



Wildfire Risk Reduction Prescription



A. PROJECT IDENTIFICATION	
PROJECT ID: Francois Lake Fuel Management Prescription Development	UNIT ID: FTU-1 (Indian Bay)
NATURAL RESOURCE DISTRICT: Nadina	GEOGRAPHIC DESCRIPTION: Southbank – Indian Bay
UTM: U9 613202, 6069480	MAP REFERENCE: 093L 117
LAND OWNERSHIP STATUS: Crown – Provincial	TENURE HOLDER(S): Chinook Community Forest (CFA K4R)

B. PROJECT DESCRIPTION
<p>OBJECTIVES:</p> <p>The fuel treatment units (FTUs) assessed originate from the Southside Wildfire Risk Reduction (WRR) Tactical Plan currently under development by FLNRORD. FTU 1 and 2 have been amalgamated for this prescription. These units represent high priority areas within the Tactical Plan project area due to their proximity to values at risk; values are classified under four (4) priority action themes: human life and safety, critical infrastructure, high environmental and cultural values, and other resource values.</p> <p>Primary WRR objectives of the prescribed treatments are to:</p> <ul style="list-style-type: none"> • reduce the risk of wildfire to public safety by modifying fuels adjacent to critical evacuation corridors – specifically the Uncha Lake Road and the Indian Bay Road networks. • reduce the risk of wildfire to public safety by modifying fuels within wildland urban interface (WUI) areas or other areas of high occupancy during the fire season. • reduce the risk of wildfire to critical infrastructure by modifying fuels adjacent to identified infrastructure within the treatment area. • improve firefighter access and safety during incident response and suppression activities by removing hazardous stand components and modifying fuels to reduce fire behaviour potential.
<p>STRATEGIES:</p> <p>Wildfire risk reduction objectives will be achieved through stand modification treatments that require the removal of hazardous overstory fuels and reductions to canopy bulk densities within specific fuel strata. These modifications will increase fuel strata gaps through the removal of ladder fuels and overstory stand components that contribute to undesirable fire behaviour. In concert with surface fuel load reductions of existing downed woody material and treatment residues, stand modification treatments will reduce fire intensities and therefore, the potential for crown fire propagation and persistence as well as the potential for spotting or ember cast into adjacent stands.</p> <p>Stand modifications will require multiple treatment phases to achieve the treatment specifications developed to meet the stated fuel management objectives.</p>
<p>TACTICS/METHODS:</p> <p>Selection and clearcut with reserve silviculture systems utilizing conventional ground-based harvest systems will be employed to carry out initial mechanical treatment phases. Subsequent treatment phases will primarily consist of surface fuel reductions to minimize treatment residues.</p> <p>Clearcut areas have been identified where stands require significant modification due to composition or condition and a commercial fibre recovery and timber utilization opportunity exists. Entries into these areas will consist of an overstory removal phase with the retention of deciduous stand components and a focus on fibre utilization during subsequent surface fuel reductions to minimize treatment residues.</p> <p>Selection areas have been identified where more demanding treatment specifications have been prescribed due to stand composition, condition, or location. These areas typically occur within a scenic area and are highly visible or occur adjacent to private property. Multiple treatment phases will be required to achieve treatment specifications intended to shift stand composition towards deciduous. Treatments will include a mechanical stand thinning phase utilizing conventional mechanized equipment, subsequent manual thinning and pruning phases, and a mechanical surface fuel reduction phase. Pruning specifications and surface fuel targets have been determined with reference to the critical surface fire intensity thresholds (<2000 kW/m) for the fuel types present under 90th percentile weather conditions. Adjustments to initial spread indexes (ISI) to account for the influence of slope have not been incorporated into treatment specifications due to the relatively benign terrain within the treatment area.</p>



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C. APPLICABLE HIGHER-LEVEL AND OPERATIONAL PLANS	
APPLICABLE HIGHER-LEVEL PLANS:	Legal Orders: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Lakes District Land and Resource Management Plan – 2000	Lakes District Higher Level Plan Order Order Cancelling Objectives 1-5 and 7 of the Lakes LRMP Lakes Visual Quality Order Lakes Scenic Area Order
Lakes South Sustainable Resource Management Plan – 2003	Land Use Objectives Regulation Order Amendment: OGMAs Old Growth Forest Objective Amendment Higher Level Plan Order Order Establishing Lakes South Landscape Units and Objectives
APPLICABLE LANDSCAPE UNITS:	Francois Lake West / Francois Lake East
APPLICABLE OPERATIONAL PLANS:	Supplements: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Chinook CFA K4R Forest Stewardship Plan – 2016	None

D. TENURE AUTHORIZATION(S)					
TYPE	LICENSEE	LICENSE	CP	BLOCK	OPENING
CFA	Chinook	K4R	TBD	TBD	TBD
RP	TBD	TBD	TBD	TBD	TBD

E. AREA UNDER PRESCRIPTION								
TU	SU	TAUP (HA)	PAS (HA)	WTRA (HA)	NP (HA)	NET (HA)	NAR (HA)	OTHER (HA)
1	A	43.0	1.8	8.0	0.0	33.2	0.0	0.0
2	B	19.7	1.4	4.3	0.0	14.1	14.1	0.0
4	D	11.5	0.0	0.0	0.0	11.5	11.5	0.0
5	E	4.7	0.0	0.8	0.0	3.9	0.0	0.0
TOTAL		78.9	3.2	13.1	0.0	62.7	62.7	0.0

F. ECOLOGICAL AND SITE INFORMATION									
TU	SU	CFFDRS FUEL TYPE	TIMBER TYPE	BEC UNIT	SITE SERIES	ELEV. (M)	SLOPE POSITION	SLOPE AVG (%)	ASPECT
1	A	M-2	At ₅ Sx ₅	SBSdk	01 ₈ 06 ₂	725-800	U-M	18%	NNE
2	B	C-2	Sx ₈ Pl ₂	SBSdk	06 ₆ 01 ₄	725-775	L-M	12%	N
4	D	M-2	Sx ₇ At ₃ (PI)	SBSdk	01 ₇ 06 ₃	760-785	U-M	9%	E/W
5	E	C-2	Sx ₉ At ₁	SBSdk	01 ₁₀	730-770	M	21%	ESE

G. SOILS INFORMATION									
TU	SU	TEXTURE	COARSE FRAG. (%)	ROOTING (CM)	UNFAV. SUBSTRATE		SOIL HARZARD RATING		
					TYPE	DEPTH	COMP.	EROSION	DISP.
1	A	L/SiL	20	17	NNTD	-	H	M	M
2	B	SiL/SL	30	20	NNTD	-	H	M	M
4	D	L/SiCL	35	20	NNTD	-	VH	M	L
5	E	SiL/L	35	15	NNTD	-	H	H	M

Unfavourable Substrates: None Noted (NNTD)



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H. ACCESS STRUCTURE SUMMARY				
ACCESS ID	TYPE	STATUS	DESIG.	SPECIFICATIONS/DESCRIPTION
A	Spur	Proposed	TAS	881 m single lane spur road with a proposed width <8.0 m. Required to access areas east of the Uncha Lake Rd including areas where stocking obligations apply.
B	Spur	Proposed	TAS	397 m single lane spur road with a proposed width <8.0 m. Required to access areas west of the Uncha Lake Rd including areas where stocking obligations apply. Install sufficient drainage structures so as to minimize concentration of surface run-off.
C	Spur	Proposed	TAS	383 m single lane spur road with a proposed width <8.0 m. Required to access areas west of the Uncha Lake Rd including areas where stocking obligations apply. Install sufficient drainage structures so as to minimize concentration of surface run-off.
D	Spur	Proposed	TAS	462 m single lane spur road with a proposed width <8.0 m. Required to access areas isolated by utilities along the Indian Bay Rd. Access structure will occur on private land and referral is required.
TBD	Road Permit	Existing	PAS	196 m single lane permit road with a proposed width <8.0 m. Required to access spur B and C from the Uncha Lake Rd. Access structure will occur on crown land and a road permit is required.
N/A	Skid Trails	Proposed	TAS	859 m non-bladed skid trails with a proposed width <7.0 m. Established to accommodate yarding and skidding activities and reduce the need for additional unplanned access structure.

I. SOIL CONSERVATION STANDARDS					
TU	SU	MAX. ALLOWABLE SOIL DISTURBANCE (%)	MAX. ALLOWABLE SOIL DISTURBANCE FOR RWA (%)	MAX. ALLOWABLE PAS (%)	MAX. ADDITIONAL TAS (%)
1	A	10	25	7	5
2	B	10	25	7	5
4	D	5	25	7	5
5	E	10	25	7	5
RATIONALE FOR EXCEEDING SOIL DISTURBANCE LIMITS					
Soil Conservation Standard determinations have been made with consideration of the soil hazard ratings within each standards unit (SU) to limit the extent of soil disturbance caused by treatment activities. Although soil disturbance limits are not anticipated to be exceeded, treatment activities must be carried out on sufficiently dry or frozen soils so as to prevent site degradation and protect soil productivity.					
RATIONALE FOR EXCEEDING PERMANENT ACCESS STRUCTURE LIMITS					
Proposed and existing PAS are not expected to exceed maximum allowable PAS within an SU.					
REHABILITATION OF TEMPORARY ACCESS STRUCTURES					
In the event that prescribed soil disturbance limits are exceeded within a SU as a result of TAS, the prescribed limit must not be exceeded by more than 5% and, prior to the regeneration date, the features must be rehabilitated to the standards set out by section 35 of the FPPR.					
<ul style="list-style-type: none"> - Construct all TAS during the winter season. - Preserve the structure of overburden materials during road construction activities to alleviate rehabilitation requirements. - Return displaced surface soils and retrievable side-cast and berm materials. - Maintain natural surface drainage patterns by ensuring all swales and potential drainage paths are not obstructed. - Promptly revegetate areas of exposed mineral soil with an approved grass seed mix and distribute woody debris to reduce the likelihood of erosion and the establishment of invasive plants. 					



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J. TREATMENT UNIT DESCRIPTIONS		
TU	SU	GENERAL STAND DESCRIPTION AND CRITICAL SITE FACTORS
1	A	<p>TU-1 occurs in the SBSdk on zonal sites with rich site indicators noted on receiving sites. Topography within the unit is typically benign with the exception of several broad, steep sided depressions and draws characterized by subhygric sensitive soils with clayey textures (SiCL).</p> <p>Overstory tree layers consist of equal trembling aspen and hybrid spruce components with typical stand densities of 660 sph. Hybrid spruce stand components have a clumpy distribution and canopy base heights are consistently <2.0 m. Where exposure to large fetch distances off François Lake exist, broken or otherwise damaged tops are common in hybrid spruce stand components.</p> <p>Understory tree layers are present on most sites and are primarily composed of hybrid spruce. Pole layers consist of 300 sph of hybrid spruce and 100 sph of trembling aspen. Hybrid spruce heights range from 3.0 m to 17.5 m with canopy base heights between 0.2 m and 4.3 m. Sapling layers consist of 800 sph of hybrid spruce and 500 sph of trembling aspen. Hybrid spruce heights average 3.7 m and canopy base heights average <0.4 m. The regeneration layer consists of 1000 sph of hybrid spruce and 200 sph of trembling aspen. Hybrid spruce heights average 0.7 m and canopy base heights average <0.1 m.</p> <p>Understory vegetation complexes are dominated by a shrub layer composed of prickly rose, highbush-cranberry, soopolallie, and red-osier dogwood as well as an herb layer composed of fireweed, birch-leaved spirea, showy aster, and purple peavine. Moss layers are characterized by a patchy cover of red-stemmed feathermoss and step moss.</p> <p>Fuel type determinations classified these stands as M-2 (boreal mixedwood–green) with 75% coniferous composition. Coniferous composition has been elevated in these stands due to the absence of an adequate fuel strata gap between overstory and understory tree layers. Surface fuel loads are low relative to adjacent TU's.</p>
2	B	<p>TU-2 occurs in the SBSdk on slightly richer and moister sites characterized by an O6 site series with an O1 influence. Topography within the unit is typically benign, with gently rolling slopes on level to moderately sloped ground.</p> <p>Overstory tree layers consist of 900 sph of hybrid spruce and scattered lodgepole pine, although stand densities declined significantly in areas where wind damage is prevalent. Stems are typically well-distributed and canopy base heights average 5.1 m.</p> <p>Understory tree layers are present in low densities on most sites and are predominantly composed of hybrid spruce. Pole layers consist of 60 sph of hybrid spruce and 40 sph of trembling aspen. Hybrid spruce heights range from 4.0 m to 18.0 m with canopy base heights averaging 2.8 m. Sapling layers consist of 140 sph of hybrid spruce and 60 sph of trembling aspen. Hybrid spruce heights average 4.7 m and canopy base heights average 0.1 m. Regeneration layers consist of 60 sph of hybrid spruce. Hybrid spruce heights average 0.4 m and canopy base heights average 0.1 m.</p> <p>Understory vegetation complexes are dominated by a shrub layer composed of prickly rose, highbush-cranberry, soopolallie, and red-osier dogwood as well as an herb layer composed of fireweed, showy aster, and purple peavine. Moss layers are characterized by a patchy cover of red-stemmed feathermoss and step moss.</p> <p>Fuel type determinations classified these stands as C-2 (boreal spruce) although in windthrow patches these stands may be better described by an S-2 (white spruce/balsam slash) fuel type where windthrow is more prevalent. Surface fuel loads are significantly lower than adjacent TU's.</p>
4	D	<p>TU-4 occurs in the SBSdk on zonal sites containing richer site indicators. Topography within this unit is typically benign although the gently rolling terrain breaks steeply into a prominent gully feature. Subhygric, sensitive soils with clayey textures (SiCL) are prevalent within this unit and wind events have resulted in minor amounts of windthrow and windshear.</p> <p>Overstory tree layers consist of 750 sph of hybrid spruce and 200 sph of trembling aspen. Canopy base heights are consistently <2.0 m with a typical range from 1.0 m to 6.0 m.</p> <p>Understory tree layers are present on most sites and primarily composed of hybrid spruce. Pole layers consist of 400 sph of hybrid spruce with heights ranging from 5.0 m to 15.0 m and canopy base heights ranging from 0.9 m to 6.0 m. Sapling layers consist of 250 sph of hybrid spruce and 100 sph of trembling aspen. Hybrid spruce heights average 2.9 m and canopy base heights average <0.4 m. The regeneration</p>



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		<p>layer consists of 50 sph of hybrid spruce. Hybrid spruce heights average 0.5 m and canopy base heights average <0.4 m.</p> <p>Understory vegetation complexes are dominated by a shrub layer composed of prickly rose, highbush-cranberry, soopolallie, and kinnikinnick as well as an herb layer composed of various species of grass, showy aster, and purple peavine. Moss layers are characterized by a patchy cover of red-stemmed feathermoss and step moss.</p> <p>Fuel type determinations classified these stands as M-2 (boreal mixedwood–green) with 75% coniferous composition although, due to variations in stand types, structure, and composition, portions of this type may also be described by C-2 and D-1 fuel types. Surface fuel loads are high relative to adjacent TU's.</p>
5	E	<p>TU-5 occurs in the SBSdk on zonal sites with richer site indicators noted on receiving sites. Topography within the unit is benign although the gently rolling to level terrain breaks steeply into a prominent gully feature.</p> <p>Overstory tree layers primarily consist of 800 sph of hybrid spruce with a minor component of trembling aspen. Hybrid spruce heights average 15.3 m and canopy base heights are consistently 4.3 m.</p> <p>Understory tree layers are composed of moderate densities of hybrid spruce. Pole layers consist of 700 sph of hybrid spruce with heights ranging from 9.0 m to 15.0 m and canopy base heights ranging from 3.0 m and 8.0 m. Sapling layers consist of 400 sph of hybrid spruce with heights averaging 3.0 m and canopy base heights averaged <0.5 m. The regeneration layer was typically absent within this TU.</p> <p>Understory vegetation complexes are dominated by a moderately developed shrub layer composed of prickly rose, highbush-cranberry, and alder as well as a poorly developed herb layer composed of fireweed, showy aster, and false solomon's-seal. Moss layers are characterized by a patchy cover of knights plume and step moss.</p> <p>Fuel type determinations classified these stands as C-2 (boreal spruce). Surface fuel loads are significantly lower than in adjacent TU's.</p>



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K. RIPARIAN AREAS				
RIPARIAN MANAGEMENT STRATEGIES				
CLASS.	CUTBLOCK-LEVEL RETENTION WITHIN RIPARIAN MANAGEMENT AREAS			
S3	<p>Within the portion of the riparian management zone (RMZ) that is within the cutblock, retain a minimum of 30 sph of <i>measurable stems</i> that are representative of the tree species composition prior to harvest and have a minimum of 7.5 cm diameter at stump height (DSH).</p> <p>Where practicable retain mature aspen and cottonwood – deciduous retention must not exceed 50% of the retention requirements within the RMZ.</p>			
RIPARIAN MANAGEMENT AREAS				
RIPARIAN ID	CLASS.	RRZ (M)	RMZ (M)	SPECIFICATIONS FOR RIPARIAN MANAGEMENT AREAS
A-R1	S3	20	20	<p>Classified stream A-R1-S3 flows north within a deeply incised gully to its confluence with Francois Lake. Indicators of slope instability have been noted along the gully sidewalls and have been assessed by a PGeo.</p> <p>The riparian management area (RMA) of this feature is entirely within a wildlife tree retention area (WTRA) that has been established around suspect terrain to protect ecosystem function and biodiversity within hydriparian areas and to maintain hydrological function and water quality. The extent of the WTRA boundary exceeds riparian management specifications and therefore management strategies for restrictions within riparian reserve zones (RRZs) or basal area retention targets within RMZs have not been prescribed.</p> <p>This feature is crossed by the Indian Bay Road. At the stream crossing location, a CMP 1200 has been installed and is in good condition.</p>
B-R1	S3	20	20	<p>Classified stream B-R1-S3 flows north within a deeply incised gully to its confluence with Francois Lake at the Indian Bay Recreation Site. Indicators of slope instability have been noted along the gully sidewalls and have been assessed by a PGeo.</p> <p>The RMA of this feature is entirely within a WTRA that has been established around suspect terrain to protect ecosystem function and biodiversity within hydriparian areas and to maintain hydrological function and water quality. The extent of the WTRA boundary exceeds riparian management specifications and therefore management strategies for restrictions within RRZs or basal area retention targets within RMZs have not been prescribed.</p>
RIPARIAN COMMENTS				
<p>Riparian features occurring within the Chinook Community Forest Agreement (CFA) tenure area have been managed in accordance with section 6.5.2 of the approved Chinook CFA Forest Stewardship Plan (FSP) 2016 and are compliant with the requirements of sections 47 to 51, 52(2), and 53 of the FPPR.</p> <p>Professional assessments carried out by an RPBio have not been completed as part of this prescription. Classified streams have been defaulted to fish bearing based on fish inventory information retrieved from the HabitatWizard online mapping application (Thursday, March 25, 2021).</p> <p>Non-classified drainage (NCD) features were not identified within the treatment area.</p>				



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L. RESULTS AND STRATEGIES – FRPA VALUES MANAGEMENT			
OBJECTIVES SET BY GOVERNMENT FOR SOILS – FPPR sections 5, 35, 36, and 39			
Do the proposed Permanent Access Structures exceed 7% of the total area?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<p>As per section 36(1) of the FPPR the total amount of permanent access structure (PAS) within the treatment area is not to exceed 7% of the TAUP. Proposed and existing PAS attributable to the treatment area consists of 3.2 ha (4.1%) of the TAUP – consisting of 2.6 ha (3.4%) existing and 0.5 ha (0.7%) of proposed PAS.</p> <p>Any additional access structure must be approved by an authorized treatment supervisor and will be designated as TAS.</p>
Do the proposed Temporary Access Structures exceed 5% of the total area excluding roadside work areas?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<p>As per section 36(4) of the FPPR the total amount of temporary access structure (TAS) will not exceed 5% of the total area covered by a SU excluding the roadside work area (RWA).</p> <p>As per section 36(4)(b) of the FPPR, at a minimum, all TAS constructed in excess of the soil disturbance limit established for a SU will be rehabilitated to the extent required by section 35(6) prior to the regeneration date.</p>
LANDSLIDES AND TERRAIN STABILITY – FPPR section 37			
Does the proposed treatment area include areas where terrain stability is a concern?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<p>Indicators of slope instability were noted along the gully walls of the terrain features that contain streams A-R1-S3 and B-R1-S3. To ensure the protection of water quality, fish habitat, public safety (i.e. private land and recreation values), and soil productivity a Terrain Stability Review has been completed by a qualified professional (PGeo) on the treatment area.</p> <p>This review utilized field data collected by Silvicon Services as well as Chinook CFA LiDAR data to assess terrain stability in conjunction with the proposed WRR treatment activities. The report indicated that unstable terrain exists within the gully features however these areas have been excluded from the treatment area or allocated to WTRA.</p> <p>The report indicates that landslides on gully sidewalls in the BC Interior are typically attributed to natural processes following periods of prolonged wet soil conditions. Forestry activities being carried out upslope that concentrate and divert surface run-off from roads or trails towards the gully walls can contribute to the risk of a landslide occurring. The report indicates that the potential for the diversion potential of the proposed access structures is low and that the likelihood of landslide initiation as a result of treatment activities is low. Additionally, should a landslide occur the event would likely partially obstruct the impacted stream channel though there would be no or minimal adverse effects o the alluvial fan at the mouth of the gully's.</p> <p>The report makes four (4) recommendations which have been adopted by this prescription:</p> <ul style="list-style-type: none"> • Along Spur B and C, sufficient cross drains should be installed to minimize concentration of surface run-off. • Operations must stop during wet soil conditions or heavy rain events that generate surface flow along ephemeral channels or along ruts and tire tracks. • During deactivation of roads and trails, all swales and potential drainage paths must be opened up again. • Routing of surface run-off along and across Uncha Lake Road should be inspected for a better understanding how runoff is diverted along the road and onto the gully sidewall of Stream A. <p>With respect to the inspection of drainage structures established along the Uncha Lake Road:</p> <ul style="list-style-type: none"> • the Agreement Holder will ensure that these drainage structures are not damaged or obstructed as a result of treatment activities. • the road maintenance contractor will ensure that the long term maintenance of these drainage structures is completed.



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OBJECTIVES SET BY GOVERNMENT FOR TIMBER – FPPR section 6 and 43.1			
Have treatment activities been proposed in a “targeted pine leading stand”?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Treatment activities have not been proposed in a “targeted pine leading stand” as defined by section 1 of the FPPR. Additionally, the treatment activities proposed will occur entirely within a community forest agreement (CFA) license and therefore the secondary stand structure retention specifications set out in section 43.1 of the FPPR do not apply.
OBJECTIVES SET BY GOVERNMENT FOR WILDLIFE – FPPR section 7			
Have treatment activities been proposed in areas where objectives for wildlife established under FPPR section 7 apply?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	A legal order establishing objectives set by government for wildlife has not been enacted in the Lakes district and objectives are not specified in the Lakes LRMP or the Lakes South SRMP. Two notices, enabled under section 7(2) of the FPPR, specifying indicators of the amount, distribution and attributes of wildlife habitat required for the winter survival of ungulate species as well as for the survival of species at risk exist for the Lakes and Nadina districts, respectively.
GENERAL WILDLIFE MEASURES – FPPR section 7, GAR section 11, FRPA section 182			
Have treatment activities been proposed in areas where general wildlife measures apply?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	The treatment area does not overlap any mapped or otherwise identified areas where a general wildlife measure applies.
WILDLIFE HABITAT AREA – GAR section 10, FRPA sections 180 and 181, FPPR section 69			
Have treatment activities been proposed in areas that contain spatially or otherwise identified wildlife habitat areas?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	The treatment area does not overlap an identified wildlife habitat area (WHA) polygon.
WILDLIFE HABITAT FEATURES – FPPR section 7 and 70, GAR section 11			
Have treatment activities been proposed in areas that contain identified wildlife habitat features?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	The treatment area does not overlap any mapped wildlife habitat features. A large stick nest was noted within a WTRA adjacent to François Lake (U10 320500, 5989131). It is suspected to be an Osprey (<i>Pandion haliaetus</i>) nest although no activity was noted while carrying out field assessments or development activities. Assessment of nest occupancy must be carried out by a qualified professional prior to carrying out treatment activities.
UNGULATE WINTER RANGE – GAR section 12, FRPA sections 180 and 181, FPPR section 69			
Have treatment activities been proposed in areas that contain spatially or otherwise identified ungulate winter range?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	The treatment area does not overlap an identified ungulate winter range (UWR) polygon.
SPECIES AT RISK/REGIONALLY IMPORTANT WILDLIFE AND UNGULATE SPECIES – FPPR section 7 and 70(2), GAR section 9, 10, 11, 13			
Have treatment activities been proposed in areas with known occurrences of, or that contain habitat relied on by species at risk?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	No known occurrences of a species at risk were noted during field assessments or through review of BC Conservation Data Centre spatial data. The treatment area does not overlap mapped critical habitat for northern caribou or grizzly bear, or mapped ungulate winter range habitat for moose or mule deer.
OBJECTIVES SET BY GOVERNMENT FOR WATER, FISH, WILDLIFE AND BIODIVERSITY WITHIN RIPARIAN AREAS – FPPR division 3, GAR section 6, FRPA sections 180 and 181			
Have treatment activities requiring the cutting, modification, or removal of trees been proposed in areas that contain streams, lakes, or wetlands?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Riparian features within 50 m of the treatment area have been assessed and classified as per the specifications provided by section 47, 48, and 49 of the FPPR. Treatment activities have not been prescribed within a riparian reserve zone (RRZ) and therefore the exceptions and conditions provided by section 51 of the FPPR do not apply.



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			Treatment activities will not exceed the riparian management zone (RMZ) basal area retention thresholds specified by section 52 of the FPPR.
MAINTAINING STREAM BANK AND CHANNEL STABILITY ON S4, S5, and S6 STREAMS – FPPR section 52 (2)			
Have treatment activities requiring the cutting, modification, or removal of trees in a RMZ that contribute to the maintenance of stream bank or the stream channel stability of an S4, S5, or S6 stream that is a directly tributary to an S1, S2, or S3 stream been proposed?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Treatment activities have not been prescribed within the RMZ of an S4, S5, or S6 stream that is a direct tributary to an S1, S2, or S3 stream, and therefore the precautions for maintaining stream bank and channel stability provided by section 52(2) of the FPPR do not apply.
TEMPERATURE SENSITIVE STREAMS – FPPR section 53, GAR section 15, FRPA sections 180 and 181			
Have treatment activities been proposed in areas that contain, are adjacent to or are a direct tributary to a temperature sensitive stream?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	The treatment area does not include areas that contain, are adjacent to, or are a direct tributary to an identified temperature sensitive stream.
ROAD CONSTRUCTION IN RIPARIAN MANAGEMENT AREAS – FPPR section 50			
Have road construction activities associated with the treatment area been proposed within the RMA of identified riparian features?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Road construction activities have not been proposed within the riparian management area (RMA) of an identified riparian feature.
STREAM CROSSINGS – FPPR section 55			
Have stream crossings been proposed for access structures associated with the treatment area?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	The proposed access structures associated with the treatment area do not require the establishment of a stream crossing.
OBJECTIVES SET BY GOVERNMENT FOR FISH HABITAT IN FISHERIES SENSITIVE WATERSHEDS – GAR section 14, FPPR section 8.1			
Have treatment activities been proposed within an identified fisheries sensitive watershed?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Treatment activities have not been proposed within a fisheries sensitive watershed.
OBJECTIVES SET BY GOVERNMENT FOR WATER IN COMMUNITY WATERSHEDS – GAR section 8, FPPR section 8.2, 61, 62 and 84			
Have treatment or road construction activities been proposed within an identified community watershed?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Treatment and road construction activities have not been proposed within a community watershed.
LICENCED WATER WORKS (inside or outside of a community watershed) – FPPR section 59 and 60			
Have treatment or road construction activities been proposed within 100 m of a licensed waterworks in a community watershed?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Treatment and road construction activities have not been proposed within 100 m of a licensed waterworks in a community watershed.
Have treatment activities been proposed in areas that contain water sources that are diverted for human consumption by a licensed waterworks?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<p>Treatment activities have not been proposed in areas that contain water sources that are diverted for human consumption by a licensed waterworks.</p> <p>Overlap with the following spatial water license features was noted through review of the DataBC catalogue on February 9th 2021:</p> <ul style="list-style-type: none"> • Water License Point – Dwelling – WRK_LOC_ID: 165832144 (UTM 320501.9, 5989020.7) • Water License Line – Conduit – WRK_LIN_ID: 500024696 (UTM 320501.9, 5989020.7) • Land Parcel with Water License – Private – PID: 017700116 \ License Number: Z108251 (UTM 320711.4, 5988921.2)



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			The Water Authorization Specialist for the Skeena Region confirmed that these features do not represent a current Water Licence with authorized works ¹ .
WATERSHED ASSESSMENT CONSIDERATIONS – FRPA section 180 areas with "significant watershed sensitivity"			
Have treatment activities been proposed in areas where watershed assessment considerations apply?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Treatment activities have not been proposed in areas identified as having significant watershed sensitivity or other watershed assessment considerations.
OBJECTIVES SET BY GOVERNMENT FOR BIODIVERSITY OBJECTIVES (Landscape Level) – FPPR section 9			
Have treatment activities been proposed in areas where objectives for landscape level biodiversity under FPPR section 9 apply?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<p>The tenure manager will ensure that the applicable seral stage distribution objectives specified by Table 1 of the Lakes South SRMP are not exceeded as a result of the implementation of the proposed treatment activities.</p> <p>The tenure manager will ensure that the applicable Patch Size Distribution objectives specified by Table 7 of the Lakes South SRMP are not exceeded as a result of the implementation of the proposed treatment activities.</p> <p>Adherence to patch size distribution objectives specified in the Lakes South SRMP will ensure the intent of the maximum cutblock size specifications provided by section 64 of the FPPR are achieved.</p> <p>Treatment activities have been proposed adjacent to another cutblock and therefore adjacency considerations set out in section 65 of the FPPR apply. However, all existing cutblocks, as defined by section 65(1) of the FPPR, meet the requirements specified by section 65(3) of the FPPR and the proposed treatments are expected to meet the intent of section 65(4) of the FPPR.</p> <p>As additional fuels management and wildfire risk reduction activities are planned and implemented, the aggregate of these activities should be assessed to ensure both stand- and landscape-level biodiversity objectives are maintained.</p>
ECOSYSTEM NETWORKS – FPPR section 9, FRPA section 180 and 181			
Have treatment activities been proposed in areas where Ecosystem Network considerations apply?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Treatment activities have not been proposed in a landscape corridor ecosystem network polygon established by the Lakes South SRMP.
OBJECTIVES SET BY GOVERNMENT FOR BIODIVERSITY OBJECTIVES (Stand Level) - FPPR section 9.1			
Are considerations for maintaining stand structure (wildlife trees, wildlife tree reserves, etc.), coarse woody debris, and maintaining tree and vegetation species composition incorporated into this prescription?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<p>Wildlife tree retention areas (WTRA) have been established with consideration of wildfire risk and minimum block-level targets specified in Table 8 of the Lakes South SRMP for SBSdk sites in the Francois Lake West and Francois Lake East landscape units (13 and 14% respectively).</p> <p>Total WTRA allocation within the treatment areas is 13.1 ha (16.6%). Portions of the treatment area within the Francois Lake West landscape unit will exceed minimum wildlife tree retention targets by 1.5 ha (2.2%). Portions of the treatment area within the Francois Lake East landscape unit will exceed minimum wildlife tree retention targets by 1.2 ha (21.7%).</p> <p>The total contribution to WTRA from RMA's within the treatment area is 7.7 ha (58.7%) and exceeds the target provided by the Lakes South SRMP by 1.1 ha (8.7%). However, the allocation of additional WTRA is not practicable as block-level WTRA targets have already been exceeded. Additionally, suitable opportunities for the allocation of additional WTRA are constrained by adjacent private land parcels. An exemption from Strategy 1 for Objective 6 of the Lakes South LRMP will be required.</p> <p>If an exemption is not authorized, additional WTRA could be allocated along the eastern banks of stream B-R1-S3, although this would exacerbate the conflict due to additional RMA contributions from the riparian feature.</p>

¹ H. Erasmus (personal communication, February 17th 2021)



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			<p>As additional fuels management and wildfire risk reduction activities are planned and implemented, the aggregate of these activities should be assessed to ensure both stand- and landscape-level biodiversity objectives are maintained.</p> <p>As per section 68(1) of the FPPR, post-treatment retention of CWD will include a minimum of 4 logs per ha, each being a minimum of 2 m in length and 7.5 cm in diameter at one end. Additional CWD retention targets have been provided in the Treatment Specifications section.</p>
RETENTION OF OLD GROWTH FOREST – FPPR section 9, FRPA section 180 and 181			
Have treatment activities been proposed in areas where old growth retention considerations apply?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Treatment activities have not been proposed in an old growth management area (OGMA) established by the Lakes South SRMP.
OBJECTIVES SET BY GOVERNMENT FOR VISUAL QUALITY - GAR section 7, FRPA sections 180 and 181, FPPR section 9.2			
Is the proposed treatment within a scenic area having a legally established visual quality objective?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<p>The proposed treatments occur within a scenic area with a partial retention (PR) visual quality objective (VQO). Practice guidance indicates that the percent alteration to a landform with a partial retention visual quality objective, as evaluated from a significant public viewpoint, should not exceed 7.0%. As defined by section 1.1 of the FPPR alterations resulting from a primary forest activity in areas having a partial retention VQO may be easy to see, small to medium in scale, and natural in appearance, avoiding rectilinear or geometric shapes.</p> <p>A visual impact assessment (VIA) has been completed to determine the magnitude of the alteration expected to result from the proposed treatments.</p> <p>The treatment area has been designed with consideration of the visual design concepts and principles provided in the Visual Impact Assessment Guidebook. The proposed alteration includes areas where clearcut with reserve (CCRES) and selection (SELEC) silviculture system have been prescribed. These areas have been allocated to balance overlapping objectives within the treatment area and meet visual resource management objectives. Treatment specifications have been designed to the standards for fuels management specified by the BC Wildfire Service (BCWS) and in selection areas the prescribed retention is expected to exceed the practice guidance provided by the Visual Impacts of Partial Cutting.</p> <p>Visual simulations of the proposed alteration, as assessed from the identified viewpoints, indicate that the proposed treatment area is non-visible and, in conjunction with the prescribed retention specifications and distribution of the silviculture systems employed, is expected to meet the intent of the EVQO definition.</p>
OBJECTIVES SET BY GOVERNMENT FOR CULTURAL HERITAGE RESOURCES – FPPR section 10			
Are there any known archaeological sites or cultural heritage resources that are important to First Nations within the proposed area?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<p>No cultural heritage resources (CHR) were noted within the treatment area while carrying out field assessment and layout activities.</p> <p>In the event that CHR are identified or otherwise made known during First Nation information sharing and consultation, measures to protect the CHR or address First Nation concerns must be communicated by an addendum to, or an amendment of, this prescription.</p> <p>In the event that previously unidentified archaeological or cultural heritage resources are encountered while carrying out treatment activities, work in the area must stop, and an authorized treatment supervisor must be notified. A tenure representative or FLNRORD Official will complete a cultural heritage resource evaluation and provide management direction to protect or otherwise manage for the identified feature.</p>



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RECREATION FEATURES - FRPA section 56 and 149, FPPR section 70			
Does the proposed treatment area contain interpretive sites, recreation trails, recreation sites, recreation facilities that are considered to be of significant recreation value and are designated a resource feature?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<p>Objective set by government for a recreation site, recreation trail, or interpretive forest sites have been enacted for the Indian Bay Recreation Site.</p> <p>Treatment activities have been proposed along the western boundary of this recreation site, however treatment activities are not expected to result in adverse impacts to the recreation site and will comply with section 9.1.2 of the Chinook FSP 2016.</p>
INVASIVE PLANTS - FRPA section 47 and FPPR section 17			
Is the introduction and spread of invasive plants likely as a result of the proposed treatment?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<p>The Invasive Alien Plant Program (IAPP) database indicates the presence of invasive plant species on a previously cleared site (Site ID 305270). Species noted include annual hawksbeard, oxeye daisy, perennial sow thistle, scentless chamomile, and yellow hawkweed. Site investigations completed while carrying out prescription development activities confirmed the existence of some of the identified species however definitive identification was not possible due to the timing of assessments.</p> <p>At a minimum, the best management practices provided in Best practices for preventing the spread of invasive plants during forest management activities must be employed to prevent the spread of invasive plants. Additionally, initial treatment phases are expected to be carried out during the winter season to reduce the potential for significant soils disturbance and the establishment of invasive plants.</p> <p>All new invasive plant sites found must be reported to the Northwest Invasive Plant Council. The Northwest Invasive Plant Council can be reached at 1-866-449-3337. Refer to the IAPP Map Display for Invasive Plant occurrence locations.</p>
NATURAL RANGE BARRIERS - FRPA section 48, FPPR section 18			
Are there natural range barriers within the proposed treatment area that are likely to be removed or rendered ineffective?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<p>No active range tenures or range developments have been identified within or adjacent to the treatment area and therefore treatment activities are not expected to negatively impact or render ineffective natural range barriers.</p>
LAND USE OBJECTIVES (Higher Level Plans and objectives set by Government under the Land Act)			
Do the proposed activities conflict with land use objectives (higher level plans or objectives under the Land Act)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<p>Prescribed activities are not expected to conflict with other land use objectives not specifically addressed by this prescription.</p>
OTHER			
<p>Strategies to Reduce the Incidental Take of Migratory Birds</p> <p>The treatment area occurs within Bird Conservation Region (BCR) 10 – Northern Rockies, Canada Nesting Zone A4.</p> <p>To comply with the requirements of the Migratory Bird Convention Act and prevent the incidental take of migratory birds as a result of carrying out a primary forest activity, the following strategies will be employed:</p> <ul style="list-style-type: none"> - Treatment activities will not be carried out between May 14th and July 28th to avoid periods of high nesting intensity (>40% of known species actively nesting). - In areas where a clearcut with reserve silviculture system has been proposed, deciduous retention is expected maintain and provide habitat for migratory birds. - In areas where selection silviculture systems have been proposed, prescribed retention is expected to maintain and provide habitat for migratory birds. - Identified conspicuous or enduring nests are to be retained and reserved with a minimum of a 5 m no harvest zone to ensure the habitat feature does not incur physical damage as a result of treatment activities. - Retain two (2) dead potential stems per hectare of any species having a DBH >30.0 cm. - Stub dead potential trees to a height of >3 m only if required to address a safety concern (i.e. danger tree removal) - Retain snags except where their removal is necessary to address a safety concern (i.e. danger tree removal). 			

Several nest features were identified while carrying out field assessment and layout activities and have been excluded from the treatment area. Assessments of the status of these nests were inconclusive and no nesting activity was noted. In the event that additional, nests are identified while carrying out treatment activities they will be demarcated as leave/wildlife trees and receive a 5 m no harvest zone to ensure the habitat feature does not incur physical damage as a result of treatment activities.

Northern Goshawk Occurrence

As of the writing of this prescription significant emphasis is being placed on northern goshawk (NOGO) habitat management. Landscape and block level guidelines, including habitat mapping, decision matrices, and management objectives and associated targets are currently in draft. Though they have no legal authority at this time, NOGO management has been considered in the development of this prescription.

Review of the preliminary habitat mapping available through the Northern Goshawk Territory Management Planning Web Application did not indicate overlap with known goshawk occurrences or defined territory management zones. However, a northern goshawk (*Accipiter gentilis atricapillus*) occurrence was noted within the treatment area while carrying out field assessment and layout activities. Despite multiple attempts, efforts to locate a nest were unsuccessful.

Prior to carrying out the proposed treatment activities an attempt to locate active nest sites and assess the potential for breeding area occupancy should be made during the breeding season – early calling period occurs between February 15th and April 30th and the breeding season ending on July 1st.² If available, consider the use of automated audio recording units as described by Doyle (2015)³, or conduct walkthrough field surveys during the breeding season.

In the event that an active northern goshawk nest is identified, measures may be incorporated into an addendum to, or amendment of this prescription. Northern goshawk occurrences or habitat features should be communicated to the Northern Goshawk Territory Management Working Group through the FLNRORD.

Large Stick Nest Occurrence

A suspected Osprey (*Pandion haliaetus*) nest has been identified within the treatment area (U10 320500, 5989131). No activity was noted around the nest site and no Ospreys or other raptors were identified while carrying out field assessments or development activities in the vicinity of the nest site. The nest has been buffered by a 15 m retention area and is incorporated into a WTRA that is anchored off of François Lake. Additionally, a 5 m MFZ has been established off the buffer. The treatments proposed adjacent to the nest site consist of a selection silviculture system that will reduce stand basal area by approximately 31%, and in combination with timing windows are not anticipated to negatively impact the nest site.

Prior to carrying out the proposed treatment activities assessment of nest occupancy must be carried out by a qualified professional. To prevent injury to, or the incidental take of, a bird or its egg as well as to prevent damage to the nest site, the following measures will be employed:

- Treatment activities are not to be carried out within a 100 m setback from the nest site within the breeding season (March 1st to September 1st) or, if the nest is occupied.
- Occupancy monitoring will be required while carrying out treatment activities and operational setbacks will be increased to 200 m if a bird flushes away as a result of treatment activities.
- Fell trees away from the nest site.

Following assessment by a qualified professional, additional measures to protect this wildlife habitat feature may be incorporated into an addendum to, or amendment of this prescription.

² M. Crombie (personal communication, March 3rd 2021).

³ Doyle, F. (2015). Use of automated recording units to detect breeding goshawks.



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M. OTHER MANAGEMENT CONSIDERATIONS			
CONSULTATION – FIRST NATIONS			
FIRST NATION	CONCERNS IDENTIFIED AND MEASURES TO ADDRESS		
Wet’suwet’en	None noted as of Thursday, March 25, 2021.		
Office of the Wet’suwet’en	None noted as of Thursday, March 25, 2021.		
Witset	None noted as of Thursday, March 25, 2021.		
Skin Tye	None noted as of Thursday, March 25, 2021.		
Stellat’en	None noted as of Thursday, March 25, 2021.		
Cheslatta Carrier	None noted as of Thursday, March 25, 2021.		
Nee Tahi Buhn	None noted as of Thursday, March 25, 2021.		
First Nations consultation and referral complete?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Consultation and information sharing with First Nations whose traditional territories overlap with the treatment area is in progress and is being facilitated by regional FLNRORD staff and the CFA tenure holder. Communications and feedback received as a result of these efforts will be duly considered and incorporated into this prescription by an addendum to, or an amendment of, this prescription.
REFERRAL – EXISTING TENURE HOLDERS			
TENURE HOLDER	CONCERNS		MEASURES PROPOSED TO ADDRESS LICENSEE'S CONCERNS
Chinook Community Forest - CFA K4R	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<u>Point of Contact:</u> Ken Neilson, President – Chinook Comfor Ltd. Consultation efforts are ongoing with Chinook. Collaboration between the Chinook and FLNRORD on this project will require additional discussion.
Free Use Permit for Firewood - F20020 (Retired) - F20022 (Retired)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<u>Point of Contact:</u> N/A Two (2) retired free use permits have been identified using the DataBC Catalogue . Due to the status of these tenures no referral efforts have been made.
Guide Outfitter Area - 604G005	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<u>Point of Contact:</u> James Lancaster The tenure manager will make reasonable effort to notify the holder of an active guide outfitter area of the proposed treatment activities.
Trapline Area - 2720808	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<u>Point of Contact:</u> Unknown The tenure manager will make reasonable effort to notify the holder of a trapping license who actively traps in the treatment area of the proposed treatment activities.
PRIVATE PROPERTY			
Does private property border the proposed treatment area?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	The treatment area is bordered by numerous private property parcels. To avoid trespass, efforts have been made to identify property corner markers (pins). Crews were not able to locate several pins. However a sufficient number of pins have been located to allow for the establishment of treatment area boundaries with good confidence. Fences were noted in several locations and must not incur damage as a result of treatments. Public referral is in progress and is being facilitated by regional FLNRORD staff and the CFA tenure holder. Communications and feedback received as a result of these efforts will be duly considered and incorporated into this prescription by an addendum to, or an amendment of, this prescription. A proposed access structure will encroach on private property (PID 15493954) to reduce conflict with distribution lines along the Indian Bay Road. This encroachment has tentatively been approved by the property owner though a formal agreement has not been established.



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			Survey grade equipment was not used to verify the accuracy of layout activities along private land parcels. Should concerns over the accuracy of treatment unit boundaries arise, a property line survey will be required.
UTILITIES/INFRASTRUCTURE			
Are utilities located in or adjacent to the proposed treatment area? i.e. power lines, gas lines, etc.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<p>BC Hydro right-of-way containing distribution lines occur within and adjacent to treatment area.</p> <p>Clearances between the road grade and distribution lines along the Indian Bay Road may not accommodate the anticipated industrial traffic required to carry out the prescribed treatments. An assessment carried out by a qualified professional is required, and prior to the commencement of treatment activities, any deficiencies identified must be corrected to the standards set out by Part 1 of the BC Electrical Code (High Voltage Installations), CSA Standard CAN/CSA-C22.3 No. 1-20 (Overhead Systems), or any other applicable standards required by the utility holder.</p> <p>Operators and other workers must carryout all work associated with the prescribed activities in a manner consistent with part 19 (Electrical Safety) of the WorkSafeBC Occupational Health and Safety Regulations, specifically 19.24.1 (Minimum Approach Distances) and 19.24.2 (Minimum Clearance Distances).</p>
ACCESS CONTROL			
Are there any foreseen issues with access and access control during and post treatment?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<p>No existing access control infrastructure has been noted.</p> <p>Treatment activities are not expected to result in the need for access control infrastructure or measures to be established.</p>



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N. TREATMENT SPECIFICATIONS								
N-1. TU-1 STAND AND STOCK TABLE								
SPECIES AND DIAMETER CLASS	HTLC (M)	HEIGHT (M)	STEMS PER HECTARE (SPH)			VOLUME PER HECTARE (M ³ /HA)		
			EXISTING	CUT	LEAVE	EXISTING	CUT	LEAVE
Layer 1 (>27.5 cm)								
SX	3.6	21.7	90	90	0	74.7	74.7	0.0
AT	0.0	26.1	245	15	230	202.4	10.9	191.5
Total Dead Potential			22	22	0	13.8	13.8	0.0
Total Live			313	83	230	263.2	71.7	191.5
Total All Species			335	105	230	277.1	85.6	191.5
Total Conifers			90	90	0	74.7	74.7	0.0
Layer 1 (>22.5 - 27.5 cm)								
SX	2.5	17.9	135	35	100	38.0	9.8	28.1
AT	0.0	24.0	20	0	20	7.3	0.0	7.3
Total Dead Potential			0	0	0	0.0	0.0	0.0
Total Live			155	35	120	45.2	9.8	35.4
Total All Species			155	35	120	45.2	9.8	35.4
Total Conifers			135	35	100	38.0	9.8	28.1
Layer 1 (>17.5 - 22.5 cm)								
SX	3.2	15.8	110	10	100	19.2	1.7	17.5
AT	0.0	14.8	65	15	50	10.0	2.3	7.7
Total Dead Potential			0	0	0	0.0	0.0	0.0
Total Live			175	25	150	29.2	4.0	25.2
Total All Species			175	25	150	29.2	4.0	25.2
Total Conifers			110	10	100	19.2	1.7	17.5
Layer 1 (≥12.5 - 17.5 cm)								
SX	1.5	11.7	65	15	50	3.7	0.9	2.9
AT	0.0	15.3	20	20	0	2.1	2.1	0.0
Total Dead Potential			0	0	0	0.0	0.0	0.0
Total Live			85	35	50	5.8	2.9	2.9
Total All Species			85	35	50	5.8	2.9	2.9
Total Conifers			65	15	50	3.7	0.9	2.9
Total Layer 1								
SX	2.9	16.8	400	150	250	135.6	87.1	48.5
AT	0.0	19.7	350	50	300	221.7	15.3	206.4
Total Dead Potential			22	22	0	13.8	13.8	0.0
Total Live			728	178	550	343.5	88.5	254.9
Total Layer - All Species			750	200	550	357.3	91.5	254.9
Total Layer - Conifers			400	150	250	135.6	87.1	48.5
Layer 2 (≥7.5 - 12.5 cm)								
SX	1.2	7.6	245	45	200	4.3	0.8	3.5
AT	0.0	7.7	110	10	100	2.2	0.2	2.0
Total Dead Potential			0	0	0	0.0	0.0	0.0
Total Live			355	55	300	6.5	1.0	5.5
Total Layer 2 - All Species			355	55	300	6.5	1.0	5.5
Total Layer 2 - Conifers			245	45	200	4.3	0.8	3.5
Layer 3 (≥1.3 m ht. - 7.5 cm)								
SX	0.1	2.0	800	800	0	-	-	-
AT	0.0	2.4	515	0	515	-	-	-
Total Layer 3 - All Species			1335	1335	515	-	-	-
Total Layer 3 - Conifers			820	820	0	-	-	-
Layer 4 (< 1.3 m ht.)								
SX	0.1	0.7	1055	1055	0	-	-	-
AT	0.5	0.9	155	0	155	-	-	-
Total Layer 4 - All Species			1210	1875	155	-	-	-
Total Layer 4 - Conifers			1055	1055	0	-	-	-
CROWN CLOSURE		MINIMUM INTER-TREE SPACING			BASAL AREA REDUCTION TARGETS			
EXISTING	TARGET	L1	L2	L1/L2	L1	L2	ALL	
10-30%	10-15%	4.8 m	5.7 m	3.7 m	30%	25%	31%	



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SURFACE FUEL LOADING		
≤7.0 CM SURFACE FUEL LOAD		DESCRIPTION
EXISTING:	9.9 t/ha	Even distribution with representation from all <7.0 cm surface fuel load size classes.
TARGET:	<8.0 t/ha	Reduce to target levels. Ensure poor continuity between pieces and avoid creating aggregations.
>7.0 CM SURFACE FUEL LOAD		DESCRIPTION
EXISTING:	52.0 t/ha	Patchy distribution as a result of damage to or mortality of overstory trees. Pieces are typically composed of S _x At ₄ with decay classes of 2 and 3, though some decay class 4 and 5 were noted.
TARGET:	<30.0 t/ha	Reduce to target levels. If required, distribute supplemental dead and down woody material evenly throughout the unit to ensure poor continuity between pieces. Avoid creating aggregations unless required to achieve wildlife habitat objectives.
<i>Measurement Method: Modified Browns Transect</i>		
BIODIVERSITY AND FOREST HEALTH CONSIDERATIONS		
COARSE WOODY DEBRIS:	<p>Retain up to 30 t/ha of coarse woody debris (CWD) to provide structural diversity and maintain ecological functions. For the purposes of this prescription CWD is considered to be pieces greater than 7.0 cm.</p> <p>RETENTION STRATEGIES FOR COARSE WOODY DEBRIS</p> <ul style="list-style-type: none"> • Retain representative pre-treatment species composition and decay class distribution. • Retain existing dead and downed material and leave in place where practicable. • Retain large logs (≥15 m in length and ≥30 cm in diameter at the butt) and root wads where practicable. • Retain deciduous trees as wildlife trees and for CWD recruitment. Where retention poses a threat to safety, stub the tree to a height of 3.0 m and retain on-site. • Remove all aggregations except as directed by a qualified professional or treatment supervisor to provide habitat for small furbearers and birds. • Avoid retaining elevated dead and down woody material except as directed by a qualified professional or treatment supervisor to provide habitat for small furbearers and birds. • Remove pieces with substantial fine fuel components or limb and top retained pieces to remove fine fuels. • Demarcate dead and downed material to be retained to ensure CWD levels are maintained while carrying out treatment activities. 	
FOREST HEALTH:	<p>Hybrid spruce overstory stand components exhibited 7% mortality believed to be a result of historical spruce bark beetle infestation, however, no incipient infestations were noted.</p> <p>WINDTHROW RISK EVALUATION</p> <p>Windthrow assessments indicate a low to moderate windthrow risk within this TU although wind damage was not prevalent at the time of assessment. Sections of this TU are associated with large fetch distances off François Lake due to topographic exposure. To mitigate this risk a selection system has been proposed that will retain deciduous trees as well as healthy, windfirm conifers at an adequate stand density so as to avoid significant increases to wind loads. Treatment decisions should favour the retention of veteran and dominant conifers that are healthy with good form, a low height diameter ratio, and minimal forest health factors.</p>	



Wildfire Risk Reduction Prescription



N-2. TU-2 STAND AND STOCK TABLE								
A clearcut with reserve silviculture system has been proposed within this treatment unit. The abbreviated stand and stock table below has been provided to support permit and harvest planning. A detailed stand and stock table may be provided upon request.								
SPECIES AND DIAMETER CLASS	HTLC (M)	HEIGHT (M)	STEMS PER HECTARE (SPH)			VOLUME PER HECTARE (M ³ /HA)		
			EXISTING	CUT	LEAVE	EXISTING	CUT	LEAVE
Total Layer 1 (≥12.5 cm)								
SX	2.8-5.3	13.2-29.5	720	720	0	415.0	415.0	0.0
PL	0.0	21.0-25.7	180	180	0	119.5	119.5	0.0
Total Dead Potential			200	200	0	132.2	132.2	0.0
Total Live			700	700	0	402.3	402.3	0.0
Total Layer - All Species			900	900	0	534.5	534.5	0.0
Total Layer - Conifers			900	900	0	534.5	534.5	0.0
CROWN CLOSURE		MINIMUM INTER-TREE SPACING			BASAL AREA REDUCTION TARGETS			
EXISTING	TARGET	L1	L2	L1/L2	L1	L2	ALL	
10-30%	0-10%	N/A	N/A	N/A	100%	89%	99%	
SURFACE FUEL LOADING								
≤7.0 CM SURFACE FUEL LOAD		DESCRIPTION						
EXISTING:	11.1 t/ha	Even distribution with representation from all <7.0 cm surface fuel load size classes.						
TARGET:	<10.0 t/ha	Reduce to target levels. Ensure poor continuity between pieces and avoid creating aggregations.						
>7.0 CM SURFACE FUEL LOAD		DESCRIPTION						
EXISTING:	123.1 t/ha	Continuous distribution as a result of damage to overstory trees. Pieces are typically composed of Sx ₈ Pl ₂ with decay classes of 1 and 2.						
TARGET:	<30.0 t/ha	Reduce to target levels. If required, distribute dead and down woody material evenly throughout the unit to ensure poor continuity between pieces. Avoid creating aggregations unless required to achieve wildlife habitat objectives.						
<u>Measurement Method:</u> Modified Browns Transect								
BIODIVERSITY AND FOREST HEALTH CONSIDERATIONS								
COARSE WOODY DEBRIS:	Retain up to 30 t/ha of CWD to provide structural diversity and maintain ecological functions. For the purposes of this prescription CWD is considered to be pieces greater than 7.0 cm. RETENTION STRATEGIES FOR COARSE WOODY DEBRIS <ul style="list-style-type: none"> Retain representative pre-treatment species composition and decay class distribution. Retain existing dead and downed material and leave in place where practicable. Retain large logs (≥15 m in length and ≥30 cm in diameter at the butt) where practicable. Retain deciduous trees as wildlife trees and for CWD recruitment. Where retention poses a threat to safety, stub the tree to a height of 3.0 m and retain on-site. Remove all aggregations except as directed by a qualified professional or treatment supervisor to provide habitat for small furbearers and birds. Avoid retaining elevated dead and down woody material except as directed by a qualified professional or treatment supervisor to provide habitat for small furbearers and birds. Remove pieces with substantial fine fuel components or limb and top retained pieces to remove fine fuels. Demarcate dead and downed material to be retained to ensure CWD levels are maintained while carrying out treatment activities. 							
FOREST HEALTH:	Hybrid spruce overstory stand components exhibited 3% mortality believed to be a result of historical spruce bark beetle infestation. Although only a minor stand component, lodgepole pine exhibited 89% mortality as a result of historical mountain pine beetle infestation. No incipient infestations were noted. WINDTHROW RISK EVALUATION							



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Windthrow assessments indicate a moderate windthrow risk within this TU. Current stand conditions are poor due to significant wind damage to hybrid spruce stand components. Additionally, sections of this TU are associated with large fetch distances off François Lake due to topographic exposure. To mitigate the risk of additional wind damage occurring, a clearcut system has been proposed.

N-4. TU-4 STAND AND STOCK TABLE

A clearcut with reserve silviculture system has been proposed within this treatment unit. The abbreviated stand and stock table below has been provided to support permit and harvest planning. A detailed stand and stock table may be provided upon request.

SPECIES AND DIAMETER CLASS	HTLC (M)	HEIGHT (M)	STEMS PER HECTARE (SPH)			VOLUME PER HECTARE (M ³ /HA)		
			EXISTING	CUT	LEAVE	EXISTING	CUT	LEAVE
Total Layer 1 (≥12.5 cm)								
SX	1.0-5.2	15.0-22.2	750	750	0	270.7	270.7	0.0
AT	0	22.0	200	0	200	120.6	0.0	120.6
Total Dead Potential			50	50	0	23.8	23.8	0.0
Total Live			900	700	200	367.4	246.8	120.6
Total Layer - All Species			950	750	200	391.3	270.7	120.6
Total Layer - Conifers			750	750	0	270.7	270.7	0.0
CROWN CLOSURE		PREFERRED INTER-TREE SPACING			BASAL AREA REDUCTION TARGETS			
EXISTING	TARGET	L1	L2	L1/L2	L1	L2	ALL	
15-20%	0-10%	N/A	N/A	N/A	69%	100%	72%	

SURFACE FUEL LOADING

≤7.0 CM SURFACE FUEL LOAD		DESCRIPTION
EXISTING:	13.4 t/ha	Even distribution with representation from all <7.0 cm surface fuel load size classes.
TARGET:	<10.0 t/ha	Reduce to target levels. Ensure poor continuity between pieces and avoid creating aggregations.
>7.0 CM SURFACE FUEL LOAD		DESCRIPTION
EXISTING:	57.0 t/ha	Patchy distribution as a result of damage to or mortality of overstorey trees. Pieces are typically composed of Sx6At2Pl2 with decay classes of 2 and 3, though some decay class 4 and 5 were noted.
TARGET:	<30.0 t/ha	Reduce to target levels. If required, distribute supplemental dead and down woody material evenly throughout the unit to ensure poor continuity between pieces. Avoid creating aggregations unless required to achieve wildlife habitat objectives.

Measurement Method: Modified Browns Transect

BIODIVERSITY AND FOREST HEALTH CONSIDERATIONS

COARSE WOODY DEBRIS:	<p>Retain up to 30 t/ha of CWD to provide structural diversity and maintain ecological functions. For the purposes of this prescription CWD is considered to be pieces greater than 7.0 cm.</p> <p>RETENTION STRATEGIES FOR COARSE WOODY DEBRIS</p> <ul style="list-style-type: none"> • Retain representative pre-treatment species composition and decay class distribution. • Retain existing dead and downed material and leave in place where practicable. • Retain large logs (≥15 m in length and ≥30 cm in diameter at the butt) where practicable. • Retain deciduous trees as wildlife trees and for CWD recruitment. Where retention poses a threat to safety, stub the tree to a height of 3.0 m and retain on-site. • Remove all aggregations except as directed by a qualified professional or treatment supervisor to provide habitat for small furbearers and birds. • Avoid retaining elevated dead and down woody material except as directed by a qualified professional or treatment supervisor to provide habitat for small furbearers and birds. • Remove pieces with substantial fine fuel components or limb and top retained pieces to remove fine fuels. • Demarcate dead and downed material to be retained to ensure CWD levels are maintained while carrying out treatment activities.
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FOREST HEALTH:	<p>No significant forest health factors were noted within this TU, however, trembling aspen exhibited up to 25% mortality. No incipient infestations were noted.</p> <p>WINDTHROW RISK EVALUATION</p> <p>Windthrow assessments indicate a low windthrow risk within this TU. Current stand conditions are poor due to significant wind damage to hybrid spruce stand components. Additionally, sections of this TU are associated with large fetch distances off François Lake due to topographic exposure. To mitigate the risk of additional wind damage occurring, a clearcut system has been proposed.</p>
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N-5. TU-5 STAND AND STOCK TABLE								
SPECIES AND DIAMETER CLASS	HTLC (M)	HEIGHT (M)	STEMS PER HECTARE (SPH)			VOLUME PER HECTARE (M ³ /HA)		
			EXISTING	CUT	LEAVE	EXISTING	CUT	LEAVE
Layer 1 (>22.5 cm)								
SX	4.5	20.5	400	400	0	144.4	144.4	0.0
AT	0.0	0.0	0	0	0	0.0	0.0	0.0
Total Dead Potential			0	0	0	0.0	0.0	0.0
Total Live			400	400	0	144.4	144.4	0.0
Total All Species			400	400	0	144.4	144.4	0.0
Total Conifers			400	400	0	144.4	144.4	0.0
Layer 1 (>17.5 - 22.5 cm)								
SX	4.2	15.3	300	100	200	48.9	16.3	32.6
AT	0.0	15.0	100	0	100	14.5	0.0	14.5
Total Dead Potential			0	0	0	0.0	0.0	0.0
Total Live			400	100	300	63.3	16.3	47.0
Total All Species			400	100	300	63.3	16.3	47.0
Total Conifers			300	100	200	48.9	16.3	32.6
Layer 1 (≥12.5 - 17.5 cm)								
SX	5.1	15.1	400	200	200	42.1	21.1	21.1
AT	0.0	0.0	0	0	0	0.0	0.0	0.0
Total Dead Potential			0	0	0	0.0	0.0	0.0
Total Live			400	200	200	42.1	21.1	21.1
Total All Species			400	200	200	42.1	21.1	21.1
Total Conifers			400	200	200	42.1	21.1	21.1
Total Layer 1								
SX	4.3	15.2	1100	700	400	235.4	181.8	53.6
AT	0.0	15.0	100	0	100	14.5	0.0	14.5
Total Dead Potential			0	0	0	0.0	0.0	0.0
Total Live			1200	700	500	249.9	181.8	68.1
Total Layer - All Species			1200	700	500	249.9	181.8	68.1
Total Layer - Conifers			1100	700	400	235.4	181.8	53.6
Layer 2 (≥7.5 - 12.5 cm)								
SX	4.5	12.0	300	300	0	11.3	11.3	0.0
AT	0.0	0.0	0	0	0	0.0	0.0	0.0
Total Dead Potential			100	100	0	3.1	3.1	0.0
Total Live			200	200	0	5.1	8.2	-3.1
Total Layer 2 - All Species			300	300	0	11.3	11.3	0.0
Total Layer 2 - Conifers			300	300	0	11.3	11.3	0.0
Layer 3 (≥1.3 m ht. - 7.5 cm)								
SX	0.3	3.0	400	400	0	-	-	-
AT	0.0	0.0	400	0	400	-	-	-
Total Layer 3 - All Species			800	400	400	-	-	-
Total Layer 3 - Conifers			400	400	0	-	-	-
Layer 4 (< 1.3 m ht.)								
SX	0.0	0.0	0	0	0	-	-	-
AT	0.0	0.0	0	0	0	-	-	-
Total Layer 4 - All Species			0	0	0	-	-	-
Total Layer 4 - Conifers			0	0	0	-	-	-
CROWN CLOSURE	PREFERRED INTER-TREE SPACING				BASAL AREA REDUCTION TARGETS			



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EXISTING	TARGET	L1	L2	L1/L2	L1	L2	ALL
30-45%	20%	6.2 m	7.6 m	4.8 m	72%	100%	69%

SURFACE FUEL LOADING		
≤7.0 CM SURFACE FUEL LOAD		DESCRIPTION
EXISTING:	5.7 t/ha	Even distribution with representation from all <7.0 cm surface fuel load size classes.
TARGET:	<5.0 t/ha	Reduce to target levels. Ensure poor continuity between pieces and avoid creating aggregations.
>7.0 CM SURFACE FUEL LOAD		DESCRIPTION
EXISTING:	14.3 t/ha	Patchy distribution as a result of damage to or mortality of overstory trees. Pieces are typically composed of Sx ₆ At ₂ Pl ₁ with decay classes of 2 and 3, though some decay class 4 and 5 were noted.
TARGET:	<10.0 t/ha	Reduce to target levels. If required, distribute supplemental dead and down woody material evenly throughout the unit to ensure poor continuity between pieces. Avoid creating aggregations unless required to achieve wildlife habitat objectives.
Measurement Method: Modified Browns Transect		
BIODIVERSITY AND FOREST HEALTH CONSIDERATIONS		
COARSE WOODY DEBRIS:	Retain up to 10 t/ha of CWD to provide structural diversity and maintain ecological functions. For the purposes of this prescription CWD is considered to be pieces greater than 7.0 cm. RETENTION STRATEGIES FOR COARSE WOODY DEBRIS <ul style="list-style-type: none"> Retain representative pre-treatment species composition and decay class distribution. Retain existing dead and downed material and leave in place where practicable. Retain large logs (≥15 m in length and ≥30 cm in diameter at the butt) where practicable. Retain deciduous trees as wildlife trees and for CWD recruitment. Where retention poses a threat to safety, stub the tree to a height of 3.0 m and retain on-site. Remove all aggregations except as directed by a qualified professional or treatment supervisor to provide habitat for small furbearers and birds. Avoid retaining elevated dead and down woody material except as directed by a qualified professional or treatment supervisor to provide habitat for small furbearers and birds. Remove pieces with substantial fine fuel components or limb and top retained pieces to remove fine fuels. Demarcate dead and downed material to be retained to ensure CWD levels are maintained while carrying out treatment activities. 	
FOREST HEALTH:	No significant forest health factors were noted within this TU. WINDTHROW RISK EVALUATION Windthrow assessments indicate a low windthrow risk within this TU. Wind damage was not prevalent at the time of assessment. Sections of this TU are associated with large fetch distances off François Lake due to topographic exposure. To mitigate this risk a selection system has been proposed that will retain deciduous trees as well as healthy, windfirm conifers at an adequate stand density so as to avoid significant increases to wind loads.	

O. SILVICULTURE SYSTEMS / TREATMENT SPECIFICATION SUMMARIES			
TU	SILV. SYSTEM	TREAT. REGIME	DESCRIPTION AND LEAVE-TREE RETENTION STRATEGY AND SPECIFICATIONS
1	SELEC	THN PRU SFR	<p>Selection silviculture systems utilizing ground-based harvest systems will be employed. Multiple treatment phases will be required to achieve treatment specifications. Initial treatment phases will remove targeted overstory trees to reduce canopy bulk density and reduce inter-crown continuity. Secondary treatment phases will further reduce inter-crown continuity through additional manual thinning of understory trees and increase fuel strata gaps between surface fuels and the crowns of residual coniferous overstory trees through pruning. Pruning treatments are anticipated to be required on 75% of retained conifers. The final treatment phase will require surface fuel reductions to the specified targets.</p> <p>To augment predicted fire behaviour outcomes within these stands and achieve stated fire behaviour objectives the following selection criteria has been applied to produce the accompanying stand and stock table above:</p> <ul style="list-style-type: none"> - Remove all dead overstory and understory stand components unless the tree is demarcated as a wildlife habitat feature or is required by a management strategy for migratory birds. - Retain all live L1 and L2 Aspen except where removal is necessary to address a safety concern or for the construction of access structure. - Retain 250 sph of live L1 Spruce except, as determined by a qualified professional or treatment supervisor, a tree is considered to be detrimental to treatment objectives. - Retain 200 sph of live L2 Spruce except where, as determined by a qualified professional or treatment supervisor, a tree is considered to be detrimental to treatment objectives. - Recruitment between L1 and L2 coniferous stems is acceptable to meet stand retention targets except where inter-crown continuity concerns exist. - Remove all coniferous L3 and L4 stand components >30 cm in height. - Prune all residual coniferous stems to a height of 3.0 m unless a minimum crown ratio of 50% will not be maintained. If minimum crown ratios will be exceeded and the tree is considered to be detrimental to treatment objectives, as determined by a qualified professional or treatment supervisor, the tree is to be felled.
2	CCRES	HARV	<p>Clearcut with reserve silviculture systems utilizing ground-based harvest systems will be employed. A single removal stand entry will be required to achieve treatment specifications. Stand entry will remove overstory and understory trees that represent a fuel hazard due to stand condition and structure.</p> <ul style="list-style-type: none"> - Retain all live L1 and L2 Aspen except where removal is necessary to address a safety concern or for the construction of access structure. - Retain dead overstory trees that are demarcated as wildlife habitat features or are required by a management strategy for migratory birds. - Retain two (2) patches (20 x 20 m) of understory tree layers per hectare anchored around snag or dead potential tree retention where practicable. Patches should consist of 200 sph of healthy poles and saplings with good form and vigour as well as a crown base height \geq3.0 m. - Retain three (3) to five (5) high stumps (>1.0 m) per hectare adjacent to understory tree layer retention to ensure patches do not incur damage as a result of skidding/yarding activities.
4	CCRES	HARV	<p>Clearcut with reserve silviculture systems utilizing ground-based harvest systems will be employed. A single removal stand entry will be required to achieve treatment specifications. Stand entry will remove overstory and understory trees that represent a fuel hazard due to stand condition and structure.</p> <ul style="list-style-type: none"> - Retain all live L1 and L2 Aspen except where removal is necessary to address a safety concern or for the construction of access structure.



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			<ul style="list-style-type: none"> - Retain dead overstory trees that are demarcated as wildlife habitat features or are required by a management strategy for migratory birds. - Retain two (2) patches (20 x 20 m) of understory tree layers per hectare anchored around snag or dead potential tree retention where practicable. Patches should consist of 200 sph of healthy poles and saplings with good form and vigour as well as a crown base height ≥ 3.0 m. - Retain three (3) to five (5) high stumps (>1.0 m) per hectare adjacent to understory tree layer retention to ensure patches do not incur damage as a result of skidding/yarding activities.
5	SELEC	THN PRU SFR	<p>Selection silviculture systems utilizing ground-based harvest systems will be employed. Multiple treatment phases will be required to achieve treatment specifications. Initial treatment phases will remove targeted overstory trees to reduce canopy bulk density and reduce inter-crown continuity. Secondary treatment phases will further reduce inter-crown continuity through additional manual thinning of understory trees and increase the fuel strata gap between surface fuels and the crowns of residual coniferous overstory trees through pruning. Pruning treatments are anticipated to be required on $<25\%$ of retained conifers. The final treatment phase will require surface fuel reductions to the specified targets.</p> <p>To augment predicted fire behaviour outcomes within these stands and achieve stated fire behaviour objectives the following selection criteria has been applied to produce the accompanying stand and stock table above:</p> <ul style="list-style-type: none"> - Remove all dead overstory and understory stand components unless a stem is demarcated as a wildlife habitat feature or is required by a management strategy for migratory birds. - Retain all live L1 or L2 Aspen except where removal is necessary to address a safety concern or for the construction of access structure. - Retain 400 sph of live L1 or L2 Spruce except where, as determined by a qualified professional or treatment supervisor, a tree is considered to be detrimental to treatment objectives. - Recruitment between L1 and L2 coniferous stems is acceptable to meet stand retention targets except where inter-crown continuity concerns exist. - Remove all coniferous L3 and L4 stand components >30 cm in height. - Prune all residual coniferous stems to a height of 3.0 m unless a minimum crown ratio of 50% will not be maintained. If minimum crown ratios will be exceeded and the tree is considered to be detrimental to treatment objectives, as determined by a qualified professional or treatment supervisor, the tree is to be felled.
Silviculture Systems: Clearcut with Reserve (CCRES), Selection (SELEC)			
Treatment Regimes: Targeted Thin (THN), Prune (PRU), Commercial Harvest (HARV), Surface Fuel Reduction (SFR)			



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P. TREATMENT DESCRIPTIONS	
MERCHANTABLE TIMBER HARVEST	
MERCHANTABLE TIMBER UTILIZATION:	<p>Commercial timber harvesting has been incorporated into this prescription and will result in the utilization of merchantable timber. Revenues generated from the utilization of merchantable timber will support incremental treatment costs outside the funding scope that are not eligible for cost recovery.</p> <p>Due to the presence of sensitive soils within several treatment units it is recommended that harvest activities be carried out in the winter season on sufficiently frozen soils to prevent site degradation, protect soil productivity, prevent the establishment of invasive plants, and reduce impacts to recreation site users.</p>
ROADS, LANDINGS, AND TRAILS:	<p>Access to the unit will be gained from the Uncha Lake Road and the Indian Bay Road. Four (4) on-block spur roads and one (1) road permit will be required to access the treatment area.</p> <p>Skid trails have been proposed where selection systems have been applied to accommodate yarding and skidding activities. Additional unplanned skid trails may be required to achieve treatment specifications. The establishment of additional skid trails should be minimized as much as practicable.</p> <p>Landings have been proposed at the terminus of on-block spur roads C and D to accommodate decking, processing, and loading activities. If additional landings are required, the visual impacts of each additional landing must be assessed and its construction approved by an authorized treatment supervisor.</p> <p>Any additional access structure necessitated by site conditions or to address safety concerns must be approved by an authorized treatment supervisor.</p>
FELLING:	<p>Conventional ground-based mechanical felling equipment (i.e. feller bunchers/harvesters) will be employed to carry out overstory tree removal within all identified treatment units.</p> <p>Where selection systems have been proposed, the use of harvesters or zero-tail swing feller-bunchers may improve treatment efficacy and reduce damage to prescribed retention. In the absence of a low- or short-swing feller-buncher, careful and conscientious operators will be required to ensure treatment specifications are not exceeded as well as to reduce damaging retained stems.</p>
YARDING/SKIDDING:	<p>Conventional ground-based primary transport equipment (i.e. rubber-tired skidders/forwarders) will be employed to carry out yarding and skidding activities. Roadside work areas (RWAs) associated with proposed on-block spur roads and landings are expected to provide adequate decking opportunities.</p> <p>Where selection systems have been proposed, the use of forwarders in combination with harvesters may improve treatment efficacy and reduce damage to prescribed retention. If rubber-tired skidders are utilized, retain rub trees adjacent to prescribed group or single tree retention to prevent damaging retained trees.</p> <p>Skid trails have been established in areas where selection systems have been proposed. To avoid the need for additional access trails attempt to utilize natural openings and existing trails wherever practicable.</p>
LOADING AND HAULING:	<p>Loading activities will be carried out within the RWA of proposed access structures and landings. Loading activities have not been proposed along the Uncha Lake Road or the Indian Bay Road to avoid potential impacts to public road users. Should the use of these roads become necessary to accommodate loading activities the appropriate authorizations must be obtained.</p> <p>Hauling activities will be carried out using an appropriate logging truck configuration for the harvest systems employed. Hauling of merchantable timber and fibre recovery biomass will utilize the Uncha Lake Road or the Indian Bay Road.</p> <p>Due to the TAS designation of proposed access structure, it is recommended that hauling activities be carried out in the winter season on sufficiently frozen soils so as to accommodate the construction of winter roads.</p>
SLASH DISPOSAL AND BIOMASS UTILIZATION:	<p>Treatment residues and existing downed woody material in excess of prescribed >7.0 cm targets will be brought to RWAs to accommodate biomass utilization where practicable. Material should be marketed to local processing facilities where a biomass fibre recovery opportunity exists.</p>



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	<p>The quantity and distribution of biomass resulting from initial mechanical treatment phases will vary with the harvest system used. Roadside processing may improve biomass recovery opportunities relative to processing at the stump, especially where selection systems have been proposed. Processing at the stump, while improving other objectives, will result in increased dispersed fuel loads and increase the requirements of fire hazard abatement activities.</p> <p>STRATEGIES TO IMPROVE BIOMASS UTILIZATION</p> <ul style="list-style-type: none"> - Aggregate treatment residues, unutilized dead and down material, and bucking waste within the RWAs. - Avoid incorporating mineral soil and other contaminants into piles
HAZARD ABATEMENT:	<p>Hazard abatement requirements for <7.0 cm will be achieved through subsequent stand modification treatment activities discussed below.</p> <p>The fire hazard assessment and abatement requirements set out by the Wildfire Act and its Regulation apply to the prescribed treatment activities. In the absence of a professionally prepared hazard assessment and abatement strategy, the procedure provided by the Defined Hazard Assessment and Abatement Strategy (DHAAS) in A Guide to Fuel Hazard Assessment and Abatement in British Columbia (2012) will be adopted.</p> <p>The prescribed surface fuel load targets specified in the stand and stock tables are not anticipated to exceed the dispersed fuel thresholds set out in appendix 1 of the DHAAS.</p>
SPECIAL MEASURES:	<p>Operators must exercise care when working adjacent to private property to avoid trespass and ensure the property does not incur physical damage as a result of treatment implementation.</p>
STAND MODIFICATION TREATMENTS	
BRUSHING:	<p>Manual brushing treatments have not been prescribed.</p>
THINNING:	<p>Thinning treatments have been prescribed in all TUs.</p> <p>Thinning activities will primarily be carried out by means of ground based mechanical harvest systems. Following mechanical treatment phases, additional manual thinning treatments are expected to be required to achieve the stand structure specified in TU stand and stock tables.</p> <p>STRATEGIES FOR THINNING</p> <ul style="list-style-type: none"> - Maintain natural species composition where practicable. - Retain stems with good form and vigour having no indicators of forest health factors. - Retain larger <u>diameter</u> stems where possible with a low height-diameter ratio. - Retain coniferous regeneration <30 cm in height. - Target stems with continuity to subsequent tree layers. - Target stems within the dripline of adjacent fuel layers. - Attempt to cut stumps as low as practicable with a target of <10 cm.
PRUNING:	<p>Pruning treatments have been prescribed in TU-1 and TU-5.</p> <p>Prune all residual layer 1 and layer 2 coniferous trees to the heights specified in section O. Pruning is not anticipated to be required for layer 3 stems due to thinning specifications.</p> <p>Where vertical continuity to overstory tree layers persists or is anticipated to persist following pruning an authorized treatment supervisor will provide management direction to ensure treatment specifications are achieved. Pruning is not required on deciduous stems.</p> <p>STRATEGIES FOR PRUNING</p> <ul style="list-style-type: none"> - Prune all live limbs of residual coniferous trees to the specified height except where a minimum crown ratio of 50% will not be maintained. If minimum crown ratios will be exceeded and the tree is considered to be detrimental to treatment objectives, as determined by a qualified professional or treatment supervisor, the tree is to be felled. - Pruning cuts must be made parallel to the stem and within 1.0 cm of the branch collar. - Prune hanging limbs to the lowest portion of hanging branches to achieve specified pruning heights. - Prune live/dead limbs with significant lichen accumulations below the specified pruning heights. - Prune dead limbs having significant amounts of fine branches below the specified pruning heights. - Do not prune branch stubs



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DEBRIS MANAGEMENT:	<p>Debris management activities will require the use of small machinery (i.e. mini-excavators) and/or manual piling to achieve specified surface fuel load targets.</p> <p>Unutilized biomass – treatment residues and residual downed woody material – in excess of prescribed surface fuel load targets will be aggregated into small piles not to exceed 3 m x 3 m x 2 m (l x w x h). Where reductions are impracticable, excess material should be dispersed and put into contact with the ground to accelerate decay.</p> <p>DEBRIS PILING STRATEGIES</p> <ul style="list-style-type: none"> - Carry out debris piling activities in snow free conditions. - Avoid incorporating mineral soil and other non-combustible debris into piles. - Retain decay class 4 and 5 pieces on site regardless of size. - Attempt to retain decay class 3 pieces unless their removal is required to meet surface fuel load targets. - Ensure piles contain a mix of material sizes and decay classes to facilitate effective ignition and complete combustion. - Establish piles in locations that prevents damage to stand retention from heat damage and canopy scorching (i.e. within natural openings). - Concentrate piling efforts of <7.0 cm surface fuels on pieces between 3.0 cm and 7.0 cm. - Scatter remaining dispersed material and put into contact with the ground to accelerate decomposition and provide wildlife habitat for small furbearers.
PILE BURNING:	<p>Burning activities must be carried out in compliance with the <i>Wildfire Act</i> and its regulation as well as the <i>Environmental Management Act</i>; namely the Open Burning and Smoke Control Regulation (OBSCR). The treatment area is within a Medium Smoke Sensitivity Zone (SSZ) as indicated by Smoke Sensitivity Zone map #38 – Nechako River (93F).</p> <p>If pile burning activities will be carried out in a manner that meets the definition of a Category 3 Open Fire, as defined by the Wildfire Regulation, a Burn Registration Number (BRN) will be required. A BRN can be obtained from BCWS by calling 1-888-797-1717 or emailing hpr.1800@gov.bc.ca.</p> <p>PILE BURNING STRATEGIES</p> <ul style="list-style-type: none"> - Ensure all piled debris is dry and seasoned as per the definition provided by the OBSCR. - Obtain a custom venting forecast to identify choice burning opportunities. - Consider the utilization of an Air Curtain Burner for material within RWAs. - Retain three (3) piles per hectare in clusters spaced 30 m apart to provide wildlife habitat. Piles retained for habitat must be located so as to not be detrimental to treatment objectives, as determined by a qualified professional or treatment supervisor.
PRESCRIBED FIRE:	The use of prescribed fire has not been proposed.
OTHER:	<p>To prevent the spread of invasive plants while carrying out treatment activities the following strategies must be adhered to:</p> <p>STRATEGIES TO PREVENT THE SPREAD OF INVASIVE PLANTS</p> <ol style="list-style-type: none"> 1) Work in uninfested sites before moving to sites with known invasive plant occurrences. 2) Ensure all equipment is cleaned before moving between sites. 3) Minimize site disturbance during treatment activities.

Q. ADDITIONAL CONSIDERATIONS	
TREATMENT SUPERVISION:	Successful treatment implementation will require a high level of supervision by a qualified professional working within their scope of practice.
TREATMENT ASSESSMENTS:	Mid-treatment assessments will be required throughout all treatment phases to ensure treatment specifications and objectives are achieved.
SAFETY CONCERNS:	<p>TERRAIN STABILITY</p> <p>Operations must stop during wet soil conditions or heavy rain events that generate surface flow along ephemeral channels or along ruts and tire tracks to mitigate the risk of landslide along the gully sidewalls along streams A-R1-S3 and B-R1-S3.</p> <p>Additional drainage structures may be required to minimize the concentration of run-off.</p>



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	<p>STEEP SLOPES</p> <p>The treatment area contains slopes that exceed 35%. Operators are reminded to carry out mechanized operations in a manner consistent with part 26 (Equipment Operation) of WorkSafeBC's Occupational Health and Safety Regulations, specifically part 26.16 (Slope Limitations).</p> <p>Steep slopes have been indicated on the operational treatment map as areas of concern (AOC).</p> <p>ELECTRICAL</p> <p>The treatment area contains electrical infrastructure. Operators and other workers must carry out all work associated with the prescribed activities in a manner consistent with part 19 (Electrical Safety) of the WorkSafeBC Occupational Health and Safety Regulations, specifically 19.24.1 (Minimum Approach Distances) and 19.24.2 (Minimum Clearance Distances).</p> <p>Clearances between the road grade and distribution lines along the Indian Bay Road may not accommodate the anticipated industrial traffic required to carry out the prescribed treatments. An assessment carried out by a qualified professional is required, and prior to the commencement of treatment activities, any deficiencies identified must be corrected to the standards set out by Part 1 of the BC Electrical Code (High Voltage Installations), CSA Standard CAN/CSA-C22.3 No. 1-20 (Overhead Systems), or any other applicable standards required by the utility holder.</p>
TRAFFIC CONTROL:	<p>The treatment area occurs within a high-use recreation area that contains private land parcels and other development activities. Traffic control measures are likely to be required during some phases of treatment implementation to ensure the safety of operators, workers, and the public.</p>

R. SILVICULTURE																			
Do silvicultural obligations apply to the treatment area?				Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Treatment activities will result in a silviculture obligation within the treatment area.													
Have planting treatments been proposed or are they required as a legislative obligation?				Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Planting treatments have been proposed to meet the legislative obligation of the tenure holder.													
STOCKING REQUIREMENTS																			
APPLICABLE EVEN-AGED STOCKING STANDARDS:																			
SU	Standard ID	Species		Well Spaced Stem/ha				Minimum Height (m)			Regen Delay	FG (yrs)							
		p	a	TSS	MSS		MITD	PI	Others	RTH (%)									
					p/a	p													
B	TBD	PL SX	AT	1400	800	800	2.0	2.0	1.0	-	4	20							
D	TBD	PL SX	AT	1400	800	800	2.0	2.0	1.0	-	7	20							
APPLICABLE UNEVEN-AGED STOCKING STANDARDS:																			
SU	Standard ID	Stocking											Min. Ht (m)		Regen Delay	FG (yrs)			
		Species		L1			L2			L3			L4				PI	Oth	
		p	a	MSS		TSS	MSS		TSS	MSS		TSS	MSS						
				TSS	p/a		p	TSS		p/a	p		TSS	p/a			p	TSS	p/a
A	TBD	PL SX	AT	600	400	200	600	400	200	800	600	400	800	600	400	2.0	1.0	7	20
E	TBD	PL SX	AT	600	400	200	600	400	200	800	600	400	800	600	400	2.0	1.0	7	20
PERFORMANCE STANDARDS AND STOCKING RATIONALES:																			
<p>The stocking standards and specifications provided by Appendix A and section 8.0, respectively, of the approved Chinook CFA FSP 2016, may not be appropriate to achieve treatment objectives.</p> <p>In SUs B and D, even-aged stocking standards apply, and it is recommended that deciduous species be elevated to an acceptable species and considered non-deleterious competition.</p>																			



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In SUs A and E, uneven-aged stocking standards apply, and an alternative stocking standard will need to be developed in accordance with provincial-level guidance including, the Reference Guide for Forest Development Stocking Standards and the Fire Management Stocking Standards Guidance document for.

In the absence of a fire management stocking standards for stands occurring in the SBSdk within the Prince Rupert Forest Region, a stocking recommendation has been provided. For uneven aged stands, the stocking recommendation accounts for variability in stand structure and composition within the applicable SUs and, in conjunction with the proposed stand modification treatments, will ensure treatment objectives and targets are achieved.

Inclusion of interior Douglas-fir and/or western larch into the stocking standard should be avoided unless the performance of these species is confirmed by surveys of adjacent openings on similar sites and aspects.

District Manager approval of alternative stocking standards that accommodate the residual stand structure will be required.

VEGETATION RESPONSE AND MANAGEMENT:

The response of understory vegetation to treatment is expected to be minimal within all identified TUs. Response from aspen is expected to be variable although suckering may occur where clumps of aspen existed in the understory pre-treatment.

S. POST TREATMENT

MONITORING:	<p>Post-treatment assessments will be required and should be carried out immediately upon treatment completion to ensure treatment specification and objectives have been achieved.</p> <p>Additional post-treatment assessments should be carried out within two (2) years of treatment implementation to assess treatment efficacy and identify additional works required as a result of unforeseen events (i.e. windthrow, etc.).</p> <p>Clearcut with reserve areas should be assessed at the silviculture milestones specified by the applicable stocking standard.</p> <p>Selection areas should be assessed 10 years following treatment completion to evaluate treatment efficacy and determine if a hazardous stand structure has developed.</p>
MAINTENANCE:	<p>Significant stand tending or maintenance treatments are not expected to be required within any TUs.</p> <p>Within selection areas monitoring of recruitment to understory tree layers will inform maintenance requirements.</p>

T. OUTSTANDING WORKS

DESCRIPTION	COMPLETE
Coordinate with BHydro to facilitate the redesign of distribution lines along the Indian Bay Road to the standards set out by CSA Standard CAN/CSA-C22.3 No. 1-20 (Overhead Systems).	
Coordinate with the owner of legal parcel 15493954 to formalize an access agreement for on-block spur road D.	
Acquire the necessary Road Permit (RP) authorization for the proposed permit road.	
Request District Manager approval for alternative stocking standards in TUs where selection systems have been proposed.	
Apply for an exemption to Strategy 1 of Objective 6 of the Lakes South SRMP or increase WTRA allocation to achieve RMA contribution targets.	



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U. ADMINISTRATION	
PREPARATION	
PROFESSIONAL CERTIFICATION: "I certify that the work described herein fulfills the standards expected of a member of the Association of British Columbia Forest Professionals and that I did personally supervise the work."	
FOREST PROFESSIONAL NAME & DATE	FOREST PROFESSIONAL SIGNATURE
Shane S. van de Water, BSF, RPF#5222 March 25, 2021	



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V. SUPPORTING DOCUMENTS AND ASSESSMENTS			
FIELD DEMARCATION AND RIBBON STANDARD			
	Description	Standard	
	Treatment Area Boundary	Orange	
	WTRA	Orange "Wildlife Tree Patch"	
	Stream/Riparian	Yellow	
	Road Centerline	Pink	
	Skid Trail	Red "Skid Trail"	
	Right-of-ways	Orange "Right of Way"	
	Machine Free Zones	Orange "Machine Free Zone"	
	Special Management Zones	Orange "Special Management Zone"	
	Plot Locations	Yellow and Red Stripe	
MAPS:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	FIELD DATA CARDS:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
WUI WTA Plots and Photos:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	CRUISE DATA:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
AIR PHOTOS/IMAGERY:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	BURN PLAN:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
MODELING/DATA ANALYSIS:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	OTHER:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
TERRAIN STABILITY ASSESSMENT:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	VISUAL IMPACT ASSESSMENT:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Completed By: Irena Weiland, P.Geo, Eng.L Weiland Terrains Sciences		Completed By: Kaleigh Szponarski, GIS Specialist Shane van de Water, BSc.F, RPF Silvicon Services Inc.	
Date: March 17, 2021		Date: March 19, 2021	
ARCHAEOLOGY IMPACT ASSESSMEN:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	BIOLOGIST ASSESSMENT:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Completed By:		Completed By:	
Date:		Date:	
ADDITIONAL COMMENTS:			



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