Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Central Region

Croy Woodlands Land Management Plan 2021- 2031

Approval date: 2021 - 2031

Plan Reference No: 032/21/07

Plan Approval Date: 8 September 2021

Plan Expiry Date: 7 September 2031

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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Land Management Plan Details			
LMP Name:	Croy Woodlands		
Grid Reference:	Bar Hill NS 71007583, Nethercroy NS 7308 7667	Nearest town or locality:	Croy, North Lanarkshire
Local Authority:		North Lanarkshire and East Dunbartonshire	
Land Management Plan area (hectares):		205.11 Ha	

Owner's Details				
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Contents

Version History

Version	Date	Comments
0.0		Initial Draft layout
0.1	03/03/2021	Iain Walker draft LMP
0.2	24/03/2021	Updates to format, text and figures
0.3	09/04/2021	Updates based on FLS internal feedback
0.4	05/05/2021	Accessibility check updates
0.5	20/08/2021	Update based on feedback from Historic Environment Scotland
0.6	01/09/2021	Consultation record added
0.7	07/09/2021	East Dunbartonshire Council Public Register comments added to Consultation Record

1.0 Summary of Proposals

The woodland serves as an important area within Central Region for recreation, heritage, conservation and landscape, as the Antonine Wall World Heritage runs horizontally across the forest's extent, it is associated with the John Muir recreational route, there are several priority habitats and species within the forest such as Great Crested Newts and Ancient Semi Natural Woodland, and there are some local landscape designations. Overall, the forest has a large area of broadleaves where the preferred management of these areas has been for conservation with large areas given over to Minimum Intervention and Natural Reserves. It is proposed to continue with these objectives, whilst also managing the forest for production, where this will largely be driven by tree health concerns over various larch species, which have necessitated a re-evaluation of the use of these species to succeed the current rotation. This new plan will synchronise the management approval for Barhill and Nethercroy into a single new 10-year plan, associated not only by their geographic proximity to each other but also due to their similar attributes such as lowland character and relatively fertile soils.

Table 1 - Woodland changes

Species/land use	Area (Ha) Current	Area (Ha) Year 10	Area (Ha) Year 20
Other broadleaves^	71.7	82.6	84.4
Native broadleaves*	14.2	13.4	12.6
Larch	10.3	3.2	3.1
Norway spruce	3.3	2.2	2.1
Other conifers	2.3	2.4	2.6
Scot's pine	1.7	1.6	1.6
Sitka spruce	1.0	0.3	0.3
Agricultural land	33.7	33.6	33.4
Open space	67.0	65.4	64.6
Total	**205.1**	**204.7**	**204.7**

** Native broadleaf area does not include Mixed broadleaves which are mostly also native species*

^ Other broadleaves include future areas where the suggested restock species is Mixed broadleaves to provide flexibility which however will very likely be native species when planted.

LMP Objectives

1. Future design needs to consider the woodland setting and Antonine Wall World Heritage Site within the local landscape area.
2. Maintain responsible access and use of the forests, including John Muir Way, Barhill Roman Camp, and military way.
3. Pre-emptively remove larch
4. Monitor and maintain priority habitats and species
5. Manage for production of high-quality timber at scale appropriate to the site.
6. Plan roads to access less accessible crops.
7. Continue to control invasive species
8. Mitigate against excessive water runoff and pollution into the scheduled Clyde and Forth canal.

2.0 FCS Regulatory Requirements

2.1 Summary of planned operations

Table 2 - Summary of planned operations

Planned Operations	Area (Ha)
Clearfelling (afforested area)	10.34 Ha
Thinning	37.18 Ha
Restock (replanted area)	10.34 Ha
Road Construction	870 m

2.2 Proposed felling in years 2021- 2031

Table 3 – Clearfelling Phase 1

Coupe No	Total Area (Ha)	Spp by Ha (Larch)	Spp by Ha (NS)	Spp by Ha (SS)	Spp by Ha (SP)	Spp by Ha (MC)	Spp by Ha (MB)	Open land by Ha
72006	10.34	6.18	0.76	0.67	0.01	0.01	0.00	3.05
Total	**10.34**	**6.18**	**0.76**	**0.67**	**0.01**	**0.01**	**0.00**	**3.05**

2.3 Proposed thinning in years 2021-2031

Table 4 – Thinning

Woodland species	Area (Ha)
Native broadleaves	9.21
Other broadleaves	21.47
Larch	2.59
Scots pine	0.58
Norway spruce	1.33
Other conifers	2.01
Total	**37.18**

2.4 Proposed restocking in years 2021-2031

Table 5 - Future Habitats & Species First 10 Years

Coupe No	Total Area (Ha)	Spp by Ha (MB)	Open (Ha)	Year	Restock Method & Density (Restock/Nat Regen/Alt Area/Coppice/Open)	Monitoring Comments (including and reason not to restock)
72006	10.34	9.81	0.52	2024/25	Restock	SDA

2.5 Access and roading 2021-2031

Table 6 – Roading requirement First 10 years

Coupe No	Total Length (m)	Total Area (Ha)	Monitoring Comments
72006	870	0.52	Planned road

2.6 Departure from UKFS Guidelines

This LMP adheres to UKFS Guidelines.

2.6 Standards and guidance on which this LMP is based

This land management plan has been produced in accordance with a range of government and industry standards and guidance as well as recent research outputs. A full list of these standards and guidance can be found here: https://scotland.forestry.gov.uk/managing/plans-and-strategies/land-management-plans/links

2.7 Tolerance table

Table 7 Tolerance Table

	Map Required (Y/N)	Adjustment to felling period	Adjustment to felling coupe boundaries	Timing of restocking	Change to species	Wind throw response	Adjustment to road lines	Designed open ground
SF Approval not normally required (record and notify SF)	N	Fell date can be moved within 5-year period where separation or other constraints are met	<10% of coupe size.	Up to 5 planting seasons after felling (allowing fallow periods for hylobius).	Change within species group E.g., Scot's pine to birch, Non-native conifers e.g., Sitka spruce to Douglas fir, Non-native to native species (allowing for changes to facilitate Ancient Woodland policy).			Location of temporary open ground e.g., deer glades if still within overall open ground design Increase by 0.5 ha or 5% of area - whichever is less
Approval by exchange of letters and map	Y		10-15% of coupe size.	5 years +	Change of coupe objective that is likely to be consistent with current policy (e.g., from productive to open, open to native species).	Up to 5 Ha	Departures of greater than 60 m from the centre of the road line	Increase of 0.5 ha to 2 ha or 10% - whichever is less Any reduction in open ground
Approval by formal plan amendment	Y	Felling delayed into second or later 5-year period Advance felling into current or 2nd 5 year period	>15% of coupe size.		Major change of objective likely to be contrary to policy, E.g., native to non-native species, open to non-native,	More than 5 Ha	As above, depending on sensitivity	More than 2 ha or 10% Any reduction in open ground in sensitive areas Colonisation of open Areas agreed as critical

3.0 EIA Screening Determination for forestry projects

3.1 Proposed deforestation

N/A

3.1 Proposed forest road works

N/A only requirement is an 870 m spur to provide access into coupe 72006 located in the south west of Barhill.

3.1 Proposed forest quarries

An area beside the existing quarry located in Barhill has been identified as a source of useable stone for the construction and maintenance of the forest road network. The intention is to link these quarries expanding the quarry area by 0.51 Ha to produce a variety of useable aggregate sizes for constructing and repairing forest roads. A source of suitable stone in this forest is critical for future operations in this forest. **Appendix V: Quarry Design Review** and **Maps 11 i-iii** provide further background and detail on potential issues related to this work.

3.1 Proposed afforestation

N/A

4.0 Introduction

4.1 The existing land holding

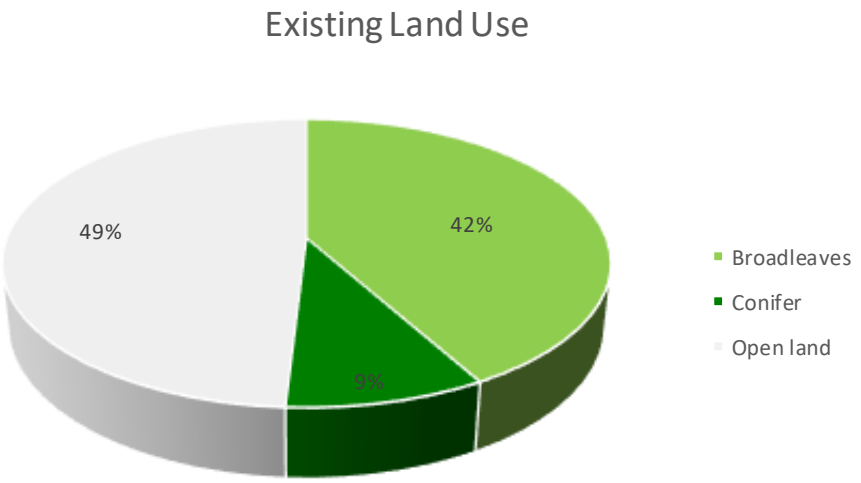
See Appendix I: Supporting Information sections 1.0 & 3.0

The current land matrix is as follows:

Table 8 – Current LMP Area Land Use

Land Use	Area (Ha)
Broadleaves	85.9
Conifer	18.6
Open land	100.7
Total	**205.1**

Figure 1 – Croy Woodland Current Land Use



4.2 Setting and context

Croy woodlands consist of Barhill (~83 Ha) and Nethercroy (~122 Ha) woodlands located to the west and north of the village of Croy in North Lanarkshire with Barhill situated just within East Dunbartonshire east of the village of Twechar. Nearby there are several larger settlements such as Kilsyth and Cumbernauld. The forests lie on the broad valleys lowland and rolling farmlands of Glasgow & Clyde Valley to the south of the Campsie Fells. The woodlands complement the wider mixture of woodlands and agricultural fields. The forest primarily function is for recreation, historical heritage, conservation as well as production of high-quality timber at a scale appropriate to the site (see **Map 1 – Location**).

4.3 LMP Presentation

The Croy Woodlands LMP has not been divided into any particular zones, and therefore the objectives relevant to the whole plan are referred to in Section 6 with Sections 5 to 7 presenting the analysis of key issues and challenges and the management proposals for the site as a whole.

5.0 Analysis and concept

5.1 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. (See **Map 4 - Key Features**).

5.2 Concept

The analysis was used to develop an initial design concept highlighting general themes and outlining key considerations and activities which are likely to be most relevant during the plan period, and which formed the basis for these plan proposals for consultation with both the general public and key stakeholders (See **Map 5 – Concept**).

6.0 Long Term Land Management Plan Proposals

6.1 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 112 Creating New Native Woodlands, FC Bulletin 115 Alternative Silvicultural Systems, FC Bulletin 124 Ecological Site Classification for Forestry, and the current FC edition of Forest & Water Guidelines. This plan has considered the natural and historic environment as well as green network opportunities.

In Croy Woodlands the majority of the broadleaf area has been designated as Minimum Intervention and Natural Reserve, which limits the possibility of thinning within these areas. However, it still allows for thinning works to be undertaken around existing broadleaves located in the ancient woodland areas as well as fulfilling several other objectives related to landscape, recreation, environment, and catchment management.

Management as LISS will be appropriate in parts of Barhill Wood, where there is good access the topography is favourable, soils are stable and where previous thinning have been undertaken. This type of management will provide options now and, in the future, to meet several objectives that low impact silviculture systems are able to provide, such as halo thinning of oak in order to select final crop as well as removing larch through thinning, as it could be impacted by *Phytophthora ramorum*. The most appropriate work within the lifetime of this plan will be thinning of crops at appropriate ages. There is one clearfell operation planned during the lifetime of this plan, which is to fell an area of mature conifers in the south west of Barhill, which is being undertaken in order to pre-emptively remove larch, which is under threat from *Phytophthora ramorum*.

As Barhill is designated as a Historic Gardens and Designed Landscape as well as a Local Landscape by East Dunbartonshire local authority, the impact from the felling has been considered. The retention of the Scots Pine as a natural reserve as well as any broadleaved trees will help diminish the impact of the clear-fell. As views are generally at close quarters from Twechar and the public road; the overall impact on the landscape will be reduced. Final choice of harvesting method will be determined at work planning stage and will account for recreation, biodiversity, and landscape considerations. All harvesting operations will be carried out in accordance with the UK Forestry Standard Guidelines, Forests and Water Guidelines (5th edition).

6.1.1 Clear Felling

As already mentioned, the main operation within the lifetime of the plan is within the south west of Barhill, which is a pre-emptive operation to reduce potential future impact of *Phytophthora ramorum* on the larch crop. Clearfelling is defined as the cutting-down of all trees on an area of more than 2 Ha. The size of the clear-fell will be in keeping with the scale and topography of the landscape. The scale of clear-fell is in keeping with the scale and topography of the local landscape. Coupe fell years are generally based on the optimal rotation lengths to reach Maximum Mean Annual Increment, however the coupe in Barhill is being felled early due to the threat of *Phytophthora ramorum*.

Overall, for Croy Woodlands there is a movement away from patch clear felling with a more appropriate management approach of Natural Reserves, Minimum Interventions and LISS being viewed as the best way forward to meet the objectives of the land management plan.

During the 10 years of the plan period, a total of 10.34 ha, with a projected volume of ~3,252 m^3, are designated for clear felling (see **Map 6 – Management**).

6.1.2 Thinning

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

- Thinning is likely to significantly increase the risk of wind blow.
- 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.

Given the sites range from sheltered or moderately exposed, some with some history of thinning, this is envisaged to continue where appropriate. Thinning will normally be carried out at, or below, the level of marginal thinning intensity (i.e., removing no more than 70% of the maximum MAI, or YC, per year). Higher intensities (no more than 140% of maximum MAI, or YC, per year) may be applied where thinning has been delayed, larger tree sizes are being sought or as part of a LISS prescription. In all cases work plans will define the detailed thinning prescription before work is carried out and operations will be monitored by checking pre and post thinning basal areas for the key crop components (see **Map 7 – Thinning**).

6.1.3 Continuous Cover Forestry (CCF)/ LISS

In Barhill some areas have been identified as Low Impact silvicultural systems as appropriate conditions existing.

'Low impact is defined as the use of silvicultural systems whereby the forest canopy is maintained at one or more levels without clear-felling..

The Low impact approach is suited to multi-purpose forestry where environmental, recreation, aesthetic and other objectives are as important as timber production. In particular, low impact forestry is a means of reducing the impact of clear-felling and the associated changes that this produces in forest landscapes and habitats.

In the previous plan 17.32 Ha were selected for LISS management, however during the review the following factors have been considered: -

-Does LISS now meet the objectives for that area of the forest?
-Is there sufficient site suitability information available (soils, wind hazard data, thinning history)?
-What level of ground vegetation competition is there with any natural regeneration?
-Are the existing species suitable for the site?
-Is any advanced natural regeneration present?
-Age structure of forest
-Suitable roading

Following the consideration of the above factors the total of LISS in this plan has been increased to 26.58 Ha. In general, the increase in LISS is mainly associated with younger crop as well as appropriate roading being present. Currently there are no areas identified for early felling due to the young age of the trees but the prescription in the future will be 'Single tree selection'. This system removes individual trees of all size classes more or less uniformly throughout the stand to maintain an uneven-aged stand. The single tree selection system generally produces a complex mixture of small, even-aged clumps which are thinned over time to theoretically produce one mature tree. In theory these clumps should yield a least one mature tree of the specified maximum diameter, although in practice these clumps are often larger. New regeneration develops in small, scattered openings created theoretically in small gaps with an area equivalent to the crown spread of a single mature tree. In practice these gaps are often larger, created through the removal of several mature tree.

It is important to emphasise that LISS is an approach to forest management which has flexibility to take advantage of opportunities as they arise, with 'Single Tree Selection' for future management as a good starting point.

6.1.4 Other Tree Felling in Exceptional Circumstances

FLS will normally seek to map and identify all planned tree felling in advance through the LMP process. However, there are some circumstances requiring small scale tree felling where this may not be possible and where it may be impractical to apply for a separate felling permission due to the risks or impacts of delaying the felling. Felling permission is therefore sought for the LMP approval period to cover the following circumstances:

- Individual trees, rows of trees or small groups of trees that are impacting on important infrastructure (as defined below*), either because they are now encroaching on or have been destabilised or made unsafe by wind, physical damage, or impeded drainage.

  **Infrastructure includes forest roads, footpaths, access (vehicle, cycle, horse walking) routes, buildings, utilities and services, and drains.*

The maximum volume of felling in exceptional circumstances covered by this approval is 40 m^3 per Land Management Plan per calendar year. A record of the volume felled in this way will be maintained and will be considered during the five-year Land Management Plan review.

6.1.5 Restructuring

As a significant area of the forest is designated as Natural Reserves and Minimum Intervention, over time we will create a forest with large areas of mature native woodland. In these areas age structure will be subject to natural processes. Age structure will however change in association with the phase 1 felling as well as within the LISS areas once cutting interventions and natural regeneration or planting initiates.

6.1.6 Minimum Intervention and Natural Reserves

For various areas of the forest biodiversity will be the primary objective and we are prepared to commit such areas of land to minimum intervention management or leave as natural reserves. This minimum intervention classification need not apply in perpetuity and these areas may be reviewed and revaluated for alternative management in future plans. In addition to the previous areas of Natural reserve at Barhill, this plan proposes to add 1.14 Ha of extra area in Barhill by Twechar in coupe 72003. The reason for its inclusion is to retain undisturbed p1961 Scots pine for their biological value. The intention is also to manage the restocked clearfell coupe 72006 as Natural Reserve going forward connecting to 72003 and taking the total area of Natural reserve to 20.97 ha.

6.2 Restocking proposals, future habitats and species

Taking into account all the survey and analysis information, and the objectives set out in the brief, for the most part semi-natural broadleaved woodland is proposed throughout Croy Woodlands with the exception of the inaccessible areas of conifers located on the

north face of Barhill. In addition there are also areas of open ground for habitat and heritage. The plan has considered the design and location in relation to the natural and historic environment and green network opportunities.

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. All planted species will be restocked within 2 years as standard or up to 5 years where planting or natural regeneration is employed.

6.2.1 Proposed Restock Species

It is important to consider 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. Specifically, due to Phytophthora ramorum there is a moratorium on planting Larch on the national forest estate. This means that during the moratorium period, alternative species for these sites will need to be identified, where our decisions will be based on the national strategy for Larch and its recommendations for alternative species for a given situation. This strategy is currently to replace larch with another conifer or broadleaf which fits in with the overall objectives of the forest and maintains species diversity.

Also, although the moratorium on planting Scots Pine in infected areas within the immediate vicinity has been lifted, we will continue to assess whether it is appropriate to plant Scots Pine, where reasons range from a site being inappropriate for other species to the site being historically a pine site. This decision of taking a cautious approach to plant pine has been made since the impact of DNB on Scots Pine has not been clearly determined yet, and natural regeneration on young Scot's pine trees show symptoms of the disease in some areas.

As the above analysis rules out Larch and Scots Pine it is important to relate the future restocking of the forest to the overall objectives of the forest. Predominately, these relate to recreation, conservation, landscape, environment with timber production taking place at scale appropriate to site. Taking this information into consideration, specifically for this plan and due to the abundant areas of rich soils, it will be prudent to move away from conifers, whether through natural regeneration or planting, and to replace what is felled as was proposed in the previous plan with native woodland.

Planting native broadleaves at Bar Hill will fit in with adjacent policy woodlands such as Cailhead plantation, Eyreland Glen, Board Craigs wood and Boardloch wood. These woods are all mature mixed broadleaf woodlands predominately beech and sycamore. As the soils are rich it is likely a significant area would be planted as oak would be a

suitable choice. FLS forest management has demonstrated success in establishing oak elsewhere in Bar Hill. Once established the planting on the south west side of Bar Hill would be of a similar size and stature to the adjacent policy woodland.

This plan will continue the process of diversification of the forests' age structure by using clear fell and planned restocking alongside LISS management. The design facilitates future wind firm green edges to increase the stability of neighbouring coupes and therefore build in flexibility to retain a range of options for future management decisions (See **Map 9– Future Habitats & Species**).

Table 9 – Proposed Restock Species

Species	Net area (ha)	%
MB	9.81	4.79
Open	0.52	0.25

Detailed restocking information is available in Section 2.3 Table 5 – Restocking of felled areas 2021-2031

6.2.2 Semi-natural woodland

Various areas of the sites are potentially suitable to support Native woodland (as classified in FC Bulletin 112 Creating New Native Woodlands), the woodland type, locations and species are listed in Table 10 below:

Table 10 – Native Woodland Type

Woodland Type	Location	Species
W4 (Upland birch woodland)	Poorest ground, typically along riparian corridors.	Downy birch, grey willow
W7 (Alder wet woodland)	On less fertile, predominantly mineral soils where there is little peat accumulation	Alder, silver birch, grey willow, hazel, hawthorn
W9 (Upland mixed broadleaved woodland)	On more fertile soils	A wide range of broadleaved species including oak, birch, rowan, hazel, elm

Planted broadleaves will be restocked within 2 years to achieve a minimum final target density of 1600 stems/Ha although areas with productive potential will be planted at higher densities. Riparian areas will generally be lower density incorporating around 30% of open space. It is expected that a conifer component may develop in these areas through natural regeneration; this can be accepted however should be managed to ensure it remains a minor component.

We prescribe restocking coupe 72006 in Bar Hill through planting and therefore we would expect to achieve a target density of 1,600 by year 5 inspecting at year 4 and beating up or planting at year 5 if required to achieve the target density.

6.3 Biodiversity & Environment

6.3.1 Habitat & Species 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 below.

Woodland - FLS will maintain semi-natural and new native broadleaved woodlands and maintain areas where rhododendron and knotweed has been removed. While natural reserves and minimum intervention areas provide a diverse canopy and structure for species diversity.

Local Nature Conservation Sites - specifically for Croy Woodlands, Great Crested Newts and ancient woodland sites are present within the forest and the priority habitats and species will be monitored and maintained. Open habitat (lowland fen and meadow and great crested newt pond habitat) is currently being maintained by cattle grazing; however, this may stop in the future so a new management type will be required. Other management techniques include bracken whipping/bashing by volunteer groups.

Pond – the woodlands contain various ponds, lochans and wetlands. There is potential to expand some pond habitat at Barhill after the harvesting of the larch at Barhill. FLS would welcome volunteer groups to assist in the survey and management of these habitats and associated species such as Great Crested Newts.

Badgers - There are plans for local wildlife groups to re-survey the two areas for Badger and Great crested newts at Nethercroy in 2021. Badgers are also found at Barhill.

Following national guidance, we will continue to mitigate the effects of forestry operations on protected species throughout the length of this plan. Ongoing monitoring of populations and habitats will inform and direct operations through the work plan process, allowing site specific mitigation to be developed and implemented.

6.3.2 Riparian Areas

We will establish or maintain appropriate riparian buffers along watercourses providing an open woodland canopy with half the watercourse open to sunlight and the remainder under dappled shade. Distribution and management of the taller vegetation elements will reflect he stream orientation, ensuring that sufficient light reaches the stream and banks to support the development of a vigorous cover of ground and marginal vegetation. Conifer natural regeneration may also establish within these buffers which we will accept as a minor species component.

6.3.3 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. Overall, as Croy Woodlands is largely managed as minimum intervention and natural reserves as well as LISS, there is a high deadwood Ecological Potential within the woodland; which will exceed the UKWAS average target of 20 m^3 per ha.

6.3.4 Invasive Species

Rhododendron ponticum & Japanese knotweed– Targeted invasive control will be considered and actioned where necessary through the period of this plan, improving habitat. We will continue to seek agreement with our neighbours to prevent it spreading back into the forest.

6.3.4 Wildlife (Deer Management)

Full details of proposed deer management can be found within the Central Region Deer Management Strategy (in conjunction with the Deer Overview Map), but the main objectives within Croy Woodlands are:

- To enable establishment to take place with or without deer fencing and to achieve appropriate stocking density per hectare at year five in accordance with OGB 4.
- The District aim for damage allowance is to keep leader damage levels below 10%.
- Ensure all Biological resources on the National Forest Estate remain in favourable condition (as per NatureScot guidelines).
- To maintain a sustainable deer population.
- To protect the native flora and improve the condition of the ancient and native woodlands.

To facilitate these aims vegetation control after ground prep and restocking is undertaken. Good communication between Forest Management and Wildlife teams to highlight area of concern is ongoing.

6.3.5 Landscape

In producing this LMP FLS has considered the landscape character of the area and the features outlined in NatureScot's landscape character assessment. FLS has also considered the impact our proposals would have on the wider landscape and it is our view that this impact would not be significant given the relatively small coupe size, LISS

management and the screening effect of both FLS and other neighbouring woodland (See **Appendix I section 3.5 Landscape & Land use**).

6.3.6 Hydrology

There are several areas at risk of flooding such as the Broad Burn, the Forth & Clyde Canal, and some areas of Nethercroy. The River Kelvin flows close to Kilsyth and is within SEPA's Target Flood Areas within the West and North Glasgow Drainage Area. As woodland in this area makes up less than 20% of the land cover with FLS woodland less than 4%, any intervention we may make would have a minimal effect on the wider catchment.

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.

6.4 Heritage

The Regional Historic Asset Management Plan includes conservation management intentions for those designated historic assets in Scotland's national forests. Details of all known historic environment features are held within the Forester Web Heritage Data (built using national and regional historic environment records) and are included within specific operational Work Plans to ensure damage is avoided. This is done in accordance with the guidance provided in the Forests and Historic Environment guidelines (2011), the Scottish Forestry policy document: Scotland's Woodlands and the Historic Environment (2008) and the supporting FLS Historic Environment Planning Guidelines. Significant historic environment features will be depicted on all relevant operational maps and appropriate buffers would be applied by our Environment Forester to all the different features across the sites which are recorded within our heritage database. The forest design illustrated in **Map 9 – Future Habitats & Species** has considered the various heritage features and our future management. As per the aforementioned guidance any archaeological remnants unintentionally found during our management activities will be recorded and protected.

The following sub-sections provide further detail as to some features which will see specific management or work on them during the life of this plan.

6.4.1 Scheduled Archaeology

The Antonine Wall World Heritage Site and Scheduled Monuments runs through both Barhill and Nethercroy with three individual scheduled monument parts within the plan area (Bar Hill, SM 90008; Croy Hill, SM 7639; and Croy Hill, SM 90011). The Forth and Clyde Canal Scheduled Monument also runs alongside the northern boundary of the sites. Both Barhill and Croy Hill are Properties in Care and are managed by Historic

Environment Scotland (HES). Forestry and Land Scotland offer support to HES regarding the management of the two areas (such as in providing arboriculture advice for the mature broadleaves on Bar Hill Roman Fort).

Historic Environment Scotland cut the grass on Barhill (on both the military way and the Antonine Wall) and on the fort on Croy Hill plus manage the trees in proximity to important features.

This plan's management proposals for clearfelling, road works and restocking will not come within the Scheduled Monument boundaries or their Impact Zones. However some potential thinning work may come within the Scheduled Monument Impact Zones. When this work is programmed, or any other work that encroaches on the Scheduled Monument boundaries or Impact Zones, prior consent from HES will be applied for before work commences.

6.4.2 Non-Scheduled Archaeology

Various undesignated features across the sites are recorded in the heritage layer such as historic agricultural and mining features. Appropriate buffers will be applied and maintained around pertinent non-scheduled archaeological features, these will be kept open and free of trees. All operation in the vicinity of such features will be conducted in accordance with UK Forestry Standard Guidelines on Forests and the Historic Environment, with suitable steps taken to ensure their protection.

6.5 Operational Access

6.5.1 Forest Roads

The only new roading is a spur of approx. 870 m for coupe 72006 to provide an access to the phase 1 coupe. No other new roading is envisaged for this plan period (See **Map 6 – Management**).

6.5.2 Quarries

To provide material for the new road as well as for maintenance and repairs of the wider infrastructure we require to expand the existing Quarry in Barhill by 0.51 Ha. This will require the removal of 0.51 Ha of conifer woodland. Further detail is provided in **Appendix V: Quarry Design Review** along with a corresponding explanatory **Maps 11 i-iii**.

6.6 Visitor Zones

Visitor Zones have been identified in areas where FLS encourage and manage access or where the woodland managed by FLS interacts with popular visitor sites or access routes (See **Map 8 – Woodland Management in Visitor Zones**).

In these areas, single trees or small groups of trees will be removed when necessary to protect facilities, infrastructure, and trails, or to enhance the setting of features, or to

maintain existing views. Woodland in these zones will also be thinned, or trees re-spaced, for safety reasons (including to increase visibility to ensure that sites are welcoming and feel safe) and where it is necessary to enhance the experience of the forest setting, through the development of large trees, or preferential removal of trees to favour a particular species.

6.7 Open land

The main areas of open space are associated with the open habitat in Nethercroy (lowland fen and meadow and great crested newt pond habitat) which is currently being maintained by cattle grazing. However, this may stop in the future so a new management type will be required. Other management techniques include bracken whipping/bashing by volunteer groups Open space located within the Antonine Wall World Heritage Site is largely managed by Historic Environment Scotland. Elsewhere the plan has open areas associated with a network of transitional open space, where it will be acceptable for woodland cover to increase up to 20%.

6.8 PAWS Restoration

Plantations on Ancient Woodland will be maintained at Barhill and Nethercroy by continuing to preserve the existing remnant features and native species by halo thinning, monolithing and removal of scrub. Under planting may also take place with hazel, oak, willow, and aspen.

7.0 Critical Success Factors

The success of this plan will be based on whether the objectives set out in the **Management Plan Brief** (See **Appendix II**) are achieved. The table which forms **Appendix IV: Objective Appraisal, Monitoring & Evaluation** details how each objective will be appraised, where and when each objective will be monitored; by who and where it will be recorded. This will enable an evaluation of success a part of the mid and end of plan reviews.

Appendix I: Supporting Information

A/1.0 The existing forest and land

A/1.1 History of the land holding

The forest we see today at Croy Woodlands comprises of two existing forests Barhill and Nethercroy which are separated by the Auchinstarry basin. Barhill was purchased in the 1950's with additional conifer planting then taking place at Strone plantation and Barhill Wood. Overall, there is a long history of woodland management with the framework of estate planting from the 1860's still largely intact, where relationships of tree belts and woodland to the landform creates visual interest. The 'Survey of Historic Garden and Designed Landscape in East Dunbartonshire' By Peter McGowan Associates suggests that species planted by the estate owners in the mid-19th Century were spruce, larch and Scots pine, which are still the main species in the south west corner of Bar Hill. Nethercroy, was bought by Forestry Commission Scotland (FCS) in 2005. On the northern slopes it is a native woodland with a history of mining as well as agricultural use on the southern slopes. There have recently been additional areas of native woodland planted expanding the woodland from Craigmarloch across to Auchinstarry; which has integrated with the existing woodland on the canal side.

Croy Woodlands has historically had a large area of native woodland where the preferred management of these areas has been for conservation with large areas given over to Minimum Intervention and Natural Reserves. Conifer areas within Barhill have been managed by clear fell with several areas being cut and replanted with both conifers and broadleaves; however there has recently been tree health concerns over various conifer species, which have necessitated a re-evaluation of what species should succeed the current rotation. Finally, Croy Woodlands has a long history associated with the Antonine Wall and its various features, and it was designated a World Heritage site in July 2008.

This plan will replace the previous Forest Design Plans for Twechar and Croy Hill (Scottish Forestry File Refs: 032/03/15 and 032/08/13 respectively) both of which have extended approval until 26/03/2023.

A/2.0 Analysis of previous plan

The general objectives of the previous plan were multi-purpose where the woodland served as an important area within Central Region for recreation, conservation, environment and landscape in connection with the Antonine Wall World Heritage Site, priority habitats and species within the forest. The forest also had production objectives at a scale appropriate to site, where there has been emphasis on restructuring the maturing conifer areas at Barhill as well as new planting of broadleaves on the lower slopes of Nethercroy.

Further detail and progress on the aims of the previous plan are provided below.

A/2.1 Aims of previous plan and achievements

Table A1 – Progress on previous LMP objectives

Objective	Proposed management actions	Progress to date 1 - Little/No progress 2 – Some progress 3 – Progress as per LMP
Felling, Regeneration and Forest Structure-Enhancement	Felling and restocking are timed to ensure a spread of age classes throughout the area.	3
Production of timber	In the period 2004 – 2013, an average 800 tonnes pa will be produced from the Plan area. In years after this, production activity is likely to be small scale and periodic.	3
Thinning	Thinning of the broadleaf woodlands will be targeted to reduce the number of non-native species on the ancient woodland sites and regeneration will be encouraged.	3 - Due to lack of access, steep slopes, and unstable soils no harvesting has been possible on the northern slopes of Barhill where the Antonine wall is the main constraint. Therefore, the PAWS at Barhill has been managed by preserving the existing native species by halo thinning the oak trees, which was completed in 2020. The Ancient Semi Natural Woodland in Nethercroy has had some removal of beech by monolithing and removal of scrub, which was then replanted with hazel, oak, willow, and aspen.
Protection and enhancements of Wildlife Habitats	The range of wildlife habitats is wide, due to the mixture of broadleaf woodland, open space, and semi-natural vegetation. The aim will be to maintain this structure, improving the biodiversity value where possible.	3 - Ongoing

Objective	Proposed management actions	Progress to date 1 - Little/No progress 2 – Some progress 3 – Progress as per LMP
	The broadleaf woodland in the Ancient Woodland site is believed to be of plantation origin, so its conservation value can be enhanced by encouraging natural processes on the site. Creation of deadwood from felling of non-native species will provide more light for ground flora and encourage regeneration.	2- Ongoing
	There is scope for expansion onto some of the surrounding land if bracken is controlled and grazing excluded. Some areas of grassland habitat are important and may be Priority Habitat Types under the UK Biodiversity Action Plan. Surveys have been carried out and work is underway with the Forestry Commission Research Division on a decision process on the balance between grassland and woodland habitat. This may lead to funding for grazing management, including fencing.	2 – Grazing of Croy Hill is undertaken with passive cows to keep areas open. They are not directed into bracken to decrease its area.
	The density of native woodland across the site ranges from widely scattered scrub to dense tree canopy. On grassland areas of less importance, the tree growth will be encouraged. Many sites will fill in naturally from the surrounding seed sources, some areas will have the surface vegetation disturbed to encourage regeneration, while the improved grazing land will be planted to ensure full establishment.	3 – Ongoing management
	Native broadleaf trees and shrubs will be preferred, but where there is some specimen exotic species in	2 - Ongoing management

Objective	Proposed management actions	Progress to date 1 - Little/No progress 2 – Some progress 3 – Progress as per LMP
	the Policy Woods, these will be retained and replaced if appropriate.	
Species Distribution	The forest will become increasingly of mixed species, including a significant proportion of broadleaves, with the potential of much longer rotations and the age periods above will not be meaningful in the future.	2 –due to the tree health issues posed by DNB & *Phytophthora ramorum*, Scots Pine and larch are no longer being considered with more significance being placed on native woodlands to provide shelter and aesthetic benefit where appropriate.
Landscape Enhancement	The matrix of woodland and open space throughout the site gives an attractively varied appearance, with soft edges and shapes which blend well, particularly as there is a network of woodland of a similar nature across the surrounding area. The proposed planting and regeneration will maintain this appearance in both close-up and distant views.	2- Overall there seems to be a change in the landscape where there is broadleaf regeneration encroaching on open land within Croy woodland as well as on adjacent land. A farm beside the main access into Barhill by Auchinstarry has just been planted with broadleaves in 2021.
Provision for Public Recreation	Management of the Forth-Clyde canal is by the British Waterways Board and we will work in partnership with them to ensure protection of the site and its associated habitats. There is already a surfaced walkway on the north side, and we hope to reopen the path along the south side, currently overgrown, to make another circular route.	3
	Croy Hill has been considered as part of the upper Kelvin Valley in a bid for European funds for Rural Development, under the LEADER project. Funding has been granted for work over the next five years to	3

Objective	Proposed management actions	Progress to date 1 - Little/No progress 2 – Some progress 3 – Progress as per LMP
	improve access to the important heritage sites and for enhancing the conservation value of the habitats.	
	Some clearance may be necessary to improve accessibility along recreation routes and create new links.	3 - Ongoing
Deer Management and Provision for Sporting	There are currently many broadleaves vulnerable to deer damage and if additional planting or regeneration is to succeed, deer control is vital and will be integral to the management of these woods. Deer management is by FCS staff and culling will continue site.	3 – Broadleaf planting has largely been successful in both Barhill and Nethercroy using both fencing and tubes.
Conservation of Archaeological and Historic Sites	The Antonine Wall and Military are managed by Historic Environment Scotland, including grass cutting, interpretation and management of the large trees remaining on those sites. This agreement is expected to continue.	3 - Ongoing
	HS policy now is to remove trees only at the end of their natural life, but fellings adjacent to the managed area include broadleaves which will be treated to prevent regrowth. Detail of edge design and areas to be kept clear of trees will be discussed with HS at site planning time. It is expected that approximately 20 metres from the SAM boundary will be unplanted.	3 – Ongoing
	Historic Scotland are leading a bid to the United Nations for the Roman remains of the Antonine Wall	3 – Antonine wall is now a World Heritage Site.

Objective	Proposed management actions	Progress to date 1 - Little/No progress 2 – Some progress 3 – Progress as per LMP
	to become a Word Heritage Site. The Evaluation visit was in 2007 and a decision is expected during 2008. If this is successful, interpretation of the site will be developed, and other improvements are expected.	
Roads	Upgrading of the existing access road along the Antonine Wall from the east is imminent, having received approval from HS. This will include acquisition of a small area to the east of the B 802 to make lorry access easier and safer at the entrance, avoiding any need to excavate material on the SAM.	2 – The road has been constructed however, the bell mouth is not owned by FLS and access rights over it need negotiated with the landowner.
	Extension of this road is required over the next five years, along the alignment shown, to access the two further coupes.	2 – Final road section still to be constructed to access into south west Barhill.
	Light vehicle access is required at the south-west corner of Barhill, as the owner of the house has built across the legal access.	1 - Ongoing

A/2.2 How previous plan relates to today's objectives

This new revision of the plan largely follows on from the objectives of the previous plan to achieve a multi-purpose forest (See **Appendix II**)

A/3.0 Background information

A/3.1 Physical site factors

A/3.1.1 Geology Soils and landform

Elevation ranges from around 50 metres above sea level in the north along the Forth and Clyde canal rising to 150 metres at the Roman Fort in Barhill. The sites sit on glacial till overlying Quartz-microgabbro, Igneous Bedrock and Limestone Coal Formation-Sedimentary Bedrock. Interestingly Barhill is built on a sill of hard dolerite that formed when molten rock solidified underground about 290 million years ago, and the rock was later exposed when Ice glaciers scoured away softer surrounding sandstone. In modern times, dolerite was quarried for road cobbles. Overall, this geology has led largely to a matrix of fertile brown earths and surface water gleys, and well as in more recent time mining spoil from excavation of minerals (See **Map 2 – Soils**).

A/3.1.2 Water

The Broad Burn river runs to the south of Barhill and is within the River Kelvin catchment, which SEPA has identified as being at High Risk of flooding. SEPA has also identify the Forth & Clyde Canal and areas of Nethercroy of high surface water flood risk. Nearby Kilsyth, where the River Kelvin flows closely is within SEPA's Target Flood Areas, (West and North Glasgow Drainage Area), and this is subject to a Natural Flood Management Study.

A/3.1.3 Current climate & exposure

The climate across the sites ranges from 'Warm, Moist and Sheltered' to 'Warm, Moist and Moderately Exposed' with most of the forest lying at the latter end of that spectrum.

Detailed Aspect Method (DAMS) is a measure of windiness of a site using the angle to the horizon in the eight compass points, weighted towards the prevailing wind direction Scores range from 0-24: The higher the score the greater the exposure, with scores below 13 regarded as sheltered and above 22 as too high for commercial forestry. DAMS on the site range from sheltered 11 to moderately exposed 15, with scores generally increasing with elevation. Most of the plan area is sheltered 11. The overall Warm, Moist and Moderately Exposed climate along with the sheltered nature of the forest mean that a broad spectrum of tree species is suitable across the site.

A/3.1.4 Future Climate

Climate data projections for 2050 and 2080 have been used to predict the anticipated future climate, which is expected to have warmer and drier summers, but with an increase in the frequency and severity of winter storms. Although this suggests that the range of suitable species may expand to accommodate more demanding species, and that the growing season may extend, it may also indicate an increased risk of drought which may, in future rotations, limit the site suitability of species which are currently suitable.

A/3.2 The existing forest

A/3.2.1 Age structure, species, and yield class

Table A2 below shows the species make-up of Croy Woodlands with Figure A1 further illustrating this. Both the table and figure show that the forest is predominantly broadleaf (~36%) and there is also a significant area of open space (~54%) (see **Map 3 – Existing Forest Stock**).

Table A2 – Current Forest Species by Area

Species/land use	Area (Ha) Current
Broadleaves	85.9
Larch	10.3
Norway spruce	3.3
Other conifers	2.3
Scots pine	1.7
Sitka spruce	1

Figure A1 – Current Forest Species Composition

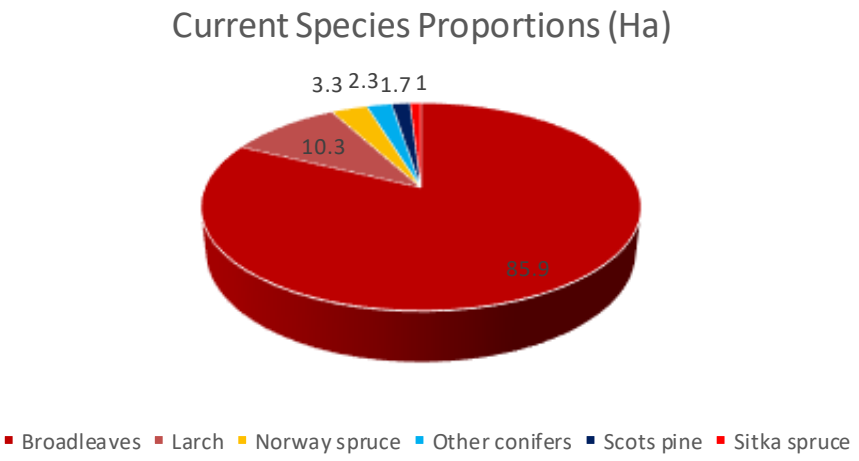
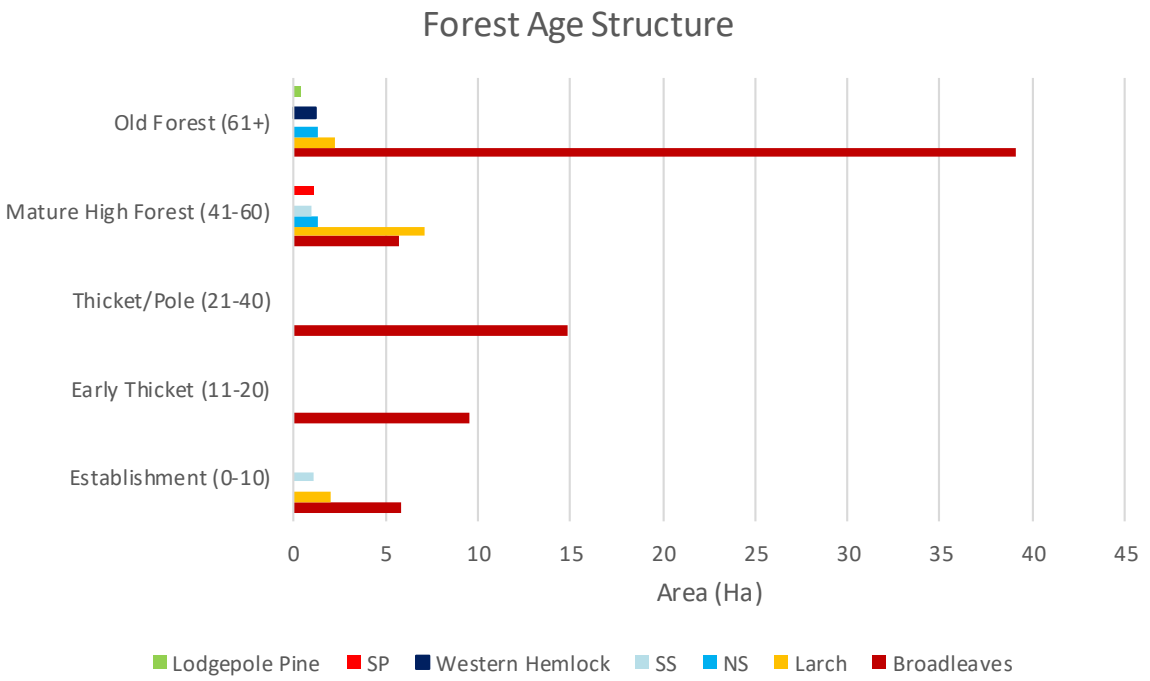


Figure A2 below illustrates that the general picture across the forest with a large area being given over to native broadleaves. There are also conifer components within the forest having been planted in the 50's, 60's & 70's as well as more recently.

Figure A2 – Current Forest Age Structure



There is a wide variety of yield classes (YC 0-22) associated with the forest where this is skewed to lower values due to the extensive broadleaf areas. Based on the information we hold in our sub-compartment database (SCDB), yield classes for broadleaf species range from 0 – 10, Sitka spruce range from YC 14 – 16, Larch YC 8-16, Norway spruce YC 22 and Western Hemlock scores YC 18-20.

Table A3- Area by species

Species/land use	Area (Ha) Current	Area (Ha) Year 10	Area (Ha) Year 20
Other broadleaves	71.7	82.6	84.4
Native broadleaves	14.2	13.4	12.6
Larch	10.3	3.2	3.1
Norway spruce	3.3	2.2	2.1
Other conifers	2.3	2.4	2.6
Scots pine	1.7	1.6	1.6
Sitka spruce	1.0	0.3	0.3
Agricultural land	33.7	33.6	33.4
Open space	67.0	65.4	64.6
Total	**205.1**	**204.7**	**204.7**

Table A4- Area by age

Age Class	Area (Ha) Current	Area (Ha) Year 10	Area (Ha) Year 20
0-10 years	7.8	19.3	0.0
11-20 years	13.8	6.9	28.7
21-40 years	14.4	12.5	17.5
41-60 years	23.0	25.1	11.5
61+ years	45.3	42.0	49.0
Total	**104.4**	**105.8**	**106.7**

A/3.2.2 Operational Access

The B802 runs through the middle of Barhill and Croy Hill through Auchinstarry to Kilsyth. There is access into Barhill along a 1.5 km Class A Forest road which is located off the B802, and there are already plans to extend this next year to facilitate harvesting in south west Twechar. The legal access in Twechar village has been blocked by the building of a house, but East Dunbartonshire Council are expected to ensure Planning Conditions are sufficient to maintain an equivalent access for FC light vehicles and the public adjacent to the house. Barhill has other sections of B, C, and unclassified roads although access via these have their own issues. Nethercroy has an unclassified forest road access and upgrading would only occur if required for any future operations.

A/3.2.3 Low Impact Silvicultural Systems (LISS) potential

This management approach is defined as: 'Use of silviculture approaches whereby the forest canopy is maintained at one or more levels without clear felling.' Under LISS there are no felling areas larger than 2 Ha. The previous forest plan designated the northern slopes of Barhill as LISS- Group Selection, however, due to both the Antonine wall heritage site and the Forth and Clyde Canal scheduled monument access was constrained, and no significant works have taken place.

A/3.2.4 Thinning potential

A large area of the forest has been designated as Minimum Intervention and Natural Reserve which has reduced the possibility of thinning. Elsewhere, thinning operations have been limited, due to a single thinning operation being likely to require an unacceptably large initial investment in relation to the potential benefits due to access and market considerations.

A/3.3 Land Use

A/3.3.1 Agricultural land

The forests lie largely on the rolling farmlands of Glasgow & Clyde Valley to the south of the Campsie Fells, which is generally an undulating pastoral farmland landscape. Agriculture is the predominant land use within this area.

A/3.3.2 Neighbouring land use

Although, Croy Woodlands is located within a largely agricultural area there are both rural and urban land use elements present as the woodland is located in the central belt close to Glasgow. These include settlements which are confined to scattered small farms and hamlets, as well as small towns such as Kilsyth and Cumbernauld. Settlements are all interlinked by transport routes, including the Forth & Clyde canal, which in turn link to main roads and connecting motorways. There are sand and gravel quarries, as well as historic sites (Antonine Wall) and communication routes along the valley sides. Waterbodies, wetlands, and rivers are all present in the area and there is a transition from arable to rough grazing from the valley floor to the high valley sides, where productivity is related closely to elevation and exposure. Elsewhere there is small areas of policy woodland which incorporates both farm and narrow broadleaf woodlands which drain into the valley.

A/3.4 Biodiversity and environmental designations

A/3.4.1 Designations

There are no national designations (e.g., SSSI, SAC, SPA) associated with Croy Woodlands. The closest statutory designation is the Dullatur Marsh SSSI, located close to our boundary. There are several stands listed on the Ancient Woodland Inventory. The highest value woodland is the ancient semi-natural woodland in the north-eastern corner of Croy Hill. There is a PAWS on the north slope of Barhill with the remaining majority comprised of LEPO.

A/3.4.2 Habitats and species

There are four non-statutory Local Authority Local Nature Conservation Sites (LNCS) which directly cover areas of the site. The LNCS relevant to Croy Woodland are:

- Barhill.
- Nethercroy.
- Forth & Clyde Canal- Auchinstarry-Craigmarloch; and
- Forth & Clyde Canal- Craigmarloch Wood.

Priority Habitat & Species are protected under the Scottish Biodiversity List (SBL) https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy/scottish-biodiversity-list, and FLS policy is to protect, enhance and expand these habitats where appropriate. Species of particular conservation concern recorded on site include Peregrine, Great Crested Newt, Otter, Bats, and Greater Butterfly Orchid. Priority habitats include Lowland Mixed Deciduous Woodland, Upland Oakwood, Lowland Meadow, Lowland fen, Lowland Dry Acid Grassland, Purple Moor Grass and Rush Pasture which all provide valuable habitat for various species. These habitats, along with the

Forth and Clyde Canal, are important for grassland, wetland or woodland flora, insects (including butterflies) and birds. The linked matrix of these sites makes them particularly important.

There are plans for local wildlife groups to re-survey the two areas for Badger and Great crested newts at Nethercroy in 2021, COVID allowing. Badgers are found at both Croy Hill and Barhill, but their historic presence near the larch will require a badger sett mitigation plan and licence for felling and roading operations, and communications with the local groups. If There is potential to expand some pond habitat at Barhill after the harvesting of the larch at Barhill. Open habitat (lowland fen and meadow and great crested newt pond habitat) is currently being maintained by cattle grazing; however, this may stop in the future so a new management type will be required. Other management techniques include bracken whipping/bashing by volunteer groups.

A/3.4.3 Riparian habitat

Well-drained soils mean there are few watercourses in the forest, but water runs to the north into the Canal and to the south into the Broad Burn, which runs through the south-west corner of the forest near Twechar village and on to the River Kelvin, ultimately joining the Clyde in Glasgow.

A/3.4.4 Ancient Semi-natural woodland

In the past there have been a lot of site visits and ideas to fell and restructure the Planted Ancient Woodland Sites at Barhill. Due to lack of access, steep slopes, badger setts and unstable soils no harvesting has been possible on the northern slopes of Barhill where the Antonine wall and Forth and Clyde canal scheduled monuments are the main constraint. Therefore, the PAWS at Barhill has been managed by preserving the existing native species by halo thinning the oak trees, which was completed in 2020. The Ancient Semi Natural Woodland in Nethercroy has had some removal of beech by monolithing and removal of scrub, which was then replanted with hazel, oak, willow, and aspen. Presently there is no further work planned, where the PAWS continue to be monitored. Rhododendron control has also occurred at both sites and Japanese knotweed control at Nethercroy.

A/3.4.5 Pests and diseases

A/3.4.5.1 Dothistroma Needle Blight (DNB)

DNB (also known as Red Band Needle Blight because of the colourful symptoms it shows on pine) causes premature needle defoliation, resulting in loss of yield and, in severe cases, tree death. Recent surveys have shown outbreaks of DNB across Central Region. This is of concern as the previous plan proposed increased use of Scots pine to diversify the forest. It is present on both mature south coastal Lodgepole pine crops.

A/3.2.5.2 *Phytophthora ramorum* (*P. ramorum*)

P. ramorum is a fungus-like pathogen of plants that is causing extensive damage and mortality to trees and other plants in parts of the United Kingdom. Larch in particular is extremely vulnerable, and high infection and mortality levels are currently causing significant issues in South and West Scotland. Several isolated instances of P.ramorum have been detected within Central Region forest blocks, although these were isolated trees rather than large-scale infections. One of these instances has occurred at Croy Woodlands, where a Statutory Plant Health Notice was issued to remove all larch within both the affected stand as well as a 250 m buffer surrounding the affected stand. As we are likely to get another plant notice is would be planned to carry out pre-emptive Larch felling.

A/3.4.6 Wildlife (Deer Management)

Roe deer are the primary herbivore species present, these and other damaging herbivore numbers are monitored and controlled by a Deer Management Contractor with objectives to:

- Maintain a sustainable deer population and keep the peri-urban deer management going.
- To protect the native flora and improve the condition of the ancient native woodlands particularly Croy ancient semi-natural lowland mixed deciduous woodland, which has previously had medium and high herbivore impacts and is one of the two most valuable native ancient woodlands in this part of the Region. Once the new plantings are established control effort must be maintained in these areas to protect the ground flora and native tree regeneration.

A/3.5 Landscape

A/3.5.1 Landscape character

Croy Woodlands is situated within two landscapes character types described in NatureScots' National Landscape Character Assessment, key elements of which are reproduced below:

Table A5 – Landscape character assessment

Landscape type	200- Rolling Farmland- Glasgow & Clyde Valley	205- Broad Valley Lowland- Glasgow & Clyde Valley
Key characteristics	• Distinctive undulating landform of elongated hillocks, mounds and ridges created by fluvio-glacial action. • Dominance of pastoral farming, varying in productivity according to elevation and exposure. • Importance of woodland in structuring the landscape and providing shelter for agriculture and rural settlement. • Settlement confined to scattered small farms and hamlets, with several small towns. • Motorways and main roads in northern areas. • Sand and gravel quarries. • Medium to small scale landscape.	• Wide flat-bottomed valley • Medium scale diverse landscape • Craggy or distinctive rounded hills form localised features • Presence of waterbodies, wetlands, and rivers • Transport routes and settlements along the valley sides • Transition from arable to rough grazing from the valley floor to the high valley sides • Historic sites and communication routes along the valley sides • Small areas of policy woodland farm and narrow broadleaf woodlands along steep urns draining into the valley. • Well-settled, with towns and villages on the valley or valley edges, although expansion limited by valley sides and low-lying wet areas.
LCA Relevant landscape guidance	Most of the forest block sits within the Rolling Farmland LCT. The north facing slopes of Strone Plantation and Croy Hill are within the Broad Valley Lowland LCT. **Rolling Farmland** is an undulating generally pastoral farmland landscape. Agriculture is the predominant land use within this LCT, but Bar Hill is well wooded in comparison with shelterbelts, farm woodland, small softwood forests and policy	

Landscape type	200- Rolling Farmland- Glasgow & Clyde Valley	205- Broad Valley Lowland- Glasgow & Clyde Valley
	woodland all within a relatively small area. There is a pattern of small-scale pasture on Barhill where brighter green fields are visible on the upper slopes of Bar Hill adjacent to woodland and shelter belts. Bar Hill is a localised landmark distinct from the undulating farmland to the south. **Broad Valley Lowland** is a broad, low-lying valley with a flat valley floor. Rounded hills such as Bar Hill form localised features and contrasting views are obtained from the valley floor compared to the higher slopes. Woodland in this LCT is generally limited with Bar Hill and the policy woodland around Twechar being an exception.	

A/3.5.2 Landscape designations

Bar Hill is designated by East Dunbartonshire Council as a Local Landscape Area and a regionally and locally important Designed Landscape.

Historic Gardens and Designed Landscape

Bar Hill designed landscape is designated by East Dunbartonshire Council due to its extensive area of estate designed landscape characterised by its tree belts and larger woodlands on a prominent hill. The framework of estate planting from the 1860's is still largely intact, the relationship of tree belts and woodland to the landform creates visual interest. The structure of the woodland boundary should be preserved.

Local Landscape Area

The East Dunbartonshire Local Landscape Area is designated due to its distinctive rounded landform, dramatic views, diverse range of landscape and historical features, estate plantings and important views out over the landscape. It provides a setting for nearby urban areas, historical monuments, diverse woodlands which include specimen trees, shelter belts and woodlands.

A/3.5.2 Visibility

There are views of Barhill from a wide area which include perspectives from Twechar, Croy, Cumbernauld, Kilsyth and Queenzieburn. There are wide open views from Castle Hill as well as filtered views from the Bar Hill Roman Fort where overall views of the landscape are framed by woodland. To the east of Castle Hill there are occasional and partial views of the landscape due to its upland and open nature. Closer to the forest there are sequential views from the Forth and Clyde canal up to the northern half of the hill. Elsewhere there are views from Bar Hill to the south and east from Blackwood, Craigmarloch and Cumbernauld.

Patterns of woodland and open farmland on Barhill are important with colours and seasonal changes of open fields, mixed broadleaves and conifers adding interest. There is a unique sense of place due to the Roman Fort with the maturity and species of the diverse woodland being valued. The Victorian framework of planting and fields at Barhill is largely still intact and woodland cover remains the priority, where the historic structure of woodland boundary should be preserved. Trees of a similar stature to existing should be considered.

From Kilsyth and the north, Nethercroy, is seen largely as native woodland rising up steep sided slopes from the valley floor. Within this area Croy Hill is an important hill where the upper slopes and summits are agricultural. The matrix of woodland and open space throughout the site gives an attractively varied appearance, with soft edges and shapes which blend well, particularly as there is a network of woodland of a similar

nature across the surrounding area. Historic management has maintained this appearance in both close-up and distant views.

Overall, the main area that would impact the local landscape is associated with the Larch area to the south west of Bar Hill which would be a pre-emptive fell due to Phytophthora. The main view of this felling would be from Twechar, although Eyrelan Glen does screen views from the west and north of Barhill. The landscape designations as well as the fact the woodlands fit well visually within the wider landscape mean the impact of any felling areas needs to be considered. When considering replacement species, the view from Twechar and setting recreational routes should also be considered.

A/3.5.3 Design and management considerations

The proposed Phase 1 felling will remove all of the larch in the south west and most if not all of the Norway spruce leaving a strip of Scots pine on the lower slopes of the ridgeline. This is a significant change, and the choice of replacement should be carefully considered.

A well-designed mixed conifer or mixed woodland could replace the existing woodland, provide continuity and be a suitable landscape fit (for example Douglas fir on higher slopes with broadleaves adjacent to the access path and the Broad Burn or an intimate mix of conifer/broadleaf on the visible slopes grading into 100% broadleaves below). It would also be desirable to expand the remaining area of Scots pine but unfortunately Scots pine is not an option due to Dothistroma.

Other land management factors may influence species choice. If 100% broadleaves are chosen and there is no scope for including conifers, then the planting at Bar Hill should fit with adjacent policy woodlands such as Cailhead plantation, Eyreland Glen, Board Craigs wood and Boardloch wood. These woods are all mature mixed broadleaf woodlands predominately beech and sycamore. Beech and sycamore will not be a good fit at Bar Hill for reasons such as environmental considerations; in this case oak would be a suitable choice. FLS forest management has demonstrated success in establishing oak on the higher ground between Castle Hill and Bar Hill. This planting can be continued down the southern flank of Bar Hill. Once established the planting on the south west side of Bar Hill would be of a similar size and stature to the adjacent policy woodland. Some areas will not be suitable for Oak and will favour other broadleaf species for example, alder and willow in wetter areas. Some mature boundary trees will remain, typically beech and two relatively small stands of mature broadleaves will remain on the southern boundary. One of these stands helps to screen the lower slopes of Bar Hill and some of the proposed phase 1 felling as viewed from Twechar.

A/3.6 Social factors

A/3.6.1 Recreation

One of Scotland's Great Trails, the John Muir Way traverses through Croy Woodlands. It is part of the Central Scotland Green Network (CSGN) and offers walkers and cyclists a unique journey through Scotland's landscapes, history, and heritage. Traversing central Scotland coast to coast in 134 miles, it links Helensburgh in the west with Dunbar in the east. It is intended to encourage both locals and visitors to become more active, through doing the route either as a single journey, or in stages, improving their health, wellbeing, and enjoyment of nature, while raising their awareness of John Muir's legacy. Local economies are also given a boost through visitor spend. The John Muir Way is a flagship project in the Central Scotland Green Network, demonstrating what can be achieved through effective partnership working, in partnership with local authorities and other key landowners and stakeholders through the John Muir Way Partnership Group.
Overall Croy Woodlands is a hub for recreation within the lowlands of Central Region. Several claimed Rights of Way and Core Paths are extensively used by local users such as walkers, cyclists and horse riders who use the forest roads, and both formal and informal paths. There are however no formal Forestry & Land Scotland parking areas. Overall, the main objectives for recreation have been to maintain the Nethercroy paths and the John Muir Way. It is important to note that there is an increased interpretation of both the British Waterways and Antonine Wall trails and art installations being delivered by 3rd parties at the sites. It is also worthwhile to note that there have been some historic issues with anti-social behaviour.

A/3.6.2 Community

Funding of £1.1 million has been secured by East Dunbartonshire Council to create an innovative-run facility- Twechar Outdoor Pursuits Training and Education Centre. The canal-side resource will offer a range of activities- such as canoeing, kayaking, cycling, climbing, and walking. It will also provide a base for new educational, training, and voluntary opportunities- helping to promote regeneration and address disadvantage in the area. The project has been awarded £1.1 million from the Regeneration Capital Grant Fund (the Regeneration Capital Grant Fund is delivered annually in partnership between the Scottish Government and COSLA), with the Council's Capital Investment Programme also providing support- in addition to other potential external funding sources. The overall cost is an estimated £1.6 million. The development site is Council-owned and sits adjacent to the Forth and Clyde Canal, just off Main Street- at the northern entrance to Twechar. The development will also enable wider regeneration of the canal-side site and chimes with national and local strategies for regeneration, which includes the 'Twechar Regeneration Masterplan Study' that East Dunbartonshire Council, with its partners, commissioned. The aim of the masterplan was to develop a joined-up approach ensuring that the physical, social, and economic issues would be considered in relation to each other. Community involvement has been key to securing funding and will remain at the heart of the project moving forward. Work has taken place with Twechar Community

Action (TCA), which manages Twechar Healthy Living & Enterprise Centre and has been central to the transformation of Twechar over two decades.
Subject to design and planning work, construction could potentially begin this autumn, and be completed by autumn 2022. The Council has worked with architect Cooper Cromar on preliminary design work.

A/3.6.3 Heritage

Our key priorities for archaeology and the historic environment are to undertake conservation management, condition monitoring and archaeological recording at our significant historic assets; and to seek opportunities to work in partnership to help to deliver Our Place in Time: The Historic Environment Strategy for Scotland and Scotland's Archaeology Strategy. Significant historic environment features will be protected and managed following the UK Forestry Standard (2017). Harvesting coupes, access roads and fence lines will be surveyed prior to any work being undertaken to ensure that upstanding historic environment features can be marked and avoided. At establishment and restocking, work prescriptions remove relevant historic environment features from ground disturbing operations and replanting. Where appropriate, significant historic assets are recorded by archaeological measured survey, and may be presented to the public with interpretation panels and access paths. Opportunities to enhance the setting of important sites and landscapes will be considered on a case-by-case basis (such as the views to and from a significant designated site).
The Regional Historic Asset Management Plan includes conservation management intentions for those designated historic assets in Scotland's national forests. Details of all known historic environment features are held within the Forester Web Heritage Data (built using national and regional historic environment records) and are included within specific operational Work Plans to ensure damage is avoided. Significant historic environment features will be depicted on all relevant operational maps.
The Antonine Wall World Heritage Site and Scheduled Monuments runs through both Barhill and Nethercroy with 3 individual scheduled monument parts within the plan area (Bar Hill, SM 90008; Croy Hill, SM 7639; and Croy Hill, SM 90011). The Forth and Clyde Canal Scheduled Monument also runs alongside the northern boundary of the sites. Various undesignated features across the sites are recorded in the heritage layer such as historic agricultural and mining features. The Antonine Wall comprised a turf and earthen rampart standing some 3.5 m in height on a stone foundation and likely surmounted by a wooden palisade. Some 6 m to the north of the wall lay a large V-shaped ditch that measured some 12 m in width and 4 m in depth. Despite being built of turf and not stone, the Antonine Wall was considerably stronger than Hadrian's Wall: it had many more forts (one every two miles) and was garrisoned by roughly twice as many troops. It took twelve years to complete, stretching from the Firth of Forth to the Firth of Clyde.

Timeline: -

AD 43 - The Emperor Claudius invades Britain
AD 78 - The Emperor Agricola expands into Scotland and Wales
AD 80 - 105 Roman withdrawal from Scotland
AD 122 - Construction of Hadrian's Wall begins…
AD 128 - …and is completed
AD 142 - Construction of the Antonine Wall begins…
AD 154 - …and is completed
AD 162 - The Antonine Wall is abandoned
AD 410 - Rome withdraws from Britain

Within Croy Woodlands, the Antonine wall runs from Barhill across Croy Hill. The Antonine Wall was designated as a World Heritage site in July 2008. Both Barhill and Croy Hill are Properties in Care and are managed by Historic Environment Scotland (HES). Forestry and Land Scotland offer support to HES regarding the management of the two areas (such as in providing arboriculture advice for the mature broadleaves on Bar Hill Roman Fort). Historic Environment Scotland cut the grass on Barhill (on both the military way and the Antonine Wall) and manage the trees in proximity to important features, as well as cutting grass on the fort on Croy Hill. Currently there is a wider 'Rediscovering the Antonine Wall' project which includes the installation of a sculpture of a centurion's helmet to highlight the wall as a world heritage site. Ideally, any fort or section of upstanding bank and ditch should have uninterrupted views of the wider setting. Individual trees are not usually a problem, and can enhance the setting, but dense mature conifers can be an issue. This is the case to the north of the Antonine wall on Barhill, where mature conifers block the views to the north. Ideally, these should be selectively felled and thinned, leaving as many healthy specimen trees as possible to create (very) open woodland with some views to the north. However, there are access constraints to this steep area due to both the Antonine Wall itself and the Forth and Clyde Canal. Opportunities will be taken where they present themselves to selectively thin non-native species in this area. The recent felling in Barhill to the south of the Antonine wall has been restocked with broadleaves, and these will not grow too high or dense and fit in well with the local landscape.

A/3.7 Statutory requirements and key external policies

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 Woodland Assurance Standard 4, 2018
- Scottish Lowlands Forest District Strategic Plan
- Central Scotland Forest Strategy 1995

- Central Scotland Green Network Vision
- Glasgow and Clyde Valley Forestry and Woodland Strategy 2012
- The Glasgow and the Clyde Valley Strategic Development Plan (SDP) 2017
- East Dunbartonshire Local Development Plan (LDP) 2017
- East Dunbartonshire Green Network Strategy 201
- SNH Landscape Character Assessments for Glasgow 'Glasgow and Clyde Valley' 1999
- Natural Environment Planning Guidance 2017
- Scottish Lowlands Forest District- Black Grouse Strategy 2015-2019
- Black Grouse and Forestry: Habitat Requirements and Management
- The Vincent Wildlife Trust- Managing forest and woodlands for pine martens
- SEPA Flood Risk Management Maps
- Forestry Commission Bulletin 62- Silviculture of Broadleaved Woodland
- Forestry Commission Bulletin 119- Cultivation of Soils for Forestry
- Forestry Commission Practice Guidance- Deciding Future Management Options for Afforested Deep Peatland
- Forestry Commission Practice Guide- Managing Open Habitats in Upland Forests
- Forestry Commission Practice Guide 3- The management of semi-natural upland mixed ashwoods.
- Forestry Commission Practice Guide 8- The management of semi-natural wet woodlands
- Forestry Commission Practice Guide 14- Restoration of Native Woodland on Ancient Woodland Sites
- Forestry Commission Practice Guide 21- Choosing stand management methods for restoring planted ancient woodland sites
- 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 Retention- Guidance for their selection and management on the NFE in Scotland
- FLS- Larch Strategy

Appendix II: Land Management Plan Brief

Contents

Key Background Information

Introduction

- Croy Woodlands (~ 205 ha) consist of Barhill (~ 83 Ha) and Nethercroy (~ 122 Ha) woodlands located to the west and north of the village of Croy in North Lanarkshire with Barhill situated just within East Dunbartonshire east of the village of Twechar.

- The Forests lie on the broad valleys lowland and rolling farmlands of Glasgow & Clyde Valley to the south of the Campsie Fells, with Croy and Twechar the closest settlements. The woodlands complement the wider mixture of woodlands and agricultural fields.

- This management plan will revise the previous Forest Design Plans for these woodlands under one Land Management Plan. This new plan will synchronise the management approval for these forests into a single new 10-year plan, associated not only by their geographic proximity to each other but also due to their similar attributes such as their lowland character and relatively fertile soils.

Silvicultural Potential

- Elevation ranges from around 50 m above sea level in the north along the Forth and Clyde Canal rising to 150 m at the Roman Fort in Barhill. The sites sit on glacial till overlying Quartz-microgabbro, Igneous Bedrock and Limestone Coal Formation - Sedimentary Bedrock, resulting in a matrix of fertile brown earths and surface water gleys and with some areas of mining spoil related to the coal mining history of the area.

- The climate is classified as warm/moist and ranges from sheltered to moderately exposed and therefore are all conducive to good tree growth with few limitations on silvicultural options. Climate change predictions suggest that the climate will become generally warmer, with drier summers and wetter winters.

Current Management Approach

- Approximately 51% of the sites are under woodland cover, with the remainder given over to other land uses such as conservation grazing, heritage features, quarries etc. Broadleaves account for 71% of the woodlands and conifers 29% with over half of that conifer being larch.

- The current split in terms of age classes structure is approximately 8% establishing crop (0-10 years), 13% thicket (11-20 years), 25% pole stage (21-40 years), 11% mature (41-60 years) and 43% old forest (61+ years). Age diversification is therefore reasonably good with further diversification likely.

- Much of the mature larch at Barhill is due to be felled in the near future and some other areas currently planned for the 2040's and 2050's elsewhere significant areas are given over to Natural Reserve and LISS management. Nethercroy woodland is currently managed as Minimum Intervention. A Statutory Plant Health Notice was issued in 2015 for *Phytophthora ramorum* infection in larch which was cleared although the remaining mature larch remains at risk.

- There is 1.5 km of Class A Forest road serving Barhill which is due to be lengthened by 0.54 km next year as well as sections of Class B, C and unclassified roads although taking access via these have their own issues. Nethercroy also has an unclassified forest road access. Consideration of future access for future operations should be made.

Main Considerations

- Several claimed Rights of Way and Core Paths run through the sites, used extensively by the local users such as walkers, cyclists and horse riders using both the forest roads, formal and informal paths. There are no formal parking areas. The sites have some historic issues with anti-social behaviour.

- Important species present include Great Crested Newt, and Greater butterfly orchid. Habitats include Lowland Mixed Deciduous Woodland, Upland Oakwood, Coniferous Woodland, Forth and Clyde Canal, Lowland Meadow, Lowland Dry Acid Grassland, Purple Moor Grass and Rush Pasture all providing valuable habitat for various species. There are no designations on the sites although four Local Authority Local Nature Conservation Sites fall inside the sites: Barhill, Nethercroy, Forth & Clyde Canal: Auchinstarry-Craigmarloch & Craigmarloch Wood. There are areas of Ancient Semi-Natural Woodland in both woodlands in along with areas of Long-Established Plantation Origin. Ancient semi-natural woodland management and PAWS restoration work has been undertaken at Nethercroy and Barhill. Rhododendron control has also occurred at both sites and Japanese knotweed control at Nethercroy.

- The Antonine Wall World Heritage Site and Scheduled Monuments runs through both Barhill and Nethercroy with 3 individual scheduled monument parts within the plan area. The Forth and Clyde Canal Scheduled Monument also runs alongside the northern boundary of the sites.

Various undesignated features across the sites are recorded in the heritage layer such as historic agricultural and mining features etc.

- Barhill is designated a Local Landscape Area by East Dunbartonshire Council due to its distinctive rounded landform, dramatic views and a diverse range of landscape and historical features. The designation as well as the fact the woodlands fit well visually within the wider landscape so the impact of any change to felling areas will need to be considered.

- The Broad Burn is a river that runs within the south of Barhill within the River Kelvin catchment and which SEPA identify as at High Risk of flooding. SEPA also identify the Forth & Clyde Canal and areas of Nethercroy of high surface water flood risk. Nearby Kilsyth where the Rover Kelvin flows closely is of SEPA's Target Flood Areas within the West and North Glasgow Drainage Area which is subject to a Natural Flood Management Study. Woodland in this area makes up less than 20% of the land cover with FLS woodland less than 4% and therefore any intervention we may make would have a minimal effect on the wider catchment.

- Roe deer are the primary herbivore species present, these and other damaging herbivore numbers are monitored and controlled by a Deer Management Contractor with objectives to:

  - maintain a sustainable deer population and keep the peri-urban deer management going.

  - To protect the native flora and improve the condition of the ancient native woodlands particularly Croy ancient semi-natural lowland mixed deciduous woodland which has previously had medium and high herbivore impacts and is one of the two most valuable native ancient woodlands in this part of the Region. Once the new plantings are established control effort must be maintained in these areas to protect the ground flora and native tree regeneration.

2. Strategic Drivers

To succeed in realising the vision as set out in the Scottish Forestry Strategy 2019-2029, Six priorities for action been identified for implementation:

1. ***Ensuring forests and woodlands are sustainably managed***
2. ***Expanding the area of forests and woodlands, recognising wider land-use objectives***
3. ***Improving efficiency and productivity, and developing markets***
4. ***Increasing the adaptability and resilience of forests and woodlands***
5. ***Enhancing the environmental benefits provided by forests and woodlands***
6. ***Engaging more people, communities and businesses in the creation, management and use of forests and woodlands***

In order to demonstrate how we will have regard to the Forestry Strategy in our work, we have identified the relevant Forestry Strategy 'Priorities for Action' in our Corporate Outcomes section of the FLS Corporate Plan 2019-2022. Our Corporate Outcomes and the associated Operational Actions to deliver them have informed the objectives for this LMP illustrated in Table 12 below.

3. Draft Management Objectives

Table A6 – Relevant Corporate Outcomes and Operational Actions informing the LMP Objectives

Corporate Outcomes Relevant to LMP	Operational Actions to Deliver Outcome Relevant to LMP	Draft LMP Objectives
Outcome 1: Supporting a Sustainable Rural Economy **FLS supports a sustainable rural economy by managing the national forests and land in a way that encourages sustainable business growth, development opportunities, jobs, and investments.**	• Managing the national forests and land in accordance with the UK Woodland Assurance Scheme (UKWAS) to ensure that timber and other products produced by FLS are guaranteed to be from a sustainably managed resource • Developing our forest planning processes to ensure long-term sustainable productivity of the national forests and land • Providing a sustainable supply of timber to Scotland's timber processing sector • Implementing the Restocking Strategy for the national forests and land and develop a new plant and seed supply strategy • Supporting Scottish tourism and the visitor economy through the provision of visitor attractions • Support the venison processing sector through our deer management	• Manage for production of timber at scale appropriate to the site. • Plan roads to access less accessible crops.

Corporate Outcomes Relevant to LMP	Operational Actions to Deliver Outcome Relevant to LMP	Draft LMP Objectives
Outcome 2: Looking after Scotland's national forests and land **Scotland's national forests and land are looked after; biodiversity is protected and enhanced; and more environmental services are provided to people.**	• Managing the national forests and land to further the conservation and enhancement of biodiversity • Collaborating with partners on integrated landscape-scale approaches to habitat management and restoration • Taking specific conservation action for vulnerable priority species (e.g. red squirrel, capercaillie, black grouse) • Supporting policy development and research, and act as a testbed for new and innovative approaches to forestry and land management • Developing an asset management approach to the historic environment within Scotland's forests and land • Working with neighbouring land managers to undertake landscape-scale control of rhododendron to conserve ground flora and improve habitats • Continuing to implement the Larch Strategy in order to reduce the rate of expansion of Phytophthora ramorum	• Pre-emptively remove larch • Monitor and maintain priority habitats and species • Continue to control invasive species (Rhododendron and Japanese knotweed) • Mitigate against excessive water runoff and pollution into the schedule Clyde and Forth canal.

Corporate Outcomes Relevant to LMP	Operational Actions to Deliver Outcome Relevant to LMP	Draft LMP Objectives
Outcome 3: National forests and land for visitors and communities **Everyone can visit and enjoy Scotland's national forests and land to connect with nature, have fun, benefit their health and wellbeing, and have the opportunity to engage in our community decision making.**	• Maintaining walking and biking trails to promote fun in the outdoors, focussing on improving entry level experiences for everyone to enjoy and gain health benefits • Continuing to remove barriers to ensure that people from all backgrounds can and do access the full range of benefits of the national forests and land • Enabling outdoor learning and encouraging schools and community groups to make use of the national forests and land • Continuing to engage communities in decisions relating to the management of the national forests and land • Continuing to support community empowerment by enabling communities to make use of the national forests and land to benefit their communities	• Future design needs to consider the woodland setting and Antonine Wall World Heritage Site within the local landscape area. • Maintain responsible access and use of the forests, including John Muir Way, Barhill Roman camp, and military way.

Appendix III: Land Management Plan Consultation Record

Table A7 Consultation Record

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
Online Feedback FLS Consultation Webpage	16/08/2021	01/09/2021	**What do you most like about the plan, and why?** None of this is a plan to make improvements this is a plan to fell woodland that has been here since before we humans decided "we could manage the land better than nature" Nature can manage this planets Woodlands far better than ignorant greed compelled Humans. We have no right to destroy nature, woodlands and many species of animal being driven out of their homes or killed in the aggressive process of felling nothing recovers after this. Deforestation is Humans legacy of destroying our planet. **Is there a part of the plan that you would like to see improved, if so how**? No Just leave our Woodlands be they have self-managed this planet for millennia before Greed Thirsty Ignorant Humans decided they were far better, Really Deforestation is Humans Legacy of Destroying our Planet forever	Thank you for your feedback. We understand that managing forests to balance all interests does not always meet everyone's expectations. If you would like to investigate further how we look to balance the needs of society and the environment, our corporate plan is available at the following website link: https://forestryandland.gov.scot/what-we-do/who-we-are/corporate-information/corporate-plan

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			Please add any further comments relating to the plan here. Just Stop Felling for no other gain than to fill Ignorant minded Humans pockets.	
Online Feedback FLS Consultation Webpage	16/08/2021	01/09/2021	**What do you most like about the plan, and why?** The extent of native broadleaf trees and their minimal management **Is there a part of the plan that you would like to see improved, if so how?** The plan sets out the large amount of recreational access but does not have details about how the impacts of this will be managed. For example, how wear and tear on some areas may need to repaired. Also how this would need to be done sensitively. Could the FLS work with local communities regarding access? **Please add any further comments relating to the plan here.** Taking the beasts off the hill is a bad idea , they have been doing a great job , and conservation grazing is the best approach . Trying to rely on volunteers to do the bracken bashing etc is unrealistic.	Thank you for your feedback. <u>Recreational Access</u> Forestry and Land Scotland plan and manage the delivery of recreational works such as path improvements as an outcome of our regularly programmed facility inspections. These inspections highlight both Health and Safety issues, as well as visitor amenity issues. For any larger pieces of work, work plans are created to highlight any sensitivities regarding habitats etc. to ensure that programmed works do not have a detrimental impact on the site. FLS are able to work with local communities to improve access via volunteers. We have no active groups within this woodland, but would be willing to work with the community to establish one if there was an appetite. <u>Cattle grazing*</u> In relation to the cattle grazing, restrictions for the type, size, and number of herd on this site are dictated by a couple of parameters. The first is the expected interaction with the public; this requires a small, docile breed of cattle that poses small risk to safety of the other users on site. The second is the avoidance of damage to the

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
				World Heritage Site feature of the Antonine Wall, which requiresus to keep herd size down to a very small number. These constraints make it nearly impossible to find a suitable lease-holder to graze their own animals on this site; it has been attempted in the past. FLS has met this challenge by owning its own herd, which is moved between Barhill and the Trossachs. We do not currently employ staff, adequately experienced in livestock husbandry and care, and are dependent on local farmers to help us look after our animals. FLS has to consider animal welfare and what can be reasonably managed alongside the conservation objectives and whether they are being met. In this case, the increased presence of human visitors have increased risks (especially through the illegal access by off-road motorbikers). We also looked at whether the current set-up was meeting the objectives of the grazing regime and it was determined that the herd was not making real headway in the knocking back of bracken and that the grazing in the lower reaches (wet meadow) was having a minimal impact. Moving the cattle around a site effectively to target key habitats is a challenge for any conservation grazier, but especially so in an area so much used by the public. The decision was made to take the animals off this site for the next few years while we trial other methods and determine what options are available for site management that can address the

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
				complexities here. We are trialling new techniques in conservation grazing management at other locations, which if successful, could be applied at Barhill in the future. We are also aware that anti-social behaviour does need addressing and would rather not risk the welfare of livestock while we tackle this issue. In the meantime, we are committed to looking after the wall and meadow habitats at Barhill/now 'Croy Woods', and ask for your patience and understanding as we work through different methods and approaches over the next few years.
Online Feedback FLS Consultation Webpage	16/08/2021	01/09/2021	**What do you most like about the plan, and why?** That there is an objective for minimal intervention, the recognition of the value of the spaces and also recognition for the value of dead wood. **Is there a part of the plan that you would like to see improved, if so how?** The planned new road from the quarry to the south west of bar Hill is being constructed along an existing attractive path used by walkers and cyclists . This should not be done and the new forest road should be constructed on an alternative line. **Please add any further comments relating to the plan here.** I'm disappointed to see planned thinning of trees for the sake of views. This feels an	Thank you for your feedback. <u>Planned new road</u> Deciding the location of the planned new road has been a difficult and complex 4 year process. The final location was determined by the need to protect important species, habitats and heritage features both in the construction and future use of the road. We can confirm that cyclists and walkers can continue to use this route as per all forest roads in Croy Woodland. <u>Thinning Works</u> The proposed thinning work is mainly to preserve existing remnant features in the ancient woodland areas by halo thinning and scrub clearance. Thinning of stands also improves their longer term stability so they can be maintained for longer periods of time. It can also promote natural regeneration and establishment for light demanding trees species such as Oak.

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			unnecessary part of the plan in relation to the Barrhill northly views. There are excellent views from the top and the main field without the need for thinning. I also feel very sad about the loss of the larch trees. I understand the concerns here but these truly are special trees with many wonderful examples in these woodlands. My preference would be for close monitoring instead.	<u>Larch Removal</u> I agree it is saddening to see Larch removed from our forests, however the Phytophthora ramorum disease larch transfers could inflict significant damage to our natural environment and plant-based industries if it were allowed to take its course without intervention. If the Phytophthora ramorum disease begins to affect other species in significant numbers, the impact could be greater. There are also several other woodland and heathland species that are susceptible to this disease for example Bilberry (Vaccinium myrtillus; also known as blaeberry and winberry) which we are trying to protect by carrying out this intervention.
Online Feedback FLS Consultation Webpage	16/08/2021	01/09/2021	**What do you most like about the plan, and why?** The recognition of the multiple functions and user groups the area has and the efforts made to get engagement with the plan. **Is there a part of the plan that you would like to see improved, if so how?** How best to positively engage with the local community to encourage appreciation and protection of these amazing spaces. The use of motorbikes on the hill can be	Thank you for your comments. <u>Cattle grazing</u> In relation to the cattle grazing, please see our comments above*. <u>Anti-social behaviour/Motorbikes/Community engagement:</u> FLS are actively engaging with Police Scotland regarding the use of motorbikes on our sites. We have signage on site to alert MOPs to report incidences to 101. FLS cannot install infrastructure that

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			very distressing and I know many locals report this to the police. Litter is also a significant issue across both hills. These all feel like educational issues and perhaps getting younger folks involved from school age would help people appreciate the value of these spaces **Please add any further comments relating to the plan here.** I was sad to hear that the cattle grazing stop. I think it is a real bonus having them at Nethercroy and would prefer to see the grazing expanded. Also can I say that I hope that the areas where recently planted trees have died due to the ash disease are not replanted. They have created patches of open ground amongst the planting that compliments the mixed woodland/clearing that is a feature of the area.	actively prevents the access of motorbikes, because in doing so we would also prevent access for cyclists, prams, wheelchairs, and horses. The best way to prevent these issues is the concerted effort of users reporting incidents to 101 to highlight the issues and demonstrate the need for active policing. Our Community Ranger works with local nurseries to educate pupils on the benefits of the woodlands. We also facilitate a number of education and engagement based permissions across the site with the hope that this engagement with the site by locals will increase the sense of ownership within the local community. <u>Litter</u> As part of our ongoing site maintenance programme, litter picks are conducted across the site by FLS staff on a monthly basis. FLS manage our sites using the ethos of the Scottish Open Access Code which clearly states that litter should be taken home to be disposed of if there is no appropriate facility within the woodlands.
Online Feedback FLS Consultation Webpage	16/08/2021	01/09/2021	**What do you most like about the plan, and why?** Love how this gem of an area is going to be carefully looked after, especially with things like climate change, moulds etc. all taken into consideration. I think it's the active, constant and planned care that impresses me. I know of a park/woodland elsewhere where I grew up that	Thank you for your feedback. <u>Cattle grazing</u> In relation to the cattle recently being removed from Croy, please see our comments above*. Cattle grazing and the benefits to wildflowers can be difficult to predict, we are currently looking at better ways to manage the

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			ended up closing so many parts to it because it became unsafe because it wasn't maintained. **Is there a part of the plan that you would like to see improved, if so how?** The plan seemed pretty extensive to me!! **Please add any further comments relating to the plan here.** I love Nethercroy and Barhill We moved to Kilsyth ten years ago and these areas bring us a huge amount of joy. This year I have spent a lot of time walking at Nethercroy in particular and the range of wildflowers has been stunning! I don't think I've seen it so colourful. Is that because of the cattle grazing perhaps? So I guess I would say that I would love to see the cattle come back each year as I love them up there. One thing I am aware of is the problem of the motorbikes and quads that visit. I have reported them to the police a number of times. I hate to see how the ground gets chewed up by them. But I guess that doesn't really affect the plan. Plus I don't know how you stop them from playing on the hills anyway. Finally, just thank you for all your hard work in looking after these beautiful areas.	ways cattle graze our sites. For example the use of locator technology to assess and then manage patterns of grazing intensity across a site. Bracken can be detrimental to wildflower ground flora so we are also exploring the use of conservation volunteers to manually control this vegetation. Anti-social behaviour/Motorbikes/Community engagement: FLS are actively engaging with Police Scotland regarding the use of motorbikes on our sites. We have signage on site to alert MOPs to report incidences to 101. FLS cannot install infrastructure that actively prevents the access of motorbikes, because in doing so we would also prevent access for cyclists, prams, wheelchairs, and horses. The best way to prevent these issues is the concerted effort of users reporting incidents to 101 to highlight the issues and demonstrate the need for active policing. Our Community Ranger works with local nurseries to educate pupils on the benefits of the woodlands. We also facilitate a number of education and engagement based permissions across the site with the hope that this engagement with the site by locals will increase the sense of ownership within the local community.

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
Forest Neighbour	19/07/2021	27/08/2021	With regards to your neighbour letter received 15 July 2021 about Croy Woodland land Management Plan Consultation I would like to thank you for keeping us in the loop. 1. Regarding your map Visitor zones their are paths mark on the farm land owned by Auchenstarry Farm that don't exist could you take these off to avoid confusion or conflict as you map is not accurate. Their is no core path that leads directly into the farm steading witch is marked in green and yellow on your map. I will forward this email to julie Ketley as earlier on in the year we exchanged emails about Walkers coming through the farm and that map would explain it as FLS may be circulating a wrong map. 2. From what I have read in the report could you if possible give me some more information regarding the extension of the quarry and use of the access roads as if the material is going to be taken off site. Having dealt with July Kelly with some issues with my section of road I don't what the same to happen again .	*Thank you for your feedback and questions regarding the Croy land management plan. I have now consulted the relevant internal teams and provided a separate response for each question or comment in your e-mail.* <u>Paths Marked on the Visitor Service Zones</u> We have double checked the current core path plans for East Dunbartonshire Council and North Lanarkshire Council. The core paths currently shown on our maps and clearly marked on the Council plans so we are obliged to show these. If you would like to have these removed, then the Council would need to be contacted. I have placed a link below to each Council webpage that identify these paths. https://www.eastdunbarton.gov.uk/residents/planning/planning-policy/transport/core-path-plan https://www.northlanarkshire.gov.uk/leisure-parks-and-culture/countryside-and-parks/outdoor-access/core-paths-north-lanarkshire (MAP SIX). <u>Quarry Extension & Use of Access Roads</u> The extension of the quarry is primarily to facilitate the construction of the planned road for 21/22 schedule. The extension will increase the quarry size from the existing 0.42Ha to 0.93Ha

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			3. The other point was I notice a new access road marked on the the Barrhill quarry map at the entrance that we call Hope Park entrance (old tip). I would just like to point out that along that route is the main water pipe for Cumbernauld and the BIG HIGH PRESURE GAS MAIN is located so extreme care will need to be taken if that route is taken. Could you also supply your proposals on this as it pass all the side off my boundary. 4.The final thing that I would like to add was from the map that you have in your documents that it shows 2 outlined areas Barrhill and Nethercroy These 2 areas are unique and a valuable asset to FLS and together offer the central belt of Scotland a growing key area for recreation on the door step. If you where to take that map and shade in The area of Auchenstarry farm turning Barrhill , Auchenstarry farm and Nethercroy into one that would give FLS 1 large area in the central belt of Scotland to create an unique park for recreation on the banks of the forth and Clyde canal and accessing all parts of your woodland without problems.	(see maps). There will be some maintenance work on the access road which will be required for both construction traffic and timber haulage. The Civil Engineering team have been briefed and will be working closely with the FLS Estates Manager, to ensure care is taken with regard to vehicle usage and maintenance work. <u>Hope Park Entrance</u> There are no set plans for use at the moment, we will update you if this changes. With regard to the high pressure gas pipeline; FLS standard operating procedure is to consult utility providers before any work commences and comply with any additional safety controls set out by the provider. <u>Auchenstarry Farm</u> Thank you for your suggestion, we will take this into consideration.

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			But this is only a suggestion but the door is always open and open to any serious proposals.	
Kilsyth Community Council	18/08/2021	30/08/2021	**Page 2 Para 3.01 Proposed Forest Road Works:** We have no objection to this road extension as shown green on your map so long as this is not open to vehicles using it from Twechar to Croy or vice versa. The road should be closed with suitable barriers to prevent through traffic with only Forestry and Land Scotland (FLS) having access. The possibility of 'Off Road Dirt Bikes and Quad Bikes' gaining access to the woodlands should be considered as part of the plan. These vehicles currently cause significant problems in both the Barhill and Croy hill locations. The proposal to open the two quarries, one on the Barhill side and one on the Croy side would not be acceptable to Kilsyth Community Council unless. Kilsyth Community Council would only find this an acceptable solution to providing usable aggregate sizes for constructing and repairing forest road if FLS were to confirm in writing that the use of	*Thank you for your comprehensive feedback and for highlighting your concerns regarding the programmed work in Croy plan. I have consulted our delivery teams and collated our responses to each point raised.* *We have tried to explain mitigation measures employed for our programmed work and the justification for the decisions and management approach taken (for example the removal cattle). I hope this allays your main concerns. If you would like to meet on site with our delivery teams regarding a particular issue, please let me know and I can arrange a future meeting. Otherwise you can contact me by phone and I will consult with our delivery teams to provide further information for you.* **Page 2 Para 3.01 Proposed Forest Road Works:** **Response:** FLS are actively engaging with Police Scotland regarding the use of motorbikes on our sites. We have signage on site to alert members of the public requesting they report incidences to 101. FLS cannot install infrastructure that actively prevents the access of motorbikes, because in doing so we would also prevent access for cyclists, prams, wheelchairs, and horses. The best way to prevent

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			explosives would be notified to the surrounding communities at least two weeks prior to the date of planned explosion. In addition, that all vehicles used for transporting this aggregate material will be confined to forestry roads and will not use the public highways to transport any of the quarried materials to any other location out with the Croy Woodlands location. If the vehicles have to leave the forestry roads network at the end of the planned work they must be cleaned so that their wheels do not leave debris/mud on the public highways in and around Kilsyth. a) The village of Croy suffered many years of blasting in the Croy quarry therefore how often and how long does FLS expect blasting to take place? b) How long does FLS expect these quarries to be operational? c) What depth of extraction will occur at each quarry location? d) Will each quarry retain water and to what depth? e) What are FLS reinstatement proposals for each quarry?	these issues is the concerted effort of users reporting incidents to 101 to highlight the issues and demonstrate the need for active policing. Our Community Ranger works with local nurseries to educate pupils on the benefits of the woodlands. We also facilitate a number of education and engagement based permissions across the site with the hope that this engagement with the site by locals will increase the sense of ownership within the local community. **Response:** The quarry on the Croy side of the forest is not included in the programme of works for this land management plan. We will certainly take your comments into consideration should the use of Croy quarry be reviewed. For the use of Barhill quarry we must consult many parties prior to a blast including the Police and appropriate notification must be provided. All stone extracted from Barhill quarry is to be used in Barhill forest block. No stone haulage on public roads. When vehicles leave the forest at the end of a shift, they will be cleaned before joining the public road. a) The village of Croy suffered many years of blasting in the Croy quarry therefore how often and how long does FLS expect blasting to take place? **Response:** Blasting will occur once in the initial phase with potential for a further blast as development continues. b) How long does FLS expect these quarries to be operational? Response: Subject to no unforeseen delays, Barhill quarry is planned to be developed and worked between September - December 2021.

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			f) What cubic meterage does FLS expect to remove from these quarries over the period of the plan? g) Historic Scotland according to the plan gave approval for previous blasting. What are their views now on blasting over the period of the plan? h) Water discharge is identified as part of the plan from the quarries. How will FLS ensure that quarry dust and silt or discoloured water be prevented from discharging into the adjoining waterways? **Page 11 Para 6.3.1 Habitat & Species Management** **Local Nature Conservation Sites** The proposal that cattle grazing may stop within the time scale of the new plan is unacceptable to Kilsyth Community Council. The replacement solution for volunteers to undertake bracken whipping/bashing is not a practical replacement solution to cattle grazing. a) Where will FLS obtain the volunteers and how often will the carry out this practice? Obtaining volunteers for landscape management work in this area has been very difficult over	The quarry will then be left open and safe for potential future use in the longer-term. c) What depth of extraction will occur at each quarry location? **Response:** Maximum face height of the quarry will be 10m. d) Will each quarry retain water and to what depth? Response: No water will be retained. e) What are FLS reinstatement proposals for each quarry? **Response:** When the quarry has reached the end of it's useful life it will be re-instated by drilling a final shot pattern to collapse the free faces into a "Glacis" of rubble that will be landscaped using edge protection bunds to re-soil as much of the raw exposed rock as possible. As a further consideration it may be advantageous to "Hydro-seed" the rock faces to encourage plant regeneration. To mitigate against an exposed vertical face to the north, blasting operations will be undertaken with this in mind by halving the drill hole depth along the northern edge. This will leave a bench for soil to be spread on, encouraging vegetation grown for screening. This will reduce the landscape impact and make remediation easier. f) What cubic meterage does FLS expect to remove from these quarries over the period of the plan? **Response:** 10,000 tonnes of rock for the Barhill road during the 20/21 operational programme. g) Historic Scotland according to the plan gave approval for previous blasting. What are their views now on blasting over the period of the plan?

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			many years and when we do manage to attract volunteers they are generally few in number. If this proposal to remove the cattle were implemented the whole flora and fauna of these areas would change considerably. This FLS proposal is mentioned again on page 15 Para 6.7 and Page 28 reference A/3.4.2 **Page 12 para 6.3.4 Invasive Species** The control of Rhododendron ponticum and Japanese Knotweed is noted. However, the phrasing of the control is not specific enough. This would be more positive if the wording 'will be considered' is removed as this is too vague and allows discretion in the control of obnoxious plants. Both plants are required to be controlled by legislation in some form or another. **Visitor/Tourism Potential** There is no provision within this plan to develop visitor/tourism facilities even though the Croy Woodland area is well used by the local community, walkers and tourists. There must be a specific section incorporated into the plan dealing with the management of visitors to the woodland. Consideration must be given to car	**Response:** Historic Scotland have stated that any work not previously approved, that is within the Scheduled Monument (SAM) boundaries and Impact Zones, must gain prior consent. However all proposed work within the Land Management Plan is outwith the SAM boundaries and Impact Zones. Although it is not intended, we will consult Historic Scotland should this change. h) Water discharge is identified as part of the plan from the quarries. How will FLS ensure that quarry dust and silt or discoloured water be prevented from discharging into the adjoining waterways? **Response:** Diffuse pollution will be managed through silt traps, sumps, filtration and monitoring during the working period in the quarry. Silt trap capacity will be monitored and could be culverted beneath the forest road to discharge into a heavily vegetated area for natural filtration. In dry weather dust suppression will be utilized when processing the rock to minimise dust particles. **Page 11 Para 6.3.1 Habitat & Species Management** **Local Nature Conservation Sites** **Response:** In relation to the cattle grazing, restrictions for the type, size, and number of herd on this site are dictated by a couple of parameters. The first is the expected interaction with the public; this requires a small, docile breed of cattle that poses small risk to safety of the other users on site. The second is the avoidance of damage to the World Heritage Site feature of the Antonine Wall, which requires us to keep herd size down to a very small number. These constraints

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			parking facilities, information about the area's history, archaeology, geology, flora and fauna signage. Directional signage within the woodland should be provided guiding visitors to specific locations of interest. Much of this information could be made by providing a basic sign with a photograph of what the visitor is looking at, with a QR Code on the sign which could be scanned taking them to more information on a website. The Community Council does not expect the FLS to make such a provision all by themselves but other parties such as Scottish National Heritage, Scottish Canals, Local Government in the woodland area and others should be involved. **Footpaths and Roads within the woodland area** There is no clear statement within the plan regarding the future maintenance of footpaths and roads used by visitors and such a statement must be included. **Tree Planting and removal Proposals** The Community Council has no objections to the proposals for tree felling, management and harvesting proposals set out in this plan. The fact that there will continue to be broadleaf	make it nearly impossible to find a suitable lease-holder to graze their own animals on this site; it has been attempted in the past. FLS has met this challenge by owning its own herd, which is moved between Barhill and the Trossachs. We do not currently employ staff, adequately experienced in livestock husbandry and care, and are dependent on local farmers to help us look after our animals. FLS has to consider animal welfare and what can be reasonably managed alongside the conservation objectives and whether they are being met. In this case, the increased presence of human visitors have increased risks (especially through the illegal access by off-road motorbikers). We also looked at whether the current set-up was meeting the objectives of the grazing regime and it was determined that the herd was not making real headway in the knocking back of bracken and that the grazing in the lower reaches (wet meadow) was having a minimal impact. Moving the cattle around a site effectively to target key habitats is a challenge for any conservation grazier, but especially so in an area so much used by the public. The decision was made to take the animals off this site for the next few years while we trial other methods and determine what options are available for site management that can address the complexities here. We are trialling new techniques in conservation grazing management at other locations, which if successful, could be applied at Barhill in the future. We are also aware that anti-social behaviour does need addressing and would rather not risk the welfare of livestock while we tackle this issue. In the meantime, we are

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			plantations within the woodland will assist with the protections and expansion of the woodland flora and fauna. The Kilsyth Community Council welcomes this Management Plan and will assist Forestry and Land Scotland in any way considered helpful to the preservation of a commercial woodland along with the associated leisure provisions such a woodland can provide.	committed to looking after the wall and meadow habitats at Barhill/now 'Croy Woods', and ask for your patience and understanding as we work through different methods and approaches over the next few years. **Page 12 para 6.3.4 Invasive Species** **Response:** We have continued to undertake invasive non-native species control in this LMP area and will continue to do so where possible. We would like to use stronger prescriptions in the Land Management Plan, the caveat to this is there are adjacent landowners that do not always control or use the appropriate methods. Whilst we can try to address this through other methods of influence, we do not have the power to compel other landowners to match our efforts, where they are most needed. We would welcome any assistance from Kilsyth Community Council to help coordinate the removal of ongoing sources of these plants with the neighbours. Where we might not be able to commit is where the effort would be ineffective, i.e. along a watercourse where there is significant source upstream that we cannot remove. This is fairly common in greater Glasgow, but within the interior of this block, we will continue the management. We believe there are around 2 ha of invasive non-native species (incl. <1 ha of rhododendron) located on our land needing ongoing work. **Visitor/Tourism Potential**

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
				Response: There is already a substantial amount of infrastructure within the Barhill/Croy woodlands, some managed and maintained by FLS and some by other partners. Historic Environment Scotland have information panels along the length of the Antonine Wall that give visitors insight into the history of the site. There is also artistic interpretation in the way of the large roman head on site. The John Muir Way (JMW) is waymarked through the site; the JMW partnership undertake regular audits of the way-marking to ensure that it is easy for visitors to follow. There are several public car parks that give access into the site, at the Auchinstarry Marina, as well as the Miner's Welfare. FLS also maintain one public car park at the Dullator entrance to Croy. This car park is rarely at capacity which suggests to us there is currently not a capacity issue for the site. We know that the majority of site users are a local audience who have some familiarity with the woodlands, and require less way-finding and parking facilities. We must balance the amount of infrastructure on sites with visitor type and usage. We do not have the resources to maintain a lot of infrastructure on this site; but we are open to the idea of partnership working with the community council if they have further aspirations. If they would like to meet on site, this can certainly be arranged. **Footpaths and Roads within the woodland area** **Response:** Forestry and Land Scotland plan and manage the delivery of recreational works such as path improvements as an outcome of our regularly programmed facility inspections. These inspections highlight both Health and Safety issues, as well as visitor amenity

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
				issues. For any larger pieces of work, work plans are created to highlight any sensitivities regarding habitats etc. to ensure that programmed works do not have a detrimental impact on the site. FLS are able to work with local communities to improve access via volunteers. We have no active groups within this woodland, but would be willing to work with the community to establish one if there was an appetite.
Historic Environment Scotland	12/08/2021	20/08/2021	Thank you for consulting us about the above Land Management Plan for the Croy Woodlands. Historic Environment Scotland's remit is to comment where proposals might impact upon the fabric and/or setting of certain designated historic features, such as Scheduled Monuments, A Listed Buildings, Sites on the Inventories of Gardens and Designed Landscapes and Historic Battlefields. From the information that you have provided, two scheduled monuments may be affected by the proposed management plans, the Antonine Wall, and the Forth & Clyde Canal. These are both long, linear monuments administratively divided into shorter scheduled lengths for convenience of management. The Antonine Wall has also been designated as a World Heritage Site in recognition of its outstanding universal value and a buffer	

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			zone related to its setting defined around it. The various designations associated with the Wall and Canal are listed below, where they are discussed in more detail. Scheduled monuments are legally protected sites under the Ancient Monuments and Archaeological Areas Act (1979). Most works at a scheduled monument legally require prior written consent, in the form of Scheduled Monument Consent (SMC), obtained through Historic Environment Scotland. This includes forestry operations, such as tree felling, tree planting, creating access, and other ground-breaking works. SMC is separate to, and without prejudice to, any felling or planting licenses. You can find more information about applying for scheduled monument consent here: https://www.historicenvironment.scot/advice-and-support/applying-for- consents/scheduled-monument-consent/ The Antonine Wall: Antonine Wall World Heritage Site Boundary, 100018441 Antonine Wall World Heritage Site Buffer Zone, 100018442	

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			Antonine Wall, Bar Hill, rampart, ditch, fort and Military Way, SM90008 Bar Hill, Roman temporary camp SW of, SM7457 Antonine Wall, Twechar Main Street to Bar Hill, SM7054 Antonine Wall, E edge of Strone Plantation to Girnall Hill, SM7074 Antonine Wall, camp, fortlet, fort and settlement, Croy, SM90011 The Antonine Wall was built around AD 142, stretching across the whole of Scotland to form a boundary between Roman-controlled land to the south and the land outside the Roman Empire, to the north. It consists of a rampart, ditch, the berm (area between rampart and ditch), an upcast mound, and a road parallel to the wall, called the Military Way. Soldiers constructing the Wall lived in temporary camps, and permanent forts were constructed at intervals along the Wall. Two forts, Bar Hill (SM7457) and Croy Hill (SM90011), are within the area affected by this land management plan. Two of the proposed forestry roads will pass through two scheduled sections of the Antonine Wall (SM7074 and SM7054), both of which include existing roads. If any works to these roads are	

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			required to improve them, they are likely to require scheduled monument consent. Felling within the scheduled areas, or many other works, including the laying of brash mats, would also require scheduled monument consent. If any such works are planned in these scheduled monuments we should be contacted at an early stage to discuss specific proposals. It is unlikely that consent would be given for any replanting within scheduled areas. We would welcome scheduled monuments being retained as open ground, with an appropriate buffer and with ongoing management of any natural regeneration. The UK Forestry Standard (2017) advises that, under most circumstances, in addition to protecting scheduled monuments from physical impacts, it is also important to maintain them within suitable areas of ground where vegetation such as bracken and regenerating saplings are controlled. The minimum buffer for planting	

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			should be 20m from the edge of the scheduled area, and within this buffer area, management should be put in place to protect the monument from regeneration. The Forth and Clyde Canal: Forth and Clyde Canal: Auchinstarry Farm - Castlecary, SM6766 Forth and Clyde Canal: Kirkintilloch to Auchinstarry Farm, SM6769 The Forth and Clyde Canal forms the northern boundary of much of the area covered by the land management plan. The Canal was constructed in the 18th century, linking the east and west coasts of Scotland and is one of the great engineering feats of its time. Some areas of the embankments of the Canal are currently naturally wooded and this woodland should be managed carefully rather than being felled or planted. Vehicular access along the banks of the Canal may require scheduled monument consent, and we recommend early consultation for forestry routes which may be within the scheduled area of the Canal. In order to avoid any accidental damage to the monuments, which would be an	

Consultee	Date Contacted	Date response received	Issue Raised	Forestry & Land Scotland Response
			offence, the monuments and their boundaries should be shown clearly on all forest plans, and contractors should be made aware of their locations, extents and legal protections. The geographical datasets for these heritage assets are available to download here: http://portal.historicenvironment.scot/spatialdownloads	
East Dunbartonshire Council (Public Register comments)	03/09/21	07/09/21	The Council advise that the quarry is unlikely to be permitted development and state that they will comment more during the planning process. The Council ask that further information on recreational access to the core paths and archaeological attractions in Bar Hill for walkers and potentially recreational cyclists is provided to them in advance of woodland management operations. Please liaise directly with John Oates, the East Dunbartonshire Council Access Officer.	These requests have been passed to the relevant Forestry and Land Scotland delivery teams for consideration, or to action when undertaking woodland management operations. If forest works require the closure of any core paths we alert the council, standard process. We have updated our records with the Access Officer contact details provided.

Appendix IV: Objective Appraisal, Monitoring & Evaluation

Table A8

Objective	Assessable Criteria	Appraisal Method	Monitoring Method	Monitor Where	Monitor When	Monitor Who	Record Monitoring Where	Evaluation. *How does the Appraisal and Monitoring method inform current & future proposals? If you cannot answer this question, then the methods may not be appropriate.*
Manage for production of high-quality timber at scale appropriate to the site.	Timber volumes	Production Forecast	Forester Web Land Management Plan Tool query	Forester Web Land Management Plan Tool	After operations and at appropriate intervals e.g., mid-term and 10-year reviews.	Programme Manager/Harvesting Forester	Against the LMP	Monitoring the volumes and quality produced and levels of income received will allow the Programme Manager & Harvesting Manager to gauge what returns might be expected from future interventions and which customers would most likely be interested. This monitoring also allows the Planning Forester to gauge the quality of conditions and whether future crops might fetch improved revenues if managed differently.
Plan roads to access less accessible crops.	Forest roads		Forester Web Management Coupes & Road layers	Planned roads layer	At LMP, before operations and at appropriate intervals e.g., mid-term and 10-year reviews.	Planning Forester/Programme Manager/Civil Engineer	Against the LMP	Monitoring as described will determine whether required roading has been constructed as per LMP.
Pre-emptively remove larch	Larch	Changes in species types, ages, proportions & distributions	Site survey SCDB query Phytophthora Ramorum surveys	Aerial survey Database	After operations and at appropriate intervals	Planning Forester	Against the LMP	Monitoring for Phytophthora Ramorum by Planning Forester will allow for any infections to be recorded. This would inform future operations and if any adjustments are required, allow the region to adjust expectations and business plan for alternative management methods.

Objective	Assessable Criteria	Appraisal Method	Monitoring Method	Monitor Where	Monitor When	Monitor Who	Record Monitoring Where	Evaluation. *How does the Appraisal and Monitoring method inform current & future proposals? If you cannot answer this question, then the methods may not be appropriate.*
Monitor and maintain priority habitats and species	Tree species & Landuse	Changes in species types, ages, proportions & distributions	Site survey SCDB query	Onsite SCDB	After operations and at appropriate intervals e.g., midterm and 10-year reviews	Planning Forester/Environment Advisor	Against the LMP	Monitoring the diversity of species, structure of the canopy and land use will allow for comparisons to be made overtime which will inform the planning forester and Environment Manager as to whether the plan is working and whether adjustments are required allowing the region to adjust expectations and business plan for alternative management methods.
Continue to control invasive species	Vegetation	Changes in vegetation types, proportions & distributions	Site survey	Onsite	After operations and at appropriate intervals e.g., midterm and 10-year reviews	Environment Advisor	Tactical Planner	Monitoring the levels and distribution of Rhododendron will allow for comparisons to be made overtime which will inform the Environment Manager as to whether the plan is working and whether adjustments are required allowing the district to adjust expectations and business plan for alternative management methods.
Mitigate against excessive water runoff and pollution into the schedule Clyde and Forth canal.	Run off effects	Visual reference	Site evaluation	Onsite	After operations and at appropriate intervals e.g., mid-term and 10-year reviews.	Stewardship Manager	Against the LMP	By effects of run off particularly after operations, Stewardship Manager can evaluate what effect these have both within and out with our ownership and also learn where further improvements can be made, and if necessary, factored into future business plans. By monitoring this and liaising with the local flood management officer FLS can evaluate if action is required and if necessary, plan budges for subsequent operations.

Objective	Assessable Criteria	Appraisal Method	Monitoring Method	Monitor Where	Monitor When	Monitor Who	Record Monitoring Where	Evaluation. *How does the Appraisal and Monitoring method inform current & future proposals? If you cannot answer this question, then the methods may not be appropriate.*
Future design needs to consider the woodland setting and Antonine Wall World Heritage Site within the local landscape area.	Landscape and historical setting	Changes over time	Photographs	Viewpoints	At mid-term and 10-year review	Planning Forester	Against the LMP	Photographs over time will allow changes to be identified, which will allow Planning Forester to evaluate whether implementation of the plan has adversely affected any features. Any issues can be captured and mitigated in future.
Maintain responsible access and use of the forests, including John Muir Way, Barhill Roman camp, and military way	Local community opinion	Visual reference, Contact lists numbers Event & Project activity	Site evaluation Contact list check, number of events/project progressing	Onsite Historic Environment Scotland Within the local community	At mid-term and 10-year review On-going engagement with local stakeholders	Visitor Services Manager	Against the LMP & Site contact list	By monitoring when and who we have contacted as well as what events and projects are being progressed the VS Manager can evaluate how active we have been in engaging with local community as well as being better able to plan budgets for upcoming events/projects.

Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Appendix V: Quarry Design Review

Quarry Name: Barhill **Date:** 16 March 2021.

Location: Barhill Forest

NGR: NS 7097 7569 **Date of Last Appraisal:** 11/03/2021

Current working Plan: Extension of existing quarry

Variation from Design: Not Applicable

Future Design Plan: Not Applicable

The area behind the existing Barhill Quarry, located in Barhill Forest has been identified as a potential source of usable stone for the construction and maintenance of the forest road network.

The intention is to extend this site to produce a variety of usable aggregate sizes for new road construction, as well as upgrading and general repair & maintenance of forest roads in the area. A source of suitable stone in this forest is critical for maintenance in this forest. This design review attempts to cover the initial issues associated with this proposed quarry development. An 870 m long new road is planned for construction in 2021 requiring approx. 10,000 tonnes of rock. By winning material from the site this removes the requirement to haul stone from Carron Valley quarry passing through multiple villages.

The proposed quarry extension amounts to an area of approximately 0.51 Ha.
The existing working area of Barhill Quarry is 0.42 Ha.

After development, the total quarry area will be 0.93 Ha.

A site walk-over was carried out on 11th March 2021 to estimate the probable depth of the overburden. The overburden appears to be between 0.5 m and 1.0 m in depth, however the area is populated with a young Sitka spruce/larch mix planted in approx. 2011.

The overburden covering the site is mainly mineral soil. This material will be used to create perimeter bunds with any surplus being deposited in the depression in the land to the south west of the quarry no higher than existing road level.

Post blast, the rock will be crushed to 250 mm down, 65 mm down and 40 mm down for use in the new road construction. Any stockpiles of rock will be contained within the quarry footprint at heights no greater than 6.0 m with a flat top and slopes at a safe stable angle of repose.

The stone type is quartz-microgabbro igneous bedrock.

Please note that the positions shown on the development site plans are only indicative for the purposes of this design review.

In general, the preliminary sequence of events will be as follows:

a) Remove trees to facilitate access track.
b) Remove over burden from entire new development area. This material will be used to create perimeter bunds with any surplus being deposited in the depression in the land to the south west of the quarry no higher than existing road level.
c) Form edge protection bunds along quarry access routes to top of quarry.
d) Extend safety fence and signs around extended quarry perimeter.
e) As blasting & crushing operation progress install edge protection on all internal access tracks and haul routes.

The items above show the probable sequence of events, though some such as forming access track and forming edge protection bunds may be virtually simultaneous. However, other considerations must be taken into account if the development works are to be conducted in a logical manner.
As is common in this type of scenario the works to clear the overburden should leave behind a clean rock surface.
The forest road drain is directed to the west at the north of the quarry perimeter. Quarry drainage management will consist of cambering track profiles to direct water to the track edges into a series of silt sediment traps to the south and south west corner. Silt trap capacity will be monitored and could be culverted beneath the forest road to discharge into a heavily vegetated area for natural filtration.

Quarrying operations, vibrations and noise will be kept to a minimum. In dry weather dust suppression will be utilised when processing the rock to minimise dust particles.
As work proceeds through subsequent blasting operations, the area of the quarry floor will be enlarged helping to create product stockpiling space.
As previously discussed, all internal haul roads and access tracks will have adequate edge protection as per Quarries Regulations put in place. Also note that edge protection shall be put in place along the crest of the face, and an adequate rock trap put in place 3 m in front of the foot of the face.
In line with FLS policy any fuel brought on site should be held in double skinned bunded tanks or bowsers. Any refuse should be collected and taken off-site at the end of the works.
The expectation is that the site will produce approximately 100,000 T of usable stone over the next 15 to 20 years.

Final Disposition of the quarry:
When the quarry has reached the end of its useful life it will be re-instated by drilling a final shot pattern to collapse the free faces into a “Glacis” of rubble that will be landscaped using edge protection bunds to re-soil as much of the raw exposed rock as possible.
As a further consideration it may be advantageous to “Hydro-seed” the rock faces to encourage plant regeneration.
To mitigate against an exposed vertical face to the north blasting operations will be undertaken with this in mind by halving the drill hole depth along the northern edge. This will leave a bench

for soil to be spread on encouraging vegetation grown for screening. This will reduce the landscape impact and make remediation easier.

Possible Environmental Impact:-

Landscape
The site is visible from the forest road. The development will not significantly change the appearance of the existing quarry. The maximum face height will remain constant for the life of the quarry not exceeding its current height of 10 m. Twechar is located to the west of Barhill however the village lies approximately 75 m lower than the quarry and approximately 1300 m away. The natural landscape form provides screening for the quarry from Twechar. To the south of the quarry are workings which can be seen from the quarry. Beyond that is the M80 motorway. Tree to the north of the M80 motorway act as screening so the quarry cannot be seen from that point. Splitting of the northern face will reduce the visual impact form the south. Cailhead Plantation provide screening from the south east.

Watercourses and Catchments
The distance from the Barhill Quarry drainage outlet to the nearest water course is approximately 150 m in a straight line however the landform does not allow for water to flow directly to the watercourse. Following the natural landform water will flow south over dense vegetation.

Construction
The machinery used to strip the site would be at the discretion of the Contractor. For the overburden removal, the most efficient type of machine to use would be a 360-degree tracked excavator, complete with rock breaking hydraulic hammer to break out rock for the access tracks in conjunction with dump trucks or similar. An excavator would be used to shape the perimeter bunds and spread and shape overburden tip. The access track would only be metalled with enough stone to allow an explosive pump truck access. The stone for this operation would be won on site. The attached Quarry Development Plan details the position of the new access.

Archaeology
The nearest recorded archaeology is a Roman Fort, Antonine Wall and Military Way, 180 m to the North West of the quarry boundary. The quarry development will not impact this. Historic Scotland have given approval for a previous blast.

Biodiversity
None recorded on site.

Soils:
There should be no impact on surrounding soils as such.

Recreation
With recreation routes in the area, fencing, bunding and signage will be maintained around the perimeter to discourage trespass. Any operations that impact the path will be managed to mitigate risks to the public. The location of the new development is not on any promoted routes and away from the usual walking paths, trails or waymarked routes. There is a well-used

footpath leading away from the quarry towards Twechar. The quarry development will not impact directly on the footpath.

Designations:
The site is not within a designated area.

Habitat:
The works will have minimal impact on the existing habitat, being within a Sitka Spruce/larch mix plantation. No specific habitat has been recorded in the development area.

Signed S Jackson

Approved …… G. McCheyne ……

Appendix V: List of maps

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

1. Location
2. Soils
3. Existing Forest Stock
4. Key Features
5. Concept
6. Management
7. Thinning
8. Woodland Management in Visitor Zones
9. Future Habitat & Species
10. Timber Haulage
11. Quarry Maps i-iii