Appendix 8 Water and Catchment Management

Freshwater Management

The Water Framework Directive aims to improve waterbodies to acceptable ecological status/potential (by 2015, but later if this has not been feasible) and to prevent any deterioration in ecological status/potential. FLS North Region consider it imperative that operational planning and delivery does not lead to a deterioration of waterbody condition or water-dependant habitat within LTP areas including tributaries and waterbodies directly up - or downstream - of the landholding.

Water bodies noted on SEPA's River Basin Management Plan (RBMP) website, and minor watercourses identified by North Region as significant for this LTP, are shown on **Map 12** - Key Water Features. The ecological condition assessment of the RBMP-listed waterbodies is given in the table below.

Water Body ID	Waterbody Name	Current classification (Overall Status)	Condition (Overall Status - 10-yr trend)
20455	River Carron – Loch Dughail to Loch Sgamhain	**Good (2024)**	Good (2014 to 2023)
20459	River Lair	**Good (2024)**	Good (2014 to 2023)
20460	Allt a Chonais	**Moderate**	Moderate (2014 to 2023)
100149	Loch Dughail *(downstream of LMP on River Carron)*	**High**	High (2014 to 2023)

Water crossings for proposed roads infrastructure will be planned and delivered in accordance with the Engineering in the Water Environment Best Practice Guide (River Crossings) (2010) and within the Controlled Activities Regulations (CAR). On-site storage of oil will be carried out in accordance with the Water Environment (Oil Storage) (Scotland) Regulations 2006.

As a minimum, the Water Environment (Diffuse Pollution) (Scotland) Regulations 2008 General Binding Rules will be followed. These rules cover the **storage and application of fertiliser, cultivation of land, discharge of site water, construction of roads and use of pesticides**. These are considered operational planning issues and as such specific mitigation and working methods are not detailed in the LTP – except in relation to operations considered within the EIA Screening Opinion Request Form (Appendix 3) - but through the established work planning and pre-commencement planning protocols. The associated documentation being available for viewing as required by stakeholders.

FLS Civil Engineers will contact SEPA prior to commencing **engineering works** in, or in the vicinity of, inland surface waters to determine the level of authorisation required. Site-specific mitigation for engineering works is not a matter for this Plan; however Forestry Civil Engineering will adhere to all controls and mitigation measures stipulated before, during and after construction.

Surface water drains will not discharge directly into the water environment. North Region staff will remediate legacy drains of this type to avoid siltation problems by using tree roots and other natural methods to act as anti-siltation devices during harvesting operations. When natural means are not available, plastic dams or semi-permeable netting may be used temporarily. When operations are finished these will be removed and the materials re-used.

Where opportunities exist to deliver environmental improvement by alteration or removal of **inappropriately designed or redundant structures** – e.g. upgrading a culvert to allow fish passage or removal of a redundant weir - this will be undertaken in consultation with relevant stakeholders and FLS will register the operation with SEPA. Opportunities for morphological and ecological improvements may also be considered.

Forestry has a significant role to play in ***mitigating the effects of climate change***. Building resilience against extreme weather events underpins all our proposals but is particularly relevant in relation to protecting overhead power line networks, public road infrastructure and watercourses. Many instances of historical, artificial cultivation and drainage across Scotland's NFL are inappropriate in light of (current) future climate predictions and will be addressed by adoption of less intensive techniques into the future and complemented by the establishment of a network of protective native riparian woodland where appropriate. Details of the proposed riparian woodland that will provide a buffer on all identified watercourses (average 30 metres from each bank) is shown spatially in **Maps 7 – Future Habitats and Species.** As part of pre-operational work planning, watercourses are initially identified from Ordnance Survey GIS data but this information may ultimately be supplemented by additional watercourses identified during environmental walkover surveys undertaken to inform the work plan. Where an existing drain has become a sizable and stable watercourse, it will be treated as though it were a natural watercourse in terms of respecting buffer areas along its length in line with FR Practice Guide 25 – '*Managing forest operations to protect the water environment'*.

Tree guards may be used to protect more palatable species in riparian areas from browsing damage. When tree guards are being used this will be recorded using our work planning process and mapping software. Tree guards will be inspected annually and removed when no longer necessary. If possible tree guards will be reused on other sites.

Where specific operations produce ***waste materials*** not detailed above, North Region staff will liaise directly with SEPA to establish the level of permission/licensing required on a site by site basis.

Private Water Supplies (PWS)

There are no Scottish Water Public Drinking Water catchments, or other Scottish Water drinking or waste water assets, within the LTP area however there are several private water supplies with catchments within the LTP area as well as associated abstraction, storage and supply infrastructure.

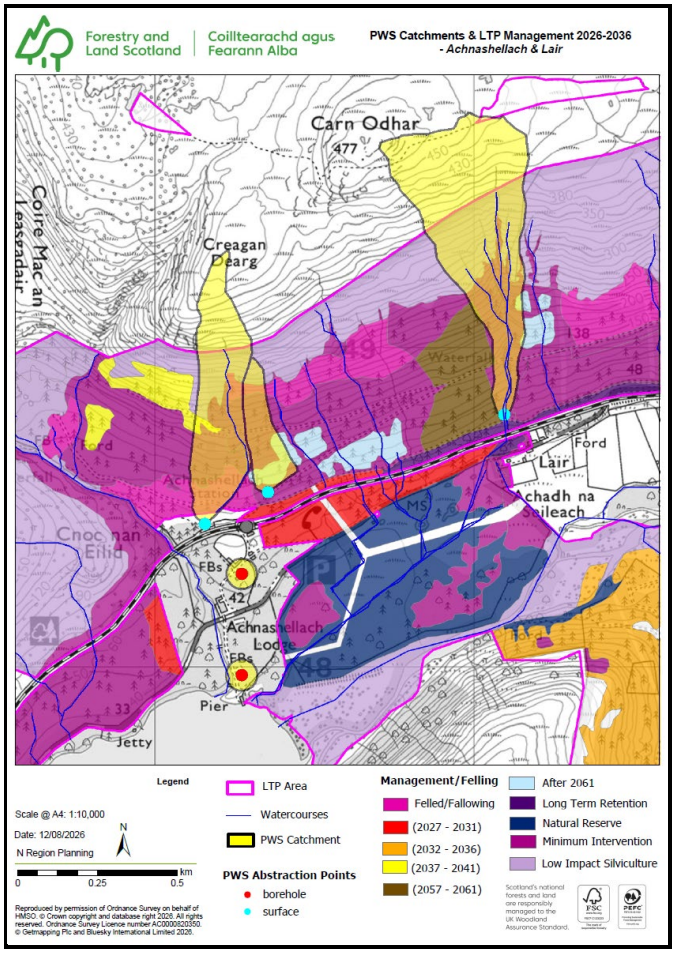
It is a legal offence to contaminate a drinking water supply. FLS adhere to guidance published through the Forestry & Water Scotland initiative (www.forestrywaterscotland.com) and, with particular relevance to private water supplies, Confor's *'Protecting private water supplies during forestry activities*' (also referenced in **Appendix 11 – Key Policies and publications**). There are currently five private surface water drinking water supply catchments within the LTP area, supplying fourteen residential properties, a backpackers' hostel, a deer larder and a seasonal campsite. These data are recorded in a layer in FLS' GIS mapping system and also displayed on **Map 12 – Key Water Features**. All user infrastructure and intake points for these supplies have been identified, visited and - based on intake point and associated supply catchment area - all proposed tree felling and restocking proposals assessed*. A minimum 50 m buffer zone of the upstream catchment associated with each intake is then applied where no future ground preparation or pesticide spraying will take place. In addition, FLS commit to establishing (or restructure at next felling intervention) this buffer as minimum intervention native woodland in order to guard intakes from any future disturbance. The following images display the LTP management and future habitat objectives within the vicinity of all abstraction points and their catchments.

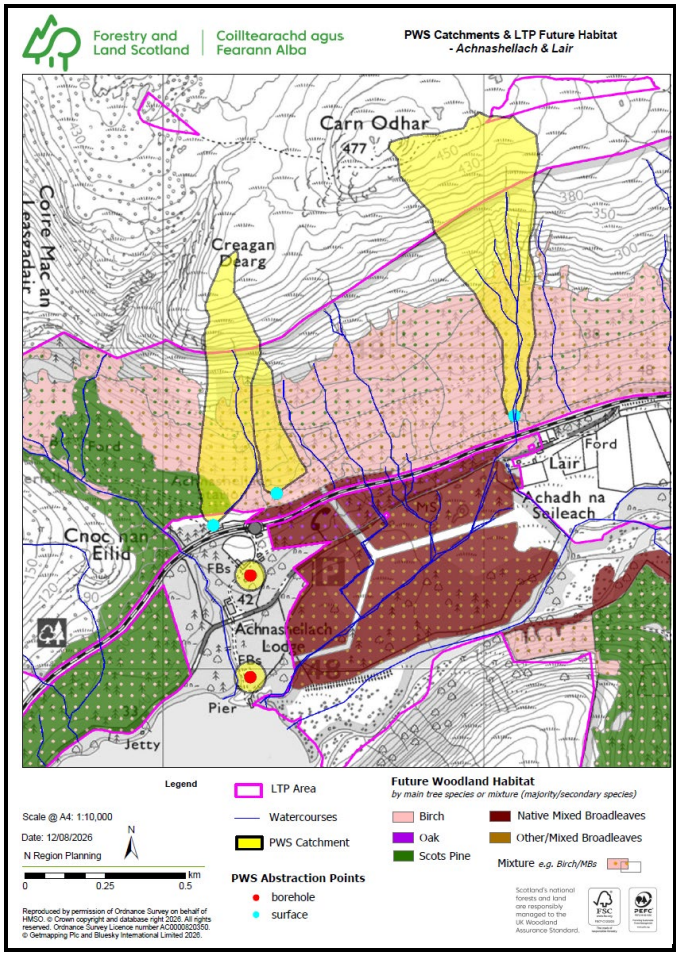
**N.B. If the geology and/or geomorphology surrounding any intake had been found to be significantly sensitive (due to heightened porosity or high percolation on account of catchment topography) the extent of low density, minimum intervention native woodland would be increased beyond fifty metres - upon SEPA's recommendation - to counter the increased potential for negative impacts on water quality from forest management operations.*

With respect to tree felling within **surface water supply catchments** - to remove productive forest stands and initiate restructuring, site-specific operational mitigation is decided by the Delivery teams at the Work Plan stage. Affected neighbours are routinely consulted prior to any works commencing. Supply infrastructure and fifty metre buffer zones are clearly marked on all contract maps, as well as on the ground, and their presence and sensitivity discussed in pre-commencement briefings with forest works managers. Similarly, if invasive non-native plant removal is planned, the Delivery team will also determine site-specific operational mitigation and consult relevant neighbours. Again, buffer zones around the intake points are marked on the ground and on maps to prevent the potential for pollution incidents and the whole process recorded through the FLS Work Plan process.

There are two borehole water supplies at over 50 metres from the LTP boundary and consequently outwith the buffer zone – where there is a presumption against use of ground-disturbing preparation techniques or associated pesticide use - for this type of supply.

Achnashellach & Lair - PWS and LTP context





Craig - PWS and LTP context

