Access

Benhar and Fauldhouse are physically separated by the C3 Harthill Road which runs between the villages of Harthill and Fauldhouse. Both blocks have formal vehicular access from this road. Benhar can also be accessed from the west (main access) off the B717 Benhar Road. Fauldhouse also has a southern access point also from the unclassified road at the northern edge of Fauldhouse.

There is a forest road running through both blocks within 500m of the vast majority of coupes. There is still no direct access to an isolated coupe to the north of the Fauldhouse block but this is not programmed for felling within the term of this plan as such no provisions will be made in this regard.

There are various informal pedestrian access points and desire lines along the block boundaries.

3.3.3 Ancient Woodland/LEPO

There are no recorded areas of ancient woodland or long established woodland of plantation origin within Benhar or Fauldhouse.

3.3.4 LISS potential

Alternative to clearfell was attempted in Fauldhouse previously, which resulted in windblow in these areas. Generally the soils and exposure prevailing throughout these blocks severely limit opportunities for low impact silvicultural systems (LISS).

3.3.5 Renewable energy - Wind

EDF Energy are in the process of finalising plans to progress their consent for 8 turbines at Benhar, however whilst this plan is mindful of their proposals thus far, it is not principally designed to accommodate the windfarm; any impacts pertaining to the finalised windfarm layout not accounted for and approved by this plan will be described in, and approval sought by way of plan amendment.

3.4 Landscape and land use

3.4.1 Landscape character and value

The site lies predominantly with the 'North Lanarkshire Plateau Moorland' landscape character type and partially within the 'North Lanarkshire Plateau Farmland' landscape character type as defined in the Land Use Consultants (1999) *Glasgow and the Clyde Valley Landscape Character Assessment*. The site lies immediately adjacent to the 'West Lothian Lowland Plateau' character type.

The 'North Lanarkshire Plateau Moorland' landscape character area comprises a diverse landscape of commercial forestry, small scale farmland, moorland, settlements and post extractive industrial landscapes.
The 'North Lanarkshire Plateau Farmland' landscape character area is characterised by the presence of a cluster of settlements and post extractive industrial landscapes which occur along the alignment of the West Calder Water. Forestry is a less typical land use in the character area.

With regard to the adjacent 'West Lothian Lowland Plateau' character area, this is broadly a rolling landscape of pasture farmland, forestry plantation with post extractive industrial features and small settlements.

The site is not located within any areas of national or local landscape value.

3.4.2 Visibility

As the sites sit on top of a ridge, its plateau nature only allows external views of the edges of the woodlands. And with their situation on a ridge, neither Benhar nor Fauldhouse are prominent in the landscape. From both sides north & south, the forest edges are clearly visible, but little else.

3.4.3 Neighbouring land use

The area of forest and moorland to the north and west of the unclassified road is owned by the Explosives Development Company. No management of this site has taken place in recent times near the FC boundary. To the south, all is now managed land with young forest plantation including tracks and mown paths and Shotts golf course at the west end. The south east of the site is bounded by the settlement of Fauldhouse and the mid North of the site is plantation forestry. In the east are former mineral and peat extraction sites and further to the north east is Heartlands a residential, leisure and business development site.

3.5 Social factors

3.5.1 Recreation

While both blocks are serviced by a number of formal and informal routes from the surrounding local communities they are used mainly for dog/walking along and beside the existing forest roads. Additionally there is a multi-purpose track in Fauldhouse which was constructed during the last phase of the previous plan with a view to encouraging use by mountain bikes. Both blocks are subject to heavy unauthorised motorbike and quad use.

3.5.2 Community

There are three communities that surround these forest blocks, Harthill and Greenrigg to the north, Fauldhouse to the south east and Shotts to the south west. All three towns are located within 1 kilometre of the sites and have a population of greater than 2000 people which qualifies the sites for the Woodlands In And Around Towns (WIAT) programme. This programme aims to improve the quality of life in towns and cities and as such the forests will be designed and managed to develop opportunities for improved social, economic and environmental benefits.

3.6 Heritage

The sites do not lie in a Designated Landscape Area and there are no known designated heritage features, Scheduled Monuments or Listed Buildings.
There is however the Starryshaw Covenanters Memorial an Unscheduled Monument recorded in the National Monuments Register for Scotland. See section 3.6.3 below.

There are also various remnants, in the form of bings, of the sites former industrial use of mineral and coal extraction some outer walls of the old East Benhar School and dismantled mineral rail routes. See section 3.6.1 below.

3.6.1 Industrial

The predominant heritage of the area is that related to the past mining industry.

- Rimmon Colliery - originally a mine for ironstone and then later for coal at the west end of Benhar,
- East Benhar ‘The Lost Village’ - and associated workings at the east end of the same block, which came into existence in the early 1860’s and demolished by the county council in 1932. Here can be seen the remains of the Village School house and the ruins of an old engine house.
- Fallahill Quarry – a former sandstone quarry working until 1908, which lies to the south east, south of the old site of Fallahill Farm.

The Fauldhouse Block previously hosted a colliery of the same name and many of the forest roads were borne from the mineral railways connecting these mines.

3.6.2 The Covenanter's Memorial

There is also the undesignated Starryshaw Covenanter's Memorial a boulder with and engraved plaque inset, which stands in the location of the 'original' memorial to the men of the Covenant which was built of brick and faced with marble chips and unveiled in 1925 at the Deer Slunk near Starryshaw farm.

The above noted features can be found on **Map 5 - Analysis and Concept.**

3.7 Statutory requirements and key external policies

3.7.1 UK Forest Standard

The purpose of this plan is in part to address the legal management requirements and guidelines as set out in the latest version of the UK Forest Standard.

3.7.2 Control of Woodland Removal

The Scottish Government's Policy on the Control of Woodland Removal provides policy direction for decisions on woodland removal in Scotland defined as the permanent removal of woodland for the purposes of conversion to another type of land use. In the context of this plan relates to renewable developments and intermediate bog restoration areas.

4.0 Analysis and Concept

4.1 Analysis

Through survey work and research, a broad range of factors have been identified which are potentially relevant to the future makeup and management of the land. These have been analysed in order to better understand the way these interact, and to draw out the most important features and trends.

4.2 Concept

This analysis was used to develop the initial design concepts, identifying themes and outlining key considerations and activities which are to be most relevant during the plan period. These initial concepts can be found in table 3 below, where the opportunities and constraints of these concepts are explored.

Table 3. Initial Concept Review

Factor	Initial Concept	Constraint	Opportunity
Climate/Soils/ Elevation	• Felling windblown coupes early. • Plant broadleaves and/or allow natural regeneration for carbon sequestration on unproductive areas where habitat restoration is not suitable. • Utilise ESC principles and future climate data when considering species suitability.	• Poor quality soils and deep peats predominantly across northern half of the site, restricts range of suitable species. • Exposed plateau elevation of large areas, increases exposure levels and wind throw risk. • Deep peats and high water table make harvesting very difficult and uneconomical/recoverable	• Better quality soils across various areas of the site, particularly to the south & east, make better use of these areas for commercial species. • Plant wet woodland as a carbon sink. • Wet woodland managed as a carbon store with minimum intervention. • To consider bog habitat restoration
Disease	• Change species structure of coupes when restocking with disease tolerant or resistant species.	• Site already has DNB-infected pine stands, and is in the low risk zone for developing *P. ramorum* on larch. • Species choice restrictions	• Some coupes no longer suitable for commercial forestry consider wet woodland species which are naturally resistant to current disease threats.

Factor	Initial Concept	Constraint	Opportunity
Limited Species Range	• Increase species diversity that offer longer term woodland cover better resistance to fire raising and long term carbon storage.	• Limited species choices due to soil type, mainly deep flushed and unflushed peat. • Large fluctuation in water table predominantly wet with limited drainage opportunities.	• Degraded/non-restorable bog habitats not suitable for future harvesting will provide wet woodland restocking opportunities.
Restructuring /Age diversity	• Restructure larger even aged coupes. • Allow former burnt areas to regenerate with minimum intervention.	• Remaining coupes are large and generally single species	• Windfarm development allows earlier restructuring of some larger and adjacent coupes.
Utilities – OHP, Gas, Water	• Manage (felling/brush cutting) wayleaves as open habitat for flora and fauna.	• Gas pipelines –Un-plant able • Encroaching tree regeneration	• Manmade wildlife corridor with pools and dense ground vegetation
Biodiversity	• Continued management of North Shotts Moss – SSSI rubbish clearance and tree regeneration control. • Water Vole Habitats - manage water margins to improve habitat.	• Unable to be planted • Regularly fly tipped • No roadside access • Fire raising • Encroaching vegetation and conifer regeneration	• Of no significant importance to the management of the block consider disposal • Manage forest drains/water courses for optimal vegetation cover for water voles.
Archaeology	• East Benhar - a chance to research/interpret the historical significance of this lost mining village.	• Limited funding available and uncertainty regarding the level of interest locally.	• Engagement with local communities. • Would bring a potentially more desirable interest to the site.

Factor	Initial Concept	Constraint	Opportunity
Community	• Create community woodland area next to Fauldhouse. Involve local community in small scale planting opportunities. • Build links with surrounding communities and local schools	• Opposing communities surrounding site on three sides. • Only a small proportion of the site is within a WIAT area.	• Areas next to Fauldhouse within WIAT area • Potential to increase economic benefit to the local area. • Good learning resource (Forest schools etc.).
Landscape	• Soften visible external and internal hard edges. • Manage internal small scale landscapes to enhance access and features. • Sensitively manage coupe felling avoiding coupe edges on horizon • Draft landscape design plans for main entrances within communities	• Potential for causing vertical straight edges on the horizon resulting from felling coupes. • Rough yet attractive glen with steep sides and no access evident. • Unwelcoming site entrances within communities	• Not in a landscape character area • The site sits on a plateau and is not a visually prominent feature of the surrounding landscape. • Small young mixed woodland glen requires thinning and management. • Existing community groups could be consulted on forest entrance designs
Renewables Development	• Windfarm Development has been designed to maximise use of poorer performing/existing open areas of the site. • Exclude windfarm Footprint and associated habitat management areas from LMP	• No-planting restriction around windfarm infrastructure. • Requires the early felling of some coupes. • Areas to be excluded from LMP as not considered managed through the LMP • Restrictions on tree heights surrounding turbines. • Increased UG electricity lines on site	• Developer to cover the costs of small scale habitat restoration of Balbackie Plantation • Increased revenue generated by windfarm development will benefit this under-productive forest block. • Increased roading network allows better access to manage the block and recreational routes

Factor	Initial Concept	Constraint	Opportunity
Recreation	• Improve/formalise most appropriate access links to surrounding communities and connect to areas of interest natural beauty. • Increase the use of prohibitive signage and work with police and local communities to address local concerns about motorbikes using the site. • Improve path drainage.	• Multiple site access points and desire lines within the wood require to be rationalised. • Antisocial use of motorbikes on forest roads and walking routes within the site. • Police limited as to what they can do about it. • Some routes completely flooded at certain time of the year	• Numerous links to and between surrounding communities via disused mineral rail routes not currently formally managed.
Harvesting	• Reduce areas of commercial forestry	• Deep peats with high summer water table and poor brash availability seriously restrict harvesting operations. • Degraded areas of windblow • High risk of machine bogging. • Full timber out turn potential of affected coupes often has previously not been realised.	• Bog habitat degraded by previous commercial forestry activity, but suitable for transitional mixed wet woodland. • Maintain carbon storage potential of site • Bog habitat restoration areas.
See **Map 5 – Analysis & Concept**			

5.0 Management Proposals

5.1 Forest Stand Management

All proposals have been designed in accordance with sound silvicultural and environmental principles, falling within the framework outlined by the UK Forestry Standard, the UK Woodland Assurance Scheme, FC Bulletin 124 Ecological Site Classification for Forestry and the current FC edition of Forest & Water Guidelines.

Patch clear-felling remains the most appropriate silvicultural system for the forests and it is the intention to move toward generally smaller coupe sizes in future in order to facilitate the further restructuring of the blocks and allow for more structurally and biologically diverse forests as well as imparting greater flexibility for future management options.

See **Map 6 - Management**

5.1.1 Clear Felling

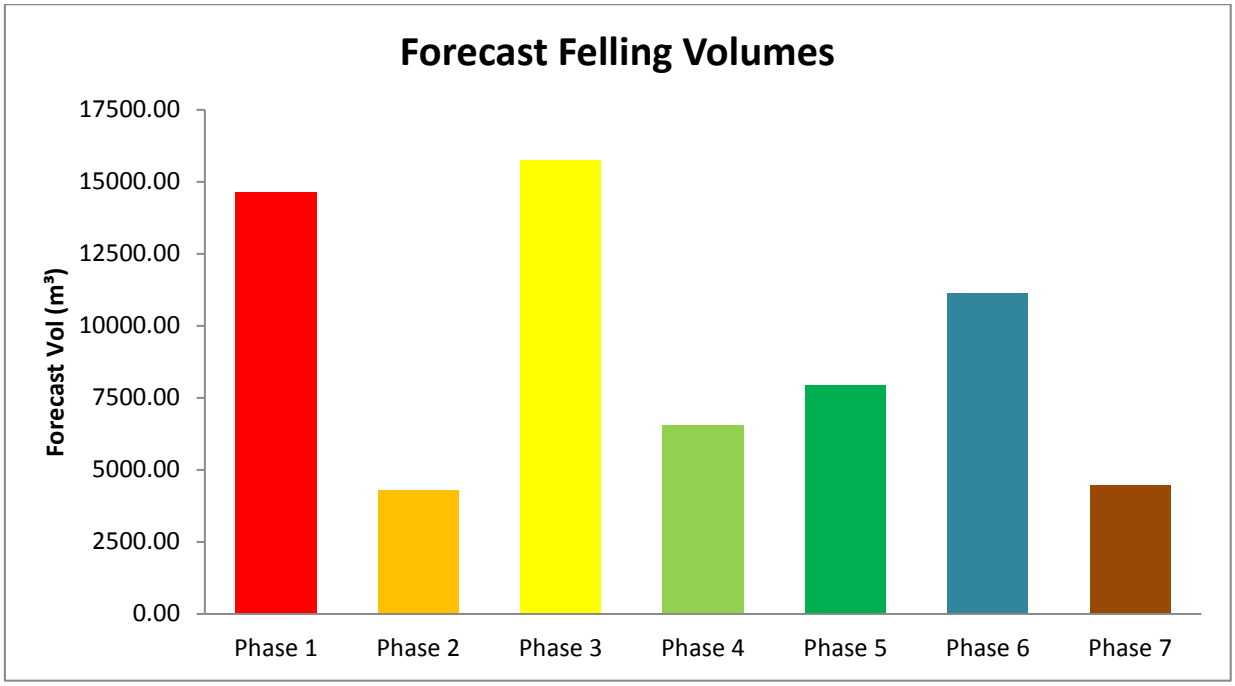
Patch clear felling will continue be the most appropriate management approach for the forests which are predominantly productive conifer. While generally coupe fell years are based on the optimal rotation lengths to reach Maximum Mean Annual Increment, various coupes will fall slightly out with these limits to facilitate age restructuring and others will be for retention; enhancing biological and structural diversity.

During the 10 years of the plan period, a total of 210 ha, with a projected volume of 64,730 m^3, are designated for clear felling (see Table 4 & Figure 2 below).

Table 4 – Projected Felling Phase Volumes

Felling Phase	Benhar Est Vol (m^3)	Fauldhouse Est Vol (m^3)
1 (2018-2022)	9394.23	5237.71
2 (2023-2027)	1026.42	3244.91
3 (2028-2032)	0	15738.05
4 (2033-2037)	4364.91	2188.02
5 (2038-2042)	7938.79	0
6 (2043-2047)	3671.38	7445.73
7 (2048-2052)	1922.71	2557.39

Figure 2 – Projected Felling Phase volumes



Sitka spruce (SS) forms the major component of the productive conifers, either planted pure or in mixture with Lodgepole pine (LP) although in some areas pure Lodgepole stands exist dependant on soil conditions.

The ability to harvest conifers on the plateau areas of this site over the period of the previous plan has proven difficult, particularly in stands of pure LP or in areas where the LP has fared better than SS, due primarily, but not limited, to ground conditions. The lack of sufficient lateral branch material to form supportive brash mats on site has severely hampered harvesting operations to the point that some coupes could not be completely felled/harvested. It is for this reason that the productive element of this block is to be further reduced by just over 4% from 388 ha to 371 ha.

In view of the above and in keeping with the aims and objectives of the previous plan some of the previously restocked productive conifer areas are proposed to be felled/mulched and restored to bog habitat or wet woodland, W4 woodland as identified through ESC.

Areas where ground conditions and soils are better suited for efficient harvesting practices will continue to be manged with a view to maximising commercial conifer production.

5.1.2 Thinning

FCS policy generally assumes that all productive crops will be thinned, unless:

- Thinning is likely to significantly increase the risk of windblow;
- Operations are likely to require an unacceptably large investment in relation to the potential benefits due to access or market considerations;
- Thinning is unlikely to improve poorly stocked or poor quality crops.

SLFD policy is not to thin crops on areas with a DAMS score greater that 15; In the case of this LMP area, as described in section 3.1.3, the forests are 'highly exposed' which means thinning operations would likely significantly increase the risk of windthrow. Not only this but as the soils are predominantly wet and soft, thinning operations would likely lead to significant ground damage and therefore thinning should not be prescribed in these blocks for future rotations.

5.1.3 Low Impact Silvicultural Systems (LISS)

As mentioned in the previous section these sites are not best suited for thinning as the intended benefits of enhanced crop stability, increased tree volume and improved regenerative potential would be negated by the risks to the crop from windthrow and therefore not conducive for management through Alternative to Clearfell methods such as LISS or Continuous Cover Forestry (CCF).

5.1.4 Minimum Intervention

For various areas of the forests biodiversity will be the primary objective and we are prepared to commit such areas of land to minimum intervention management. Minimum Intervention areas tend to be mixed broadleaves and areas of conifer forest, originally intended for commercial purposes, either planted on areas of deep peat or on poorly restored ground which has led to very poor or checked growth, these areas will be managed as peat edge woodland habitat. This minimum intervention classification need not apply in perpetuity and should future economics allow, these areas may be reviewed and revaluated for alternative management in future plans.

5.1.5 Operational Access

The site is currently sufficiently roaded to harvest the coupes proposed in the plan. Additional roading resulting from the windfarm construction would provide improved access to some areas. There are no new forest roads required to accommodate harvesting operations of this plan.

5.1.6 Windfarm Development

West Benhar Wind Farm has been consented (details in section 1.2) within the bounds of the North Lanarkshire section of the western block. At the time of writing this plan it is anticipated that the windfarm would be operational by summer 2019.

Once constructed, the wind farm layout will have been finalised at which time an amendment will be submitted to this Land Management Plan to remove the areas approved under the Town & Country Planning, essentially as-built windfarm infrastructure footprint and habitat restoration area.

If for any reason the developer determines that the windfarm is not to be constructed, then appropriate proposals will be submitted for further approval at the 5 year review of this plan.

5.2 Future habitats and species

Taking into account all the survey and analysis information, and the objectives set out in the brief, a mix of productive conifer, semi-natural broadleaved woodlands are proposed, along with areas of open ground.

The woodlands will be matched to the soils and ground vegetation, using the guidelines set out in the Forestry Commission's Ecological Site Classification (ESC) Bulletin 124, which uses climatic zone, exposure, soil moisture, and soil nutrient levels to inform the type of woodland most suited to particular areas within the site.

See **Map 7 – Future Species 7 Habitats**

5.2.1 Proposed Restock Species

While it is important to recognise the challenges posed to forestry in the future from predicted climate change and the increasingly diverse range of pests and diseases afflicting a range of tree species; the soils, climate and topography of the sites within this particular plan area limit opportunity to significantly diversify the species make-up of the forests.

For the most part this plan proposes continued use of Sitka spruce as the predominant productive conifer species with increased use of more disease resistant Alaskan Lodgepole pine as a nursing mixture. Mixed conifer/broadleaf woodland is also proposed, continuing the theme of previous plans.

The regeneration of LP into open and minimum intervention areas will be managed as fell to recycle only where necessary, with a view to maintaining a suitable balance of conifer to broadleaf species. This is intended to accommodate continued carbon sequestration in areas where a 2nd rotation of commercial forestry is no longer a viable option.

Despite the species limitations faced, this plan continues to build on work of previous plans to diversify the forests' age structure. This is achieved, where appropriate, by reducing the size of existing coupes and, when restocking,

designing in more wind firm edges to increase the stability of neighbouring coupes and therefore allow for a greater range of options for future management decisions.

5.3 Prescriptions

5.3.1 Productive Conifers

The primary function of these forests is generally to produce high volumes of softwood timber of relatively standard quality, predominantly providing for the small roundwood and woodfuel markets rather than the saw-log market.
As such and as per the SLFD restocking strategy a reduced management input will generally be employed; meaning:

- lower cost or alternative ground prep methods
- restocking at average initial density of 2,700 stems/ha to achieve a final density of between 2,250 and 2,500 stems/ha with an emphasis on achieving overall stocking
- top-up spraying may be employed based on evidence from the Hylobius Management Support System.
- a restricted SDA process to ensure that the objectives that are set for the site are being met and to inform any future management

Sitka spruce will continue to form the primary component of the productive conifer as it is well suited to the site with generally higher yield classes. Sitka will be planted pure where the soils are better, but on the poorer deep peat areas it will be planted in intimate mixture with Lodgepole pine where the pine will act as a nurse.

Although Scots pine and larch were planted in various areas previously, due to the threat posed by (respectively) DNB and *P. ramorum* detailed previously, there will be no further restocking carried out using these species.

5.3.2 Mixed woodland

In terms of management input the areas intended as transitional, semi-natural and mixed woodland along with designed open space will be managed as per the SLFD restocking strategy using minimal intervention with no/limited ground preparation. Restocking will be at low densities according to site objectives with no SDA process and with low future management input.

5.3.3 Habitat restoration

The nature of the site is such that attempting to produce another commercial rotation in many of the areas previously felled and restocked has proven in some cases to be ineffective with little or no growth throughout the period of the previous plan. See section 3.3.1 Age structure, Species and Yield Class.

For his reason and due to the suitability of these areas (presence of bog forming and associated flora and naturally high water table) intermediate/raised bog habitat restoration is proposed in two of the larger coupes (94504, 7.88ha & 94506, 6.85ha) to be felled/mulched/cleared within the period of this plan (circa 2021-2025). These areas have been assessed against the restoration criteria, as published in Forestry Commission Scotland's Practice Guide 'Deciding future management for afforested deep peatland' and have been deemed to be restorable.

During the period of this plan these areas will be assessed in detail to establish the condition of the existing crop (currently YC 4-6) ground flora and hydrology to inform and assist the restoration process. A review of this proposal will be taken at the mid-point of this plan and confirmed or updated as appropriate.

5.3.4 Water

All operations will follow best practice as detailed in the current Forest and Water Guidelines. Timber extraction will normally avoid crossing burns or main drains, but, where necessary, each crossing point will be piped or bridged. Branches will be kept out of watercourses and trees will generally be felled away from the watercourses. In areas where the old forest drains lead to water courses, these drains will be diverted and silt traps deployed prior to commencement of operations.

5.4 Biodiversity & Environment

5.4.1 Habitat Management

The various woodland and open priority habitats as well as the species they support will continue to be conserved and developed as per the management detailed in the previous section.

5.4.2 Deadwood

The aim is to use natural processes by retaining dead, windblown or snapped stems or those created during previous operations. Deadwood can be trees or limbs in the early stage of decomposition, e.g. veterans or dying individual trees. These should be retained wherever possible to create an even mix of standing, fallen or stacked deadwood.

Deadwood will be concentrated in areas where it will provide the highest ecological benefit, such as;

- Riparian and wet woodland areas
- Natural reserves and long-term retentions
- Areas of significant existing deadwood

The UKWAS target is for an average of 20 m3/ha, although it is expected that actual concentrations will vary widely across the site.

Assessed DEP	Area (ha)	Future Volume Estimate (m^3/ha)	Total Future Volume (m^3)
High	83.1	81	6,731
Medium	48.4	63	3,049
Low	419.7	52	21,824
	551.2		31,604

Total future potential is thus estimated at **57.3** m^3/ha.

Given that a relatively high total volume of deadwood is expected to come from Low DEP areas, in line with FES Deadwood Policy the following additional actions should be adopted in the remaining High and Medium DEP areas:

- Retain small smaller-diameter logs in deadwood piles at the edge of the minimum intervention coupes.
- Retaining large-diameter (> 20cm) logs at the edge of coupes following operations.
- Retain windblown trees in appropriate locations

5.4.3 Important Species

Water vole habitat will be managed in line with the Scottish Lowlands Water Vole Plan. This includes maintaining targeted areas along forest ditches and waterbodies as suitable habitat. These areas are identified in the analysis and concept map.

5.4.4 Wildlife (Deer Management)

Full details of proposed deer management can be found within Scottish Lowlands Forest District Deer Management Strategy (in conjunction with the Deer Overview Map), but the main objectives within the plan area are:

- To enable restocking to take place without the need for deer fencing and to achieve a stocking density of 2500 stems per hectare at year five in accordance with OGB 4.
- The District aim for damage allowance is to keep leader damage levels below 10% on all commercial plantations.
- Ensure all Biological resources on the National Forest Estate remain in favourable condition (as per SNH guidelines).
- To maintain a sustainable deer population.

Deer populations will continue to be managed by a contracted stalker. The deer stalker will be kept informed of newly restocked areas to allow appropriate levels of control to be targeted to those areas.

5.5 Heritage

5.5.1 Non-scheduled Archaeology

The Covenanter's Memorial site will continue to be maintained as it has in the past and liaison with the congregation who meet there for a conventicle periodically will also continue.

5.5.2 Industrial Archaeology

FES is currently involved with the Voluntary Registration of lands managed by FES on behalf of the Scottish Ministers. This work has flagged up that there may be contestable areas within the bounds of the blocks that make up this plan. There are historical references in the existing deeds and Register of Sasines that refer to properties associated with the village of East Benhar (now demolished) as such FES is unable to demonstrate heritable title to the small areas in question. For this reason these areas will be removed from the plan until such times as legal title can be demonstrated or otherwise. These areas will continue to remain as other/lost land.

5.6 Community & Recreation

FES district staff will continue to liaise with local communities to promote and encourage use of the sites and Community Rangers will continue to seek opportunities to forge new and develop existing links with schools, community and user groups to increase awareness and enjoyment of the sites. Particular examples of this are the current engagement with the Fauldhouse Community Development Trust to survey old settlement ponds with a view to brining hem back into management for wildlife and also establishing whether there is a local desire raise awareness of the history of the 'Lost Village' of East Benhar.

FES will continue to maintain and, where appropriate, improve/maintain trails and paths particularly those directly connected to Fauldhouse.

5.7 Critical Success Factors

To achieve the main objectives of the design plan the following should be completed:

1. The clearance and restoration of 16.80 ha of intermediate/raised bog.

2. Removal/felling of disease susceptible species in line with the management plan and the restocking of disease resistant commercial species where appropriate conditions prevail ensuring a financial viability of the site for the future.

3. Vegetation management for identified areas of water vole activity, to maintain and expand the range of existing habitats.

4. Continued management of transitional woodland areas to encourage and select preferred tree and plant species.

5. Improving relationships with local communities and aspire to meet their recreational/educational needs, where practical, through provision of infrastructure with the aim of reducing antisocial behaviour.

Changes Summary Table 5.1

Habitat type or change	Effect of change	Area (Ha)	Productive conifer reduction (Ha)
Intermediate Bog Restoration	Reduction in productive conifer Loss of woodland cover	16.80	16.80
Transitional Woodland	Reduction in productive conifer continued woodland cover	14.29	4.98
Changes through Land Management Plan		31.09	**21.78**

Windfarm Development infrastructure Changes approved through the Town & Country Planning Act	Once constructed and leased the footprint area will no longer covered by this plan and will be removed from this plan by an amendment	26.20	8.23
Windfarm development restoration area (SINC)	Once constructed this area will no longer be managed by FES and will be removed from this plan by an amendment	6.20	4.6
Changes from Wind Farm Development		32.4	**12.83**
	Total loss of productive area (Gross)		**34.61**

Appendix I: Land Management Plan Consultation Record

Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
North Lanarkshire Council	4th June – 2nd July 2018	4th July 2018	No issues with Access or Forestry. Queries raised regarding: • More detail on the bog restoration • Habitat enhancement for water vole and small pearl bordered fritillary. • Mitigation for otters.	Formal response (letter dated 12/07/18) sent via Conservancy providing additional information on bog restoration, habitats enhancement and reassurance on otter mitigation.
West Lothian Council	4th June – 2nd July 2018	12th July 2018	'Landscape section of the LMP appears competent' 'Future Species & Habitats plan appears to indicate that the topography and underlying riparian pattern have been given greater respect, and that the arising reforestation plan includes a much higher level of species diversity and broadleaves.' Supportive of Community Involvement area for Forest Schools programme. Queries raised regarding: • Unauthorised use of the site by off road bikes. • Involvement of the Community Development Trust in pond restoration works.	Formal response (letter dated 13/07/18) sent via Conservancy confirming FES engagement with CDT in relation to pond restoration works and recent ativiteis of Police Scotland in an attempt to tackle of road bike use in the area.

Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
West of Scotland Archaeology Service	4th June – 2nd July 2018	3rd July2018	Concerns raised: Not all features on site had been discussed in the draft plan.	Formal response (letter dated 12/07/18) sent via Conservancy confirming that FES complies with the UKFS guidelines relating to the historic environment and that our heritage system incorporates data from WoSAS and Canmore
Community Consultation	Date contacted	Date response received	Issue raised	Forest District Response
Via E-consultation Postcards delivered to more remote residencies and posters posted in community centres libraries and local shops. Areas covered • Shotts • Fauldhouse • Harthill	Consultation period 2nd May – 1st June 2018	24th June 2018	Fauldhouse resident response. Concerns raised: (Particular to Fauldhouse moor area) • Consultation not obvious • Fauldhouse now surrounded by dark forest • Plantation contributes little in the way of revenue • Clarification of access improvements • Land should be allowed to revert back to open moorland. • Serious efforts should be made to band off road vehicles • Further woodland expansion, why?	Consultee contacted by phone 26/06/18 to discuss concerns raised and provided reassurances. This was followed up with a written e-mail response 29/06/18 and additional information.
Local press release West Lothian Courier Airdrie Advertiser Wishaw Press	Press release 17th May 2018		None	N/A

Appendix II: Tolerance Table

	Adjustment to felling coupe boundaries	Timing of restocking	Change to species	Windthrow response
FC Approval not normally required	0.5ha or 5% of coupe – whichever is less	Up to 5 planting seasons after felling	Up to 2 planting seasons after felling	Up to 0.5ha
Approval by exchange of letters and map	0.5ha to 2ha or 10% of coupe – whichever is less			0.5ha to 2ha if mainly windblown trees > 2ha to 5ha in areas of low sensitivity
Approval by formal plan amendment	> 2ha or >10% of coupe	Over 2 planting seasons after felling	Changes from specified native species Changes between species groups	As above depending on sensitivity

Appendix III. Design Plan Brief

Brief & Objectives

Introduction

The work of Forestry Commission Scotland (FCS) is guided by the Scottish Forestry Strategy 2006, which sets out seven Key Themes:-

- Climate Change
- Timber
- Business Development
- Community Development
- Access & Health
- Environmental Quality
- Biodiversity

From this Strategy, Scottish Lowlands Forest District prepared the Scottish Lowlands Forest District Strategic Plan 2009-2013 and more latterly the 2014 -2017 District Strategic Plan which draws upon the district's priorities and actions Identified in the Scotland's National Forest Estate and strategic directions on the most important strands of the Key Themes relevant to the forest areas we manage and sets out the policies and objectives under which other District plans are prepared and monitored.

In preparing the Brief and Objectives for this Forest Design Plan (FDP), issues were grouped under these Key Themes and assessed for their importance. Those relevant are set out in Table 1 below.

Table 1. Relevant issues under the SFS Key Themes

SFS Key Theme	Issues assessed as relevant by staff team for the Benhar & Fauldhouse LMP	Scottish Lowlands Strategic Plan Reference
Climate change	• Provide timber for national long-term contracts for biomass supply including where suitable the provision of forest residues. • Adapting to Climate Change – with site suited species choices and habitat connectivity	1.03, 1.06
Timber	• Productive forestry with quality timber production • Improvement of access road quality	2.06, 2.07, 2.09, 2.11,
Community development	• Further develop a community engagement approach that considers the immediate neighbours, key users groups form Shotts, Fauldhouse and Harthill. • Promote educational use of Benhar & Fauldhouse • Develop partnerships that result in proactive management and promotion of Benhar & Fauldhouse • Work with communities within 1km of our woodlands to empower them to derive meaningful sustainable benefits.	4.02, 4.05, 4.06, 4.07, 408,4.09, 4.10, 4.12 4.13 4.15, 4.16, 4.17, 4.20, 4.24
Business Development	• Development of skills projects • Income diversification, Development of an 8 Turbine windfarm	3.01, 3.03, 3.05, 3.06, 3.07, 3.08 3.13
Access & health	• Develop a prioritised approach to management of recreation at Benhar & Fauldhouse. • Work with Communities, Local authorities and Police to manage antisocial behaviour • Make access to Benhar & Fauldhouse easier use and more welcoming.	5.01, 5.02, 5.03, 5.04, 5.06, 5.08, 5.10, 5.13, 5.15, 5.15
Environmental quality	• Unscheduled monuments (archaeological remains)	
Biodiversity	• Wet woodland and potential to expand Species Action Plan species – Black Grouse, nesting birds • Deer Management	

Following the analysis above, Table 2 sets out the Brief and Objectives agreed for developing the management proposals for Benhar & Fauldhouse

Table 2. Initial Brief and Objectives for developing management proposals

Brief	Objectives
Diversifying existing woodland to contribute towards carbon capture targets and increase diversity	• Plant conifers & broadleaves for timber production where site conditions are suitable • Improve access (both external and internal) for timber production by extending the existing forest road network, utilising existing on-site quarries for material wherever possible. • Maintain and enhance the resilience of the forest and its associated ecosystems by introducing diversity and sustainability • Expand native woodland with an emphasis on strategic habitat network connectivity • Sustainably manage the Deer Populations (Red and Roe) so as to minimise their negative impact. Aim is to have less than 10% leader browsing damage on all P1 year coupes. • Ensure forest management takes account of carbon capture efficiencies by producing durable timber products
Develop Benhar & Fauldhouse into a destination site, for local communities. Consider current and future user needs.	• The development and promotion of quality access and recreation opportunities within the Benhar & Fauldhouse; • Management of Benhar & Fauldhouse to maintain and improve the quality of habitats and people's enjoyment of them; • Sustainable land management of Benhar & Fauldhouse to contribute to the local economy, whilst providing opportunities for volunteering, training and employment; • The development of strong links with formal education and lifelong learning; • The strengthening of links between communities and their local environment, creating new opportunities for people to become involved in planning and managing the area;
Increase biodiversity value	• Increase the diversity of open and wet woodland habitats to benefit existing species such as black grouse and pearl bordered fritillary. • Manage and maintain forest drains and small water courses for water vole • Where plantation forest retains surviving blanket bog vegetation, restore to open habitat where appropriate. • Maintain and improve key feature and habitat condition at sites such as SSSIs and identified priority habitats.

Appendix IV: Maps

The table below lists the Maps which support and form part of this Land Management Plan.

1. Location
2. Context
3. Stock
4. Key Features & Survey
    - 4a. Soils
    - 4b. SNR (soil nutrient regime)
    - 4c. SMR (soil Moisture regime)
    - 4d. DAMS (detailed aspect method scoring)
5. Analysis and Concept
6. Management
7. Future Species & Habitats

Appendix V: Relevant Reference Documents

In addition to those already referenced within the main text the following key policy or guidance documents which have influenced this plan are listed here:

- UK Forestry Standard (3rd Edition)
- UK Woodland Assurance Standard 3.1
- Scottish Forestry Strategy 2006
- Scottish Lowlands Forest District Strategic Plan 2014 – 2017
- Central Scotland Forest Strategy
- Glasgow and Clyde Valley Forestry and Woodland Strategy
- SNH Landscape Character Assessments for 'The Lothians'.
- North Lanarkshire Biodiversity Action Plan 2015-2020
- North Lanarkshire Local Plan 2012 (adopted)
- West Lothian Local Plan 2009 (adopted)
- West Lothian Local Development Plan 2015 (proposed)
- Forestry Commission Bulletin 62 – Silviculture of Broadleaved Woodland
- Forestry Commission Practice Guide – Deciding Future Management Options for Afforested Deep Peatland.
- Forestry Commission Practice Guide – Managing Open Habitats in Upland Forests
- Forestry Commission Scotland - Strategy for Lowland Raised Bog and Intermediate Bog on the National Forest Estate in Scotland 2012-2022
- Forestry Commission Practice Guide 8 – The management of semi-natural wet woodlands
- Natural Reserves - Guidance for their selection and management on the NFE in Scotland
- Minimum Intervention Areas - Guidance for their selection and management on the NFE in Scotland
- Long-Term Retentions - Guidance for their selection and management on the NFE in Scotland