



Long Term Forest Plan  
for  
Tiroran Community Forest  
  
2019-2038

## A. Description of Woodlands

### A.1 Property Details

Property Name:	Tiroran Community Forest		
Business Reference Number:	229737	Main Location Code:	68/165/0167
Grid Reference: (e.g. NH 234 567)	NM481301	Nearest town or locality:	Pennyghael
Local Authority:	Argyll and Bute		
LTFP Plan area (hectares):	789.75		

### Owner's Details

Title:	Ms.	Forename:	Morven
Surname:	Gibson		
Organisation:	SWMID	Position:	General Manager
Primary Contact Number:	01681 700021	Alternative Contact Number:	
Email:	mgibson@swmid.co.uk		
Address:	Columba Centre, Fionnphort, Isle of Mull		
Postcode:	PA66 6BH	Country:	Scotland

### Agent's Details

Title:	Mr	Forename:	Steve
Surname:	Miller		
Organisation:	Tilhill Forestry Ltd	Position:	Senior Forest Manager
Primary Contact Number:	01631 562906	Alternative Contact Number:	07887 630660
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Address:	Tilhill Forestry Ltd, Glencruitten Road, Oban		
Postcode:	PA37 4DW	Country:	Scotland



## A.2 Location and Background

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

At almost 790 hectares, Tiroran Forest is situated on the northern side of Loch Scridain on the flanks of Glen Seilister near Tiroran - bisected by the minor public road B8035 (see Map 1 - Location). It stands approximately 8 km west of the junction of the B8035 and A849 Craignure-Fionnphort road and is 35km (by road) west of Craignure.

Previously owned by Forestry Commission Scotland, the primary objective was commercial timber production, the forest was then acquired in 2015 by local community company South West Mull and Iona Development (SWMID). Community ownership and management of the forest was envisaged as playing a significant role in supporting the broader aims of the organisation: delivering regeneration through enhancing community competency and resilience, securing a competitive and prosperous economy, and developing attractive, sustainable settlements.

The most significant forest management activity undertaken in recent years has been extensive felling and extraction operations associated with 18 SPHN's for *Phytophthora ramorum* on larch (2011-'18) - including clearance of some adjacent and intimate mixed stands of maturing plantation (mainly spruce). This urgent and obligatory work has superseded all felling as scheduled and approved in the South Mull Forest Design Plan 2007-2017 (Lorne Forest District: FM 11/2/01) and thus thwarting early ambitions of SWMID to inherit and continue this commercially oriented felling schedule albeit to address new, broader, long term community aims.

In consequence there is currently over 170.23 ha of felled land awaiting planting as well as 202.63 ha of mature standing timber that might otherwise have been felled if the requirement to act on SPHN obligations had not arisen in intervening years.

The forest hosts a breeding pair of white-tailed eagles which utilise one of two nests there annually. The birds are an important seasonal attraction for visitors and island wildlife tourism in general. The general topography of the glen offers good nest and flight viewing at safe/tolerable distances from several internal forest vantage points (with some rudimentary hide/shelters & interpretation currently provided).



### A.3 Existing Schemes & Permissions

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

Type (e.g. Felling Licence)	Ref. No.	Details
Felling Licence	01711	Felling trees around SPHN ST17 802
Felling Licence	02612	Felling trees for access to SPHN STH16 150/151
Felling licence	02602	Felling trees for SPHN for STH16 139, 140, 141, 148

### A.4 Stakeholder Engagement

Include a summary of the main points from Scoping and where they are addressed in the plan. Append pre- and post- scoping maps, and the full Scoping Report.

Scoping – Main Points	LTFP Reference (section/page):
<p>Please refer to appendices for Scoping Report, maps and responses to scoping.</p> <p>Scoping documents were circulated via email and advertised on social media. Two public consultation events were held (advertised in the local press, community noticeboards and on social media). Immediate neighbours of the forest were also contacted directly as part of the scoping process.</p>	See Appendices 1.0 to 1.4



## A.5 Long Term Vision and Management Objectives

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

### Vision

Describe your long-term vision for the LTFP area.

**Tiroran Forest will be a unique, welcoming, attractive and sustainable asset for current and future generations of the communities of South West Mull and Iona and visitors.**

This will be achieved by maximising (and re-investing) short to medium term income derived from maturing export timber stocks in:

- landscape-scale restructuring: increasing species & age diversity - in turn improving forest resilience in a changing climate – to ultimately support sustainable local livelihoods based on future export timber, local value-added forest products & non-timber enterprise;
- maintaining and significantly improving public, recreational access provision (trails, wildlife & local heritage interpretation etc) and associated infrastructure for both locals and visitors to the forest.
- protecting, nurturing and expanding the forest’s currently limited suite of resident native wildlife and habitats – as both an end in itself as well as for the greater appreciation and understanding of others.

## Management Objectives

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

No.	Objectives (including environmental, economic and social considerations)	Indicator of objective being met
1	To maximise the return (quality and income) from mature & maturing timber crops.	Completion of a significant programme of clearfell harvesting and timber export across Phases 1 to 4 (see Table 3 for areas and Map 4 – Felling) capitalising – particularly in early phases - on substantial mature timber volumes which must be exported within public road weight constraints.
2	To increase species and structural diversity across the forest - yielding a broader suite of forest products and establishing long term continuous, lower impact cycles of harvesting and re-stocking.	Completion of <b>10-year restocking programme</b> : including eight years @ minimum 25 ha p.a. (see Map 5, C.2.5 & Table 5) with a broad range of coniferous & deciduous tree species planted across the wide range of soils/micro-climates. Structural diversity resulting from optimal and sub-optimal growth rates as well as the mosaic of productive and longer retention amenity/native woodland planting will lead to an increasingly divergent thinning/felling programme beyond Plan period.
3	To increase forest access for recreation, education and the enjoyment of the local community and visitors – actively planning and managing for any potential conflict between scheduled management operations and the needs of the public and sensitive wildlife species.	<p>SWMID will continue to employ a <b>Community Forester</b> responsible for oversight of all forest activity – planned and incidental.</p> <p>This role will continue to initiate &amp; promote <b>community engagement</b>: school/pre-school visits &amp; field work, holiday activities, local history group work, arts &amp; crafts projects, liaise with/support local/regional wildlife tourism providers. Regular presence at the forest for public interaction.</p> <p>Utilise existing channels of <b>communication</b>: SWMID newsletter &amp; social media, AGM &amp; other public meetings/market stalls – to keep local stakeholders &amp; wider public informed as well as maintain an <b>‘open door’ policy</b> at SWMID office for drop-in discussion: wildlife sightings, new ideas &amp; concerns.</p> <p>Research and production of a <b>Forest Recreation &amp; Access Plan</b> (see C.2.9 -during Phase 1) laying out strategic priorities for new forest access for the widest spectrum of potential forest users.</p> <p>Determining themes for new environmental &amp; cultural/local history interpretation.</p>



No.	Objectives (including environmental, economic and social considerations)	Indicator of objective being met
4	<p>To investigate opportunities for new woodland-based enterprise: seeking to maximise local use of and value from the forest and its timber/non-timber resources.</p>	<p>Explore options - including possible collaborative working with community and/or island-wide partners - through a formal <b>Master Planning exercise</b> to be undertaken during 2019 – 2024.</p> <p>Developmental themes for consideration include <b>local timber processing, forest crofts, visitor &amp; eco-tourism facilities, green burial site, and renewable energy production.</b></p> <p>All options to be appraised within the context and constraints of the LTFP, Local Development Plan and related planning regulations.</p>
5	<p>Enhance the quality of watercourses and associated riparian habitats (quality, extent &amp; inter-connectivity) in the forest.</p>	<p>Adherence to operational guidance as per FC Practice Guide 25 – <i>Managing forest operations to protect the Water Environment</i> and compliance with UKFS <i>Guidelines on Forests and Water.</i></p> <p>Recognition in all restock planting design that forest margins bounding riparian corridors (and buffer zones) be planted with native broadleaved tree/shrub species. Measurable through GIS sub-compartment database &amp; shape file recording and ground truthing.</p>
6	<p>To protect and promote archaeological sites and heritage features within the forest</p>	<p>Adherence to UKFS Historic Environment Guidelines in all programmed forest operations.</p> <p>Long term conservation of open ground ‘context’ for key sites with routine seasonal/annual vegetation management particularly through imminent &amp; prolonged period of deer control.</p> <p>Continue to work with local group ‘Pennyghael in the Past’ to conserve and promote the ruined settlement of Knockroy and other identified features of the cultural landscape.</p>
7	<p>To control red deer numbers to minimise damage to restocking, existing trees and enable natural regeneration.</p>	<p>See C.2.6 and Appendix 6 Deer Management Plan. Measurable by monitoring of establishing restock and natural regeneration in the vicinity of mature native woodland refugia.</p>
8	<p>To manage the forest to UKFS and UK Woodland Assurance Scheme standards.</p>	<p>Continue to maintain compliance with these standards – evidenced through continuing Forest Stewardship Certification scheme accreditation.</p>



## A.6 General Site Description

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

### A.6.1 Topography

The property's terrain is considerably varied - spread across both sides of a U-shaped glen – with the ground rising from 10m above sea level to 250m on the western flank and 350m on the eastern flank. Towards the 'mouth' of the glen, the valley floor is broader and flat with gentler side slopes. Further upstream, the extent of valley floor diminishes with the side slopes rising more directly from an incised river gorge. Due to underlying geology there is some moderate terracing of the side slopes with short sections of more vertical escarpments and some exposed rock outcrops. The river (Abhainn Baile a' Mhuilinn) has cut a deep passage through sections of the glen floor with a number of fast-flowing permanent watercourses feeding into it. Many of these emanate from uphill catchments originating above and beyond the property boundaries.

The western afforested block has a general east to southeast aspect. The eastern bloc has a predominantly west to south-western aspect.

Towards the mouth/southern end of the glen, the property (and afforested blocks) is fairly exposed to coastal winds coming off (sea) Loch Scridian to the south, which can be prolonged and frequently severe in winter periods.

### A.6.2 Geology and Soils

The geology at Tiroran is predominantly 'Torosay' which consists of tertiary basalt lava complexes. The underlying bedrock is therefore relatively hard wearing (slow weathering and resistant to fluvial erosion) and generally impervious to rain and surface waters. Due to glaciation, the flatter glen floor has overlying mixed glacial till deposits allowing water percolation through this overburden.

Much of the site has a moderately high level of organic matter build-up over parent rock/till material. The soils on glen side slopes and terraces consist of mostly peaty gleys and rankers (~55%) with some more extensive areas of peat (~20%) on flatter terraced ground and podzols on slopes. The glen floor has a greater proportion of brown earths (forest brown earths and brown rankers) on account of its better drainage character.





No formal soil survey data exists for Tiroran. Soil depths, wetness and fertility are broadly reflective of topography and associated geomorphic influences (re. aspect, gradient, altitude, exposure/shelter etc), however some distinct variability in tree crop growth – even within individual sub-compartments - is evidence of some extremely localised variability.

Most soil types appear fairly nutrient rich for planted conifers despite the site tending to have moderate to poor drainage particularly on its western flank. There are also some areas of rock scree, although these still support self-seeded broadleaved trees due to their inherent fertility.

#### A.6.3 Climate

The mean average temperature range for Tiroran is 7°C to 16°C. The mean average rainfall is approximately 120mm a month.

#### A.6.4 Hydrology

There are numerous permanent watercourses flowing through the forest. SEPA RBMP records that there are no water bodies within or adjacent to the plan area which are at “less than good” ecological status/potential as a result of forestry activities. The main waterbody within the plan area (10346: Abhainn Baile a Mhuilinn/Allt Chreaga Dubha), presently confirmed at good ecological status. All smaller burns within the forest flow into the Abhainn Bail a Mhuilinn.

#### A.6.5 Windthrow

The Windthrow Hazard Classification for the forest ranges from 2 (moderately low risk) to 6 (high risk) on account of the variable aspect and altitude range across this large and varied landscape.

Currently there are scattered, patches of windblow (endemic not catastrophic) across the property. These are typically associated with lodgepole pine on shallow, wetter soils on relatively open/exposed slopes (multiple areas on both western and eastern flanks). On the eastern flank, the exposed margins of well-grown and mature Sitka spruce stands - where boundary larch has been felled in recent years due to SPHNs – have several pockets of extensive windblown trees as well as incremental/annually increasing windblow within these crops.

#### A.6.6 Adjacent Land Use

Due to the size of the property (and its long perimeter), adjacent land use is



varied:-

On the southern coastal boundary there are discrete areas of commercial forestry plantation, coastal native woodlands and mixed forest amenity gardens.

The west and north-western (upland) perimeter is bounded by Ardmeanach SSSI – notified for open ground vegetation (sub-alpine/montane habitats, calcareous grassland) and maritime cliffs.

The upland north and eastern boundary adjoins farmed estate: extensively grazed heath/grassland (sheep and cattle). To the south east, this grassland has been improved – as too have adjoining fields to the south on the glen floor (permanent grassland for pasture). There is a large block of (maturing) non-native coniferous plantation on this neighbouring estate ground at 500m from the south eastern perimeter.

#### A.6.7 Access

See Map1 – Location

##### *External*

The main forest access is located just off the B8035 between Balmeanach and Balevulin - 8.6km west of its junction with the A849. The Argyll Timber Transport Group (ATTG) classifies the B8035 as a Severely Restricted Route. Consequently, permission for any timber export by road must first be notified and agreed with Argyll & Bute Council and the Argyll Timber Transport Forum. Exported timber is typically dispatched for mainland and European markets from the floating pier facility at Pennyghael on the A849 (an approved timber haulage route).

##### *Internal*

A limited number of Cat 1A internal forest roads currently serve the forest (see Maps 1 – 6), providing a very basic level of vehicular access for establishment and management purposes and supporting harvesting/export activities to date. Beyond these roads, there is a network of open, grassy forest rides throughout all commercially afforested areas which provide moderately easy pedestrian/ATV access to most areas of the property.

There are no existing Public Rights of Way, but the main forest roads are used routinely throughout the year by small numbers of people for walking etc. The nesting/breeding activity of a pair of white-tailed eagles is an annual spring/summer attraction to bird enthusiasts and wildlife tour groups. Some rudimentary interpretive information and wildlife viewing areas have been established to service these visitors.



**A.6.8 Historic environment**

There are no Scheduled Ancient Monuments/Listed Buildings/Designed Landscapes within the forest. 8 NMRS sites have been recorded:

Archaeological Feature	WOSAS Pin No.	Scheduled	Within Woodland
Flint Arrowhead	459	N	Y
Old Road; Building	460	N	N
Corn-drying Kiln; Shieling-hut	462	N	Y
Settlement	463	N	Y
Settlement	464	N	Y
Shieling-hut (Possible)	19326	N	Y
Pottery; Flint Flake	507	N	Y
Pottery; Flint Flake	508	N	Y

Additional archaeological features within the forest are recorded and mapped by SWMID (see C.2.10 for further discussion and Appendix 4).

**A.6.9 Biodiversity**

Within Tiroran Forest, there are scattered, isolated and very limited areas of native broadleaved trees - typically at the margins of ploughed/afforested ground (e.g. undisturbed rock outcrops/cliff lines and on the banks of permanent watercourses). There is an area (less than 3 hectares) of coastal hazel wood (W9 Upland Mixed Ash woodland) outwith the managed plantation area at the southern coastal margins of the property, representing the largest contiguous area of semi-natural woodland (see Map 2 – Current Species).

The most extensive, inter-connected semi-natural habitats within the property are the wet/dry heath mosaic and mire that adjoins most afforested areas and watercourses. The extent and condition of these habitats does not appear significantly impacted by formative drainage and ground disturbance imposed during the era of wholesale afforestation (1962-1992). It generally supports a typical but unremarkable range of native fauna and flora e.g. insects, amphibia, small mammals, birds and ground flora (lower plant and vascular species). There are no known resident EPS plant or animal species on site, however otters have been seen around the bridge on the Abhainn Baile a Mhuilinn. Marsh Fritillary butterflies have been reported within the forest – a species classed as vulnerable



(see also C.2.11)

An active breeding pair of white-tailed eagles are resident in the forest as the only Schedule 1 species. It is possible that other raptors (e.g. buzzard, sparrow hawk and merlin) may also utilise the forest for nesting, roosting and hunting.

#### A.6.10 Invasive Species

*Rhododendron ponticum* is present within the forest, but only in small localised areas of long-term retention woodland (LEPO) in compartment 201. The risk of spread is considered Low at present.

### A.7 Woodland Description

Provide a brief description of woodland types and any relevant past management. Also complete the Tables below, with reference to Appendix 2 of the Long Term Forest Plan – Applicant’s Guidance.

Tiroran Forest covers 790 hectares of which 181 hectares (or 23%) is permanent open ground – this mostly towards the upland extremities of the property. There are still a number of small discrete stands of coniferous woodland established between the 1870’s and 1950’s (total area: 33 ha) when the estate was managed primarily for livestock grazing/production but with smaller fragmented areas of plantation. However, the majority of the currently standing forest results from two concerted periods of bare land afforestation undertaken during Forestry Commission ownership: in 1962/63 (129.83 ha still standing) and in 1972/73 (239.78 ha). There is a further 65.51 hectares planted in 1992/93 – but this mostly second rotation restock. Since 1993, only 3 ha of restocking has been undertaken (in 2002).

With most stands of larch now clear-felled on account of SPHNs, Sitka spruce and Lodgepole pine are the two dominant tree species across the forest (see Table 1) - the former planted largely on lower fertile ground in the 1960’s, the latter on the higher flanks and terraces of the glen in the 1970’s. This has resulted in a marked difference in forest character (i.e. tree growth and timber form) between the two planting phases: spruce having yield classes in the range 14-22 range and for lodgepole pine typically 6-12. The pine also has some extensive stands showing the defoliating impact of fungal blight which is further impacting tree growth rates there.

Despite an ambition by Forest Enterprise Scotland to instigate a fairly well dispersed, small-coupe clearfelling regime - expressed in the last approved LTFP



in 2007 - most felling undertaken since 2008 has related to larch infection SPHNs with clearfelling of adjacent windblow-prone timber crops. With minimal restocking in the last 25 years and over 130 ha of clearfelling there is currently a total of 170.23 ha of fallow ground awaiting restocking.

**Table 1 - Area by species**

This table shows the current and future species composition within the Long Term Forest Plan area. See also Map 5 – Restocking Plan (Species 2039).

Area by species						
Species (Add relevant species groups, or OG/OL)	Current*		Year 10*		Year 20*	
	Area (ha)	%	Area (ha)	%	Area (ha)	%
SS	197.81	25.0	110.87	14.0	192.24	24.3
LP	238.04	30.1	204.06	25.8	0.29	0.0
DF	3.56	0.5	36.98	4.7	21.69	2.7
NF	0.75	0.1	26	3.3	20.69	2.6
SP	0.35	0.5	26	3.3	30.5	3.9
NS	0	0.0	26	3.3	28.6	3.6
MB	2.08	0.3	103.28	13.9	190.16	24.1
OL	182.97	23.2	253.12	32.0	278.58	35.3
WRC	0	0.0	0	0.0	27	3.4
PL (productive land awaiting restock)	164.19	20.8	0	0	0	0
<b>Total</b>	<b>789.75</b>	<b>100</b>	<b>789.75</b>	<b>100</b>	<b>789.75</b>	<b>100</b>

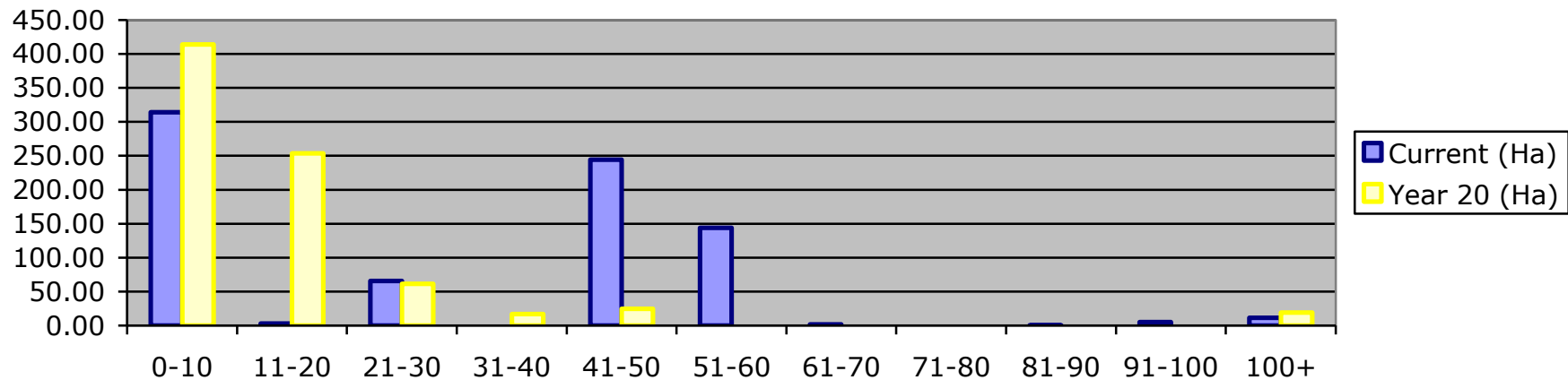
\* Of whole Forest Plan area (including open ground (OG)). Any mixtures such as Mixed Conifer (MC) should be broken down and included as an individual species component where a species occupies more than 10%.

**Table 2 – Area by age**



This shows the woodland area broken down by age class and how well the woodland is distributed across the age classes.

Age class (years)	Current	Year 20
	Area (ha)	Area (ha)
0-10	314.08	414.24
11-20	3.11	253.60
21-30	65.51	61.49
31-40	0	17.03
41-50	244.22	24.55
51-60	144.09	0
61-70	1.51	0
71-80	0	0
81-90	0.48	0
91-100	5.13	0
100+	11.62	18.84
<b>Total</b>	<b>789.75</b>	<b>789.75</b>



## A.8 Plant Health

Provide details on any known plant health issues within the LTFFP area and their effect on the forest plan.

Between 2011 and 2018, eighteen SPHN's have been served on the property for presence of *Phytophthora ramorum* on Larch. All infected and notified trees have been felled within the property to date – a cumulative total of 53.34 ha - but are awaiting replanting (see C.2.5).

## B. Analysis of Information

### B.1 Constraints and Opportunities

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

Factor	Constraint	Opportunity
<b>Crop Stability</b>	Mature, even-aged conifer stands on exposed upland terraces and on eastern flanks and coastal margins are most vulnerable to windthrow. The risk increases where small-scale or partial felling and clearance have compromised windfirm edges.	Restocking with deciduous broadleaved trees on eastern flanks and on exposed margins of all future conifer stands offers increased future wind stability.
<b>Soils</b>	Large areas of afforested woodland are planted on perpetually wet and/or peaty soils.  Soils on sloping glen sides may be susceptible to erosion through clearfelling, timber extraction and fallow phases.	Opportunity through felling/restructuring of upland forests to create new open ground and upland/montane woodland mosaic as natural reserves with minimal consequent management input (and soil impacts).  Establishment of extensive deciduous woodland on well drained slopes and on forest brown earth soils/rankers will assist soil formation processes and associated ecological functionality.
<b>Landscape</b>	The current forest outline is very angular and internal crop distribution fairly 'blocky' and	Opportunity to use natural landform features to better integrate discrete and different areas of forest crop into the context of the overall forest.





	geometrical.	Larger tracts of native woodland (productive and for long term retention) could be planted on visually prominent slopes and where edge woodland is most visible from common external vantage points.
<b>Archaeology</b>	Requirement to conserve and protect Knockroy village and other identified heritage features.	The cumulative assortment of archaeological/historical features constitute an interesting (and relatively well documented) cultural landscape. Better, fuller on-site interpretation could relate an interesting history of land occupancy and use for both its local resonance and educational role as well as broader tourist interest.
<b>Water courses</b>	Current forest structure has non-native coniferous trees planted up to the banks of most water courses.	Riparian corridors could be opened up (cleared of neighbouring non-native conifer stands) to encourage native ground flora. Supplementary low density native woodland planting - where no natural regeneration and establishment can be expected - would improve structural diversity and ecological function along these significant wildlife corridors.
<b>White-tailed eagle</b>	Under legislation, all nests and permanent roosts are protected and any disturbance of the birds is a criminal offence.	Current ongoing and regular dialogue between SWMID, its subcontractors and the RSPB already works to pre-empt potential disturbance of any planned operations. This dialogue could be extended into consideration of new, sympathetic development of public access and better, formal infrastructure for wildlife viewing.
<b>Timber traffic</b>	The only public road linking the property to the A849 is very weak in places (a Severely Restricted Timber route) and can be busy at peak tourist season.	Export from the floating pier facility at Pennyghael reduces haulage over the alternative export pier at Craignure – a saving of 30 miles per 24-tonne exported load).  There is an opportunity to support ambitions on neighbouring Kilfinichen estate to establish new timber storage and marine export capability within two miles of the forest. This could result in a further reduction in round trip haulage of 14 miles/24-tonne load as well as a reduction in associated impacts (physical wear & tear to road surfaces & formation, leisure traffic use/conflicts).

<b>Invasive species</b>	<i>Rhododendron ponticum</i> is present in the southern end of the forest in long term retention and semi-natural woodland stands.	
<b>Cnuic agus Cladach Mhuile SPA</b>	The forest is not part of the SPA, however the SPA surrounds the forest in its entirety.	Restructuring to give a greater proportion of native habitats – both woodland and open ground – could help increase extent of hunting terrain, nesting/roosting opportunities and prey/food resource.  Long term retention of discrete areas of windfirm conifers (including two with existing WTE nests) will conserve, possibly increase, species' residency in the forest.
<b>Ardmeanach SSSI</b>	Although all designated ground is outwith (and uphill) of the forest, it is important not to adversely affect its condition and integrity during operations, deer control measures and future public/recreational access planning.	All non-native afforested ground bounding the SSSI could be restructured to heath/native upland woodland mosaic (natural reserves) through Forest Plan felling sequencing and restructuring – buffering the designated ground with sympathetic, long term retention native habitats.
<b>Private Water supplies</b>	Several private water supplies originate on the eastern flanks of Tiroran Forest.	Follow-on restocking with broadleaved deciduous woodland could improve soil quality, water retention and porosity within supply catchments as well as enhance the environs of contributory watercourses.
<b>Outline how you intend to incorporate the constraints and opportunities into the management objectives.</b>		
<p><b>Crop stability</b> factors have informed Phase 1 and 2 felling proposals in particular, which prescribe comparatively large felling coupes to pre-empt potential loss in timber quality/volume and unwanted ground upheaval that resultant windblow that a smaller, more disparate 'patchwork' felling regime might bring about. Restriction on the permissible annual gross export timber tonnage (on linking B8035) requires each complete Phase being sub-divided into sequential, annual harvesting programmes. Inevitably there will be increased windthrow risk when operations have only partially clear felled a complete phase but this risk is transient and insurmountable given the even-aged maturity of the early phases and the restrictions imposed on public road haulage.</p>		

The shortwood harvesting system prescribed for all clearfelling and extraction will utilise (and maintain) brush matting with lop & top to protect **soils** during timber extraction – with routes chosen to limit rutting and vertical descents that could exacerbate soil erosion. Restocking will primarily consist of mechanical mounding however where this might adversely impact soils through compaction and/or unnecessary soil disturbance manual screening will be considered. SWMID will undertake a peat depth survey in the areas identified as having potential to have deep peat, to take place during phase 1, and before any restocking takes place. We will involve SNH in any discussion around potential peatland restoration projects in appropriate areas.

The angularity of boundary forest blocks will be reshaped in restocking prescriptions following clearfell – with scalloped and lower/variable density restocking of native trees (and integrated open ground) toward property boundaries - improving integration of the forest into broader **landscape**. Internal crop divisions will utilise watercourses, road lines and escarpments/terraces to delineate woodland with zones of different silvicultural composition/management prescription.

SWMID are to produce a Recreation and Access Plan for Tiroran Forest (during Phase 1) which will scope/outline increased access of the forest for a wide variety recreational uses through community consultation including defining and prioritising interpretation of **archaeology**/historical features in the forest. As with clear-felled (now open) ground in the vicinity of Knockroy settlement, future clearfelling will reveal new features (dykes, shielings, trackways and other settlement structures) - contributing to an emerging cultural history – but bringing additional landowner responsibilities for heritage conservation (e.g. vegetation management) within the context of broader forest restructuring (e.g. low deer numbers).

Operations around **water courses** will be managed in accordance with UKFS Forest and Water Guidelines to mitigate leaching and run-off of phosphate and nitrate from the land. All forest machine crossing points will be bridged with logs to provide access for operations if required. All restocking prescribes native woodland restocking along riparian corridors with low density (manual ground prep) planting on sections of banksides where dappled shade, leaf litter and shrub/tree cover/structure all contribute to a more resilient, diverse and inter-connected riparian environment.

Both **white-tailed eagle** nesting sites have been retained (within significant blocks of long-term retention conifer) during clearfell harvesting undertaken in 2017 & 2018/19. As a consequence, the most prescient threats to the bird's utilisation



and breeding success at Tiroran is not the preservation of existing nest sites but the potential for disturbance from forest operations or public access at generally less than 500 metres (and critically below 250 metres) from the nest during March (egg laying) to early August (fledging). Close liaison and planning with Mull RSPB staff will ensure bird activity is adequately monitored and discussed with regard to requirement for contingency site measures (e.g. cautionary signage, temporary trail/hide closures) that may possibly be required at critical locations or times of the year.

**Timber haulage** from the forest - along the B8035 - is only undertaken upon prior agreement of a Weight Restriction Exemption Permit (including a Timber Transport Management Plan) with Argyll and Bute Council (see Appendix 3). At the time of Plan creation, there is ongoing discussion with Kilfinichen estate as to possible use of export facilities expected to be constructed there within the next few years.

*Rhododendron* growth and expansion is monitored by SWMID community forester to inform any (non-chemical) control and eradication measures – undertaken by local & conservation volunteers – to prevent any anticipated spread that might adversely impact native flora and habitat.

**Private water supplies** will require protection through all forest operations - in the vicinity of catchment watercourses, abstraction points and supply pipes/conduits. Prior to any works commencing, a works plan will be drawn up in line with SEPA guidelines, and measures put in place to prevent contamination of supplies. Subsequent LISS forest management of predominantly productive and amenity broadleaved woodland in consequent decades (outwith Plan period) will reduce future potential supply disruption.



## C. Management Proposals

### C.1 Silvicultural Practice

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

Silvicultural policy over the next twenty years will continue the sequential clear-felling and restocking of first rotation crops which are unsuitable for Low Impact Silvicultural Systems (LISS) management given their size, age and risk of wind damage. Younger 2<sup>nd</sup> rotation stands (p2000 or later) in the more sheltered lower glen can be given a first thinning (motor-manually) to establish the use of LISS management in the future. This prescription will be applied to all proposed restock undertaken over the next two phases, subject to individual site constraints such as wind firmness and productive (commercial), amenity or native woodland objectives - to achieve as much LISS management as is realistic at this locality.

Felling and restocking proposals are shown in Maps 4 and 5.

The age class gap created following the next two phases of felling is unfortunate but is to some extent a symptom of the 'pulses' of historical planting effort (2 substantial afforestation periods: 1962/63 and 1972/73) and their subsequent growth/performance. Well grown p62/63 Sitka spruce (YC18-22) having now reached maturity and requiring felling for overall crop stability and to ensure safe accrual of timber income/restructuring investment in phases 1 and 2.

Restocking will aim to maintain some of the commercial element of the woodland while greatly enhancing amenity, landscape and biodiversity values. Re-planting a more fragmented mosaic of stands - using a broader suite of productive conifer species on lower ground than currently (greater proportions of Douglas and Noble fir, Scots pine and Norway spruce and Western red cedar) as well as productive and amenity broadleaves (oak, sycamore, silver birch, beech, downy birch, alder, rowan, holly, elm) will begin to introduce coupe separation in consequent thinning and felling regimes on account of varying growth rates across the diverse species range but also in terms of actual interventions required (broadleaves vs conifers).

## C.2 Prescriptions

Provide maps as set out in Applicant's Guidance and complete associated Tables. Provide any further details required along with map references.

### C.2.1 Felling

Save for intended long term retentions & natural reserves elsewhere on the property (see C.2.4), conifers planted on the eastern flanks of the glen are the oldest crops in the forest (p62/63) and now approaching Terminal Height. Therefore, felling phases 1 and 2 in particular (see Map 4) are planned to take account of the optimum felling age of the crop – and also predicated by windthrow risk -but to do so incrementally (annually) on account of the annual constraints on export timber haulage along the public road.

As with all felling operations undertaken for SPHNs in recent years, it is anticipated that most, if not all, harvesting and extraction to roadside will be carried out using a short wood system. Prior to felling a pre-operational walkover is carried out and used to identify (and tape off) any archaeological/historical features and survey for (and adapt to avoid) any environmental sensitivities or potential wildlife disturbance.

All forest operations will comply with Forest and Water Guidelines 5th edition, Water Environment Controlled Activities (Scotland) Regulations 2005 (CAR) General Binding Rules for appropriate buffer strips between working machinery and water bodies and GBR11 and GBR21 in respect of surface water drainage.

### C.2.2 Thinning

(See Map 4) There are a few smaller areas of mid rotation Douglas fir and Sitka spruce that would benefit from an early formative thinning favouring the Douglas fir, increasing its medium term amenity value but providing a better quality sawlog from a LISS managed stand. Pure Sitka spruce – younger and adjacent to the fir - should also be thinned in this way during Phase 2. These stands will also be developed towards continuous cover forestry if intervention is properly managed.

### C.2.3 LISS

Within the central, separately-deer-fenced enclosure in the glen floor, it is proposed that formative (non-commercial, motor-manual) thinning will be carried out to develop a continuous cover forest on all p1992<sup>+</sup> re-stocking and into the future (see C.2.2). As yet there are no areas of established LISS requiring



formal operational management within Plan period. Early motor-manual cleaning and pruning of pole stage productive broadleaved restock will also be undertaken during the first twenty years to promote good stem form and eventual timber quality.

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

##### ***Long term retentions*** (see Map4 – Felling)

There is a provision for retaining areas of older areas of mixed broadleaves and conifers that are either semi-natural or planted well before the main plantation was established (i.e. pre-1960). These retentions are selected based on their biodiversity value and their visual ‘old growth’ character on coastal and glen floor boundaries where they integrate with garden/amenity ground woodland or else bound farm fields and semi-natural coastal hazel woods. The retentions are easily accessible to facilitate incidental management (e.g. isolated or even catastrophic wind blow, *Rhodendron* control). Natural regeneration is likely to come from both parent conifer trees but also from semi-natural woods that are marginal and often already a component of the understorey. Two such retained conifer stands host white-tailed eagle nests.

##### ***Natural reserves.***

Two existing areas of semi natural native broadleaved woodland are identified as natural reserves and – as a result of increased deer control effort planned in conjunction with (at least) two decades’ of concerted restocking/establishment effort – these reserves should increase both in area (into adjacent, increasingly moribund LTR conifer stands) and in environmental quality as new seedling recruitment broadens structural and age diversity.

Long term (beyond Phase 4 of Plan period) there is potential for some extensive areas of presently-afforested upland to be managed as natural reserves. Crop growth and form is poor and mortality high on wet peaty and flushed soils in exposed margins – unlikely to yield much commercial timber - and currently visible as angular geometrical shapes on the glen flanks as seen from long distance, external vantage points. There are several alternatives for conversion of these plantations to a mosaic of natural tree-line woodland and wet heath/mire: directly underplanting (with native and montane tree/shrub species) and strategic drain blocking; felling to recycle of non-commercial stands and native tree planting; or incrementally (motor-manually) felling for local woodfuel markets with native tree restocking (for LTR) and some drain blocking to reinstate wetland/peat formation where appropriate.



### C.2.5 Restocking Proposals / Natural Regeneration

#### **Restocking** (see Map 5 - Restocking)

With currently 130 ha of clear-felled land awaiting restocking, this Plan proposes a programme of 244 ha restocking over the next ten years (i.e. to include 82 ha restocking of Phase 1 clearfell ground). Key criteria influencing the sequence of restocking over this time are: where effective deer control can be most easily implemented and sustained; and where fallow ground soil fertility is highest and weed competition is the greatest threat to restock establishment. Compartments 204, 206, 208 and 212 within the central area of the glen contain a total 92.8ha of clear-felled ground and lie within a deer fenced enclosure (renovated 2018/19) due for closure and ensuing deer control effort in autumn 2019. This ground constitutes the first three successive years' restocking commitment, with the comparative shelter and fertility allowing an emphasis on broadleaved planting across the area most suited to future provision and expansion of public access/recreational opportunities. 62% will be productive broadleaves and 12% native woodland and 20% productive 'soft' conifers (see table 5) to maintain a component of faster, commercial timber production and supplementing existing pole stage Sitka spruce and Douglas fir restocked there during the 1990's & 2000's. All productive restocking will be with no greater than 60% of any single species.

A cumulative total of 53.34 ha of infected larch has been felled (2011 – 2018) of which 26.39ha was completed by SWMID and is eligible for Tree Health restocking grant aid. An aggregated area (26.39ha) will be replanted in accordance with FCS species choice guidance note 'Advice on Replanting Sites Affected by *Phytophthora ramorum*' within Phase 1 restocking period and is illustrated on Map 7.

In the fourth and fifth years of Phase 1, SWMID will reinstate a perimeter deer fence around the afforested and productive eastern flank of the glen where early Phase 1 clearfelling has generated both capital for fence and restock investment and the fallow ground for subsequent restocking in Phase 2. Productive broadleaves are planned as an equal component of mid-slope restocking alongside productive soft conifers. Lower density native broadleaved W17 oakwood on lower margins (incorporating a mosaic of 20% open ground) and W11 upland Birchwood on upland margins. SWMID are contemplating the creation of a number of woodland crofts along these lower slopes and lower density native woodland in this vicinity anticipates, and is accommodating, to this potential land use change (see C.2.15 – Woodland Crofts for additional



considerations).

SWMID have a Restocking Agreement with (then) Forestry Commission Scotland to undertake restocking on all areas clear-felled by FCS in the years leading up to community acquisition of the forest in 2015 (see Appendix 6 - FCS Tiroran Fallow Land awaiting Restock map – 2015). The Agreement contracts SWMID to restock these areas by 23<sup>rd</sup> November 2019 but also recognises that a new Forest Plan would be drawn up after acquisition and “thus restocking areas/species and timing may change, subject to approval of the FCS.” 82 ha of this fallow ground lie in the lower glen floor and will be restocked as part of the first three years restocking of the exclosed glen floor zone. 78.6 ha are on the eastern flank and will therefore be restocked as an element of Phase 2 & 3 restock proposed there once a new deer fenced perimeter is erected (years 4 & 5 of Phase 1). The remaining 66.22 ha of FCS fallow land is in the south-western quadrant of the forest (outwith the central glen floor deer fenced enclosure) and will be mounded and restocked with productive conifers (@ 2,700/ha, predominantly SS) in Phase 3 when Phase 3 clearfelling commences on adjacent ground and subsequently reduces habitual deer cover and browsing threat to new trees planted there. These crops will be managed unfenced in a more ‘open hill’ deer monitoring and control regime (see also C.2.6 – Protection).

Restocking will adhere to Forest and Water Guidelines in all ground preparation and in observation of restock buffer zones along permanent watercourses.

Restocking will be monitored regularly for incidences of establishment failure and deer browsing with a per-species beat up planned by year 5 of restock date to maintain a minimum of 2,500/ha for conifers, 3100/ha (Oak, Beech), 2500/ha (Sycamore, birches) for productive broadleaves and 1,100/ha for native woodland (see also C.2.6 – Protection).

Seed zone 104 will be used whenever possible for all native tree stock. Neighbouring zones 105 and 106 are a secondary, contingency consideration. Any constraints on availability of native planting stock from these zones - and a desire to use trees from other provenance zones - will require prior approval on a case by case basis with Scottish Forestry.

### **Natural Regeneration**

There is not a significant amount or extent of native woodland throughout the afforested commercial plantations and open ground in Tiroran Forest – typically existing as small (often linear) pockets of shrub willow, rowan and downy birch near permanent watercourses and escarpments, cliff lines and the disturbed soils along forest road corridors. On account of this sparse resource, as a general



principle, natural regeneration will be accepted and encouraged throughout the forest not only to expand the area of native woodland for ecological benefits but also with visual objectives (i.e. softening the interface between densely restocked conifer areas and adjacent open ground, watercourses, boundaries, other natural features). The concerted deer control effort associated with Phase 1 restocking in the central deer fenced enclosure is expected to see the earliest native tree and open ground regeneration there. Non-native conifer regeneration will also increase (dispersed seed from older, cone-bearing LTR stands within the central area) and will require monitoring and regular removal. The potential for non-native conifers self-seeding onto neighbouring Ardmeanoch SSSI will be monitored and permission sought if required to control regeneration that might compromise the integrity of this designated ground.

**Table 3 – Felling**

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

<b>SCALE OF PROPOSED FELLING AREAS (including LISS final fell areas)</b>													
Total Forest Plan Area:		789.76		hectares									
Felling	Phase 1	%	Phase 2	%	Phase 3	%	Phase 4	%	Long Term Retention	%	Area out-with 20yr plan period	%	
Area (Ha)	62.96	8	33.53	4	68.6	9	42.41	5	36.88	4.5	141.03	18	

**Table 4 – Thinning**

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

<b>Species</b>	<b>Thinning (ha)</b>
Douglas fir/Sitka spruce	12.19
<b>Total</b>	<b>12.19</b>

**Table 5 – Restocking**

This table provides information on the restocking proposals for the first 10 years and is listed on a coupe by coupe basis.

<b>Felling Phase</b>	<b>Map Identifier(s)</b>	<b>Species to be planted</b>	<b>Area (ha) to be planted</b>
Felled	212	NBL (Oak, Birch, Rowan, Willow, Alder, Elm & Holly)	10.28
Felled	208	NBL (Oak, Birch, Rowan, Willow, Alder, Elm & Holly)	8.79
Felled	208	MC (WRC, NF, NS, DF,SP) 50/50	8.58
Felled	208	NBL(Oak, Birch, Rowan, Willow, Alder, Elm & Holly) 50/50	8.58
Felled	206	MC (WRC, NF, NS, DF,SP) 50/50	17.6
Felled	206	NBL (Oak, Birch, Rowan, Willow, Alder, Elm & Holly)	3.15
Felled	204	NBL (Oak, Birch, Rowan, Willow, Alder, Elm & Holly)	13.73
Felled	204	DF	2.83
Felled	204	MC (WRC, NF, NS, DF,SP)	3.44
Felled	213	NBL (Oak, Birch, Rowan, Willow, Alder, Elm & Holly)	18.1
Felled	213	MC (WRC, NF, NS, DF,SP)	27.75
Felled	214	NBL (Oak, Birch, Rowan, Willow, Alder, Elm & Holly)	14.73
Phase 1	211	MC (WRC, NF, NS, DF,SP)	27.01
Phase 1	211	NBL (Oak, Birch, Rowan, Willow, Alder, Elm & Holly)	11.56
Phase 2	205	SS & MC (WRC, NF, NS, DF,SP)	7.23
Phase 2	203	NBL (Oak, Birch, Rowan, Willow, Alder, Elm & Holly)	3.74
Phase 2	203	NBL (Oak, Birch, Rowan, Willow, Alder, Elm & Holly)	4.88
Phase 2	205	SS & MC (WRC, NF, NS, DF,SP)	7.23
Phase 2	221	MC (WRC, NF, NS, DF,SP)	2.53
Phase 2	221	NBL (Oak, Birch, Rowan, Willow, Alder, Elm & Holly)	16.5
			<b>218.24</b>



### C.2.6 Protection

Deer and pine weevil pose the largest risks to the successful establishment of restocked woodland and any natural regeneration.

#### Deer

All restocking within Phase 1 will be done within a perimeter deer fence of the central glen area (see Map 5 – Restocking). Our animal management policy (see Appendix 5) prescribes a ‘zero tolerance’ deer control policy within the fenced area that will enable the soft conifers and productive broadleaves planned for restocking there to establish without intolerable browsing impacting on leader growth and future timber quality. Phase 2 restocking will also be undertaken within new perimeter deer fencing on the east side of the glen with similar regime of both routine and reactive deer control.

Our animal management policy also states that deer management within the forest is currently contracted to the neighbouring Kilfinichen Estate for implementation in accordance with best practice for animal welfare and public safety. There is a zero tolerance approach to deer within the central fenced area, and, outside this area, deer densities are managed to conserve the quality of adjacent, designated open ground habitats.

Kilfinichen Estate works closely with SNH due to the special status of Ardmeanach and its myriad Designated Sites. Their Deer and Upland Grazing Management Plans (2016-2021) are agreed and signed off by SNH and encompass the entire peninsular of Ardmeanach west of the summit of Ben More. One of the major benefits of our approach is that the deer population in Tiroran Community Forest is managed in conjunction with the surrounding hill ground. Kilfinichen Estate actively participates in the Mull Deer Management Group, works in accordance with the Mull Deer Management Plan and is currently investigating the use of lead-free ammunition.

With clear felling and restocking envisaged on unfenced, uphill ground from Phase 3 onwards, there will be a requirement to align objectives (and set cull targets) to allow adequate protection of restocked trees there. Some consideration during the Phase 1 and 2 period will need to be dedicated to anticipating this future (dual) requirement.

#### Pine weevil

Due to the programme of annual clearfell harvesting of spruce, pine weevil populations and potential impacts on young restocked trees are a significant threat. SWMID intend to establish all restocked woodland without recourse to



neonicotinoid-based chemical pesticide or chemical herbicide application. SWMID have instigated a monitored trial of wax-coated transplants (alongside untreated 'control' transplants) to ascertain the efficacy of this approach in reducing potential tree mortality. The untreated transplants (40-60 cm transplants with larger root collar and stem diameter than typical 20-40 cm ones) may also prove sufficient to withstand weevil impacts and would be specified in preference to wax-coated trees if proven to be so. There is a considerable amount of concern within the wider Mull population about the habitual, pre-emptive use of neonicotinoid-based pesticides in forest restocking. SWMID intend to undertake an open community consultation process to inform on the outcome of the trial. SWMID has little appetite for the use of neonicotinoids and are actively looking for alternative techniques that would obviate the need for their use. The local community will be fully consulted on any future policy. (see also C.2.5 Restocking, page 19, para 3)

#### C.2.7 Fence erection / removal

A new internal deer fenced enclosure is being established during 2018 and 2019 - utilising sections of old (renovated) forest fence and new (roadside & glen floor) fencing and water gates (see Map 5 – Restocking). There is currently an additional, temporary 4-hectare enclosure within this area – erected to allow a trial restock and pine weevil impact project to be undertaken from Spring 2019.

Prior to restocking the eastern flank (2024 onwards), a new deer fenced perimeter fence will be erected (maximum length: 8000m) – utilising existing (renovated) boundary fence and new roadside fencing. This is scheduled for implementation in 2022/23. Pedestrian gates will be included at locations where desire lines are known as well as in anticipation and consideration of access and boundaries associated with any new forest croft in-bye creation (see C.2.15).

There are a small numbers of red grouse present in surrounding upland areas and not anticipated to be adversely impacted by the renovation of the perimeter fence. Vigilance will be kept in monitoring for any impact on ground nesting birds during routine restock/establishment survey – and if appropriate - droppers will be installed on fencing.

Since the current perimeter fencing has been porous (c2000 onwards), livestock from neighbouring agricultural land have occasionally strayed into the forest. The new deer fenced enclosures will also function to once more exclude sheep and cattle. SWMID maintain an open and regular dialogue with the neighbouring farmer and estate workers over incidences of straying and retrieval of livestock



and these lines of communication will continue throughout the Plan period.

### C.2.8 Road Operations

#### *External*

SWMID will continue to liaise and work within the limits imposed by the local authority and Argyll Timber Transport Group in an annual, negotiated Weight Restriction Exemption Permit (see Appendix 3) to facilitate timber export to Pennyghael pier facility. SWMID will continue to explore a more local export opportunity - through supporting proposals and seeking favourable export terms in a new proposed pier facility on neighbouring Kilfinichen estate. Felling Phase Map 4 indicates the extraction points onto the public road and an estimated tonnage of timber that will be extracted. The tonnage will be extracted over a number of years in line with the agreed TTMP and the planned felling phases.

#### *Internal*

Four new Cat 1A forest road extensions are planned across the 10-year plan period (see Map 4 – Felling) – each to facilitate access for timber export from a different area of the forest. The roads will also give greater vehicular access to assist regular, long term maintenance obligations (restock monitoring, deer control, fence maintenance etc). Refer also to Section C.3. re. Environmental Impact Assessment and Permitted Development Notifications.

A detailed survey of all new road extensions – during preparation of each individual construction project - will take account of the following constraints and establish the requisite buffer zones in conjunction with SNH/SEPA/Historic Scotland advice: designated sites or areas of importance for: archaeology, flora, nest/roost sites of specially protected birds, otters, other protected species and public access. There will be a presumption in favour of simple bridge span structures being used when crossing streams greater than 2 m wide - protecting channel and bank integrity - unless the requirement to use a culvert pipe is justified as per '*Culverting of Watercourses: Position Statement and Supporting Guidance (Version 1.2 December 2006) Section 2.3 Regulatory Guidance*'. All forest road works will be carried out to Forestry Commission DMRB 070403 road specification and in accordance with guidance in FC Practice Guide "Managing forest operations to protect the water environment".

Due consideration will be given to public safety and maintaining and/or re-directing informal public access when forestry operations are planned and in progress. SWMID have well established processes for keeping local residents and the wider community apprised of planned activities and these channels will also



be used to disseminate pertinent information/notifications as well as through obligatory site signage.

#### C.2.9 Public Access

SWMID's medium - to long term ambition is to expand a wider network of forest trails for public recreation (pedestrian, cycling, equestrian) and implement forest management (ATV/compact tractor & trailer access). These will be developed and radiate from the existing Cat 1A forest road and new road extensions proposed for construction in support of Phase 1 to 4 harvesting. Definition of this future recreational trails network (locations, timings & specifications) will be determined through a Forest Access & Recreation Plan process that SWMID will research and produce during Phase 1 (2019-2024). This will include the possibility for upgrading eagle viewing facilities and other potential threshold/reception infrastructure. Once this Access and Recreation Plan has been formalised, EIA screening and Prior Notification will be conducted prior to any construction.

#### C.2.10 Historic Environment

The eight NMRS sites identified in A.6.8 will be managed in accordance with UKFS Historic Environment guidelines to ensure that no further deterioration resulting from encroaching tree cover or other vegetation growth.

Archaeological survey work in 2003 and 2005 has complemented the NMRS archive to give 28 historic features in or immediately adjacent to Tiroran Forest (see Appendix 4 – Historical and Archaeological Features Summary and Map). All features will be protected from damage and disturbance during forestry operations or other work. Additionally, all forest contractors will be instructed to report any new archaeological finds during operations. Any new sites of interest discovered during operations will be notified to the West of Scotland Archaeology Service and Historic Environment Scotland.

Finally, local historical organisation 'Pennyghael in the Past' have extensive knowledge and records of the history of the area and an active interest in identifying and interpreting new/significant finds and features within the forest. The group is in regular contact and collaboration with SWMID: running public open days and hosting occasional educational visits and survey projects in the forest. SWMID will continue to engage with the group over proposed forest operations as well as informing the evolution of SWMID's Forest Access and





Recreation Plan regarding access to and interpretation of local heritage.

#### C.2.11 Biodiversity

The existing native woodland biodiversity of the forest will be conserved principally through preservation of long-term retentions and natural reserves through the Plan Period whilst open ground and riparian habitats will be protected through adherence to all FC guidance on forest soils and water protection during harvesting and extraction operations.

Approximately 202.63 ha of mature, non-native plantation is scheduled for clear-felling across Phases 1 to 4. Except for its utilisation by scheduled white-tailed eagles and potentially other nesting raptors, this extensive removal of non-native habitat/forest crop will provide a significant opportunity to initiate substantial long term biodiversity improvements: restocking with a greater proportion of LTR native and amenity woodland as well as a greater variety of productive conifer and broadleaf tree species offering greater structural and species/habitat diversity (see Table 1 and Map 5 – Restocking Plan (Species 2039)).

All forest operations will be preceded by environmental walkover survey to identify any pertinent wildlife sensitivities or residency that might influence operational timing and/or methodologies. It is possible that additional sea eagle nest sites may be established by the resident birds or others/descendants. In such circumstance, felling schedules would be reviewed accordingly in consultation with RSPB and Scottish Forestry (see also C.2.16).

There are plans to monitor the presence and numbers of Marsh Fritillary butterflies within the forest. This will include identifying, protecting and improving possible habitats. For example, the removal of self-sown Sitka from open areas rich with Devil's-bit Scabious, the food plant of the Marsh Fritillary caterpillar.

#### C.2.12 Tree Health

Aerial inspections of the forest are carried out annually (by Scottish Forestry) due to the high risk of *Phytophthora ramorum* in the larch across the region (Zone 1 of UK Ramorum on Larch Risk Map). Any consequent new SPHNs will be acted on accordingly.

Photographs of Lodgepole pine needles were sent to Tree Alert to identify a suspected, deleterious infection - confirming it as a blight causing incremental



needle loss and subsequent reduction in tree growth rate. Although this blight appears to be widespread on lodgepole pine on poorer sites, it is not deemed a threat to the crop or to other species/habitats locally and regionally so will be tolerated until the end of rotation. An intention to restock with species other than pine across affected areas is contained within Restocking prescriptions.

**C.2.13 Invasive species**

SWMID community forester to maintain routine (minimum: annual) monitoring of existing areas of *Rhododendron ponticum* to assess spread and future expansion risk. Incidence of new plants appearing across clearfell and restock areas (evidenced during routine restock/establishment monitoring) will be manually uprooted as/when seen.

Any concerted effort to eradicate current *Rhodendron* refugia would be undertaken using non-chemical methods: manual uprooting, lever and mulch, or stump cutting and follow-up re-sprout destruction (possible volunteer work party task).

No other invasive species are currently known within Tiroran Forest. Routine forest management will remain vigilant to any new species' incursion with any prescribed remedial actions favouring only non-chemical approaches.

**C.2.14 New Planting**

There is no new woodland creation planned at Tiroran Forest.

**C.2.15 Other: Forest Crofts**

SWMID are currently investigating the possibility of establishing an as-yet undefined number of forest crofts within the property of Tiroran Forest. This has been an exploratory process since forest acquisition (2015) with discussion with local authority planners, community promotion (SWMID newsletters, website, and social media), local stakeholder meetings and consultation with forest croft advisors (Woodland Crofts Partnership). There are no concrete proposals to date, however formative advice suggests any new housing and associated tenanted in-bye might be best accommodated along the main public road and powerline corridor on the lower, eastern flank of the glen. On account of the character and composition of the current standing forest in this zone (mature, even-aged, Sitka spruce plantation), it is probable that any new croft tenancies will be let once the standing crop has been removed by SWMID. The timing of phased clearfelling contained within this Plan are generally in line with a realistic



croft-creation timeline (Phase 1 and 2) and the prescribed restocked woodland character (low density native broadleaves with 20% open ground) deemed sympathetic to typical croft in-bye use into the future.

SWMID intend to undertake a Master Planning exercise (during Phase 1 of Plan period) to determine the exact number, location and constituent elements of new crofts. This process will be guided and constrained by local authority and forestry regulations. Prior consent for any proposals that represent a change to the Forest Plan (as per Tolerance Table protocol) or in terms of new development/deforestation etc would be sought through Scottish Forestry. There will be a requirement to create new Field Identifiers and associated Business Reference Numbers during the registration of new crofts (for SGRPID administration) – removing these areas from the current Forest Plan area and SRDP administrative unit. However, an expectation that croft in-bye utilisation will be undertaken in compliance within the broader management context of Tiroran Forest’s LTFP will be stipulated in croft tenancy agreements.

**C.2.16 Other:**

**White-tailed eagles**

White-tailed eagles are present in the forest and are regularly monitored by SWMID and the RSPB - both in relation to potential for disturbance through public recreational access and in proposed forest operations with potential to impact the birds. Dave Sexton (RSPB, Mull) is in regular communication with SWMID throughout nesting and breeding seasons (February to August) and is consulted more formally (with pre-commencement site meetings) in collaboration with contractors before any forestry operations.

Guidance detailed in FCS Practice Note “Managing forests for white-tailed eagles” is adhered to in conjunction with local RSPB advice.

**C.3 Environmental Impact Assessment and Permitted Development Notifications**

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

Type of Project	Sensitive Area		Non-sensitive Area		Total
Afforestation	0	0	0	0	0ha
Deforestation		0	0	0	0ha
Forest Roads		ha	1050 metres (over 10 years)		3.15ha



Quarries	ha	ha	ha
Provide further details on your project if required.			
Extension of existing CAT 1A forest road network - constructed in a phased sequence to support Phase 1 to 4 harvesting and extraction operations/areas (see C.2.8 and Map 4 – Felling). These proposed extensions to the existing forest road will be carried out in line with the planned phases of felling over the duration of the LTFP. Both Environmental Impact Assessment determination and Prior Notification will be carried out for each phase of road building before construction takes place.			

### C.4 Tolerance Table

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

**Note**

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

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

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

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



## D. Production Forecast

Please refer to Appendix 8.

## Appendices

Provide a list of appendices:

Item number	Title
Map 1	Location
Map 2	Concept
Map 3	Current Species
Map 4	Felling Plan
Map 5	Restocking Plan (Species 2039)
Map 6	Tree Health: SPHN
Map 7	SPHN Restocking
1	Scoping – Report, Maps & Responses
2	Landscape Analyses
3	Weight Restriction Exemption Permit
4	Historical and Archaeological Features Summary
5	Deer Management Plan
6	FCS Tiroran Fallow Land awaiting Restock map – 2015
7	Abbreviations: Forestry Terminology & Tree Species
8	Production Forecast



Appendix 1

Scoping Report





Appendix 2

Landscape Analyses



Appendix 3

Weight Restriction Exemption Permit



## Appendix 4

### Historical and Archaeological Features Summary



Appendix 5

Deer Management Plan



Appendix 6

FCS Tiroran Fallow Land awaiting Restock map – 2015

## Appendix 7

### Acronyms: Forestry Terminology & Tree Species

ATTG – Argyll Timber Transport Group

EIA – Environmental Impact Assessment

EPS – European Protected Species

FCS – Forestry Commission Scotland

LISS – Low Impact Silvicultural System

LTR – Long Term Retention

NMRS – National Monument Records of Scotland

RBMP – River Basin Management Planning

RSPB – Royal Society for the Protection of Birds

SEPA – Scottish Environment Protection Agency

SNH – Scottish Natural Heritage

SWMID – South West Mull & Iona Development

SPA – Special Protected Area

SPHN – Special Plant Health Notice

SSSI - Site of Special Scientific Interest

UKFS – United Kingdom Forestry Standard

WTE – White tailed eagle

YC – Yield Class



*Tree Species acronyms*

DF – Douglas fir

LP – Lodgepole pine

MB – Mixed broadleaves

MC – Mixed conifers

NBL – Native broadleaves

NF – Noble fir

NS – Norway spruce

OG – Open ground

SBI – Silver birch

SOK – Sessile oak

SP – Scots pine

SS – Sitka spruce

SYC - Sycamore

WRC – Western red cedar

UP - Unplanted