Appendix 9 - Hydrology

Water Management

All operations on Scotland's National Forests and Lands (NFL) will adhere to the UK Forestry Standard (UKFS) (2017), section 6.7 - Forests and Water, and the Water Environment (Controlled Activities)(Scotland) Regulations (CAR) and the General Binding Rules published by Scottish Environment Protection Agency (SEPA). Operations will also be carried out in accordance with 'Managing Forest Operations to Protect the Water Environment' (FC, 2019) and the Forest and Water Scotland Initiative booklet.

SEPA is implementing the Water Framework Directive (WFD) in Scotland which is a legal framework for the protection, improvement and sustainable use of all water bodies in the environment across Europe. All water bodies across Scotland have been assessed for ecological and chemical status and catchment plans have been drawn up to ensure water bodies are brought up to an acceptable level. North Region lies entirely within the Scotland river basin district, and is covered by the third River Basin Management Plan (2021 – 2027).

The two aims of the Water Framework Directive (WFD) are to improve water bodies to acceptable ecological status/potential (by 2015, but later if this was not feasible) and to prevent any deterioration in ecological status/potential. North Region considers it vital that no operational planning or delivery lead to any deterioration of the water bodies or water dependant habitats within the Land Management Plan area including tributaries and water bodies directly above or below the NFL.

The plan area lies within the Strathnairn, Speyside and Caringorm Drinking Water Protected Area for Groundwater (3,726 km^2; ID: 150709). Currently groundwater quality, water flows and levels are assessed as Good with no pressures cited that threaten this status.

Both Assich and Laiken lie within the River Nairn catchment area which extends to 338km^2 and drains into the Nairn (East) bathing water on the Moray Firth, next to Nairn. All of the protected areas within the catchment meet their required standards with respect to the Water Framework Directive.

Ferness lies within the River Findhorn catchment area which is around 1300km^2 and drains into Findhorn Bay to the north. All protected areas within the catchment meet their required standards with respect to the Water Framework Directive.

The water bodies noted on the SEPA RBMP website as significant for this plan are detailed in the tables below.

Water Body ID	Water body Name	Current classification (status in Classification Hub)	2027 Objective
20309	Cawdor burn	**Good**	**Good**
20307	Auldearn burn	**Moderate ecological potential**	**Bad ecological potential**
23004	River Findhorn – Tomatin to Dorback burn	**Good**	**Good**

Table 1: Water Bodies noted on the SEPA RBMP Website and their respective classifications (SEPA, 2022)

Pressures on the Auldearn burn are related to farming and agricultural activities resulting from modifications that cannot be fully addressed without a significant impact on the drainage of agricultural land. Forestry operations are not identified as a pressure on any of these watercourses.

Flooding

The SEPA Flood Risk Management Strategy for the Findhorn, Nairn and Speyside Local Plan District identifies Objective Target Areas (OTA) at Nairn and Forres. Both Assich and Laiken drain through the Nairn OTA and Ferness drains through the Forres OTA.

Because the Nairn and Forres OTA catchments have low percentages of woodland cover (below 40% of the catchment area in both cases), felling is unlikely to be large enough to significantly increase flood risk and can therefore be screened out from further consideration (as set out in Appendix 2 of “Designing and managing forests and woodlands to reduce flood risk”).

The water courses through all three forests drain through areas prone to flooding and our standard forestry and water guidance practices will have a positive effect on reducing the peak flow at the flood points by slowing the flow. The scale and timing of felling in the forest, along with an increasingly diverse age structure is likely to have a beneficial impact on downstream flood risk and may contribute to flood alleviation.

There are no known locally sensitive areas to flooding.

Private water supplies

Private drinking water supply points and associated pipes in and around the plan area are recorded on our Forester Web GIS and included on **Map 2a,b,c.** Private water supplies that may

be affected by activity in the forests have been identified and their abstraction point has been ground-truthed during the development of this LMP. The catchment above the abstraction point is understood and has been considered in relation to designing appropriate riparian protection buffers of at least 50m over time to help protect the private water supply quality of future operations. In addition, at an operational level (FLS workplan level), throughout the duration of the plan, the specific protection zones and protection measures will be identified and communicated to all operatives to ensure the water quality is protected during the operational phases.

Proposed felling and thinning operations during this plan period that have the potential to impact on the private water supplies at:

Assich:

Five properties on the North side of Assich are supplied by a spring, water tank and pipe within coupe 12258, to the south of Assich Farm House. This coupe is currently identified as a minimum intervention coupe and no felling is proposed. However clear felling of coupe 12998 and thinning of coupe 12037 have the potential to impact on the catchment of the spring which has a limited buffer at present. The site-specific operational mitigation will be decided on by the Delivery teams at workplan stage and the buffer around the catchment will be expanded at the restocking stage.

Laiken:

The supply point for the water pipe at Laiken is a concrete covered well on the edge of coupe 12602. It is enclosed within a fence, adjacent to coupe 12101. None of the work within this plan period will impact on the well, however a buffer of broadleaves has been identified on the future restock maps to ensure this is considered in the future when coupe 12101 is felled and restocked. This buffer is at least 50m on the uphill side of the well.

The water pipe is a cast iron pipe running through the forest with sporadic wooden posts marking its route. It has been exposed in places where it has obviously been burst by the movement of tree roots in the past which highlights how shallow it has been buried, at around 50cm.

The proposed Felling of coupe 12041 and 12282 and thinning within coupe 12331 and 12581 (thinning coupes 12917 and 12919) will have to be planned to avoid impacts on the pipe.

Ferness:

The water supply point for Airdrie Farm is located within an area of broadleaves and open ground in the corner of coupe 12917. The waterpipe runs down the side of the forest track adjacent to coupe 12022.
Felling in coupe 12021 will not impact on the water pipe as it is on the north side of the track which will not be crossed during works. Thinning of coupe 12917 has the potential to impact on

the catchment therefore site-specific operational mitigation will be decided by the Delivery teams at workplan stage and the buffer around the catchment will be expanded.
Where felling has already been undertaken in the proximity of existing water supply points at Assich and Ferness, restocking with native broadleaves has been identified within this plan period to provide a natural buffer, reducing impacts from future felling on adjacent coupes. Such a buffer has been identified at Assich, beside Drummore of Cantray and Ferness at Muckle Lyne. The existing water catchment and water course have been left to naturally regenerate but additional planting may be required and non-native regeneration removed.