TSL TA2093 – Moose Valley – MSAN3 HARVEST PLAN

SAFETY
- Extensive wildfire disturbance during summer 2021 has created large areas of dead standing timber, which can cause overhead hazards (brittle tops, unstable roots/trees).
- Areas of unstable ground occur where root masses have been burned away below the topsoil layer and can pose as tripping, twisting, or falling hazards.

HARVEST INFORMATION
- This block is appropriate for conventional roadside harvest (i.e. rubber tired skidder, mechanical falling).
- Winter harvest is recommended to avoid any potential adverse impacts to the Western Toad populations.

ARCHAEOLOGICAL / CULTURAL HERITAGE
- If a previously unidentified affected Cultural Heritage Resource is encountered during harvesting, road construction or mechanical site preparation, operations must cease to the extent necessary to protect the affected cultural heritage resource until a Cultural Heritage Resource Evaluation can be completed.

LEAVE TREES AND BIODIVERSITY
- All live, green trees (all species), and a small component of large diameter dead Douglas fir is to be retained; 5% removal has been allotted for the live, green retention to allow for incidental removal due to operational or safety constraints. The stems per hectare (sph) listed below are an approximation of the leave trees post-harvest based on the cruise compilation, using an estimated percentage of what may be available for retention at time of harvest, actual numbers may vary.
    - Douglas-fir (dead) – Retain 90% of all dead stems >/=67.5cm dbh; which equates to 3 sph.
    - Douglas-fir (live) – Retain 95% of all live merch stems; which equates to 1 sph.
    - Spruce – Retain 95% of all live merch stems; which equates to 5 sph.
    - Lodgepole pine – Retain 95% of all live merch stems; none were tallied.
    - Aspen – Retain 95% of all live merch stems; none were tallied.
- If encountered, retain any live, green conifer understory (poles, saplings, regen) where they occur in patches.

COARSE WOODY DEBRIS (CWD)
- The stands in this block have been severely impacted by the 2021 wildfires and there is heavy mortality throughout. Post-harvest CWD target is 4m3/ha.
- General CWD management is prescribed as follows:
    - Retain >/=4 logs per hectare, each being a minimum of 2m in length and 7.5cm at one end.
    - Efforts will be made to ensure these logs are not broken at time of harvesting. Logs may consist of a variety of species and shall be evenly distributed across the cutblock.
    - Non-merchantable logs and pieces will be left on site as CWD.
    - Reserved stems will contribute to future CWD and any non-insect infested reserve trees that blow down will be left for coarse woody debris.
    - All deciduous stems felled for safety, road construction, or other operational purposes are to be left on site as CWD.

STUBBING:
- Retain 3 to 4 stub groups per hectare (5 or more stubs per group, 3-5m high). These stub groups should be created near and/or connecting riparian areas, green leave trees and/or regen, adjacent green stands/plantations, large CWD logs left after burn, large rocks and/or outcrops, and knolls.
- Target stems that have visible external defects such as broken tops, cavities, checks, or cracks.
- Stub MFZ boundary every 5-10m at 3-5m in height to identify its location post-harvest.

GENERAL FURBEARER MANAGEMENT:
- The following retention is prescribed across the block to provide resting habitat, connectivity, and cover:
    - Retain >/=1 single hard log per hectare, >35cm in diameter and >7 m in length, elevated 25-50 cm above ground. If trees >35 cm do not occur in the harvest area, 2 or more smaller trees totalling >35 cm diameter may be placed alongside each other and elevated 25-50 cm above ground.
    - Create >/=1 debris pile per hectare, each being >/=3m wide by >/=5m long and piled >/=2m high, using the largest woody debris available on site.
    - Debris piles should be located >/=20m from the timber edge, but within 200m of riparian management areas and block edges to maintain connectivity.
    - Pile locations should aim to maintain a 50m dash distance between cover (standing timber, WTRAs, and debris piles).
    - Actual pile locations may vary but should adhere to the above connectivity conditions.

SLOPES
- Slopes generally range from 15-40%, with an average of 28%.
- Refer to the HP map for areas of slopes over 35%.

SOILS
- The licensee is responsible for ensuring the maximum soil disturbance limits (10% of the NAR) are not exceeded.
- TAS proposed within the block accounts for 2.2% of the NAR. There is no PAS proposed for this development.
- All access structures will be managed to ensure natural drainage patterns are maintained and erosion measures are installed prior to spring freshet.
- Avoid skidding across depressional areas when wet; recommend a random skidding pattern.

RIPARIAN FEATURES
- Operational activities will be conducted to ensure that natural surface drainage patterns are maintained.
- There are two non-classified riparian features and three classified riparian features associated with this development.

MSZ = Machine Sensitive Zone / MFZ = Machine Free Zone / RRZ = Riparian Reserve Zone / RMZ = Riparian Management Zone
LMZ = Lakeshore Management Zone / HVMW = High Value Moose Wetland

I.D. and Class.	RMA	WIDTH (m)	Comments
MSAN3-1-L3	RMZ	30	Located west of the development >/=20m away from the harvest boundary. Any RMZ overlap within the harvest area will be treated the same as the remainder of the HU. No additional management is required.
MSAK7-3-L3	RMZ LMZ	30 200	MSAK7-3-L3 is located approx. 80m south of the block boundary. There is no RMA overlap, but the block does overlap the LMZ; all the timber is severely burnt. Any LMZ overlap within the harvest area will be treated the same as the remainder of the HU. No additional management is required.
MSAN3-1-W1-HVMW	RRZ RMZ	10 40	Located north of the block near FC 7. The harvest boundary is >/=10m from the edge of the wetland. Any RMZ overlap within the harvest area will be treated the same as the remainder of the HU. No additional management is required.
MSAN3-ALL-NCW	MSZ	5	There are 2 non-classified wetland features associated with this block; located entirely outside the harvest area. Where the boundary location doesn't provide a sufficient buffer, a 5-8m MFZ has been established. Stub the MFZ boundary every 5-10m at 3-5m in height, and retain all existing CWD within the MFZ.

FOREST HEALTH
- The majority of the timber within the block has been destroyed due to severe wildfire activity in 2021. The block is proposed to salvage the fire impacted timber.

WILDLIFE
- *Migratory Birds* - If a previously unidentified migratory bird nest is encountered during harvesting, road construction, or a silviculture activity associated with this Site Plan, operations are required to cease to the extent necessary to protect the affected migratory bird nest until alternative BMPs can be implemented to minimize or prevent the risk of incidental take.
- *American Badger Habitat* – If a previously unidentified badger den or signs of badger activity is encountered during harvesting, road construction, or a silviculture activity associated with this Site Plan, operations are required to cease to the extent necessary to protect the affected den/habitat until a management plan can be developed. As road-kill is the primary threat to badgers, machines and trucks are to be alert and cautious while harvesting and hauling.
- *Western Toad* – If a previously unidentified hibernacula (winter hibernating area) is encountered, or in the case of discovery of amphibians or reptiles, during harvesting, road construction, or a silviculture activity associated with this Site Plan, operations are the cease to the extent necessary to protect the affected feature/species until appropriate BMPs can be implemented or it is determined whether mitigation measures are required.

DEACTIVATION/REHABILITATION
- Temporary Access should be rehabilitated upon harvest completion, or at least prior to the spring freshet.

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- Refer to Road Deactivation map.