Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Kilsture Land Management Plan 2023 - 2033

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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Property details	
Property Name:	Kilsture
Grid Reference (main forest entrance):	NX 4360 4900
Nearest town or locality:	Wigtown
Local Authority:	Dumfries & Galloway

Applicant's details	
Title / Forename:	Stephen
Surname:	Stables
Position:	Planning Forester
Contact number:	
Email:	stephen.stables@forestryandland.gov.scot
Address:	Forestry and Land Scotland, South Region, Newton Stewart Office, Creebridge, Newton Stewart
Postcode:	DG8 6AJ

Owner's Details (if different from Applicant)	
Name:	N/A
Address:	N/A

1. I apply for Land Management Plan approval for the property described above and in the enclosed Land Management Plan.

2. I apply for an opinion under the terms of the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017 for afforestation / deforestation / roads / quarries as detailed in my application.

3. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which the FC agreed must be included. Where it has not been possible to resolve specific issues associated with the plan to the satisfaction of the consultees, this is highlighted in the Consultation Record.

4. I confirm that the proposals contained in this plan comply with the UK Forestry Standard.

5. I undertake to obtain any permissions necessary for the implementation of the approved Plan.

Signed, Pp Regional Manager		Signed, Conservator	
FLS Region	South	SF Conservancy	South
Date		Date of Approval	
		Date Approval Ends	

Contents

1.0 Objectives and Summary

1.1 Plan overview and objectives

Plan name	Kilsture LMP
Forest blocks included	Kilsture
Size of plan area (ha)	203.6 ha
Location	See Location map (**Map 1**)

Long Term Vision
Lying in the south Machars and entirely surrounded by agricultural land, the long term vision for the Kilsture block is to maintain this mixed woodland and gradually transition to a mature broadleaf woodland that will foster biodiversity and provide a hub for local communities to support, learn about and enjoy the forest with its range of natural habitats and recreation activities.
Management Objectives
1. Maintain and enhance Community involvement within block through revised management/working agreement. 2. Increase species diversity by maintaining, enhancing and restoring the Ancient Semi Natural Woodland areas present (Long Established Plantation Origin LEPO) through long term conversion of conifer woodland to mature/veteran broadleaf woodland. 3. Maintain and, where possible, enhance the Core paths and FLS Visitor Attraction provision for pedestrian, cycle and horse and disability access within block. 4. Manage habitats for Priority species (Red Squirrel) and other important species (Coastal Redwood). 5. Maintain the modest sustainable productive timber capacity of the woodland and demonstrate a commitment to economic viability.
Critical Success Factors
• An active, appropriate and fully developed Community agreement • Removal of *P ramorum* infected larch areas within the period of the plan • Effective restock establishment of native species on clearfell/group shelterwood sites • Enhance existing and expansion of Native broadleaf woodland across plan area • Enhanced management of Coastal Redwood group • Timeous silvicultural interventions to provide for proposed Forest Development Type aims and enhanced biodiversity as measured from a current baseline survey

1.2 Summary of planned operations

Table 1

Summary of Operations over the Plan Period	
Clear felling (gross)	5.7 ha
Thinning (potential area)	194.2 ha
Restocking (gross)	5.7 ha
Afforestation	0 ha
Deforestation	0 ha
Forest roads	0 m
Forestry quarries	0 ha

The forest is managed to the UK Woodland Assurance Standard – the standard endorsed in the UK by the *Forest Stewardship Council and the Programme for the Endorsement of Forest Certification*. Forestry and Land Scotland is independently audited to ensure that we are delivering sustainable forest management.

2.0 Analysis and Concept

The planning process was informed by collecting information about the woodland, which is presented in **Appendix I** and on the Key Features map (**Map 2)**. During the development of this plan we have consulted with the local community and other key stakeholders, and a Consultation Record is presented in **Appendix III**.
Below lists the objectives for the site and how the key features present opportunity or constraint. The Analysis of these form the concept for this Land Management Plan.

Objective 1: **Maintain and enhance Community involvement within block through revised management/working agreement.**
Analysis: As a direct result of the woodland block being identified for disposal, the Kilsture Forest Community Group (KFCG) was set up and, after a period of extensive discussion and engagement, a volunteer partnership was established. The Community remain keen to expand both their group and their involvement / management of the woodland block.
Opportunities: Greater involvement/responsibility within the woodland by the Community under agreement.

- **Constraints**:
  - Community funding
  - Appropriateness of agreement
- **Concept**:
  - Identify agreement that aligns with Community aims and aspirations
  - Incorporate Community vision for woodland into plan

Objective 2: Increase species diversity by maintaining, enhancing and restoring the Ancient Semi Natural Woodland areas (LEPO) present (long term conversion of conifer woodland to broadleaf woodland).

Analysis: Kilsture is a mixed woodland surrounded by agricultural land. The plan area is generally a single age class maturing woodland.

Opportunities: Early removal/clearfell of Larch sites infected by *P ramorum* bequeathing opportunities for early restock of additional species diversity

- Constraints:
  - Limited baseline information on flora and fauna
  - Removal of Ash as a result of Ash dieback disease
  - Undesirable conifer Natural Regeneration in areas of group fell open space
- Concept:
  - Additional species diversity
  - Extend rotation lengths to create older and more diverse large diameter BL woodland with some individuals living a natural lifespan
  - Commit to controlling undesirable Natural Regeneration incursion through budgeted plan

Objective 3: Maintain and where possible enhance FLS Visitor Attraction provision (including Core paths) for pedestrian, cycle and horse and disability access within block.

Analysis: Kilsture is an island block in a sea of agricultural pasture land that provides an important recreational woodland oasis for locals and visitors to the area. A small car park to the north of the block services the moderate scale waymarked trail network that extends south through the block.

Opportunities: Potential expansion of core facilities (enhanced car parking / alternative route options)

- Constraints:
  - Visitor Services funding priorities
- Concept:
  - Enhanced and regular thinning infrastructure could improve both access options, woodland structure, the "feel" and visitor appreciation of the block
  - Targeted reduction of some conifer plantation, initially the larch and in time some spruce
  - Increase species diversity and extend rotation lengths to create an older and more diverse woodland

Objective 4: Manage habitats for Priority (important) species (Red Squirrel and Coastal Redwood).

Analysis: Although not a Red Squirrel Stronghold site, Kilsture is locally a key area for Red Squirrel and is of national importance for Coastal Redwood.

Opportunities: Potential expansion of Coastal Redwood wooded area (to enhance specimen size and promote natural regeneration) and provision of connected Red Squirrel habitat to maintain the local population.

- Constraints:
    - Relatively small, isolated area of Coastal Redwood impacted on by adjacent BL and conifer crop
    - General broadleaf food source that does not necessarily advantage Red Squirrel
- Concept:
    - Silvicultural intervention to maintain and potentially expand Coastal Redwood area
    - Potentially, retain some elements of mature conifer to provide sustainable and reliable food source for Red Squirrel

Objective 5: Maintain sustainable productive timber capacity and commitment to the economic viability of woodland.

Analysis: Within South Region Kilsture is not considered to be a core timber production area. However the plan area is relatively well roaded and local site types are generally accommodating for regular operational intervention through thinning.

Opportunities: Potential niche marketing of Coastal Redwood and broadleaf produce

- Constraints:
    - Low volume broadleaf crop
    - Soil and ground impacts of heavy machinery
    - Successful establishment and effective deer management of BL and alternative conifer
- Concept:
    - Extended rotation lengths
    - Initiate appropriate silvicultural operations to kick start direction of travel towards identified Forest Development Types (FDT)

Different management options for achieving the plan's objectives were considered against the constraints and opportunities identified during scoping and consultation. The preferred approach is summarised on the Concept map (**Map 3**).

3.0 Management Proposals - regulatory requirements

This land management plan was produced in accordance with a range of government and industry standards and guidance as well as recent research outputs, recognised at the time of its production. A full list of the current standards and guidance which guide the preparation and delivery of FLS Land Management Plans can be found using the link HERE.

3.1 Designations

The plan area forms part of, includes, or is covered by the following designations and significant features.

Table 2

Designations and significant features		
Feature type	Present	Note
Site of Special Scientific Interest (SSSI)	NO	
National Nature Reserve (NNR)	NO	
Special Protection Area (SPA)	NO	
Special Area of Conservation SAC)	NO	
World Heritage Site (WHS)	NO	
Scheduled Monument (SM)	NO	
National Scenic Area (NSA)	NO	
National Park (NP)	NO	
Deep peat soil (>50 cm thickness)	NO	
Environmentally Sensitive Area	YES	Western Southern Uplands
Tree Preservation Order (TPO)	NO	
Biosphere reserve	YES	Galloway Hills and South Ayrshire Biosphere
Local Landscape Area	NO	
Ancient woodland	YES	LEPO (The Forest, Kirkinner/Sorbie)
Acid sensitive catchment	NO	
Drinking Water Protected Area (Surface)	NO	
Mains Water Supply	YES	Hazelbank water supply

The Key Features map (**Map 2**) shows the location of all designated areas and significant features.

3.2 Clear felling

There has been little in the way of clearfell through previous approved plan iterations for Kilsture however as the block lies within the *P ramorum* Management Zone (MZ) (*P ramorum* Scottish Forestry Policy refers) a strategy to remove all larch over the period of an LMP sanitation is required.

Forest Development Type 5.3.2 (Oak and long lived BL) will generally be the management objective for clearfell areas to achieve target Oak DBH >50cm in 100-150 years and create a

diverse, open woodland that provides a range of habitats and high conservation and cultural values.
Sites proposed for clear felling in the plan period are identified as Phase 2 coupes on the Management map (**Map 4**).

Table 3

Clearfell Summary by Phase and Coupe Number			
Phase	Coupe Number	Fell Year	Gross Area (ha)
2	28022	2031	1.4
2	28030	2031	4.3
		Total	5.7

Table 4

Clearfell by Species													
		Net Area (ha) by Main Species >20% (or MC, MB)											
Coupe Number	Fell Year	CP	DF	EL	HL	JL	LP	NS	SP	SS	MC	MB	Coupe Total
28022	2031	-	-	-	-	1.4	-	-	-	-	-	-	1.4
28030	2031	-	-	-	-	4.3	-	-	-	-	-	-	4.3
Plan Area Total													5.7

NB Coupe totals: Table 3 shows gross coupe area / Table 4 shows net area of species

Table 5

Scale of Proposed Felling Areas											
Total Woodland Area			203.6 ha								
Felling	Phase 1	%	Phase 2	%	Phase 3	%	Phase 4	%	Long Term Retention	%	
Net Area (ha)	0.0	0.0	5.7	2.8	0.0		0.0		0.0		

3.3 Thinning

Almost all of the Kilsture block presents as Ecological Site Classification (ESC) 17 or less and has been identified for thinning (194.2ha **see thinning Map 5**) where silvicultural thinning for Forest Development types and conservation thinning for priority species and their habitats are appropriate.

To achieve sustainable productivity 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 Mean Annual Increment (MMAI) or Yield Class (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 an alternative LISS prescription.

Where trees are to be removed to accommodate facilities to support approved thinning and/or Continuous Cover Forestry (CCF) i.e. stacking areas, ramps and access racks within adjacent management coupes then this should ideally be identified in thinning maps and thinning plans as part of the LMP submission. Where this is not the case, additional felling for reasonable infrastructure can be agreed by exchange of email.

In all instances of thinning interventions, work plans will define the detailed thinning prescription before any work is carried out and operations will be monitored by checking pre and post thinning basal areas for the key crop components. Consultation with neighbours and other interest groups are implicit during compilation of any thinning workplans.

3.4 Other tree felling in exceptional circumstances

FLS will normally seek to map and identify all planned tree felling in advance through the LMP process. There are some circumstances however 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 over the plan area covered by this approval is 75 cubic metres 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.

[N.B. Trees may be felled without permission if they: are of less than 10 cm diameter at breast height (1.3 m); pose an immediate danger to persons or property; are completely dead; or are part of Authorised Planning Permission works or wayleave agreements].

3.5 Restocking

Our restocking proposals on clearfell sites have been selected by ESC using information from on-site observations and the previous rotations. Where appropriate, species diversification has been undertaken utilising both BL and alternative conifers.
Species choice also meets the criteria for restocking under UK Forestry Standard (UKFS), UK Woodland Assurance Standard (UKWAS) and internal Forestry and Land Scotland (FLS) policy. Native small seeded broadleaf (such as Birch, Aspen, Rowan and Hawthorn) will provide a component of the proposed restocking however, large seeded native Oak and Sycamore will also be required for Ancient Woodland restoration.
There is no doubt that, as a result of Climate Change, a warmer climate may provide conditions for a wider range of alternative species that were not previously considered to be reliably cold hardy.
Proposed restocking is shown on the Future Habitats and Species map (**Map 6**).

Table 6

Restocking							
Phase †	Coupe Number	Gross Area (ha)	Proposed Restock Year	Species	Method *	Minimum stocking Density (stem/ha)	Note
2	28022	1.4	2033	Oak 60%, Sycamore 30% & Birch 10%	R	3000	FDT 5.3.2 – Target Oak DBH >50cm Diverse open woodland that provides a range of habitats and conservation values.
2	28030	4.3	2033	Oak 60%, Sycamore 30% & Birch 10%	R	3000	FDT 5.3.2 – Target Oak DBH >50cm Diverse open woodland that provides a range of habitats and conservation values.
	Total	5.7					

† recently felled awaiting restock (F) / Phase 1 (1) / Phase 2 (2)
* replant (R) / natural regeneration (NR) / plant alternative area (ALT) / no restocking (None)

If Natural regeneration should fail to reach 1600 stems per hectare (Native Broadleaves) mainly across the Group Felling areas, and restocking fails to reach 3000 stems per hectare (productive Native Broadleaves) or 2500 stems per hectare (productive Conifers) the site will be beaten-up to the required planting density.
Stocking densities will be assessed at year 3 after planting with beat up by at least year 5 for all species.

3.6 Species diversity and age structure

Kilsture is a relatively even aged block that already displays a rich species diversity containing a range of broadleaf species that provides a focal point for broadleaf expansion and as such is atypical for an LMP unit to the west of South Region. With little in the way of a younger species age class, mainly due to the lack of recent clearfell, maturing broadleaf crop currently dominates the block, however future planned thinning coupled with some modest scale clearfell should increase transient open space and help develop the woodland structure through evidence of younger natural regeneration.
The following tables show how the proposed management of the forest will help to maintain or establish a diverse species composition and age-class structure, as recommended in the UK Forestry Standard. The current woodland composition is shown on **Map 8**.
Stands adjoining felled areas will be retained until the restocking of the first coupe has reached a minimum height of 2m. Where this is not possible (e.g. due to windblow risk), the planned approach to achieving height separation between adjacent coupes is outlined in section 4.1 – Clear felling.

Table 7

Plan area by species						
Species	Current Area (ha)	%	Year 10 Area (ha)	%	Year 20 Area (ha)	%
Sitka spruce	6.4	3.1	6.4	3.1	6.4	3.1
Other conifers	48.4	23.8	42.7	21.0	42.7	21.0
Native broadleaves	112.0	55.0	117.7	57.8	117.7	57.8
Other broadleaves	24.1	11.8	24.1	11.8	24.1	11.8
Open ground	12.7	6.3	12.7	6.3	12.7	6.3
Total	**203.6**	**100**	**203.6**	**100**	**203.6**	**100**

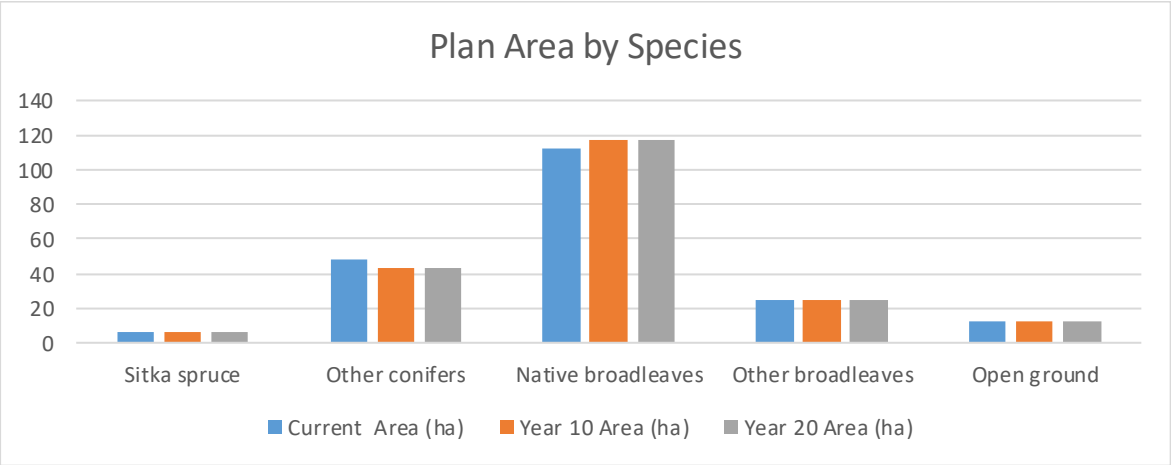
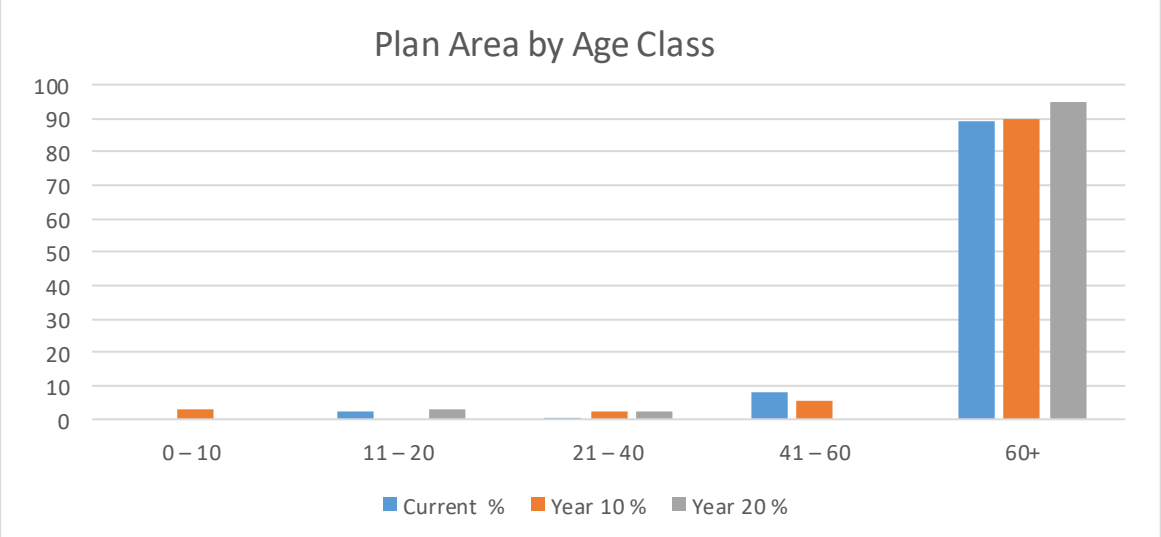


Table 8

Plan area by Age						
Age Class (years)	Current Area (ha)	%	Year 10 Area (ha)	%	Year 20 Area (ha)	%
0 – 10	0.0	0.0	5.7	3.0	0.0	0.0
11 – 20	4.2	2.2	0.0	0.0	5.7	3.0
21 – 40	1.3	0.7	4.2	2.2	4.2	2.2
41 – 60	14.8	7.8	10.4	5.4	0.0	0.0
60+	170.5	89.3	170.5	89.4	180.9	94.8
Total	**190.8**	**100.0**	**190.8**	**100**		**100**



3.7 Road Operations and Quarries

Planned new roads, road realignments, road upgrades, new quarrying, and timber haulage routes are shown on the Road Operations and Timber Haulage map (**Map 7**).
There are no roads operations currently scheduled for the period of this plan however as thinning and the move towards more Low Impact Silviculture Systems (LISS) management progresses, it is inevitable that road upgrade work, additional road spurs and a permanent network of thinning coupe access routes may be required.
Additional development proposals will be submitted to Scottish Forestry (SF) for approval prior to any work taking place (see Tolerance table **Appendix IV**).

Table 9

Forest Road Upgrades, Realignments, New Roads and New Quarrying				
Phase	Name / Number	Length (m)	Year	Operation
2	NO PLANNED NEW ROADS	2.0km	2029	Roads maintenance

3.8 Environmental Impact Assessment (EIA)

Any operations requiring an EIA determination are shown in the table below. If required, the screening opinion request form is presented in **Appendix II**.

Table 10

EIA projects in the plan area		
Type of project	Yes / No	Note
Afforestation	No	There is no proposed afforestation for the LMP
Deforestation	No	There is no proposed woodland removal within the LMP. Where there has been an identified benefit to the wider environment or community, modest increases to permanent open space, mainly focussed within the riparian zones may however be likely.
Forest roads	No	There are no planned new roads. Currently all timber haulage uses existing forest roads and the minor county road network to the north (B7004) and west (A746).
Forestry quarries	No	There are no active quarries within the LMP.

EIA projects in the plan area		
		To avoid the risk of using rock of unsuitable chemical content and to reduce the impact of stone transportation, stone material for forest road upgrade and other new construction to service any planned timber harvest will be sourced from our nearest main quarry.

3.9 Tolerance table

Low Working tolerances agreed with Scottish Forestry are shown in **Appendix IV**.

4.0 Management Proposals – guidance and context

4.1 Silviculture

4.1.1 Clear felling

Two small larch coupes *(28022 & 28030)* have been identified for clearfelling during the plan period (refer to **Map 4**):

To achieve the UK Forestry Standard of separation between adjacent crops, adjoining coupes should not be felled before the restocking of the first area has reached and average height of at least two metres. We expect this to be achieved in 5 years following planting.

Any unforeseen reduction in separation during the period of the plan will be formally agreed with Scottish Forestry as an amendment. Felling will be undertaken once trees in adjacent restocked coupes have reached 2 m height.

4.1.2 Thinning

Refer to **Map 5**.

As a measure of species suitability and productivity virtually the entire Kilsture block presents as Ecological Site Classification (ESC) 17 or less identifying the area as suitable for thinning (194.2ha **see thinning Map 5**). The thinning intervention has been identified for phase 2 of the plan period.

Although there are significant areas of conifer and Beech woodland, generally a variety of Oak woodland types are dominant in this broadleaf woodland block.

Indiscriminate and patchy Crown and Sub-dominant thinning has previously taken place across the block but the opportunity now exists to identify Forest Development Types [1]and gear future silvicultural interventions towards achieving those aims (see table 11).

Table 11

Forest Development Types			
FDT	Species	Woodland description	Treatment
1.2.6	NS and BL	Single storey NS (over 60%) with other BL species	Crown thin to continue removal of trees with visible defects/poor form/coarse branching Monitor target species composition
5.3.2	Oak and BL	Multi-storey stand of Oak (over 50%) with other BL species in middle and under storey	Crown thin to release crowns and keep free from competition Retain sub-dominants for diverse stand structure and epicormic growth suppression Prevent understorey trees from encroaching crown area Monitor target species composition
6.1.1	Beech	Single storey Beech (over 80%) with other minor species	
10.1.1	Coastal Redwood	Multi-storey Coastal Redwood	Thin to remove competition from other neighbour species

Part of the Hazelbank Private Water Supply pipe runs through existing broadleaf woodland in thin coupe 28001. To minimise the potential for future disturbance around the water supply pipe the following will apply

- the forest road access to Hazelbank will **not** be used for timber stacking or haulage
- a significant buffer in excess of 5m where no trees will be harvested or machines will travel will be incorporated into the planned thin area north of the forest road access
- the area to the south of the forest road access will not be thinned
- minimal maintenance of the forest road access will apply

The selected thinning sites should prove beneficial for a range of wildlife species such as Red Squirrel, Bats, raptors and potentially for Pine Marten.

4.1.3 Low Impact Silviculture Systems (LISS) / Continuous Cover Forestry (CCF)
Refer to **Map 4.**

[1] Forest Development Types are a long-term vision of how the species composition and structure of a forest stand is intended to develop. The concept encourages greater use of mixed-species stands with a wider variety of stand structures and promotes an enhanced use of site adapted species and natural regeneration.

The long term vision is for the entire block area (100%) to be initially managed under a Low Impact Silviculture System (LISS) to maintain a permanent, mainly broadleaf woodland cover with a view to creating large diameter Oak and Beech woodland. As changes in tree diameters and the spatial structure of the woodland develops over time, future alternative management systems may present themselves.

For now, to initiate restructuring and the release tree canopies, a Group Shelterwood system will be the norm and should, through regular thinning and small-scale group clearfells of <2ha (perhaps centred on windthrow or other natural openings in the existing canopy) provide spatial diversity and areas for either natural regeneration or targeted restock of small seeded native tree and shrub species.

Group Shelterwood generally encompasses:

- progressive thinning
- clearance of some windthrow patches
- small-scale felling patches of 0.5ha up to 2.0ha to stimulate restructuring and promote regeneration of target tree species

If there is a management requirement for any coupe greater than 2.0ha to be felled then that prescription will be initially agreed with the SF as per the Tolerance Table in Appendix IV.

Objective	Implementation
The woodland at Kilsture is locally a high public access area where landscape and maintaining BL cover are priorities.	Generally marginal thinning intensities will apply however some treatment intensities may be modified according to Visitor Zone priorities.
Generally the Public are uncomfortable with "dark" woodlands; favour BL (particularly Oak) and over time remove conifer species (Spruce, Western Hemlock and Lawson Cypress).	Remove larch in mixture and other sub-optimal species through thinning prescriptions.
Favour native species, "character" conifers (Coastal Redwoods) and other specific habitat areas for species diversity and nature conservation benefits (habitat variety/Red Squirrel food source).	Retain some conifer across plan area. Wet areas adjoining burns may provide opportunities to create wet woodland with Willow, Alder and open space. Identify and conserve valued habitats.
Create open space / thin / operate LISS to favour optimal species and remove sub optimal / non-tolerated species.	Clearfell infected larch stands. Additional small-scale felling groups to respond to windthrow or removal of selected conifer crops up to 2.0ha.

Survey work, prior to any operations, will be required to check for the presence / evidence of protected species such as Red Squirrel, Otter and Badger and any other areas of interest that require to be protected during operations.

All harvesting operations will conform to Forests and Water Guidelines (5th edition) and Water Environment (Diffuse Pollution) (Scotland) regulations 2008.

4.1.4 Long term retention (LTR)[2] / Minimum intervention (MI)[3] / Natural reserve (NR)
Refer to Map 4.
Currently there are no LTR, MI or NR areas identified within the Kilsture plan area.
A significant area of the plan is however identified as Long Established Plantation Origin (LEPO) and in due course as the woodland continues to age and develop there may well be an expectation that significant parts of the plan area could be managed under Minimum Intervention or even Natural Reserve with significantly older broadleaves persisting across the plan area.
FLS Natural Reserves are predominantly wooded areas, usually mature and intended to reach biological maturity, managed in perpetuity by minimum intervention where conservation or biodiversity is the prime objective. They are permanently identified and in locations which are of high wildlife interest. Management will be essentially be restricted to:

- Wildlife management
- removal of invasive exotics/non-native tree regeneration that could reduce value for biodiversity
- actions to benefit specific species of conservation priority
- fire fighting

4.1.5 Tree species choice / Restocking
Refer to Map 6.
All proposed broadleaf planting will be native to the area and should complement and/or enrich existing naturally growing scrub and woodland to give the most ecological value.
As previously stated, a warmer as a result of Climate Change may require the provision of a wider range of alternative species that were not previously considered to reliably cold hardy.
The Restocking Strategy for Scotland's National Forest Estate explains that we will minimise chemical usage in restocking (insecticides and herbicides) by considering options at the site scale, and using tactics such as delayed planting to achieve this.

4.1.6 Natural regeneration
There should be a preference for Natural Regeneration (NR) of broadleaf areas (both to maintain provenance and improve the chances of establishment).
There are some sites where conifer natural regeneration is occurring. These sites will be monitored and recorded in the FLS sub-compartment database. Where the Natural Regeneration is of the desired species, we will endeavour to use it to establish the required stocking density. If the NR is too dense it may be necessary to clear and restock , if however

[2] Long Term Retention areas are individual, stable stands and clumps of trees retained for environmental benefit significantly beyond the age or size generally adopted by the woodland enterprise.
[3] Minimum Intervention is management with no systematic felling or planting of trees. Operations normally permitted are fencing, control of exotic plant species and vertebrate pests and maintenance of paths and rides and safety work.

NR is unlikely or if the stocking density is too low then the area will be beaten up by year 5 to the required stocking density and site requirements.
It is critically important during operations that thinning/LISS interventions as far as possible avoid damage to regenerating young trees and any protected habitats.
Where NR is not the desired species or proposed land use (e.g. regeneration on managed open ground) it will be considered against the plan objectives and tolerance table and either accepted (with a plan amendment if necessary) or removed.
As part of our environmental remit during the plan period we will be removing (where practical and possible) all non-native *regeneration* (including that over >10cm dbh) within the forest block where habitat or species enhancement is key for environmental benefits.
Advice and comments from the Galloway Fisheries Trust and SEPA will be taken into account when planning the management of natural regeneration and through the delivery of this Land Management Plan (LMP).
It is expected that some of the riparian zones, designed open ground and broadleaf areas will fill in with natural regeneration of both conifers and broadleaves. FLS will manage non-native natural regeneration in such a way as to ensure that, where practicable, it does not significantly impose a negative impact upon the objectives of the plan or create a negative impact upon designated, protected or promoted habitats, species, landscapes, historic environment features, and relevant catchments.

4.1.7 New planting
There is no new planting scheduled for the plan area.

4.1.8 Protection
Deer
There is a significant challenge in establishing species palatable to deer such as soft conifers and broadleaves. Generally, within South Region there is a presumption not to erect physical protections against deer with the current Regional Deer Management Strategy being to manage the deer population through shooting by either internal staff or through lease achieving set annual cull targets (determined using integrated data i.e. population counts, fecundity/mortality rates, and damage levels) to meet land management objectives.
Proposed restock areas have been chosen primarily on the basis of site suitability in addition to accessibility for protection. At the work planning stage, we will re-assess all restock areas to determine site specific deer management requirements. If the potential occurrence of deer browsing is high, and where protection through deer population control alone is likely to prove difficult, alternative protection measures such as biodegradable plastic tree shelters may be used.
Establishment will be assessed at year five upon completion of restock when, if tree shelters have been used, a plan for their removal and recycling will be put in place assuming the trees are satisfactorily established and less susceptible to continued browsing pressure.
Broadleaves present across the site are generally vulnerable to deer browsing, therefore more resilient broadleaved species such as Common Alder, Downy Birch and Hawthorn, may be planted where suitable and in line with UKFS best practice (e.g. limiting Alder planting

within acidified catchments). The forest design aims to facilitate effective deer management, however, further consideration for lines of sight will be taken during the work planning process and amendments sought where necessary.

Fire

FLS continues to work closely with the Scottish Fire and Rescue Service (SFRS) to prevent and tackle wildfires that threaten Scotland's National Forests and Land. FLS support SFRS in their lead role for fire prevention and suppression through creating annual fire plans, maintaining a duty rota, and providing additional logistical support.
FLS's primary objective is always to protect people's health, safety and wellbeing.

Tree Pests and Diseases

Clearfell and thinning to address *Phytopthora ramorum* infection of larch has been identified. See **Appendix I** for detail.

4.1.8 Road operations, Timber haulage and other infrastructure

Modest levels of timber production are forecast from the block and Map 7 shows the existing forest road network, planned new roads, main egress points, and agreed Timber Transport Routes.
Currently the main vehicle and timber haulage access routes are the B7004 Wigtown to Garlieston public road to the east of the block (categorised "Agreed route" on Dumfries and Galloway Timber Transport Agreed Routes Map 2005) and, initially to the west and then splitting the block, the A746 that is not currently identified on the agreed routes map. Use of the A746 for timber haulage has previously been approved by the local Council (a statutory consultee) and continued use under consultation is anticipated for proposed future programmes.
The table at section 3.7 identifies the works required for the period of the plan.
There are no active quarries within the LMP.
The forest road to the south that provides the access to Hazelbank is **not** to be used for timber stacking or haulage.

4.2 Biodiversity

4.2.1 Designated sites

Management of the entire block is gradually moving towards a version of Low Impact Silviculture System (LISS).
In the future when conifer removal may be complete or reaches an acceptable level, there may be potential for Minimum Intervention / Natural Reserve systems to apply to maintain a permanent broadleaf woodland cover to enhance both the woodland and its designed landscape character.

4.2.2 Native woodland

This plan seeks to protect and enhance existing areas of native woodlands and extend where appropriate to maximise habitat connectivity. Efforts to extend/establish native woodland

will be focused on areas immediately adjacent to the existing LEPO areas and within any riparian zones (ref. 4.2.3)
Along watercourses, FLS intend to establish light broadleaf cover to improve overall water quality, assist with bank stabilisation, and to help protect aquatic habitats from the effects of climate change (e.g. through the provision of dappled shading and woody debris/leaf litter). Planting should be focused where the watercourse widens while aiming to avoid areas prone to localised flooding (to alleviate tree stress/death). Native broadleaves will be grouped and consideration will be given to forming thorny shrouds (e.g. using Hawthorn) around more palatable species.
Regeneration of non-native conifer species is sporadic, no doubt due to the lack of extensive neighbouring conifer plantation however monitoring will be carried out to ensure conifer regeneration does not compromise the establishment and growth of broadleaved species.

4.2.3 Ancient woodland / Plantation on Ancient Woodland sites (PAWS)
Long Established of Plantation Origin broadleaf woodland sits within the block. These areas will be managed as per agreed PAWS management plans with an overall long term aim to increase the area of native broadleaf species.

4.2.4 Protected and priority habitats and species
All forest management operations involve a planning process before work commences which includes consultation with relevant interest groups, neighbours along with checks for wildlife and important habitats as per legal requirements and described in the UKFS Requirements for Forestry and Biodiversity. Work plans will be adjusted if necessary to avoid disturbance and opportunities to further protect species or enhance habitats will be identified.
Following felling operations, planting schemes will be re-designed around any priority habitats that are revealed. (This includes species rich Groundwater Dependent Terrestrial Ecosystems (GWDTE) which will be protected as per current best practice.)
Restock deviations beyond agreed tolerance will be referred to Scottish Forestry for consideration.

Red squirrel
FLS has a single licence to cover forest management activities that may affect Red squirrels on the national forest estate (NFE). This is in accord with the Scottish Biodiversity Strategy's aim to resolve species management issues. All works within the Plan area will follow the assessment and mitigation actions set out as conditions of this licence.
Recent surveys confirm the presence of Red Squirrel (UKBAP priority species) throughout the block at healthy densities however given the connectivity to surrounding broadleaf woodland the block is highly vulnerable to Grey Squirrel colonisation (significant densities of Grey squirrel have been confirmed throughout the plan area in recent years).
The LMP unit is not identified as a "Red Squirrel Stronghold Site" designated by the Scottish Government where Red Squirrel can be helped to survive through positive management practices and as such is not considered a core area for Red Squirrel (UKBAP). We do however appreciate that the resident population is important locally so our long term aim to treat the area as priority woodland and to restore extended rotation broadleaf woodland over the

block guarantees habitat that will remain advantageous towards Red squirrel. Organisations such as Saving Scotland's Red Squirrels (acting under Scotland Wildlife Trust) and local squirrel groups are subsequently notified and if seen as a significant threat, these groups may then initiate further monitoring and or control actions as required (trapping control is currently in effect at Kilsture).

Pine Marten

There have been Pine Marten sightings around the Kilsture woodland area. In partnership with the Vincent Wildlife Trust, 4 Pine Marten boxes have been erected/sited within the block.

Raptors

Across the plan area the generally maturing woodland provides a range of nesting site locations available for a raptors.

Common buzzard is present with possibility of Owls also nesting across the block. Red Kites have been seen around the area but we are unaware of any currently nesting at Kilsture. Whilst the proposed small scale larch felling may result in the loss of nesting site locations (checks for raptor nests, especially during the breeding season, will be undertaken prior to operations to avoid disturbance) with the remaining woodland being managed under group shelterwood and on longer rotations, alternative nesting sites will be generally available.

Upland birchwood and Upland flush, fen and swamp

Small areas exist across the plan area. FLS has a duty to protect these priority habitats and ensure their condition does not deteriorate. Efforts will be made to remove naturally regenerating conifers and invasive species from these areas.

Other

Riparian areas support Otter and possibly European water vole. The plan design aims to positively contribute to aquatic habitat quality via the creation of riparian buffer zones and low density native planting.

Fish species require clean and well oxygenated waters, making it vitally important that diffuse pollution is avoided through careful planning and delivery of all operations.

Badger setts have also been recorded at Kilsture, their locations will be identified and protected during forestry operations, with necessary licences sought as part of the work planning process.

4.2.5 Open ground

There is currently only 6.3% of open ground in the plan area and this tends to be a mixture of permanent open space centred on the more open areas along watercourses, recreation sites and general internal open space.

Initially fallow clearfell sites will also contribute to transitional open space within the block however as Group Shelterwood management develops across the block and structural and spatial changes occur within the woodland, it is likely that more open space will naturally appear and over an extended time period the percentage of open ground will move towards the 10% looked for under UKWAS.

Post-clearfelling, there will be no conifer restocking within 20m (and on occasion up to 50m) within either the main watercourse riparian zones or any Groundwater Dependent Terrestrial Ecosystems (GWDTEs) in particular springs/ flushes identified.

4.2.6 Dead wood

Opportunities for retaining or creating deadwood in this predominantly broadleaf woodland will be identified during the planning of all felling and thinning works, favouring areas with the highest deadwood ecological potential. Valuable deadwood and deadwood areas, some associated with wetland areas scattered throughout the block, will be marked on contract maps for retention and potential expansion and where it is safe to do so, standing mature dead trees will be retained as these offer excellent potential for a range of species.
Ultimately areas of Natural Reserve offer some of the best opportunities for the development of standing and fallen deadwood.

4.2.7 Invasive species

Some Invasive Non-Native Species (INNS) are present in the woodland. INNS can impact directly on many environmental aspects of an area and are specifically recognised as a significant risk to water environments potentially causing problems for communities who rely on rivers and lochs for their livelihoods.
Rhododendron ponticum, Yellow Archangel, Japanese Knotweed and Himalayan Balsam will be surveyed for and wherever practically possible eradicated.
Control measure treatments for areas of *Rhododendron ponticum* have previously taken place with monitoring ongoing and all persistent identified groups continuing to be treated as per the Region's INNS Policy.

4.3 Historic Environment

Refer to Map 12.
Our key priorities for archaeology and the historic environment are to undertake conservation management, condition monitoring and archaeological recording at 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 (2014) and Scotland's Archaeology Strategy (2015).
Significant archaeological sites will be protected and managed following the UK Forestry Standard (2017) and the FCS policy document Scotland's Woodlands and the Historic Environment (2008).
Harvesting coupes, access roads and fence lines will be surveyed prior to any work being undertaken in order to ensure that upstanding historic environment features can be marked and avoided. At establishment and restocking, work prescriptions will remove relevant historic environment features from any ground disturbing operations and replanting. Where appropriate, significant historic assets are recorded by archaeological measured survey, see active conservation management 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 designated historic assets on the National Forest Estate. Details of all known historic environment features are held within the Forester Web Heritage Data and included within work plans for specific operations to ensure damage is avoided. Significant historic environment features will be depicted on all relevant operational maps and machine operators will be fully briefed on their responsibilities prior to all sites being worked.
Areas of historic environment interest should be checked both on FLS's internal historic environment records and also with the Council's HER prior to the commencement of forestry activities. Any upstanding features should be clearly marked, both on the ground and on operational maps. Care should be taken to avoid any damage to surviving structural elements (see **Appendix V**).

4.3.1 Designated sites
There are no Scheduled Monuments or Category A-listed buildings or Inventory gardens or designed landscapes present within the boundaries of the Kilsture LMP.

4.3.2 Other features
Aside from the two farmstead sites (MDG15035 and MDG15036) both recorded on the Historic Environment Record (HER) and the network of old stone dykes, there is little in the way of heritage features in the block. The HER also notes the route of a former earlier road through the forest to the west of the current road.
All areas will be ground checked prior to operations to determine the extent and survival of any of these assets with upstanding features retained within open ground.

4.4 Landscape

4.4.1 Designated areas
The Kilsture LMP is not covered by any specific designation.

4.4.2 Other landscape considerations
The NatureScot (formerly SNH) National Landscape Character Assessment classifies the areas around Kilsture LMP as mainly "Landscape Character Type 169 Drumlin pasture" with a small area to the east of the block "Landscape Character Type 158 Coastal Flats Dumfries & Galloway".
Typically created by glacial deposition the topography of drumlin pastures is typified by a range of elongated mounds, smoothly convex in outline that run parallel and interlock to create a distinctive and undulating landform. Characterised by a smooth, lush green and generally grazed appearance accentuated by medium scale enclosure and hedgerow breaks in the rolling topography, the Kilsture LMP provides a deciduous woodland alternative.

The coastal flats are generally found adjacent to river mouths, here the R Cree, are flat and low lying and provide long views to the Solway. Again the landscape is predominantly farmed pasture.
Despite its relatively small mass the Kilsture block has a very long boundary relative to its area and remains a significant feature in the landscape.
Close up views are afforded from the A746 Wigtown to Whithorn road that bisects the block and from the Wigtown to Garlieston minor road that lies immediately adjacent to the eastern edge of the block, whilst the block can also be seen from a distance from the A75(T) on the other side of Wigtown Bay.
Appreciation of the internal composition of the woodland is only possible from the trails network with a rich species diversity providing great visual variety albeit with limited open vistas and vantage points providing opportunities to view out from the woodland to the pastoral landscape and coast.
Structural and species diversity will be enhanced through the continued use of open space along forest roads and watercourses, through small-scale felling coupe size, extended rotations and if BL regeneration is inconsistent increased BL restocking.
Management under LISS will ensure that there is little change to the distant landscape of the block during this and future plan periods but may offer opportunities for the creation of views out from the woodland.

4.5 People

4.5.1 Neighbours and local community

The Kilsture block is essentially an island block surrounded by pastoral farmland lying close to but directly adjacent to several small local communities.
The local Community Councils (Garlieston and Royal Burgh of Wigtown and District) are in receipt of the latest version of our local Strategic Plan.
FLS are also in regular contact with the recently formed Kilsture Forest Community Group (KFCG). The group have been actively involved throughout the consultation process during preparation of this plan and, as part of their current local volunteer agreement, work with FLS to maintain footpaths, carry out minor drainage and path maintenance. The group are keen to expand their role into other areas such as tree planting, removal of undesirable natural regeneration and survey and monitoring work covering the fauna and flora of the block. Their input and future involvement through an enhanced agreement is welcomed and encouraged by FLS.
Neighbours and other groups such as the Scottish Redwood Trust have taken an active interest in the development of the plan and their aspirations have been incorporated where they do not conflict with the objectives of the plan and are consistent with FLS's approach to land management (see **Appendix III**, Land Management Plan Consultation Record).

4.5.2 Public access

The Kilsture woodland area is recognised as being of significant importance providing a regularly used walking/cycling 'hub' for both visitors and locals.

Although not technically a WIAT (Woodland in and around Town), lying as it does within easy reach of three communities the WIAT values of providing an attractive, good quality and accessible woodland at Kilsture for the communities around Sorbie, Garlieston and Kirkinner apply.

The car park and main access point to the block where the formal trails begin is to the east on the B7004 road to Garlieston. Whilst there is no indication of any Rights of Way, the block does feature some Core paths and is generally accessible and manageable using the guidance in the Scottish Outdoor Access Code.

Whilst the local Community group are enthusiastic about widening the forest user demographic to include more children and young people, more people with disabilities or health issues and those without independent transport, at present FLS have no plans for new development. The community group have flagged the area to the west of the Sorbie road as a potential site for development.

Visitors are welcome to explore FLS land, and will only be asked to avoid routes while certain work is going on that will create serious or less obvious hazards for a period (e.g. tree felling). Scotland's outdoors provides great opportunities for open-air recreation and education, with great benefits for people's enjoyment, and their health and well-being. The Land Reform (Scotland) Act 2003 ensures everyone has statutory access rights to most of Scotland's outdoors, if these rights are exercised responsibly, with respect for people's privacy, safety and livelihoods, and for Scotland's environment. Equally, land managers have to manage their land and water responsibly in relation to access rights and FLS will only restrict public access where it is absolutely necessary, and will keep disruption to a minimum.

Woodland Management in Visitor Zones

Virtually all of the Kilsture block to the east of the A746 falls into the local FLS interactive visitor zones description.

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 and are mapped on Map 13. 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.

4.5.3 Renewables, utilities and other developments

Forestry and Land Scotland (FLS) is working to develop the wind and hydropower potential of the land and forests that we manage for the Scottish Ministers. Our aim is to ensure that the potential of the National Forest Estate is developed and managed in ways that

- contribute to the Scottish Government's renewable energy target

- maximise financial returns from the National Forest Estate
- secure benefits for local communities and
- achieve a reasonable and sustainable balance with other FLS objectives

Currently there are no renewable developments planned for the Kilsture LMP unit however the possibility remains that the area could be subject to future windfarm and/or mineral extractions applications.

4.5.4 Support for the 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 investment.
The Kilsture Forest Community Group (KFCG) have an active volunteer agreement in place.

4.6 Soils

4.6.1 Protection and Fertility
Soils within the block are generally a mixture of Brown Earth types grading into Surface Water Gleys in the poorer draining areas.
There will be minimal soil disturbance and machine movement on sites with clayey soils to reduce the risk of compaction or damage to the soil structure. Brash mats (or alternative measures) will be used to protect sensitive soils. Felling residue will usually be left on site to allow nutrient recycling, with consideration for the practicalities of restocking.

4.6.2 Cultivation
Where required, the choice of ground cultivation technique will consider the short-term benefits for establishment against any long-term side effects on tree stability, access for future forest operations and the environment. There will be a preference for the least intensive technique.

4.6.3 Deep peats
FLS is currently preparing a Peatland Restoration Strategy (incorporating the 'FES Lowland Raised Bog and Intermediate Bog Strategy', 2013). In the interim, we will take a precautionary approach to restocking on deep peat soils, following the principles laid out in the FCS practice guide 'Deciding future management options for afforested deep peatland', in particular where there is a 'presumption to restore'.
Sites for which there is a 'Presumption to restore' are defined as:

- Habitats designated as qualifying features in the UK Biodiversity Action Plan, or on Natura sites, Ramsar sites, Sites of Special Scientific Interest (SSSI) or National Nature Reserves (NNRs);

- Sites or parts of sites where restocking is likely to adversely affect the functional connectivity (hydrology) of an adjacent Annex 1 peatland habitat (as defined in the EU habitats Directive) or a habitat associated with one;
- Sites where deforestation would prevent the significant net release of greenhouse gases
- Some peat types (8a, 8d, 9a, 10a, 10b, 14, 14h, 14w) are classed as 'Scenario A' soils: edaphically unsuited to woodland. Additionally, 10a and 10b peat types are associated with raised bog habitats. Lowland raised bog and blanket bog are UK BAP priority habitats and therefore a presumption to restore. In the LMP process, by default we will not commercially restock areas where Scenario A peat types dominate, and will include such areas for further assessment for either peatland restoration, or manage as native broadleaf or peatland edge woodland (PEW).

After areas for which there is a presumption to restore are identified, the remaining afforested peatlands will be investigated, looking for evidence to support replanting, as per the FCS Practice Guide. If evidence is found that they will clearly support good growth of Yield Class 8 or more, then they will be restocked. If no evidence is found, they will either be restored, if this is considered to be achievable, or if not, e.g. on slopes of greater than 5%, have a low density native woodland established (PEW).
There are NO deep peat sites or areas marked for peatland restoration within the plan area

4.7 Water

4.7.1 Drinking water
Whilst there is one property, Hazelbank that lies within the block, and other nearby properties, there are no Scottish Water drinking water catchments or water abstraction sources designated as Drinking Water Protected Areas under the Water Framework Directive or Scottish Water Assets (including water supply and sewage pipes, water and waste water treatment works or reservoirs) in the area in the block.
All private drinking water supply points (and pipes) are recorded as a layer in our Forester Web GIS (included in Map 2).
Appropriate guidelines (UKFS Forestry and Water guidelines, Forestry & Water Scotland Know the Rules, and Private Water Supplies: guidance on forestry activities near PWS) will be followed for Private Water Supplies with affected neighbours consulted on during the work plan process and prior to any forest operations works commencing to ensure their protection. Features will be clearly marked on all contract maps, as well as on the ground. As the Hazelbank water supply pipe is a branch connection to the mains water supply from outwith the plan area there is no requirement to incorporate a 50m open space or broadleaf buffer for any catchment to minimise future disturbance.

4.7.2 Watercourse condition
There are a few small scale ditches which drain either to Wigtown Bay via the Stewarton and Balfern or into the Inch or Mill Burn which flows to Garlieston.

A main concrete land drain runs southwards from the woodland eventually discharging into the Inch burn upstream of the Sorbie road bridge
Whilst water quality, water levels and flows, access for fish migration and freedom from invasive species are all quite favourable in the Inch Burn, as a result of modifications to its bed and banks (mainly due to rural land uses) currently the watercourse presents as "bad". Overall condition is however expected to rise to moderate over the longer term.
This general lack of water features across the block brings into a sharper focus the need for all small wetland features to be conserved and enhanced to establish greater riparian connectivity.
All forestry operations will meet the requirements of the UKFS Guidelines on Forests and Water.

4.7.3 Flooding
Liaise with statutory bodies over catchment management and Natural Flood Management (NFM).
Whilst there is no part of the plan area that lies within a Potentially Vulnerable Area (PVA) there are two such areas, Braehead and Whauphill PVA 14/23 and Whithorn and Garliston PVA 14/24 within 1.0km of the plan area to the north and south respectively.
Forestry can have a range of effects on flood flows depending on the type and scale of forest operations. Forest establishment and growth have the potential to decrease peak flows whilst clearfelling can have an opposite effect until crops are replanted and re-grow.
FLS has considered flood risk of peak flows at the exit of the site and also further downstream and has built in the following flood prevention considerations within the plan area

- a reduced scale of and enhanced timing of proposed felling through planned extended rotation lengths
- the creation of an increasingly diverse age structure to include well designed significant riparian and wet woodland buffer habitats
- the restoration of flood plain woodland and
- potential peatland restoration

Only the first two of these considerations apply in Kilsture and they should have a beneficial impact on downstream flood risk and contribute towards flood alleviation.
Additionally a series of actions to manage flooding in both of the PVAs, generally focusing on non-forest activities have been set by SEPA and agreed with flood risk management authorities and are identified in below.

- Maintain flood warning
- Flood forecasting
- Awareness raising
- Self help
- Maintenance
- Emergency plans/response
- Planning policies

It is appreciated that new planting with associated operations of draining and ploughing can give rise to a very slight increase in peak flow (up to 20% at site scale), however with no additional areas of new planting proposed for this LMP, a planned optimal clearfell programme, well designed and significant riparian buffers that include where appropriate peatland restoration and forest wetland creation to minimise this effect, no increase to the existing flooding risk is anticipated.

4.8 Wildfires

4.8.1 Wildfire

The Wildfire risk for this LMP is currently low to moderate and Climate Change guidance for the south west of Scotland suggests that significant change to this rating over the period of the plan is unlikely. The primary objective for FLS however is always to protect people's, including neighbours', health, safety and wellbeing and our long term aims within the plan area to increase the use of LISS, to reduce the overall area of conifer plantation through an increase in the area of broadleaf woodland and open space across the plan area coupled, where possible, with the creation of riparian corridors (wider and exceeding the minimum guidelines) should constrain the overall Wildfire risk to the current levels.

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Appendix I: Description of Woodlands

Description of woodlands

Topography and Landscape

Kilsture sits in a low-lying coastal plain only 3km from Wigtown Bay. Flat to gently undulating terrain is typical of the area with elevation within the woodland ranging from 30m to 50m.

There are no landscape designations for the Plan area.

Map 11 shows the SNH Landscape Character Types relevant to Kilsture:

- Coastal Flats Dumfries and Galloway LCT 158
- Drumlin Pastures LCT 169

Geology and Soils

The plan area is classified by the James Hutton Institute "Land Capability for Forestry" classification as either F3, land with good flexibility for the growth and management of tree crops or F4, land with moderate flexibility for the growth and management of tree crops.

The geology for the area comprises Silurian sedimentary greywackes and shales. The rocks have resulted from the physical weathering of the parent material and comprise a mix of quartz, feldspar and other rock fragments set in a matrix of clay.

Soils types within the forest block, generally a mixture of Brown Earth types, are shown on **Map 9**

Climate

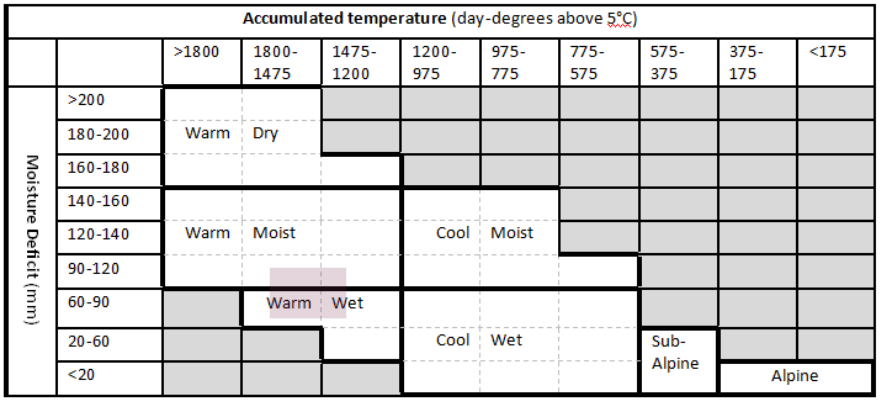
Accumulated temperature (day-degrees above 5°C)

Min: 1870, Max: 1906, Mean: 1890

Moisture Deficit (mm)

Min: 90, Max 120, Mean: 108

The climate of the LMP area is highlighted pink on the table below



Climatic Zones in Great Britain (shading indicates combinations not present)

Description of woodlands
Hydrology
Map 2 shows all watercourses, open water, and recorded water supplies. The forest sits in the Solway Tweed river basin district. The entire block is served by a network of slow moving ditches that connect to the neighbouring farm land draining out to the east towards Wigtown Bay. <u>Water quality</u> Bodies of surface waters (as identified by SEPA) adjacent to the plan area: **Name:** Inch Burn **Overall Condition:** Bad **Impacted condition / Responsible pressures (Responsible activity):** Physical condition, modifications to water bed and banks / Rural land use <u>Flooding</u> The block has little impact on identified Potentially Vulnerable areas. <u>Water supplies</u> Neighbours have been consulted specifically in relation to the location of their respective private water supply sources, tanks, pipework and general infrastructure in order to review the information currently held by FLS. A single private water pipe supply feeds the property to the south of the block. • Hazelbank - Active (serves single property) Source – mains water junction off FLS land at NX 4365 4837 Within the block there is some 400m of water pipeline featuring on both sides of the forest road access to the property Details of this supply are held in the District GIS layer and identified on the Features Map.
Windthrow
Map 10 illustrates the DAMS measurements for the Plan area. Whilst there are sporadic blown trees throughout, there is little extensive windthrow damage
Adjacent land use
Kilsture is an island woodland block entirely surrounded by pastoral farmland.
Public access
Map 2 and **Map 13** show the location of promoted trails and visitor zones.
Historic environment
Historic environment records for the forest are shown in **Appendix V** and on **Map 12.**
Biodiversity
Designated Sites Kilsture lies both within the Western Southern Uplands ESA (Environmentally Sensitive Area) and the Galloway Hills and South Ayrshire Biosphere and contains Ancient and Semi Natural Woodland (LEPO).

Description of woodlands
Otherwise there are no designated sites. Priority Habitats Small areas of priority habitats are present across the woodland. Priority Species Red Squirrel are present across the plan area (see 4,2,4). Ancient Woodland / PAWS Kilsture contains Ancient and Semi Natural Woodland (LEPO) (see 4.2.2). Natural Reserves No Natural Reserves present (see 4.1.4) Deadwood potential Currently identified as having medium to high potential for deadwood, this generally broadleaf woodland, as it ages and develops, should provide excellent opportunities for the provision of fallen and standing deadwood (see 4.2.6). Open ground In this generally wooded plan area, discreet areas of internal open ground can be found (see 4.2.5).
Invasive species
Invasive Non-Native Species (INNS) are present in the woodland. Presence of *Rhododendron ponticum* is monitored with persistent identified groups treated as per the Region's INNS Policy (see 4.2.7).
Woodland composition
The current species composition of the forest is illustrated on Map 8. The entire woodland comprises second generation maturing crop, primarily broadleaf woodland with discreet areas of conifer plantation. Yield classes range from YC2 in the broadleaf up to areas of YC14 in the commercial conifer. Group shelterwood is currently the preferred management type (4.1.3 refers) however some small clearfell coupes of dead and dying larch have been identified for phase 2 removal.
Plant health
Phytopthora ramorum infection has been confirmed on Larch across the region. Stands of infected larch within the plan area have been identified for clearfell under "Management zone / Risk Reduction Zone" agreement (removal to be carried out as soon as practical within the period of the plan) in phase 2 of the plan. *Dothistroma* Needle Blight (DNB) has been identified on Corsican and Scots Pine crops across the Region (at present only causing mortality in CP). There is little evidence of DNB within the plan area (only small areas of pine present) however the pathogen has been identified locally and its wider presence in the block cannot be ruled out. *Hylobius*, the Pine weevil, can cause extensive damage to young conifer crop (and at times young broadleaves). There is little evidence of *Hylobius* across the plan area, mainly due to

Description of woodlands
the lack of clearfell, however it is found throughout the region. As part of the regions chemical minimisation strategy, the Hylobius Management Support System (HMSS) is used to measure Hylobius numbers on clearfell sites. Using billet traps conifer restock areas are assessed, weevil numbers are recorded and along with other site data the optimum time for site restocking is determined. This more flexible fallow period between felling and re-stocking may result in restocking not taking place within two years of felling (see Tolerance table as agreed with SF). Ash dieback *Hymenoscyphus fraxineus* is present in and around the LMP. Monitoring is ongoing. Dead and dying Ash have been identified along the B7004 and hazardous specimens will be treated as per the FCS published Chalara Action Plan for Scotland in 2013 Grants and Operations Note 46a Management of individual Ash trees affected by ash dieback (*Hymenoscyphus fraxineus*).
Infrastructure
A small car park to the north of the block provides the main access to the plan area and services the waymarked trail network. Kilsture is relatively well roaded, with timber haulage using existing forest roads (but NOT the road access to Hazelbank) and the minor county road network to the north (B7004) and west (A746). There are no buildings present or planned new roads.

Appendix II: EIA screening opinion request form

Overleaf if required

Appendix III: LMP Consultation record

Consultee	Date contacted	Date of response	Issues raised	FLS response
Kilsture Forest Community Group (KFCG) Kirkinner Community Hall Drop-in and Q&A	01 February 2023	01 February 2023	Issues raised re. Deer control Need for thinning and associated track infrastructure and post operational persistent brash Long term vision Management objective specifics Ash removal Access and notification of operations Red Squirrel presence and control of Grey Squirrel Pine Marten boxes	Points verbally addressed with additional comments noted and include in revised and updated text (sections 1.1, 2.0, 3.3, 4.1.2 and 4.2.4)
Kilsture Forest Community Group (KFCG); Julia Farrington	01 August 2022	16 January 2023	Issues raised re. Long term vision Management objectives Technical acronym usage Forest Development types Need for thinning Group consultation during times of future planned thinning intervention Restock species choice Access Renewables and other developments	Comments noted with revisions to text updated (sections 1.1, 2.0, 3.3, 3.5, 4.1.2, 4.1.4, 4.1.6, 4.1.8, 4.4.2, and 4.5.1) Follow up February 2023 meeting with Community group clarified/addressed most of the issues.

Consultee	Date contacted	Date of response	Issues raised	FLS response
Drop-in meeting at Sorbie Village Hall	04 September 2022	04 September 2022	See note Appendix VI	Points noted within LMP text
Dumfries and Galloway Council: Andrew Nicholson, Archaeologist	01 August 2022	20 December 2022	Map provided showing HER sites within block (MDG15035 and MDG15036). Mention also made of former road to be ground truthed	Features identified in Appendix V. Text noted in LMP text (section 4.3)
Nature Scot	01 August 2022	18 August 2022	Recommend that the LMP take into account our standing advice on Protected Species, with emphasis on red squirrel, badger, and bats (see NatureScot website). Also recommend reference to our standing advice on birds, particularly raptors which may be present on the site (see NatureScot website)	Noted in LMP text (see section 4.2.4)
SEPA; John Gorman	01 August 2022	18 August 2022	Kilsture forest is a well-used recreational area with the potential to expand in the south Machars, an area fairly devoid of a good walking/cycling 'hub'. Links to Community groups who may input, monitor and manage any trails would be appropriate. There are a few small scale ditches which drain either to Wigtown Bay via Stewarton and Balfern or into the Inch or Mill Burn which flows to Garlieston. These minor waterbodies may benefit from	Noted in LMP text (see sections 4.5.1, 4.5.2, 4.7.1 & 4.7.2)

Consultee	Date contacted	Date of response	Issues raised	FLS response
			some broadleaf planting or riparian buffer zone clearance. There is at least one property (Hazelbank) but possibly others who may be served by a private water supply whose source water area sits within or near the Kilsture block. Information gathering on this is crucial either via direct property contact and/or via Local Authority Environmental Health Department who hold a register of those properties.	
Scottish Water; Jacqueline Tait	01 August 2022	16 August 2022	Drinking Water Protected Areas There are no records of Scottish Water drinking water catchments or water abstraction sources, which are designated as Drinking Water Protected Areas under the Water Framework Directive in the plan area that may be affected by the proposed activities. Scottish Water Assets There are no records of Scottish Water assets (including water supply and sewer pipes, water and waste water treatment works, reservoirs, etc.) in the area. All proposals should comply with Sewers for Scotland and Water for Scotland 4th Editions 2018, including provision of	Noted (section 4.7.1)

Consultee	Date contacted	Date of response	Issues raised	FLS response
			appropriate clearance distances from Scottish Water assets.	
Dumfries and Galloway Council: Richard Masters, Countryside and Access	01 August 2022	09 August 2022	No objections to plan proposals. Plan showing the location of the Core Paths provided. There is no indication of any Rights of Way and much of the site may be accessible by way of the responsible Access Rights as granted in the Land Reform (Scotland) Act 2003, which can be managed using the guidance in the Scottish Outdoor Access Code.	Noted (section 4.5.2 and Features map)
Historic Environment Scotland	01 August 2022	03 August 2022	There are no scheduled monuments, category A-listed buildings or Inventory gardens and designed landscapes present within the boundary of the Kilsture Land Management Plan.	Noted (section 4.3.1)
Galloway Raptor Study Group; Chris Rollie	01 August 2022	03 August 2022	Common buzzard is present with possibility of owls also nesting across the block. Red Kites have been seen around the area but we are unaware of any nesting at Kilsture. Any felling during the breeding season should be preceded by checks for nesting raptors in order to avoid disturbance. Long-term retention of mature trees for nesting and increasing native broadleaves is recommended.	Noted (section 4.2.4)

Consultee	Date contacted	Date of response	Issues raised	FLS response
Jamie Farquhar CONFOR	01 August 2022	01 August 2022	Contact now retired, forwarded to Andy Leitch	
Kat Fingland Saving Scotland's Red Squirrels	01 August 2022	01 August 2022	Whilst SSRS acknowledge that commercial conifers are subject to fell/thin cycles and other factors such as windthrow, the proposed felling plans are likely to impact on the resident Red squirrel population and as such we are anxious for appropriate mitigation measures to minimise the impact of any future forestry work on the local population are put in place i.e. carry out relevant surveys in advance of and factor breeding season into planned work. And to also account for both habitat connectivity and squirrel movement and a general maintenance/improvement of Red squirrel habitat across the block through use of alternatives to clearfell such as Long Term Retentions, LISS / CCF small-scale felling and an appreciation of future species mix and age class for continuity of food supply.	Noted and identified in text (sections 4.1.2, 4.1.3 and 4.2.4)
Hazelbank resident; Margaret McKeand	29 June 2022 01 August 2022	29 June 2022	Unauthorised use of access road to Hazelbank Future timber operations and haulage in an around property	Minuted face to face meeting with Mrs McKeand Main points noted in text (sections 4.1.8 and 4.7.1)

Consultee	Date contacted	Date of response	Issues raised	FLS response
			Water supply Introduction of Pine Marten	
Dumfries and Galloway Council: Environmental Health	01 August 2022	none		
Dumfries and Galloway Council: Bryan Scott, Environment Services	01 August 2022	none		
Dumfries and Galloway Council: James England, Roads Network	01 August 2022	none		
Dumfries and Galloway Council: Brian Templeton, Resilience/Flooding	01 August 2022	none		
RSPB; Ed Tooth	01 August 2022	none		
Ed Forrest G&SA Biosphere	01 August 2022	none		
Jamie Ribbens Galloway Fisheries Trust	01 August 2022	none		
Scottish Forestry; South Scotland Conservancy	01 August 2022	none		

Consultee	Date contacted	Date of response	Issues raised	FLS response
Scottish Redwoods Trust; Fiona Ross	01 August 2022	none		

Consultee	Issues raised from SF and LMP being on public register	**South Region Response to consultee**	**SF Consideration**
Scottish Forestry Conservancy, South Scotland	• Additional LMP text to include information on FWG buffer for source of the PWS (burn or spring etc), catchment and pipe location and on mitigation measures for protecting the catchment and safeguarding the PWS from machine movements and road maintenance	• Additional text to clarify in sections 4.1.2, 4.7.1 and Appendix I Hydrology	•

Appendix IV: Tolerance table

	Maps Required (Y/N)	Adjustment to felling period *	Adjustment to felling coupe boundaries **	Timing of Restocking	Changes to Restocking species	Changes to road lines	Designed open ground ** ***	Windblow Clearance ****
FC Approval normally not required	N	• Fell date can be moved within 5 year period where separation or other constraints are met.	• Up to 10% of coupe area.	• Up to 3 planting seasons after felling.	• Change within species group e.g. evergreen conifers or broadleaves.		• Increase by up to 5% of coupe area	
Approval by exchange of letters and map	Y	• Advance felling of Phase 2 coupe into Phase 1	• Up to 15% of coupe area	• Between 3 and 5 planting seasons after felling, subject to the wider forest and habitat structure not being significantly compromised.		• Additional felling of trees not agreed in plan. • Departures of > 60m in either direction from centre line of road	• Increase by up to 10% of coupe area • Any reduction in open space of coupe area by planting.	• Up to 5ha
Approval by formal plan amendment may be required	Y	• Felling delayed into second or later 5 year period. • Advance felling (phase 3 or beyond) into current or 2nd 5 year period.	• More than 15% of coupe area.	• More than 5 planting seasons after felling, subject to the wider forest and habitat structure not being significantly compromised.	• Change from specified native species. • Change Between species group.	• As above, depending on sensitivity.	• In excess of 10% of coupe area. • Colonisation of open space agreed as critical.	• More than 5ha.

NOTES:

* Felling sequence must not compromise UKFS, in particular felling coupe adjacency

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

*** *Tolerance subject to an overriding maximum 20% open space*

**** *Where windblow occurs SF should be informed of extent prior to clearance and consulted on where clearance of any standing trees is required*

Table of Working Tolerances Specific to Larch

Table of working tolerances specific to larch and available for all approved Forest plans in the Risk Reduction Zone (RRZ) – including the MZ in order to help reduce sporulation of *Phytopthora ramorum* on larch spp.

Approval process	Adjustment to felling period	Timing of restocking and species component	Felling of Larch within a mixed coupe	Changes to road lines
SF approval normally not required	Fell date for phase 2 can be moved forward where larch comprises 50% or more of the coupe species component	Changes to restocking proposal that exclude larch and closely related species in the same genus e.g. Sitka and Norway spruce Up to 3 planting seasons after felling		
SF approval normally by exchange of letters and map.	Felling moved between phases 1 and 2 where larch comprises less than 50% of the coupe species component	Changes to restocking proposal that exclude larch and closely related species in the same genus e.g. Sitka and Norway spruce Between 3 and 5 planting seasons after felling	Areas of pure larch up to 20% of coupe area within phase 1 and 2 can be felled to remove the sporulating host with restocking deferred until the rest of the crop is felled. Where larch constitutes more than 20% of the coupe component then the whole coupe must be felled and restocked together.	New road lines (subject to EIA screening opinion) or tracks within existing approved plans necessary to allow the extraction of larch material. Where necessary Prior Approval should be dealt with directly with the relevant Planning Authority.
Approval by formal plan amendment is required	Advance felling into current or second phase for pre-emptive larch removal.			Where a new public highway entrance or exit is required. Where necessary Prior Approval should be dealt with directly

				with the relevant Planning Authority.

NB; Larch felled in the autumn and winter, when the presence of *P. ramorum* cannot be assessed visually must be treated as infected and will therefore require a movement licence. When carrying out operations where the clearance has not been on the Public Register or through the consultation procedure it is important that due diligence is undertaken to identify sites that will require to be protected.
SPHNs will still be issued and should be complied with accordingly. This tolerance table is offered to assist in the pre-emptive early removal of the host species.

Appendix V: Historic Environment records

Refer to **Map 12**

Historic Environment Records					
Designation	**Name**	**Feature Description**	**Grid Reference**	**Importance**	**Area (ha)**
None	Farmstead	A farmstead comprising one unroofed building annotated Ruins, an attached enclosure and a second enclosure is depicted on the 1st edition of the OS 6-inch map (Wigtonshire 1850, sheet 26).	NX 4365 4877	Low	-
None	Farmstead	A farmstead comprising one unroofed building, which is annotated Ruins, and an attached enclosure is depicted on the 1st edition of the OS 6-inch map (Wigtonshire 1850, sheet 26).	NX 43574892	Low	-

Appendix VI: Kilsture LMP Drop-ins note

Kilsture LMP Plan Drop in
Sorbie Village hall Sunday 4th September 2022
14:00 – 19:00hrs

A community drop in was organised for the Kilsture Land Management plan 10 year review.
The Kilsture Forest Block is a woodland that is much used and loved by the wider community of the Machars.
Some years ago the block was placed on the disposal list resulting in the formation of the community group, the Kilsture Forest Community Group (KFCG), to explore greater community involvement in the block rather than its sale. The block has since been removed from the disposals list.
Since then FLS have developed a strong working relationship with the group who are currently working with FLS under a volunteering agreement for the upkeep of the footpaths and general maintenance.

Stephen Stables (Forest Planner), Brian McQuat (Land Management Forester) and Lyndy Renwick (Community and Communications manager) attended for the duration of this event.

The event was reasonably well attend with some spirited discussions between Forestry and Land Scotland staff and the wider community on their visions for the wellbeing of the wider community, their continued involvement and future land management within the woodland.
Future site meetings were arranged to further discuss the options available and the group agreed to provide detailed written feedback on the points discussed.

Attendees were also invited to respond to on line consultation that is underway for Kilsture Forest.

Overall the drop in meeting was fairly positive with an active and engaging community looking to contribute to the development of the LMP.

13 people attended the drop in (6 male and 7 female)
1 male and 1 female over 20

5 male and 6 female over 51

L Renwick

Subsequent Kilsture LMP Plan Drop in
Kirkinner Community hall Wednesday 1st February 2023
14:00 – 16:00hrs

A subsequent community drop and Q&A was organised for the Kilsture LMP review.
Poster drop-in notices appeared in several local shops and businesses as well as on Facebook.
Stephen Stables (Forest Planner) attended for the duration of this event.

The event was particularly well supported (26 persons; 14 men and 12 women) many of whom had not attended any of the previous meetings.
The background to the LMP process was explained along with where we actually were in the submission process. Attendees were also invited to access the on line consultation page for the plan area.
A variety of topics were discussed with attendees including points raised regarding Grey Squirrel control, shooting, condition of sites post operations, access, the vision for the plan area and recreation provision(see LMPCR).

Stephen Stables