Torrs Warren

Land Management Plan 2023 - 2033

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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:	Torrs Warren
Grid Reference (main forest entrance):	NX 1450 5630
Nearest town or locality:	Glenluce
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	20 November 2023	**Date of Approval**	
		Date Approval Ends	

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1.0 Objectives and Summary

1.1 Plan overview and objectives

Plan name	Torrs Warren
Forest blocks included	Torrs Warren, Drochduil & Dunragit
Size of plan area (ha)	202.2ha
Location	See Location map 1

Long Term Vision
For the pine plantations of Torrs Warren and Drochduil, the long term vision is for the retention of the plantation for aesthetics and coastal amenity gradually transitioning over time to a climax vegetation community of semi-natural coastal heath under an open oak and birch woodland. The blocks will continue to offer access to local communities and visitors through a network of informal paths, forest roads and core footpath. For Dunragit, the vision is gradual conifer removal and conversion of the area to permanent broadleaf woodland that will provide a permanent woodland backdrop to the village and that also showcases the features of a regionally significant Non-Inventory Designed Landscape.
Management Objectives
1. Manage Luce Sands SSSI site as per Designated Site Management plan 2. Manage Round Dounan and Droughdool Mote Scheduled Monuments as per Regional Asset Management plan 3. Encourage / continue the phased restoration of Ancient Semi-Natural Woodlands (ASNW) in the Dunragit block to increase biodiversity and strengthen linkages to external ASNW fragments 4. Retain access and provide a quality experience for communities/visitors by maintaining the existing recreational resource (enhancing where/when resources allow) 5. Manage modest scale sustainable timber production through wider use of a range of silvicultural management
Critical Success Factors
• Resources committed to removal of Invasive Non-Native Invasive Species to maintain integrity of Designated site/ open areas • Management of conifer natural regeneration across designated site, in ancient woodland areas and riparian zones

1.2 Summary of planned operations

Table 1

Summary of Operations over the Plan Period	
Clear felling (gross)	2.9ha
Thinning (potential area)	177.0ha
Restocking (gross)	41.9ha
Afforestation	0 ha
Deforestation	0 ha
Forest roads (new)	0 m
Forest road upgrades	2.2km
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 Land Management Plan Consultation Record is presented in **Appendix III**.

Below lists the objectives for the site and how the key features present opportunity or constraint. Analysis of these form the concept for this Land Management Plan.

Objective: Manage Luce Sands SSSI site as per Designated Site Management plan.

Opportunities:

- Develop thinning programme over long term to gradually convert conifer plantation in Torrs Warren block to open Oak and Birch woodland
- Develop thinning programme for forest structure improvement and forest resilience.

Constraints:

- Sporadic and fragmented BL regeneration
- Lack of appropriate developing ground vegetation
- Restricted existing forest road network

Concept:

- Gradually convert conifer plantation over an extended time scale to open Oak and Birch woodland
- Enhance age structure through restock/under plant low stocking density areas
- Enhance forest road network through upgrade

Objective: Manage Round Dounan and Droughdool Mote as per Regional Asset Management plan.

Opportunities:

- Improve forest structure and visual setting around Droughdool Mote through the use of appropriate Low Impact Silvicultural Systems (LISS)
- Enhance interpretation of heritage features

Constraints:

- Invasive gorse/scrub regeneration vegetation

Concept:

- Enhance forest structure and resilience through thinning programme
- Reduce stocking density around vicinity of heritage feature for greater visibility
- Enhance access to sites

Objective: Encourage/continue the phased restoration of Ancient Semi-Natural Woodlands (ASNW) in the Dunragit block to increase biodiversity and strengthen linkages to external ASNW fragments.

Opportunities:

- Enhance and maintain areas of existing Ancient and Semi-ancient woodlands and Plantations on Ancient Woodland Site's (PAWS).
- Increase links between habitats encouraging wider network associations for biodiversity

Constraints:

- Re-establishment of Ancient Woodlands will be a long term vision
- Potential deer browsing pressure on palatable species

Concept:

- Strengthen connectivity, utilize native buffers, encourage native natural regeneration
- Where appropriate enrich broadleaf areas through native broadleaved planting

Objective: Retain access and provide a quality experience for communities/visitors by maintaining the current recreational resource (enhancing these where resources allow).

Opportunities:

- Provide a varied and enjoyable woodland experience for users ensuring continued use of the forest under Scotland's Outdoor Access Code, core paths and the forest road network

Constraints:

- Financial resources are limited with the Torrs Warren block not currently locally prioritised for future development

Concept:

- Continue existing open access for walking, cycling and horse-riding within the forest block
- Use visitor zone areas to create species diversity and alternative low-impact forest management to enrich the user experience

Objective: Manage modest scale timber production through wider use of a range of silvicultural management.

Opportunities:

- Improve forest structure and diversity of predominantly first rotation pine monoculture through the use of appropriate Low Impact Silvicultural Systems (LISS) focused around main entrance and visitor car park area and core path at Torrs warren

Constraints:

- Non-uniform plantation with significant areas of understocked crop
- Restricted existing forest road network

Concept:

- Continue thinning programme over long term to gradually convert conifer plantation to open Oak and Birch woodland
- Enhance forest road network through upgrade

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)	Yes	Luce Sands SSSI
National Nature Reserve (NNR)	No	
Special Protection Area (SPA)	Yes/adjacent	Loch of Inch and Torrs Warren Special Protection Area (site excludes forestry plantation that is Torrs Warren block)
Special Area of Conservation (SAC)	Yes/adjacent	Luce Bay and Sands Special Area of Conservation and Wetland of International Importance (RAMSAR site) (sites excludes forestry plantation that is Torrs Warren block)
World Heritage Site (WHS)	No	
Scheduled Monument (SM)	Yes	Droughdool Mote Round Dounan
National Scenic Area (NSA)	No	
National Park (NP)	No	
Deep peat soil (>50 cm thickness)	No	
Tree Preservation Order (TPO)	No	
Local Conservation Site	No	
Acid sensitive catchment	No	
Biosphere reserve	Yes	Galloway and Southern Ayrshire
Local Landscape Area	No	
Ancient woodland	Yes	Plantation on Ancient Woodland Sites include Fox Wood and Mill Glen Wood (Big plantation and Swamps plantation adjacent)
Drinking Water Protected Area (Surface)	No	

The Key Features map (**Map 2**) shows the location of all designated areas and significant features. Any deep peats are indicated on the Soils map (**Map 9**).

3.2 Clear felling

Sites proposed for clear felling in the plan period are identified as Phase 1 and Phase 2 coupes on the Management map (**Map 4**).

A single coupe (coupe 31020) has been identified for removal during phase 2 (refer to **Map 4**).

Table 3

Clearfell Summary by Phase and Coupe Number			
Phase	Coupe Number	Fell Year	Gross Area (ha)
2	31020	2029/30	2.9
		Total	2.9

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
31020	2029/30					2.2				0.7			2.9
Plan Area Total													2.9

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			ha							
Felling	Phase 1	%	Phase 2	%	Phase 3	%	Phase 4	%	Long Term Retention	%
Net Area (ha)	0.0	0.0	2.9	1.4	0.0	0.0	0.0	0.0	0.0	0.0

3.3 Thinning

Virtually the entire plan area is thinnable.

Proposed thin sites across the whole plan area during the plan period totalling 177.0ha are identified on the Thinning map (**Map 5**).

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.
As a result of a previous heavy thinning followed by extensive windblow and then *Dothistroma* Needle Blight (DNB) damage and tree death, there are areas where the plantation crop is seriously understocked and lower intensity thin regimes (no thin) are applicable.
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.

Table 6

Thinning Summary by Phase and Coupe Number			
Phase	Coupe Number	Next Intervention Year	Gross Area (ha)
1	31001	2027/28	42.2
2	31002	2029/30	55.4
2	31003	2029/30	15.6
2	31004	2029/30	21.7
2	31005	2029/30	16.0
2	31006	2029/30	26.1
		Total	177.0

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. 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 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 immediate danger to persons or property; are completely dead; or are part of Authorised Planning Permission works or wayleave agreements].

3.5 Woodland Management in Visitor Zones

Large sections of the Dunragit and Torrs Warren blocks along with all of the Drochduil block fall into the local FLS interactive visitor zones description.

Visitor Zones have been identified in areas of the Torrs Warren LMP where FLS encourage and manage access or where the woodland managed by FLS interacts with popular visitor sites or access routes. Visitor Zones 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.

3.6 Restocking

Proposed restocking is shown on the Future Habitats and Species map (**Map 6**).

Coupe 31020 will be restocked post clearfell.
In the more open areas of coupe 31001, where stocking is patchy and generally understocked, underplanting with a broadleaf mix is scheduled (around 60% of total coupe area).

Table 6

Restocking						
Phase †	Coupe Number	Gross Area (ha)	Proposed Restock Year	Species (% mix)	Method *	Minimum stocking Density (s/ha)
1	31001	25.0**	2027/28	30% Bi: 70% Oak	R	1600/ha
2	31020	2.9	2031/32	30% Bi: 70% Oak	R	1600/ha
	Total	27.9				

† recently felled awaiting restock (F) / Phase 1 (1) / Phase 2 (2)
* replant (R) / natural regeneration (NR) / plant alternative area (ALT) / no restocking (None)
** around 60% of total coupe area

If the restock or natural regeneration should fail to reach 1600 stems per hectare(sph) (Native Broadleaves) or 2500 sph (productive Conifers) the site will be beaten-up to the required planting density. This will be assessed at year 3 and year 5 after planting with beat up by at least year 5.

3.7 Species diversity and age structure

With a gradual move from conifer to broadleaf / open ground, 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	2.2	1.1	1.3	0.6	1.1	0.5
Other conifers	127.9	63.2	114.5	56.7	111.9	55.4
Broadleaves	32.7	16.2	36.6	18.1	41.3	20.4
Open ground	39.4	19.5	49.8	24.6	47.9	23.7
Total	**202.2**	**100.0**	**202.2**	**100.0**	**202.2**	**100.0**

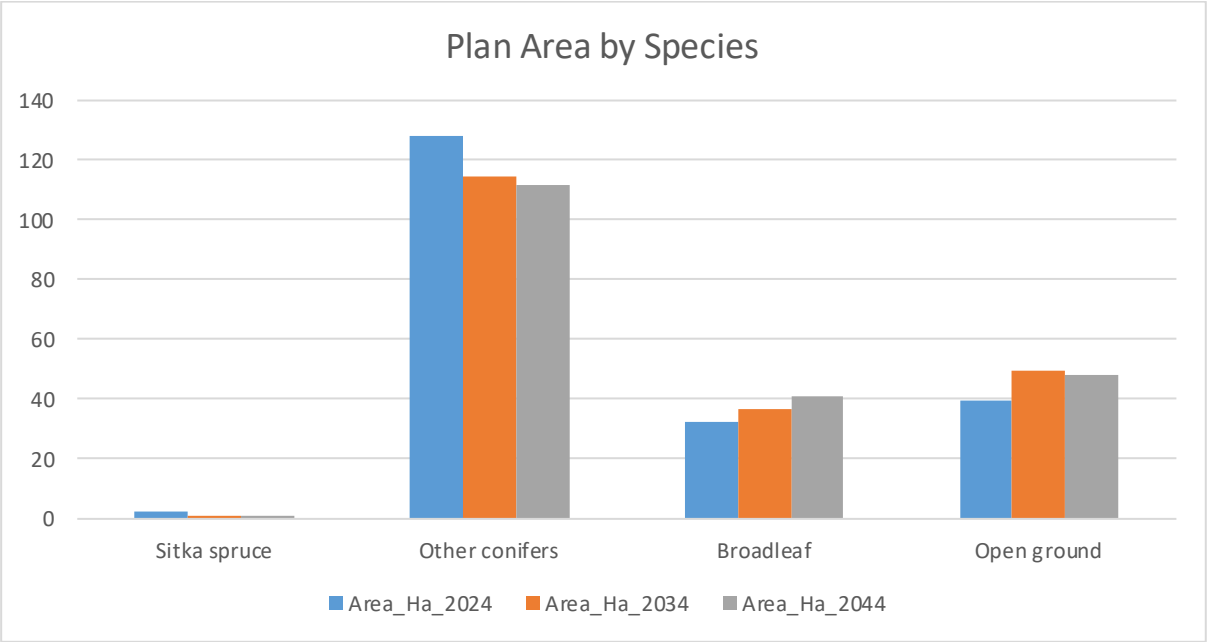
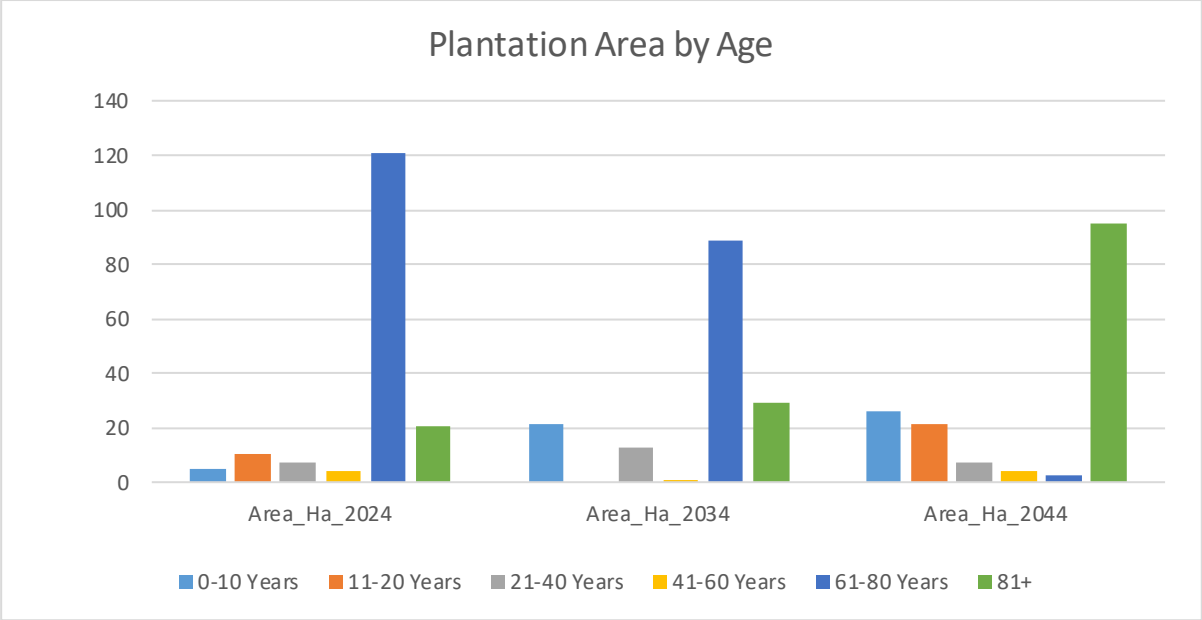


Table 8

Plantation area by Age						
Age Class (years)	Current Area (ha)	%	Year 10 Area (ha)	%	Year 20 Area (ha)	%
0 – 10	4.6	2.8	21.4	14.0	25.7	16.7
11 – 20	10.6	6.5	0.0	0.0	21.2	13.7
21 – 40	6.9	4.2	12.7	8.3	6.9	4.5
41 – 60	4.3	2.7	0.6	0.4	3.7	2.4
61-80	116.7	71.7	88.7	58.3	2.2	1.4
81+	19.7	12.1	29.0	19.0	94.6	61.3
Total	**162.8**	**100.0**	**152.4**	**100.0**	**154.3**	**100.0**



3.8 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 new planned roads however upgrade of sections of existing forest road are necessary to facilitate operations.

Table 9

Forest Road Upgrades, Realignments, New Roads and New Quarrying				
Phase	Name / Number	Length (m)	Year	Operation
1	Torrs Warren section	1000	2027/28	Forest road upgrade
1	Dunragit section	1000	2027/28	Forest road upgrade
1	Drochduil section	200	2027/28	Loading bay upgrade

3.9 Environmental Impact Assessment (EIA)screening requirements for forestry projects

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	
Deforestation	No	
Forest roads	No	
Forestry quarries	No	

3.10 Tolerance table

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

The Torrs Warren block contributes modestly to the South Region programme.

There is no felling proposed during the period of this plan save for a single coupe in the Dunragit block containing *P ramorum* infected larch (coupe 31020) that has been identified for removal during phase 2 (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 an 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

The entire plan area is thinnable **with p**otential sites for thinning during the plan period totalling 177.0ha identified on the Thinning map **(refer to Map 5)**.

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.

As a result of a previous heavy thinning that was fairly quickly followed by adverse weather and extensive windblow damage and then the onset of *Dothistroma* Needle Blight (DNB) damage and tree death, there are areas where the plantation crop is seriously understocked and for now lower intensity thin regimes (no thin) are applicable.

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.

4.1.3 Low Impact Silviculture Systems (LISS) / Continuous Cover Forestry (CCF)

Virtually the entire plan area is proposed for Low Impact Silviculture Systems.

Thinning and small scale group felling has sporadically taken place during previous plan approvals with varying degrees of success.

Areas where natural regeneration of appropriate broadleaf species has occurred will continue to be managed under LISS with a view to establishing a climax vegetation community of semi-natural coastal heath under an open oak and birch woodland (Torrs Warren and Drochduil) or permanent broadleaf (Dunragit).

Where natural regeneration has been unsuccessful, underplanting with a native broadleaf mix (1600stems per ha) will take place.

4.1.4 Long term retention (LTR) [1]/ Minimum intervention (MI) [2]/ Natural reserve (NR)[3]

There are no areas within the plan designated Long Term Retention, Minimum Intervention or Natural Reserve however there are extensive areas of both mature conifer (Torrs Warren) and broadleaf (Dunragit) that will be retained for many years during their gradual transition to broadleaf woodland and will provide both a continuity of biodiversity benefits for a range of species and provide important deadwood habitats.

There is obvious scope in future plans to subsequently identify areas particularly suitable for LTR, MI and NR.

4.1.5 Tree species choice / Restocking

Management coupes for restock during the plan period (refer to Map 6):

Coupe 31020 will be restocked post clearfell.

Coupe 31001 has a low stocking density conifer overstorey and little evidence of the desired broadleaf natural regeneration and should therefore be restocked at 1600 stems per hectare (Native Broadleaves).

When designing the restock of this plan, species have been appropriately matched to sites, and efforts have been made to diversify the range of species and silvicultural systems used where appropriate, including greater use of mixtures to reduce future impacts of climate affects.

All broadleaf planting should complement and/or enrich existing naturally growing scrub and woodland to give the most ecological value.

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.

[1] 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.

[2] 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.

[3] Natural Reserves are predominantly wooded areas managed in perpetuity by Minimum Intervention where conservation of biodiversity is the prime objective.

Where restock or natural regeneration fails to reach 1600 stems per hectare (Native Broadleaves) or 2500 stems per hectare (productive Conifers) the site will be beaten-up to the required planting density. This will be assessed at year 3 and year 5 after planting with beat up by at least year 5.

For the period of this plan, areas where restocking does not take place will form zones of high conservation value with the prospect, over the longer term, of the area perhaps completely re-wilding and contributing towards providing a long term store for carbon.

4.1.6 Natural regeneration

Natural regeneration of the desired broadleaf species should be a preference for planned broadleaf areas to maintain provenance and improve the chances of establishment.

Whilst there are several productive sites across the plan area where natural regeneration is occurring, there are also sites where none is forthcoming. Proposed regeneration sites will be monitored and recorded in the FLS sub-compartment database. Where the desired species are present they will hopefully achieve the required stocking density however where the stocking is too low, the site will be beaten up within 5 years to the required stocking density. If the natural regeneration is too dense it may be necessary to clear or to respace through a thinning regime.

Where natural regeneration is not the desired species the species present will be considered against the plan objectives and agreed tolerances and either accepted (with a plan amendment if necessary) or removed preferably through early thinning interventions retaining the approved restock species.

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. This will be managed in such a way as to ensure that, where practicable, it does not significantly impose negative impact upon the objectives of the plan. Nor should it cause a negative impact upon the watercourse in terms of shading and acidification.

4.1.7 New planting

There is no new planting planned within this LMP revision

4.1.8 Protection

Deer

There is a significant challenge in establishing species palatable to deer such as soft conifers and broadleaves. Generally, within the South Region there is a presumption not to erect physical protections against deer but to control deer through shooting. Our Wildlife team have prepared Deer Management Plans (DMP) for all of our blocks, including Torrs Warren.

Proposed restock species 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 plastic tree guards may be used. Establishment will be assessed at year

five after restocking has been completed. If used, plastic tree guards will be removed and recycled once trees are satisfactorily established and less susceptible to browsing pressure.

Tree Pests and Diseases

Phytophthora ramorum general infection has been confirmed on Larch across the region and is present in the Dunragit block. Within the Scottish Forestry *P.ramorum* on larch Action Plan (July 2022) Management zone, removal of all "live" larch is required by April 2032. Clearfell of the larch in the Dunragit block is planned for the second phase of the plan. Restocking of these sites will be with broadleaf.

Dothistroma Needle Blight (DNB), identified on Corsican and Scots Pine crops across the Region, is endemic within the Torrs Warren block with significant areas of tree mortality present.

Ash dieback *Chalara fraxinea* is present within the plan area most notably in the Dunragit block. Monitoring is ongoing and identified specimens will be treated as per the FCS published Chalara Action Plan for Scotland in 2013.

Hylobius, the Pine weevil, can cause extensive damage to young conifer crop (and at times young broadleaves) and is found throughout the region. As part of the region's chemical minimisation strategy, the *Hylobius* Management Support System (HMSS) is used to measure *Hylobius* numbers on clearfell sites. Billet traps are used on areas scheduled for conifer restock to assess weevil numbers and establish the optimum time for site restocking. 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 section Appendix IV).

FLS encourage good biosecurity practices to prevent diseases from spreading. Monitoring established and emerging pests and diseases in the Torrs Warren plan area will be completed through defined plant surveys and through training staff to recognise and report tree health issues that should result in the early detection of emerging tree health threats and identifying negative changes in existing threats.

Fire

It is accepted that with areas of windthrow and with trees diseased, damaged and dead from *Dothistroma* infection there is a risk to Wildfire however given that virtually the entire plan area is either pine plantation or broadleaf woodland with an underlying generous and lush ground vegetation cover at the post-thin stage, the plan area is generally considered to be of low to moderate risk for Wildfire.

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.

Sea level rise

Coastal erosion coupled with sea level rises are anticipated to increase in the future.

To an extent resilience for the Torrs Warren block can be maximised through maintaining the health of natural protective barriers such as sea walls and by freeing up more open ground to allow the coast to relocate landward of its current position.
While Scotland is the only UK country without (or not yet committed to) a funded Coastal monitoring strategy, monitoring is required.

4.1.9 Road operations, Timber haulage and other infrastructure

Map 7 shows the existing forest road network, planned new roads, main egress points, and agreed Timber Transport Routes.
Timber haulage will exit the forest road network onto minor roads, including the B7084, and thence to the A75(T). Consultation with the local roads authority will take place prior to operations taking place to determine any restrictions that may apply.
All timber haulage will adhere to the Timber Transport Forum "Road Haulage of Round Timber – Code of Practice".
There are no new roads planned or required for the Torrs Warren plan area however an enhanced loading bay to the west of the Drochduil block and significant upgrades of part of the existing forest road for the Torrs Warren block and for the eastern road section in the Dunragit block will be required during the period of the plan.
There are no local quarries within the plan area so road material will be sourced from our nearest quarry at Glenwhan.

4.2 Biodiversity

4.2.1 Designated sites

The entire plantation area of the Torrs Warren block lies within the Luce Sands SSSI designation, essentially for Coastal Geomorphology of Scotland interest but also for over wintering Hen Harrier and Sand Dunes.
Management objectives include maintaining the dune system, maintaining the diversity of invertebrates and plant interest and maintaining the numbers Greenland White fronted geese and Hen Harriers by providing suitable feeding and roosting conditions.
The assessed condition for the Coastal Geomorphology of the Torrs Warren site is favourable (maintained) so the designation does not appear to be a constraint on the future plan however recognized pressures are

- Forestry operations
- Invasive species
- Natural regeneration of non-native tree species
- Disturbance/degradation of notified species/habitats

An area to the south east of the Torrs Warren block evidences sufficient coastal habitat remnants that could potentially be restored to a high value habitat.

On-going management involving repeated scrub management (possibly a candidate for no fence collar seasonal grazing) would be required. Given the relatively small scale of this FLS area there may be limited partnership opportunities to combine future management with the cattle grazing regime currently operating on the adjacent Ministry of Defence ground.

Operations requiring consent will apply within the SSSI e.g. road upgrade and/or grazing.

4.2.2 Native woodland

Ancient woodland areas from NatureScot's Woodland Inventory include Fox Wood and Mill Glen Wood within the Dunragit block and Big Plantation and Swamp's Plantation immediately adjacent to the north of the Torrs Warren block.

All proposed broadleaf planting will be of native stock.

The above measures also support the objectives in the Dumfries and Galloway Forestry and Woodland Strategy in relation to the restoration and enhancement of ancient woodland sites.

4.2.3 Ancient woodland / Plantation on Ancient Woodland sites (PAWs)

There are no PAWS sites within the plan area however there are significant areas of Long Established of Plantation Origin (LEPO) woodland.

Ancient woodland areas from NatureScot's Woodland Inventory include Fox Wood and Mill Glen Wood within the Dunragit block and Big Plantation and Swamp's Plantation immediately adjacent to the north of the Torrs Warren block.

Our immediate objectives are to preserve and enhance any identifiable Ancient Woodland features and create links to adjacent woodland fragment through increased levels of broadleaf woodland proposed for subsequent rotations.

Monitoring of non-native conifer regeneration is ongoing with regeneration removed where resources allow.

Natural regeneration of native species will be encouraged and supported by supplementary restock where required.

Where broadleaved areas become established, this native woodland may eventually be designated as 'Minimum Intervention'(MI). With a possible future increase in the levels of herbivore impacts, deer control will be monitored to ensure all native woodland areas establish successfully.

4.2.4 Protected and priority habitats and species

All forest management operations involve a planning process before work commences which includes checks for wildlife and important habitats. Work plans will be adjusted if necessary to avoid disturbance, and opportunities to further protect species or enhance habitats will be identified.

Priority habitats

Upland Oakwood (W17) is the most significant UK Biodiversity Action Plan (UKBAP) Priority Habitat within the LMP, that includes some veteran specimens. In addition to this some wet Woodlands (W7) are developing within riparian zone along the Piltanton Burn. The design plans to enhance the surrounding areas whilst maintaining the these valuable existing habitats.

Red squirrel Sciurus vulgaris
Although not a Red Squirrel Stronghold Site, the species is present within the Torrs Warren LMP area and efforts to further encourage the species through retaining mature conifer trees for habitat provision and persisting with small scale removal of the conifer over an extended timescale will apply. FLS has a single species licence to cover forest management activities that may affect Red Squirrels on the National Forest Estate (NFE). All works within the plan area will follow the assessment and mitigation actions set out as conditions of this licence.

Great Crested Newt *Triturus cristatus*
There are a number of ponds in the plan area, albeit leased and operated by Scottish Water, however their condition and suitability for supporting the absence/presence of Great Crested Newt is unknown. Given the proximity of Luce Bay and Sands SAC, for which Great Crested Newt is a qualifying species, all management activities within the Torrs Warren block will consider the potential for Great Crested Newts to be present and implement FCS Guidance note 35b: Forest Operations and Great Crested Newts in Scotland(Forestry Commission Scotland 2009) as required,

Otter Lutra lutra
Otters are known to use the Piltanton Burn. The species should benefit from continued riparian management that will aim to keep sections of stream banks permanently vegetated with low density broadleaf.

Pine Marten Martes martes
Pine Marten is well established with a breeding population, that is annually monitored, within the forest block. The species makes particular use of the riparian corridor and our efforts to retain mature conifer crop will also benefit.

Badgers Meles meles
Badgers are present in the block. Site surveys are carried out and species licences from NatureScot will be obtained should they be required.
Forestry Practice Guide 9 Forest Operations and Badger Setts is followed as appropriate.

Birds
Various raptors, including Barn Owl *Tyto alba* within the LMP area. The plan provides a mosaic of habitats providing a range resources for different bird species which will increase as the plan is delivered. In-house environmental surveys will provide up to date information on bird species using the area prior to the start of any operations.

4.2.5 Open ground

Managed open ground contributes to nearly 20% of the plan area and there is an expectation that resources will be allocated to maintaining it as open. The open ground areas coalesce around the sludge lagoons, riparian zones, internal ridelines and block margins.
Some natural regeneration will be tolerated in the open ground areas where it is compatible with the plan objectives and comprises no more than 20% of the managed open space.

Sludge lagoons
The Dunragit sludge lagoon area is a fenced off area currently leased on an annual rolling basis by Scottish Water who, given that no sludge has been deposited there for many years, class the asset as redundant. The lagoons are slowly being (re)colonised by nature.
A new 25 year lease for the site is being brokered with the long term aim being continued remediation works, decommissioning of the site and the eventual renunciation of the lease. Until that time operations are to be minimised to mitigate the potential for watercourse contamination.

Riparian zone
All watercourses associated with the plan area will be subject to enhanced riparian buffer zones. There will be no conifer restocking within at least 20m (and on occasion up to 50m and exceeding guideline specifications within the SAC areas) of main watercourses with supplementary native BL planting and areas of open habitat providing dappled shade to assist in improving water quality, protecting soils and benefitting all species using the riparian zone.
Monitoring of these areas will allow us to identify any significant changes, and Scottish Forestry will be notified if these require amendments to the plan. By year 10 the plan area will consist of almost 25% open ground with additional internal open space as a component amongst planted areas.

Fallow clearfell sites will contribute to transitional open space throughout the forest

4.2.6 Dead wood

Deadwood Ecological potential for the plan area is generally medium with discreet areas of high potential within the mature broadleaf area at Dunragit.
Opportunities for retaining or creating deadwood will be identified during the planning of any felling or thinning operation and marked on contract maps favouring areas with the highest deadwood ecological potential. Areas of natural reserve will offer some of the best opportunities for the development of standing and fallen deadwood.
Large diameter standing deadwood is a significant component of parts of the plan area, specifically within the Torrs Warren block where there are many standing mature Corsican pine dead stems that, where it is safe to do so, should be retained as standing deadwood.

4.2.7 Invasive species

Invasive Non-Native Species (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.

Monitoring of INNS is ongoing and FLS will manage the spread from the LMP area of any invasive species identified as per the Region's INNS Policy (that includes the use of biosecurity measures). Species present include *Rhododendron ponticum*, *Gaultheria shallon*, Cotoneaster spp. and Yellow Archangel along with other non-native conifer.

Treatment of common rhododendron throughout the plan area is ongoing.

4.3 Historic Environment

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.

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.

4.3.1 Designated sites

There are two designated Scheduled Monument sites within the plan area, Droughdool Mote and Round Dounan fort. The current FES assessment of cultural significance determines both sites as being of great importance, particularly Droughdool Mote which is of national importance.

SM2016 Droughdool Mote, motte
This monument of national importance is a large man-made mound built on a slightly natural knoll. It is constructed of angular stones, beach cobbles and sandy soil with a covering of long grass with patchy bracken and gorse. Although outwith the scheduled area, in an arc in the woodland to the south you can see the scoop in the ground from which the monument material was extracted. This form should be retained as it is clearly associated with the monument.

SM1995 Round Dounan, fort, Dunragit House
The monument is the remains of a fort of late prehistoric or early historic date sited on a hillock within the policies of Dunragit House, although landscaping has left very little to identify the site as a fort.

4.3.2 Other features

There are other known undesignated historic environment features mainly old buildings and farmsteads in the plan area and these are recorded in Appendix V.

The woodlands around Dunragit House fall within the regionally significant Non-Inventory Designed Landscape (HER ref MDG25567). Forestry guidance on trees and woodlands in designed landscapes should be followed.

There is also the site of the WW2 Accommodation Camp (MDG21095) in the open ground to the north-east of Round Dounan and peripheral features may extend into the wooded area.

Clusters of finds and features, poorly located at source, may have come from the planted area as well as the open ground and may extend across the south-western end of the woodland. Vigilance should be paid during forestry operations in this area.

Within the coastal strip two buildings at Low Torrs are shown on Thomson's map of 1826.

All heritage feature areas will be identified on site before operations commence and will be avoided as appropriate.

4.4 Landscape

4.4.1 Designated areas

The most prevalent Landscape Character Assessment for the Torrs Warren plan area is Coastal Flats, Dumfries & Galloway (158).
Most commonly found adjacent to river mouths and generally lying between sea level and 50 metres this landscape type contains a variety of different character - coastal plain, estuarine flats, intimate coastal parkland, coastal moss, and merse and although each of these nuances has a distinctive character, they share their lowland coastal location as a unifying influence with long views across coastal flats as they merge into the tidal waters of the Solway.
Their key characteristics include

- Land generally flat and low lying with occasional sand dunes
- Exposed long views over the flats out to sea and distant views of opposite coastline
- Predominantly farmed, rural character with sparse isolated settlements
- Wet vegetation in areas of coastal moss
- Occasional dominating conifer forests

The blocks comprising the Torrs Warren management plan are all visible when travelling east west along the A75(T) Dumfries to Stranraer road.
Key landscape issues to consider will be the setting of the three disparate blocks with Dunragit on the periphery of the local village and the linear Torrs Warren plantation on the main view out to sea. Coupe shapes have been simplified and reduced in size, restock species and open space have been designed to diversify the appearance and 'feel' of the area, The proposed LISS areas will help to provide a stability and relative permanence of view.

4.5 People

4.5.1 Neighbours and local community

The Torrs Warren block is entirely bounded to the south by Ministry of Defence open ground (the rump of the SSSI designation) with the re remaining sides and the entire surrounds to the Dunragit and Drochduil blocks comprising open farmland and or the village buildings of Dunragit.

Neighbours and the local community were consulted as part of the plans development through advertised drop-in and site walkabout days.

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.

4.5.2 Public access

The Torrs Warren plantation block is recognised as being of significant importance as an access venue for both visitors and locals. The area provides regularly used informal walking trails, horse riding access and also a core path that runs east through the block looping out to Ringdoo point. Pedestrian access to the motte and within the Drochduil block also exists.

Although not technically a WIAT (Woodland in and around Town), the Dunragit block sits as a backdrop to the village providing an attractive, accessible woodland for the local community.

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.

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 Torrs Warren LMP unit however the possibility remains that the area could be subject to future windfarm and/or mineral extractions applications.

All utilities will be covered by servitude rights on the NFE and all necessary precautions will be taken to locate services on the ground at the work planning stages. This will include robust preparation, liaison with relevant stakeholders and dissemination of emergency and work planning particulars before any operations begin.

4.5.4 Support for the rural economy

The Torrs Warren block forms part of the local landscape that attracts visitors to the area, who take advantage of local businesses and services. Careful forest design along with responsible delivery of forestry operations will provide a positive visitor experience and encourage return visits to the area.

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.

4.6 Soils

4.6.1 Protection and Fertility

See **Map 9** Soils.

There will be minimal soil disturbance and machine movement on sites where appropriate 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.
Operations requiring consent will apply within the SSSI eg. roads upgrade.

4.7 Water

4.7.1 Drinking water

All known private drinking water supply points and pipelines are recorded as a layer in our geographic information system (GIS). GIS is consulted during the work planning process for all forestry operations to aid their protection. Features will be clearly marked on all contract maps, as well as on the ground, and relevant neighbours will be consulted prior to any works commencing. Ground truthing for properties surrounding the block were completed as part of this plan that included identifying catchments of relevant PWS (see Appendix VII Private Water Supplies Consultation (SENSITIVE)). Prior to operational commencement, a pollution prevention plan and site management rules will be established. Roles and responsibilities will be assigned with clear instructions on protocols and contactable people in the event of an incident. All operations will comply with UKFS Forestry and Water guidelines, Forestry & Water Scotland Know the Rules booklet V2, Private Water Supplies: guidance-on-forestry-activities-near-pws-sept-2018.pdf (confor.org.uk) and, where necessary, additional pollution prevention measures will be applied.

In the event of water supply disturbance by operations, FLS will follow due procedure as per the UKFS and relevant legislation, which will involve informing the local authority's Environmental Health department and affected residents. The design of the future forest has incorporated an open space or broadleaf buffers of at least 50m around these supply points and 5m either side of pipelines to

minimise future disturbance. Further description of private water sources within the LMP can be found in Appendix 1 – Description of Woodlands, Hydrology.

As confirmed by Scottish Water, there are no active Scottish Water drinking water catchments or water abstraction sources, which are designated as Drinking Water Protected Areas (DWPA) under the Water Framework Directive within the LMP area.

4.7.2 Watercourse condition

The current status of the water environment around the Torrs Warren plan area has been informed by SEPA's river basin management plan (RBMP) that outlines the condition, protection and improvement of the water environment across Scotland.

This LMP will work towards delivering the RBMP actions through adhering to relevant legislation and 'good working' practices.
Currently the Stranraer ground water (ID: 150577) catchment in the Solway Tweed river basin district covering the LMP area is in overall poor condition but projected to improve to good in the long term.

The Piltanton Burn, (ID: 10484) in the Galloway Coastal catchment of the Solway Tweed river basin district, that flows along the northern boundary of the Torrs Warren block is currently in overall moderate condition but also projected to improve to good in the long term.
Minor tributaries are important for biodiversity, supporting the local fish species and in-turn the local communities with their interest in recreational angling. notably protected, Atlantic Salmon. These rivers are important spawning and breeding areas especially for the nationally declining population of Atlantic Salmon.

The plan area does not impact on or interact with any acid sensitive catchments "at risk" or "failing" and it is anticipated that the proposed scale and timing of our felling in plan area along with increases in open ground and broadleaf cover in riparian zones would have a minimal impact on any water catchment as per the Managing Forests in Acid Sensitive Water Catchments guidance.

Efforts to improve water quality within the land management plan will be realised through continued implementation of riparian zones along water courses that include increasing broadleaf percentages, copses and glades. The Riverwoods Initiative (https://www.riverwoods.org.uk) principles have also been incorporated into the plan where possible to promote and provide a valuable habitat corridor for the important ecosystems in these areas. The proposed increase in open ground and increased areas of permanent broadleaf woodland should result in a greatly reduced operational impact and positive impacts on water quality.

As standard, and to support the improvement to water quality of the area all forestry operations will meet the requirements of the UKFS Guidelines on Forests and Water and follow the good forestry practice advocated by the Forestry & Water Scotland initiative. All necessary precautions will be taken to avoid water quality deterioration, including robust preparation and dissemination of emergency and work planning particulars before any operations begin.

4.7.3 Flooding

FLS has considered the effect that the minor scale of felling planned, along with measures to improve diversity in age structure and to enhance riparian corridors, is likely to have a beneficial impact on downstream flood risk and may contribute to flood alleviation.

Localised flooding potential of the area around the Torrs Warren plan area has been checked using the SEPA Flood Hazard and Flood Risk Information tool to identify localised downstream flood risk areas.

There are no Objective Target Areas (OTA) associated with the plan area.

It is anticipated that our planned operations within the Torrs Warren LMP will have no negative impact on the existing flooding risk within the drainage areas.

4.7.4 Sewage Lagoons

Within the Torrs Warren block, Scottish Water currently lease an area of sewage lagoons on a rolling annual basis and they are keen to agree a new lease for the site for a further 25years (currently under negotiation).

The lagoons are fenced off, not being actively topped up and are slowly being (re)colonised by nature. Scottish Water's long term aim being to carry out remediation works and ultimately renunciate the lease but until that time adjacent operations are to be minimised to mitigate the potential for watercourse contamination.

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Appendix I: Description of Woodlands

Description of woodlands
Topography and Landscape
Map 11. Shows the relevant NatureScot Landscape Character Types (LCT) relevant to Torrs Warren. The 1998 Dumfries and Galloway Landscape Character Assessment classifies the plan area as "Coastal Flats". The Coastal Flats landscape, land generally lying between sea level and 50m, comprises several sub categories one of which, Estuarine flats, dominates the Torrs Warren block. Estuarine Flats are typically located at the mouths of river systems entering the Solway Firth, in this case the R Luce. The key landscape characteristics here are large fields both pasture and arable merging into exposed, very flat ground with open views out to the sea and opposite coastlines. Inland views tend to be more restricted. The principal landscape concerns focus on the effects of large structures in a flat open landscape. A fairly large, linear, relatively even aged, monoculture forest block with limited external links to its surroundings, such as the Torrs Warren block, acts as a highly visible structure and certainly restricts views to the open sea. Telegraph poles and power lines, several of which cut through sections of the Torrs Warren block, are also evident in the flat landscape. In fields adjacent to the DP unit, hedgerow loss through lack of maintenance is also an issue. In developing the design the following landscape specifics have been addressed: "Sympathetically design the siting and orientation of buildings and other structures"; we cannot entirely remove the Torrs Warren block, but over time through continued thinning we should gradually provide more filtered sea views and break the narrow block up into smaller more discrete blocks. All of the blocks are to a degree visible in both near and distant view from the A75(T), the Ayr / Stranraer railway line and the minor road to the south. The Torrs Warren block, linear and fairly uniform in colour and height, is moderately dominant in the landscape. The smaller scale, more blocky Dunragit and Drochduil woodlands with their links to other scattered woodlands are more discreet and fit better in the appearance of the area.
Geology and Soils
The underlying geology at Dunragit is sedimentary greywacke and shales of the Silurian period. The combination of geology and glaciation has however resulted in most of the forest being established on the flat, littoral, "blown sand" or "marine" deposits. Despite slightly higher ground at Dunragit, where small areas of brown earth are found, the block has little topographical definition. Sand dunes and the raised beach at the Torrs Warren block are the only dominant features. The James Hutton Institute "Land Capability for Forestry" classification (previously Macaulay Institute) for the bulk of the plan area including all of Torrs Warren is F5 (land with limited flexibility

Description of woodlands

for growth and management of tree crops), easing to F4 at Drochduil (land with moderate flexibility and down to some small areas of F3 at Dunragit.

Soils types within the forest block are shown on **Map 9**

Climate

Located at the mouth of Luce Bay in the Solway Firth in the south west of Scotland the site has a predominantly mild windy oceanic climate influenced by the Gulf Stream.

Annual rainfall in the block is at the lower end of the range for the district at around 1000mm and falls mainly during the winter months October to February. To the south and west much of the block is exposed to the prevailing Westerly winds with damaging gales likely during the early part of the year.

Guidance on Climate Change suggests that the District can expect an increased frequency of extreme weather events with the climate remaining wet and mild. Whilst there may be little impact on this DP block with regard to primary species choice (mainly pine) there may be future threats to wildlife habitats. The development and maintenance of Habitat networks will be important.

Accumulated temperature (day-degrees above 5°C)

Min: 1729, Max: 1865, Mean: 1805

Moisture Deficit (mm)

Min: 95, Max: 109, Mean: 103

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

	Accumulated temperature (day-degrees above 5°C)									
		>1800	1800-1475	1475-1200	1200-975	975-775	775-575	575-375	375-175	<175
Moisture Deficit (mm)	>200									
	180-200	Warm	Dry							
	160-180									
	140-160									
	120-140	Warm	Moist		Cool	Moist				
	90-120									
	60-90		Warm	Wet						
	20-60				Cool	Wet		Sub-Alpine		
	<20								Alpine	

Hydrology

As confirmed by Scottish Water, there are no active Scottish Water drinking water catchments or water abstraction sources, which are designated as Drinking Water Protected Areas (DWPA) under the Water Framework Directive within the LMP area.

All known private drinking water supply points and pipelines are recorded as a layer in our geographic information system (GIS). GIS is consulted during the work planning process for all

Description of woodlands
forestry operations to aid their protection. Features will be clearly marked on all contract maps, as well as on the ground, and relevant neighbours will be consulted prior to any works commencing. Prior to operational commencement, a pollution prevention plan and site management rules will be established. Roles and responsibilities will be assigned with clear instructions on protocols and contactable people in the event of an incident. All operations will comply with UKFS Forestry and Water guidelines, Forestry & Water Scotland Know the Rules booklet V2, Private Water Supplies: guidance-on-forestry-activities-near-pws-sept-2018.pdf (confor.org.uk) and, where necessary, additional pollution prevention measures will be applied. In the event of water supply disturbance by operations, FLS will follow due procedure as per the UKFS and relevant legislation, which will involve informing the local authority's Environmental Health department and affected residents. The design of the future forest has incorporated an open space or broadleaf buffers of at least 50m around these supply points and 5m either side of pipelines to minimise future disturbance. The current status of the water environment around the Torrs Warren plan area has been informed by SEPA's river basin management plan (RBMP) that outlines the condition, protection and improvement of the water environment across Scotland. This LMP will work towards delivering the RBMP actions through adhering to relevant legislation and 'good working' practices. As standard, and to support the improvement to water quality of the area all forestry operations will meet the requirements of the UKFS Guidelines on Forests and Water and follow the good forestry practice advocated by the Forestry & Water Scotland initiative. All necessary precautions will be taken to avoid water quality deterioration, including robust preparation and dissemination of emergency and work planning particulars before any operations begin.
Windthrow
Map 10 illustrates the DAMS measurements for the plan area. Overall the plan area is quite sheltered and even with significant areas of low density stocked plantation present, there is now only sporadic evidence of windthrow.
Adjacent land use
The Torrs Warren block is bounded to the south by Ministry of Defence open ground (the rump of the SSSI designation). The remaining sides of Torrs Warren and the entire surrounds to the Dunragit and Drochduil blocks comprise open farmland and or the village buildings of Dunragit. Neighbours and the local community were consulted as part of the plans development through a drop-in and site walkabout days. 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.
Public access
Map 13 shows the location of promoted trails and visitor zones.

Description of woodlands

The Torrs Warren LMP provides significant access opportunities for both visitors and locals through regularly used informal walking trails, horse riding access and also the core path that runs east through the block looping out to Ringdoo point

Historic environment

Historic environment records for the forest are shown in **Appendix V.**

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 remove relevant historic environment features from 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).

SM1995 Round Dounan, fort, Dunragit House

The monument is the remains of a fort of late prehistoric or early historic date sited on a hillock within the policies of Dunragit House, although landscaping has left very little to identify the site as a fort.

SM2016 Droughdool Mote, motte

The monument is a large man-made mound built on a slightly natural knoll. It is constructed of angular stones, beach cobbles and sandy soil with a covering of long grass with patchy bracken and gorse.

The current FES assessment of cultural significance determines both sites as being of great importance, particularly Droughdool mote which is of national importance.

There are other known undesignated historic environment features mainly old buildings and farmsteads in the plan area and these are also recorded in **Appendix V.**

Biodiversity

The entire plantation area of the Torrs Warren block lies within the Luce Sands SSSI.

Management objectives include maintaining the dune system, maintaining the diversity of invertebrates and plant interest and maintaining the numbers Greenland White fronted geese and Hen Harriers by providing suitable feeding and roosting conditions.

The assessed condition for the Coastal Geomorphology of the site is favourable (maintained) so the designation does not appear to be a constraint on the future plan.

Description of woodlands
Ancient woodland areas from NatureScot's Woodland Inventory include Fox Wood and Mill Glen Wood within the Dunragit block and Big Plantation and Swamp's Plantation immediately adjacent to the north of the Torrs Warren block and there are significant areas of Long Established of Plantation Origin (LEPO) woodland.
Invasive species
Invasive Non-Native Species (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. Monitoring of INNS is ongoing and FLS will manage the spread from the LMP area of any invasive species identified as per the Region's INNS Policy (that includes the use of biosecurity measures). Grey Squirrel (*Sciurus carolinensis*), *Gaultheria shallon*, Cotoneaster spp. and, particularly within the Dunragit block, Rhododendron *(Rhododendron ponticum),* are all present within the block with treatment of common rhododendron ongoing.
Woodland composition
Illustrated on **Map 8** the current species composition of the forest is mainly first rotation. Current woodland management (and % of plan area): Clearfell (1.5%) CCF / LISS (85.7%) Other/Open land (12.8%)
Plant health
Phytopthora ramorum, Chalara fraxinea and Dothistroma Needle Blight (DNB) (which is endemic) are all present within the plan area. See main text section 4.1.8
Infrastructure
Whilst the plan area is readily accessible from an established network of class A and B roads the forested area is not well roaded. Although no additional infrastructure is proposed extensive upgrade will be required for the Dunragit and Torrs Warren blocks. There are no quarries within the plan area. Boundary fences impact on the plan area along with a series of overhead and underground electricity powerlines ranging from 11kv up to 33kv (see features **map 2**) A gas pipeline also runs close to the northern boundary of the Drochduil block. Scottish Water lease the area covered by the dis-used sludge lagoon within the block.

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
NatureScot John Adair	27.06.23	12.07.23	• Invitation to site meeting 03 Aug 2023 with SF and FLS accepted • Sand dune issues and plantation removal • MOD partnership measures within SSSI • General clearfelling plans and restocking proposals including deer control • Prescribed stocking densities within underplanting areas	Noted within LMP text (sections 4.1.1, 4.1.5 & 4.1.6)
D&GC (Archaeology) Andrew Nicholson	27.06.23	03.08.23	• The woodlands around Dunragit House fall within the regionally significant Non-Inventory Designed Landscape (HER ref MDG25567). Forestry guidance on trees and woodlands in designed landscapes should be followed. • There is also the site of the WW2 Accommodation Camp (MDG21059) in the open ground to the north-east of Round Dounan (for access or extraction, should peripheral camp features extend to woodland. • From the top of Droughdool Motte (Neolithic ritual monument around and into which Bronze Age burials have been inserted) looking south into the woodland you can see the ground scoop from which the monument material was extracted. Although outwith the	Noted within LMP text (section 4.3)

Consultee	Date contacted	Date of response	Issues raised	FLS response
			scheduled area this form is clearly associated with the monument and should be retained. • Within the coastal strip two buildings at Low Torrs are visible on Thomson's map of 1826. The second site is close to the steep bend in the Piltanton Burn and is noted on the HER map in addition to the known farmstead site MDG21482 to the east. • Clusters of finds and features, poorly located at source, may have come from the planted area as well as the open ground and may extend across the south-western end of the Torrs Warren woodland, vigilance should be paid during forestry operations here.	
Scottish Water	28.06.23	01.08.23 28.08.23	Drinking Water Protected Areas: • Records indicate that there are no Scottish Water drinking water catchments or water abstraction sources, which are designated as Drinking Water Protected Areas under the Water Framework Directive, in the area that may be affected by the proposed activity. Scottish Water Assets: • Records indicate that there are no Scottish Water assets (including water supply and sewer pipes, water and waste water treatment works, reservoirs, etc.) in the area. This should be confirmed however through obtaining plans from our Asset Plan Providers. • The lease for this site is in the process of being renewed with FLS. The site has not	Noted within LMP text (section 4.7)

Consultee	Date contacted	Date of response	Issues raised	FLS response
			been remediated and SW will continue to be responsible for the WML	
Old Luce Community Council	27.06.23	25.07.23	• Invitation to OLCC September meeting	Accepted invitation to attend
General Public	27.07.23	01.08.23	• Maintain access for horse riders particularly requiring clarity on use of Drochduil wood • Possible expansion of car park to accommodate horse boxes etc.	Comments noted in LMP text (section 4.5.2)
MOD Iain Robertson	27.06.23	27.07.23	• Email acknowledge	
Neighbour	20.07.23	25.07.23	• General query re. clearfell options	Referred to ongoing updating of consultation web page
Historic Environment Scotland	27.06.23	24.07.23	• Two scheduled monuments identified; Round Dounan and Droughdool Mote • Both monuments in good/stable condition due to recent scrub/rhododendron clearance however universal bracken cover(some gorse) remains an issue as does footfall erosion • Note and welcome heritage site demarcation on Key features and Analysis and Concept maps • Welcome proposed action to manage SMs as per UKFS, HES guidance and agreed asset management plans • For other unscheduled sites contact local authority archaeological advisor	Noted and included within text (sections 4.3 and Appendix V)

Consultee	Date contacted	Date of response	Issues raised	FLS response
General Public (includes Rhins & Luce Red Squirrel Network/Dunragit Angling club/Old Luce Community Council)	17.07.23	17.07.23	• Protection of local Red squirrel population and Grey squirrel trapping • Lack of disabled access (generally and specific Angling club issue) • Deer damage to partnership tree planting along Piltanton Burn • Water quality along Piltanton Burn with particular reference to agricultural pollution • Concerns over large scale clearfell operations • Vegetation management along core path and trails (for physical access and biodiversity) • Control of invasive species (Grey squirrel) • Torrs Warren car parking concerns • Lack of variety of waymarked trail provision • Heritage associated with Numill Cottage • Fire • Wind turbines	Noted within LMP text (various sections)
South Scotland Conservancy, Scottish Forestry	27.06.23	13.07.23	• Scopee list provided	Noted
CONFOR April Armstrong	27.06.23	28.06.23	• Acknowledged email, no formal CONFOR response, will disseminate to relevant members	Noted
SEPA John Gorman	27.06.23	27.06.23	• Condition of SSSI • Sand dunes and coastal geomorphology and presence/absence of plantation	Noted section 4.1.1
Neighbour Ambleside House	27.06.23	27.06.23	• None; acknowledged email and expressed interest in future involvement	Noted

Consultee	Date contacted	Date of response	Issues raised	FLS response
RSPB Ed Tooth / Julia Gallagher	27.06.23	None		
Galloway & Southern Ayrshire Biosphere Ed Forrest	27.06.23	None		
NatureScot	27.06.23	None		
Galloway Fisheries Trust Jamie Ribbens	27.06.23	None		
Vincent Wildlife Trust Stephanie Johnstone Steve Carter	27.06.23	None		
Saving Scotland's Red Squirrels Kathryn Fingland	27.06.23	None		
Visit Scotland Paula Ward	27.06.23	Incorrect address - returned		
Visit Scotland Business Communications	28.06.23	None		
Dumfries & Galloway Council (D&GC)(Access) Simon Fieldhouse	27.06.23	None		

Consultee	Date contacted	Date of response	Issues raised	FLS response
D&GC (Resilience/Floodin g)	27.06.23	None		
D&GC (Roads Network) Mike Grunwell	27.06.23	None		

Consultee	Issues raised from SF and LMP being on public register	**South Region Response to consultee**	**SF Consideration**
Galloway & Southern Ayrshire Biosphere; Sara Press	• Safeguarding dune habitat (and supporting returning designated dunes area to a more mobile state) on FLS portion of SSSI while taking account of public use • Options for clearing marketable trees and planting low density native broadleaf • Possible introduction of cattle grazing • No planting of sand dune habitat	• The long term vision for Torrs Warren block is for the retention of the plantation for aesthetics and coastal amenity within a gradual transition over time to a climax vegetation community of semi-natural coastal heath under an open oak and birch woodland • A single coupe is identified to the east where we will specifically under plant with native broadleaf (Birch and Oak), however the overall transition of the block to broadleaf woodland will be achieved through gradual group shelterwood thinning with an associated natural regeneration of native broadleaf • Whilst most of the sand dune habitat is actually located to the south of the Torrs Warren block (on the MOD site) what does lie on FLS ground will be safeguarded as far as possible and not restocked • There may be limited partnership opportunities to combine future grazing management of the SSSI area	•

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 FCS, 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 FCS 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

	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, eg Sitka and Norway Spruce. Up to 3 planting seasons after felling		
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 proposals that include larch or closely related species in the same genus, eg 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 the 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 Regional Council
Approval by formal plan amendment is required	Advance felling into current or 2nd phase for pre-emptive larch removal			Where a new public highway entrance or exist is required. Where necessary Prior Approval should be dealt with directly with the relevant Regional Council

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

Historic Environment Records					
Designation	Name	Feature Description	Grid Reference	Importance	Area (ha)
Scheduled monument	Round Dounan, fort	Knoll stands 3-4m above surrounding ground, is roughly circular with a level summit approximately 20m in diameter. There is no apparent bank or rubble of an enclosing wall visible around the edge if the summit. The bedrock of the hillock is partly exposed on the east and southeast sides. A level terrace around 2m wide running around the west side of the knoll bounded by a 0.5m outer bank presumably denotes the line of a defensive ditch. An informal footpath follows the terrace and there also appears to formally have been a narrow path to the summit terraced into the west slope of the knoll.	NX 14855796	5 High significance	0.51
Scheduled monument	Droughdool Mote, motte	The site is located in a large clearing on the north edge of mature conifer plantation with open views to the north across flat agricultural land. Prominent and clearly visible from the A75(T) the site is accessed by a well-used grassy track from the public road to the west with an informal path to the summit worn in the grass on the northeast side. The mound is approximately 50m in diameter at its base, stands some 10m high and has a roughly level summit. Previously thought to have been a medieval motte(castle earthwork), recent excavations indicated there was no surrounding ditch and have dated the mound to the Neolithic	NX 14825686	9 Great significance	0.35

Historic Environment Records					
Designation	Name	Feature Description	Grid Reference	Importance	Area (ha)
		period. It is now interpreted as one of the focal points in a complex of prehistoric ritual monuments at Dunragit, akin to Silbury Hill in Wiltshire.			