BCWS Fuel Management Prescription

A. PROJECT IDENTIFICATION	
PROJECT ID AND UNIT ID: #CRI 295 Town of Smithers Riverside Wildfire Fuel Mitigation Project	LAND OR TENURE HOLDER: Town of Smithers – municipal lands (including Crown Provincial parcel inside town limits-TU 6)
LATITUDE/LONGITUDE: 54° 47' 16.78" / 127° 09' 40.56"	GEOGRAPHIC DESCRIPTION: Riverside Perimeter Trail, East and North Break area and Kathlyn Creek (south)
HIGHER-LEVEL PLAN(s): Bulkley LRMP – HLP Order (2000) Bulkley LRMP – OBSG (2006) Town of Smithers OCP (2019)	MAP REFERENCE NUMBER: 93L 075

B. FUEL TREATMENT PROJECT DESCRIPTION	
Fuel Management Objective:	Within the forested town parklands facing the Bulkley River and Kathlyn (Chicken) Creek, reduce the risk of wildfire to public safety and property by modifying forest fuels adjacent to private property and town infrastructure. Also reducing that risk by reducing the potential for ignition adjacent to recreational sites, trails and infrastructure. a) The "Perimeter Trails" located in the Riverside/Kathlyn (Chicken) Creek areas on the east (Bulkey River) side of town. The perimeter trail zones were identified in the original CWPP (2012) as having high potential for human caused ignition of accumulated fuel sources along the trail edges. Remove and reduce fuels on-site as well as potential for fire spread and laddering. b) a 30m wide zone below the terrain break running along the east edge of town, specifically from Main street to Highway 16. The slope break zone, being that area imediately along the back-line of residences on the east bench of town, has areas of significant conifer (Spruce) forest cover that pose a potential threat for fire spread to these residences as well as potential for human ignition of fuel accumulations in this zone. Remove and reduce fuels on-site as well as potential for fire spread and laddering. Reduce fire behavior to 90th Percentile (data from Ganockwa fire weather station - FFMC 91.34, BUI 95.01, ISI 8.05, RoS for M1 4m/min (getting into intensity class 4, and moving into conditions that might promote intermittent crown fire), RoS at M2 at 3m/min) Treatments focus on reducing the potential for sustained ignition and crown fire initiation by reducing surface fuel loading to achieve potential surface fire intensity levels below 2,000 kilowatts per metre and/or below the critical surface intensity CSFI = 450km/m = 2m Pruning Heights (CSI worksheet) Vegetation Management - general goal is to reduce the potential wildfire intensity and ember exposure to people, infrastructure, etc., through the manipulation of both the natural and cultivated vegetation that is within or adjacent to the community. Fuel management treatments: The manipulation or reduction of living or dead forest and accumulated fuels to reduce the rate of spread and head fire intensity, and enhance likelihood of successful suppression, generally outside of FireSmart Non-combustible Zone and Priority Zones 1, 2 and 3 (Zone 3 is designated TU 2 and 5 herein) (Pers. Comm. M. Ashley, RPF)

Strategies:	Addressing the fuel management objective, specifically address the following areas: a) The "Perimeter Trails" located in the Riverside/Kathlyn (Chicken) Creek areas on the east (Bulkey River) side of town. Within a 25m zone each side of the trails, reduce fine fuels on-site as well as potential for fire spread and laddering through conifer crown pruning and removal of L3 (1.3m tall to 7.5cm DBH) understorey stems. b) in a 30m wide zone below the terrain break running along the east edge of town, specifically from Main street to Kathlyn Creek. The slope break zone, being that area immediately along the back-line of private property on the east break of town, has areas of significant conifer (Spruce) forest cover that pose a potential threat for fire spread to these residences as well as potential for human ignition of fuel accumulations in this zone. Reductions of fuels on-site as well as reducing potential for fire spread and laddering through conifer crown pruning.
Methods:	All proposed treatments are manual (e.g. piling, pruning) and/or motor-manual (e.g. chainsaw bucking, spacing) and Mechanical (e.g.chipping) in nature.

C. TREATMENT UNIT (TU) SUMMARY

TU	NET AREA (ha)	GROSS AREA (ha)	LEAVE AREAS (ha)	NP (ha)	NAR (ha)	TREATMENT REGIME (i.e. PRU, THIN, PIL, BURN)	GENERAL DESCRIPTION
1 (trail)	11.0	11.0	0.0	0	11.0	PRU,PIL,THIN	25m trailside debris clean, buck, reduce or remove fuels. Remove or space sapling size conifers. Prune large conifers.
2 (break)	0.7	0.7	0.0	0	0.7	PRU,PIL,THIN	30m wide (reflective of Firesmart Zone 2) adjacent private lots, prune Sx, clean fines, limb and buck large debris. Remove pole sized conifer.
3 (Mid-Break)	4.5	4.5	0.0	0	4.5	PRU,PIL,THIN	Mixed species type, slope zone, varied conifer, deciduous cover. prune Sx, clean fines, limb and buck large debris
4 (Silver King-Break)	1.8	1.8	0.0	0	1.8	PRU,PIL,THIN	30m wide wide (reflective of Firesmart Zone 2) adjacent private lots, prune Sx, clean fines, limb and buck large debris
5 (Kathlyn - Trail)	2.6	2.6	0.0	0	2.6	PRU,PIL,THIN	25m trailside (bound by creek to north) debris clean, delimb and buck large fuels. Remove or space sapling size conifers. Prune large spruce.
6 (SilverKing)	2.9	2.9	0.0	0	2.9	PRU,PIL,THIN	Level section bound by private lots, varied conifer, deciduous cover. Remove or space sapling size conifers. Prune large conifer, reduce fuels.
TOTALS	23.5	23.5	0.0	0	23.5		

D. SITE CHARACTERISTICS							
TU	CFFBPS FUEL TYPE	TIMBER TYPE	BGC SUBZONE, VARIANT & SITE ASSOC.	ELEVATION RANGE (m)	SLOPE POSITION	SLOPE RANGE (%)	ASPECT
1 (trail)	M1/2 25%C	Sx_4 At_4 $(EpAc)_2$	SBS dk 06_7 01_3	465-500	Lower-Toe	5-25%	E
2(break)	M1/2 40%C	Sx_6 $At_3(EpAc)_1$	SBS dk 06_7 01_3	465-500	Upper	10-40%	E
3 (Mid-Break)	M1/2 20%C	Sx_3 $At_5(EpAc)_2$	SBS dk 06_7 01_3	465-500	Upper	10-25%	E
4 (Silver King-Break)	M1/2 40%C	Sx_6 $At_3(EpAc)_1$	SBS dk 06_7 01_3	465-500	Upper	10-35%	N
5 (Kathlyn - Trail)	M1/2 40%C	Sx_6 $At_2(EpAc)_2$	SBS dk 06_7 01_3	465-500	Lower-Toe	10-30%	N
6 (SilverKing)	Mix of M1/2 40%C and C-4	At_5 Sx_3 Pl_2	SBS dk 01_{10}	465-500	Level	0-1%	Level(S)
FUEL TYPE DETERMINATION	Fuel types were derived through ocular assessment and plot estimations. All TU's have variable distribution of the timber types noted. Past human activity has created locations where understorey conifer (L2,L3 andL4) layers have developed in patchy, sometimes dense, distribution. Moderate down and dead woody fuel accumulations are noted throughout. The moderately open growth of spruce has provided for low crown development, particularly significant on moderate to steeply sloped ground where crowns closely approach the ground. All TU's are relatively rich, moisture receiving sites with abundant shrub cover typical for this BEC type. Shrub species include; Alder, Thimbleberry, Red-Osier Dogwood and others.						

E. SOIL CHARACTERISTICS							
TU	SOIL TEXTURE	DUFF DEPTH (cm)	COARSE FRAGMENTS (%)	SOIL DISTURBANCE LIMIT (%)	SOIL HARZARD RATING		
					Compaction	Erosion	Displacement
1 (trail)	SiL,L,SiCL	4-7	20-40	5%	VH	H	H
2(break)	SiL, L, SiCL	4-8	15-40	5%	VH	H	H
3 (Mid-Break)	SiL, L, SiCL	4-10	15-40	5%	VH	H	H
4 (Silver King-Break)	SiL, L, SiCL	4-8	15-40	5%	VH	H	H
5 (Kathlyn - Trail)	SiL, L, SiCL	4-7	15-40	5%	VH	H	H
6 (SilverKing)	Si,CL	5-10	5-30	5%	VH	H	H

F. VALUES – *FOREST AND RANGE PRACTICES ACT*			
RIPARIAN & LAKESHORE AREAS - Forest Planning and Practices Regulation (FPPR) division 3, Government Action Regulation (GAR) section 6, Forest and Range Practices Act (FRPA) sections 180 and 181			
Is the proposed cutting, modification or removal of trees, or site preparation, in an area that contains streams, lakes or? wetlands?	Yes		Significant portions of the Riverside trail network lie within the 100m RMZ of the Bulkley River and/or inside the 30m RRZ and 20m RMZ of Kathlyn (Chicken) Creek, an S2 stream. Debris management strategies will be required adjacent to both the Bulkley River and Kathlyn Creek. These two watercourses, important fish habitat, have not been officially designated as "temperature sensitive". Treatments prescribed in this prescription are not deemed to have potential to impact water temperature.

RIPARIAN MANAGEMENT AREAS (RMAs) - FPPR sections 51 and 52				
STREAM, LAKE, WETLAND ID	CLASS	RRZ (m)	RMZ (m)	SPECIFICATIONS FOR RIPAIRAN OR LAKESHORE MANAGEMENT AREAS
Bulkley River	S1-A	0	100	No harvest of trees is proposed in this prescription. Dead, danger trees may be felled or modified. Debris management strategies will be employed to prevent deposition of material into the river. A 3m safety zone (no work zone) will be established along the steep river cutbank adjacent to the perimeter trail between Rosenthal Rd, south towards Riverside Park. No treatment is prescribed within this 3m zone. Environmental protection: All equipment (e.g. saws) fueling will occur only on the developed trail, using spill protection to prevent ground contamination.
Kathlyn (Chicken) Creek	S2	30	20	RRZ: Portions of the perimeter trail (TU5) lie within the 30m RRZ. No harvest of green trees is proposed in this RRZ. North (Creek) side of TU 5: a) Dead or dying danger trees that pose a direct safety hazard to the trail will be felled or modified. b) Reduction of surface fuels <7cm diameter; limbs and tops (fine fuels) will be removed from site. Limbed stems (logs) >7.0cm will be left as found. Logs and/or trees embedded in Kathlyn Creek will be left untreated. c) Prune live limbs to a branch height of >2.0m above ground. Remove pruned limbs from site for disposal. This is a fire spread mitigation technique not a silviculture treatment. This prescription in an RRZ is consistent with FPPR 51(1): (a) felling or modifying a tree that is a safety hazard, if there is no other practicable option for addressing the safety hazard (f) carrying out a sanitation treatment; (i)felling or modifying a tree for the purpose of establishing or maintaining an interpretive forest site, recreation site, recreation facility or recreation trail Debris management strategies will be employed to prevent deposition of debris into Kathlyn Creek. RMZ: Portions of the perimeter trail (TU5) lie within the 20m RMZ. No harvest of green timber is proposed. South side of TU 5 (only): Complete treatments as prescribed above. In addition, remove sapling (L3-1.3m-<7.5cm DBH) stems on the south side of trail only.

				Environmental protection: All equipment (e.g. saws) fueling will occur only on the developed trail, using spill protection to prevent ground contamination

TEMPERATURE SENSITIVE STREAMS - FPPR section 53, GAR section 15, FRPA sections 180 and 181			
Are there temperature sensitive streams or direct tributaries to temperature sensitive streams within or adjacent to the proposed treatment area?		No	None have been identified.

ROAD CONSTRUCTION IN RIPARIAN MANAGEMENT AREAS - FPPR section 50			
Is road construction proposed in riparian management areas within the treatment area or an associated road permit (RP)?		No	No road construction is proposed with regards to this project.
STREAM CROSSINGS - FPPR section 55			
Will stream crossings be constructed within the proposed treatment area or a road permit road providing access to the treatment area?		No	No stream-crossings will be required for this project.
MAINTAINING STREAM BANK AND CHANNEL STABILITY ON S4, S5, and S6 STREAMS - FPPR section 52 (2)			
Is the proposed treatment in the RMZ of an S4, S5 or S6 stream that is directly tributary to an S1, S2 or S3 stream and the activity is likely to contribute significantly to the destabilization of the stream bank or the stream channel?		No	The proposed treatments within this prescription are not adjacent to S4, S5 or S6 streams.
DOMESTIC WATER LICENCES (inside or outside of community watershed) - FPPR section 59			
Does the proposed treatment area contain water sources that are diverted for human consumption by a licensed waterworks?		No	Portions of TU 4, 5 and 6 lie inside the Kathlyn Creek water licensing watershed. There are no licensed waterworks within the project area. There are two licensed waterworks (private water sources) adjacent Kathlyn Creek upstream of the project area >300m (next to Hwy 16). The Town of Smithers has a well site at Riverside park. The works prescribed herein are not located within 100m of this well-site.
LICENCED WATER WORKS (inside or outside of a community watershed) - FPPR section 60			
Does the proposed treatment include areas that are within? 100 m of a licensed waterworks?		No	See above.
FISHERIES SENSITIVE WATERSHED - GAR section 14, FPPR section 8.1			
Are any activities proposed within a fisheries sensitive watershed?		No	This project area does not contain any identified fisheries sensitive watersheds, as identified under a GAR order.

COMMUNITY WATERSHED - GAR section 8, FPPR section 8.2, 61, 62 and 84			
Does the proposed treatment area include areas that are within a community watershed?		No	Treatment area lies within the municipal boundary of Smithers. This project area does not lie within an identified Community watershed under GAR.
Will this project require road construction or deactivation within a community watershed?		No	No road construction is proposed.
WATERSHED ASSESSMENT CONSIDERATIONS - FRPA section 180 areas with "significant watershed sensitivity"			
Does the proposed treatment area include areas that have watershed assessment considerations?		No	This project does not contain areas with watershed assessment issues.

SOIL DISTURBANCE AND PERMANENT ACCESS STRUCTURES - FPPR sections 35 and 36				
Treatment Unit	Proposed Max. Allowable Soil Disturbance (%)	Proposed Max. Soil Disturbance for Roadside Work Areas (%)	Proposed Max. Permanent Access Structures (%)	Comments
All	5%	N/A (No roadside work areas are planned)	0 (No PAS are planned)	There are no roads planned for treatments under this prescription.
Do the proposed Permanent Access Structures exceed 7% of the total area?		No	The perimeter trail network, while a permanent recreation structure, is not considered a permanent access structure within the context of FRPA.	
LANDSLIDES AND TERRAIN STABILITY - FPPR section 37				
Does the proposed treatment area include areas where terrain stability is a concern?	Yes		TU 2, 3 and 4 (Break and slope zones) contains areas with slopes in excess of 35%. There were no signs of slope instability noted during field assessment. The prescribed works are not intended to create site and/or soil disturbance that would contribute to terrain instability. Recommend the site be field reviewed by a terrain stability professional prior to commencement of work.	
SUITABLE SECONDARY STRUCTURE - FPPR section 43.1				
Does the proposed treatment area include a “targeted pine leading stand”?		No	The project area does not contain a significant pine component.This management objective does not apply to this project area.	
UNGULATE WINTER RANGE - GAR section 12, FRPA sections 180 and 181, FPPR section 69				
Does the proposed treatment area include areas within an Ungulate Winter Range?	Yes		The Bulkely OSBG identifies this project lies within Mule Deer and Moose winter range. The proposed treatments within this prescription are not viewed to be detrimental to Mule Deer and Moose habitat. There will be potential for reduction in visual screening and security cover from potential stem density reduction (spacing) and conifer pruning. These treatments also have potential to increase growing space and light for forage species for ungulates.	
WILDLIFE HABITAT AREA - GAR section 10, FRPA sections 180 and 181, FPPR section 69				
Does the proposed treatment area include any wildlife habitat areas (WHA)?		No	The proposed treatments do not occur in identified wildlife habitat areas.	

MIGRATORY BIRD CONVENTION ACT - 1994			
Does the proposed treatment have the potential to impact migratory bird habitat?	Yes		The Town of Smithers is located in national bird nesting zone A4. This area generally utilizes Restriction period R1, in this case May 8-August 2nd. This project area was assessed utilizing the locally applicable BCTS Babine Migratory Bird Strategy. TU's 1-5 are ranked as 'MixCon_Decid', Age class 7,8, Ht <28.4 = rank 4 (M-H). TU 6 is ranked 'MixCon_Decid', Age class 3,4, Ht<28.4 = rank 3(M). Management application: TU 1-5; Avoid works in restriction period above or have a qualified professional conduct nest sweeps in advance of work. Chance find provisions: Should an active bird nest (or other wildlife tree) be found during treatments, establish a 10m no-work zone around the feature and notify the works supervisor as soon as practicable. The supervisor and contractor will jointly develop a treatment strategy of the feature.
OBJECTIVES SET BY GOVERNMENT FOR WILDLIFE - FPPR section 7			
Does the proposed treatment area include areas to which objectives for wildlife under FPPR section 7 apply?		No	There are no identified objectives under FPPR section 7 considered for this treatment area.
OBJECTIVES SET BY GOVERNMENT FOR BIODIVERSITY OBJECTIVES (Landscape Level) - FPPR Part 4 Division 5			
Does the proposed treatment area include areas to which objectives for landscape level biodiversity under FPPR section 9 apply?		No	There are no FPPR Section 9 objectives for landscape level biodiversity in the treatment area. This area is either municipal lands or crown provincial lands within the Town boundary. Incidentally, the retention of large woody stems (fuels >7cm diameter) will retain elements of biodiversity within the project area.
OBJECTIVES SET BY GOVERNMENT FOR BIODIVERSITY OBJECTIVES (Stand Level) - FPPR Part 4 Division 5			
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		The prescribed treatments contained herein are not intended to remove or alter existing tree species composition. The management or reduction of forest fuels will remove or reduce fine fuels (<7 cm diameter) while retaining CWD (large fuels >7 cm diameter) in most locations. Specific to TUs 1 & 5, the removal of large woody material (>7 cm) is planned to "clean-up" adjacent to the trails.
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 of significant recreation value and are designated a resource feature?	Yes		The entire project area is intended to manage or anchor upon a recreation trail network; the Town of Smithers Perimeter Trail (Riverside) network. The works prescribed herein may also impact informal, locally used pedestrian trails.

VISUAL QUALITY OBJECTIVES - GAR section 7, FRPA sections 180 and 181, FPPR section 9.2			
Is the proposed treatment within a scenic area?		No	This project area is not located within an indentified scenic area. The works prescribed herein are not anticipated to impact the view from the Bulkley River, an informal yet important aspect of the local "river" viewscape.

ARCHAEOLOGICAL RESOURCES/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? No Referral to Land Manager is required if proposed TU is on the applicant's own First Nation Land.		No	None have been made known not were identified during field assessments. Chance find provisions: If CHR features are identified or otherwise made known during First Nations information sharing and consultation, measures to protect the CHR or address First Nations concerns must be communicated by an addendum to or an amendment of this prescription. If previously unidentified archaeological features or CHR are encountered during treatment activities, work in the area must stop and the works supervisior must be notified. The Town will complete a cultural heritage evaluation and provide management direction to protect or otherwise manage the features. Note: Given the proximity of the project area to the town there are many instances of modern "structures" found throughout as well as chopped or defaced trees. These modern features do not constitute CHR features.
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?		No	A query of the Invasive Alien Plant Program (IAPP) database did not identify any known invasive plant sites with the project area. To reduce and prevent the spread of invasive species the treatment works contractor(s) will adhere to the "Best Management Practices for Preventing the Spread of Invasive Plants during Forest Management Activities" (found at Forestry-bp-09-11-2013-web.pdf) .
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?		No	There are no natural range barriers within the project area. There is no active grazing within this area.

SPECIES AT RISK – FPPA section 7			
Are there species at risk present within the boundaries of the prescribed treatment area?		No	None were identified during fieldwork nor identified in locally documented assessments. Should a rare or endangered species be identified during treatment operations, a qualified professional will be consulted to develop a management strategy.
LAND USE OBJECTIVES (Higher Level Plans and objectives set by Government under the *Land Act*)			
Are there land use objectives (higher level plans or objectives under the *Land Act*) that apply to the proposed treatment area or a Road Permit necessary to provide access to the treatment area?		No	While technically not applicable to municipal lands, the Bulkley LRMP (OSBG) has been considered and addressed within this prescription as it applies to the project area. Portions of the project area lies within a Landscape Corridor as identified in the LRMP. Treatments within this prescription are not inconsistent with the broader management goals of this corridor.
Do the proposed activities conflict with land use objectives (higher level plans or objectives under the *Land Act*)?		No	There are no conflicts identified regarding the proposed activities and HLP/land-use objectives.

Known and potential species at risk, windthrow hazard, and old growth management areas	Yes		There are no known or potential SAR or Old Growth Management Areas (OGMA or CORE) identified in the project area. There is a portion of "Old Growth Deferal" polygon identified in the Riverside park area. This polygon does not impact the intent of this prescription. There has been a Forest Health issue (Tomentosus root rot) identified infecting spruce in the project area. The mortality and/or weakness caused by this pathogen creates a potential windthrow hazard from standing dead trees. These trees pose a public safety hazard as well as a potential fire hazard. These trees will be removed or assessed by a wildlife tree assessor.

G. OTHER CONSIDERATIONS AND REQUIREMENTS

CONSULTATION – FIRST NATIONS

FIRST NATION	CONCERNS IDENTIFIED AND MEASURES TO ADDRESS
Wet'suwet'en	The Town of Smithers maintains a regular communication with the Office of the Wet'suwet'en. The Town office has confirmed that treatment and maintenance works in the Riverside and Perimeter trail area are completed under a standing agreement between the two parties. No comments with regards to this project have been made known to the undersigned.

First Nations consultation complete?	Yes		

CONSULTATION – GENERAL

The Town of Smithers will complete a "neighborhood information notification " process to alert the residents of Smithers of the intended plan of this project. Residences directly adjacent to the treatment units will be directly notified of intended works.

EXISTING TENURE HOLDERS (Forest, Range, Guide Outfitters, Trappers)

Tenure Holder	Concerns		Measures proposed to address licensee's concerns
There are no "landbase" tenure holders (e.g. Trapper, Guides) present		No	
Private Residences.	Unk		Private landowners will be made aware of the intent of this project and concerns raised through the public consultation phase will be addressed.

PRIVATE PROPERTY			
Does private property border the proposed treatment area?	Yes		Treatment area is within municipal boundary directly adjacent to residential properties. Private land boundaries will be spatially identified prior to treatment unit field marking to ensure the potential for trespass is mitigated.
SMOKE MANAGEMENT			
Does a smoke management plan exist for the proposed treatment area?		No	A smoke management plan has not been approved. (Note: The Bulkley Smoke Management Plan is no longer in effect)
SAFETY			
Have any specific safety concerns been identified in or adjacent to the proposed treatment area?	Yes		Safety concerns: Steep slopes, vehicular traffic, pedestrian traffic within work area, dead standing or leaning trees, domestic garbage. See contract specifications for details.
UTILITIES			
Are utilities located in or adjacent to the proposed treatment area? i.e. power lines, gas lines, etc.	Yes		TU 1 (Trail) crosses overhead powerlines in two locations. The perimeter trail is located on Town of Smithers sewer line infrastructure. Equipment operators must exercise care around manhole covers, etc.

ACCESS CONTROL			
Are there any foreseen issues with access and access control during and post treatment?	Yes		Access along Riverside trail will restrict size of equipment used for project works. For public safety, access to sections of the perimeter trail may have to be closed from time to time. Access via 19th Ave, Queen St., Rosenthal Rd and Astlais Place will require traffic control.
TRAFIC CONTROL			
Is traffic control required at any point during operations?	Yes		Access via 19th Ave, Queen St., Rosenthal Rd and Astlais Place will require traffic control.
OTHER (E.g Public Notification)			
Public notification and consultation will be required prior to commencement.			

H. STAND AND STOCK TABLE

Treatment Units 1, 2, 3, 4, 5(Trailside, Break and Mid-Slope zones):

Species and Diameter Class	Average Crown to Base Height (m)	Average Tree Height (m)	STEMS PER HECTARE (sph)			VOLUME PER HECTRARE (m^3/ha)			Basal Area
			Existing	Cut	Leave	Existing	Cut	Leave	
Layer 1 (> 22.5 cm - 27.5 cm dbh)* (Merchantability criteria can also be included here.									
Sx	1.0-2.5m	28m	300	0	300	275	0	275	
At, Ac	N/A	26	250	0	250	100	0	100	
Ep	N/A	25	100	0	100	25	0	25	
Total Dead Potential			<1-3	1-3	0				
Total Live			650		650	400	0	400	
Total All Species			650		650	400	0	400	
Total Conifers			300		300	275	0	275	
Layer 1 (> 17.5cm dbh - 22.5 cm dbh)									
Sx	1.0-2.5m	18-22	50-100		50-100				
At, Ac	N/A	18	100		100				
Ep	N/A	18	50		50				
Total Dead Potential	0	0	0						
Total Live			250		250				
Total All Species			250		250				
Total Conifers			100		100				
Layer 1 (≥ 12.5 cm - 17.5 cm dbh)									
Sx	0.5-1.5m	5-17	10-50		10-50				
At, Ac	N/A	5-17	2-15		2-15				
Ep	N/A	5-17	0-5		0-5				
Total Dead Potential			0		0				
Total Live			70		70				
Total All Species			70		70				
Total Conifers			50		50				
Total Layer 1									
Total Layer - All Species			970		970				
Total Layer - Conifers Only			450		450				
Layer 2 (≥ 7.5 - 12.5 dbh)									
Sx	0.5-1.5m	3-8	50-100	30-50	20-50				
At, Ac	N/A	4-8	5	0	5				
Ep	N/A	4-8	1	0	1				
Total Dead Potential			0	0	0				
Total Live			156	30-50	56				
Total Layer 2 - All Species			56	30-50	56				
Total Layer 2 - Conifers Only			50-100		50				

Layer 3 (≥ 1.3 cm - 7.5cm dbh)								
Sx	0.25-0.7m	1.5-3.0m	0-50	50	0			
At, Ac, Ep		2.5	<5	0	5			
Total Layer 3 - All Species			55	50	5			
Total Layer 3 - Conifers			0-50	50	0			
Layer 4 (<1.3 cm dbh)								
Sx	0.1-0.5m	0.75	~45	0	~45			
At, Ac, Ep			<5	0	<5			
Total Layer 4 - All Species			50		50			
Total Layer 4 - Conifers			~45		~45			
* Add additional diameter classes if required								

FINE WOODY DEBRIS (FWD) </= 7.0cm in diameter SURFACE FUEL LOADING (kg/m^2)	Existing Distribution: Patchy-clumped, estimated at 15-15t/ha	Target Distribution: Trail: remove fines: clean to <10t/ha Break: Clean fines to <10t/ha.
	Method used to measure: Values are estimated through ocular means. Post Treatment: Confirm with line transect methodology.	
LARGE DIAMETER WOODY DEBRIS (LDWD) >7.0cm in diameter SURFACE FUEL LOADING (kg/m^2)	Existing Distribution: Isolated to clumped distribution. Estimated at 7-15t/ha	Target Distribution: Trail: Clean to <10t/ha Break: Delimb, pile fine fuels, buck logs (>7cm diam. to lay down as required.
	Method used to measure: Pre-assessment: Circular plots (3.99m rad) and occular assess. Post Treatment: Confirm with line transect methodology.	
Crown Closure (%)	Existing:30%	Target: 30% (no proposed intent to alter CC%)

Treatment Unit 6 (Silver King):

Species and Diameter Class	Average Crown to Base Height (m)	Average Tree Height (m)	STEMS PER HECTARE (sph)			VOLUME PER HECTRARE (m^3/ha)			Basal Area
			Existing	Cut	Leave	Existing	Cut	Leave	
Layer 1 (> 22.5 cm - 27.5 cm dbh)* (Merchantability criteria can also be included here.									
Sx	0.5-1.5m	20m	75	0	75				
PL	0.5-1.5m	20	100	0	100				
Ac, At,(Ep)	N/A	15	20	0	20				
Total Dead Potential		18	1	1					
Total Live									
Total All Species			195	0	195				
Total Conifers			175	0	175				
Layer 1 (> 17.5cm dbh - 22.5 cm dbh)									
Sx	0.5-1.5m	15	200-400	0	200-400				
PL	0.5-1.5m	15	200-400	0	200-400				
At, Ac (Ep)	N/A	15	50-200	0	50-200				
Total Dead Potential			0		0				
Total Live									
Total All Species			600	0	600				
Total Conifers			500	0	500				
Layer 1 (≥ 12.5 cm - 17.5 cm dbh)									
Sx	0.5-1.5m	7-15	200-400	0	200-400				
PL	0.5-1.5m	7-15	200-400	0	200-400				
At, Ac (Ep)	N/A	7-15	50-200	0	50-200				
Total Dead Potential			0		0				
Total Live									
Total All Species			600	0	600				
Total Conifers			500	0	500				
Total Layer 1									
Total Layer - All Species			1400		1400				
Total Layer - Conifers Only			1200		1200				
Layer 2 (≥ 7.5 - 12.5 dbh)									
Sx	0.5-1.25m	5-10	50-200		50-200				
PL	0.5-1.25m	5-10	100-300		100-300				
At,Ac(Ep)	N/A	5-10	25		25				
Total Dead Potential			0	0	0				
Total Live									
Total Layer 2 - All Species			350		350				
Total Layer 2 - Conifers Only			200		200				
Layer 3 (≥ 1.3 cm - 7.5cm dbh)									

Sx	0.5-1.25m	1.5-5	50-6000	5500	500			
PL	0.5-1.25m	1.5-5	50-300	100	200			
Total Layer 3 - All Species								
Total Layer 3 - Conifers			100-6300	5600	700			
Layer 4 (<1.3 cm dbh)								
Sx	0.1-0.5m	1.0	50	0	50			
Pl	0.1-0.5m	1.0	15	0	15			
Total Layer 4 - All Species								
Total Layer 4 - Conifers			65	0	65			
* Add additional diameter classes if required								

FINE WOODY DEBRIS (FWD) </= 7.0cm in diameter SURFACE FUEL LOADING (kg/m^2)	Existing Distribution: Varied distribution, no tonnage.	Target Distribution: Remove fine fuels <7cm diameter to chip and/or burn. Target <10t/ha
	Method used to measure: Confirm with line transect methodology.	
LARGE DIAMETER WOODY DEBRIS (LDWD) >7.0cm in diameter SURFACE FUEL LOADING (kg/m^2)	Existing Distribution: Isolated to clumped	Target Distribution: Remove or scatter
	Method used to measure: Confirm with line transect methodology.	
Crown Closure (%)	Existing:15 to 45%	Target: 15-45% (no proposed intent to alter CC%)

BIODIVERSITY AND FOREST HEALTH CONSIDERATIONS AND TARGETS	
COARSE WOODY DEBRIS (CWD) RETENTION TARGET - sph and Distribution	No CWD targets exist in this treatment area. Objective is to reduce fuel loading to <10ton /ha
WILDLIFE TREE RETENTION TARGET	N/A. No WTR targets intended for this project.
FOREST HEALTH- Should include sections such as agent, affected species, incidence rating, mortality, and targets	TU 1 2: Tomentosus root rot is present in the spruce component to varying extent. This has been the source of dead or dying stems, deadfall or windthrow of weakened stems in project area (trail and bench zones) Assess need for falling of dead or dying stems during treatment phase as they pose a future potential risk that this project seeks to manage.

TREATMENT SPECIFICATIONS SUMMARY	
TU	TREE REMOVAL/RETENTION STRATEGY BY SIZE/SPECIES (Summarize specifications identified in table above)
1: Trailside zone	Treatment Unit 1 (Perimeter trail-not adjacent Kathlyn Crk)) Within 25m zone either side of trail: (zone flagged in white ribbon) • Solid branch and wood debris <7cm diameter: clean –up and remove from zone for chipping. It's anticipated that chipping will be done on-site with a mobile chipper, removing chips off-site. • Tree stems (logs) >7 cm diameter: delimb, buck lay-down direct on ground. • Dead conifer sound and suitable for firewood: delimb, buck and remove in 16 inch length. Clean-up and remove branches and tops for chipping and chip removal. This firewood intended for use at nearby Riverside Park, stored at Town works yard. • Prune all live limbs on conifers >7.5cm DBH: prune limbs >2.0m height. Remove pruned limbs for chipping. • Dead standing trees (any species): assess for removal and fell, limb and buck as required. • Cut and remove all Layer 3 (>1.3m - 7.5cm DBH) conifer stems. Remove for chipping.
2: Hillside Break zone	Treatment Unit 2 (Break zone) Within 30m of private land or the break to river valley: (zone boundary flagged in white ribbon) • Solid branch and wood debris (fine fuels) <7cm diameter: clean –up and move to lower TU boundary or into TU 3 for piling. Focus piles in openings or deciduous cover with no overtopping conifer canopy, approx. 2m tall (no less than 1.5m) x 3m wide. (do not make piles within TU 2) • Fallen tree stems >7 cm diameter: delimb, buck in sufficient length to lay-down direct on ground. • All conifers >7.5cm DBH: prune limbs to >2.0m height. Remove pruned branches from zone as noted for fine fuels above. • Cut and remove all Layer 3 (>1.3m - 7.5cmDBH) conifer stems. Remove from zone same as pruned branches to pile in top edge of TU 3. • Dead standing trees (any species): assess for removal and fell, limb and buck as required.

3: Mid-Slope zone	Treatment Unit 3 (Mid-slope zone) Between TU 1 and 2; (zone boundary flagged in white ribbon) • Solid branch and wood debris (fine fuels) <7cm diameter: clean –up and pile. Focus piles in openings or deciduous cover with no overtopping conifer canopy, approx.. 2m tall (no less than 1.5m) x 3m wide. (do not make piles within TU 1) • Fallen tree stems (logs)>7 cm diameter: delimb, buck in sufficient length to lay-down direct on ground. • All conifers >7.5cm DBH: prune limbs to >2.0m height. Pile pruned branches as described above. • Cut and remove all Layer 3 (>1.3m - 7.5cmDBH) conifer stems. Pile cut stems for burning as described above. • Dead standing trees (any species): assess for removal and fell, limb and buck as required
4: Silver King Break zone	Treatment Unit 4 Between private property boundaries and TU 5 upper boundary: (zone boundary flagged in white ribbon) • Solid branch and wood debris (fine fuels) <7cm diameter: clean –up and move 30m downslope to lower TU boundary for piling. Focus piles in openings or deciduous cover with no overtopping conifer canopy, approx. 2m tall (no less than 1.5m) x 3m wide. (do not make piles within TU 5) • Fallen tree stems >7 cm diameter: delimb, buck in sufficient length to lay-down direct on ground. • All conifers >7.5cm DBH: prune limbs to >2.0m height. Remove pruned branches the same as fine fuels described above. • Cut and remove all Layer 3 (>1.3m - 7.5cmDBH) conifer stems. Remove from zone same as pruned branches to pile in top edge of TU 5. • Dead standing trees (any species): assess for removal and fell, limb and buck as required.
5: Kathlyn Trail zone	Treatment Unit 5 (adjacent Kathlyn Creek) 25m upslope of perimeter trail and 25m toward Kathlyn Creek or stop at Creek if less. (boundary flagged in white ribbon) • Solid branch and wood debris (fine fuels) <7cm diameter: clean –up and remove from zone for chipping and chip removal. It's anticipated that chipping will be done on-site with a mobile chipper, removing chips off-site. • Tree stems (logs) >7 cm diameter: delimb, buck lay-down direct on ground. • Note: On north(Kathlyn Crk) side, delimb downed trees, remove limbs as above DO NOT buck logs. (due to riparian management issues) • Dead conifer stradding the trail sound and suitable for firewood: delimb, buck and remove in 16 inch length. Clean-up and remove branches and tops for chipping and chip removal. This firewood intended for use at nearby Riverside Park, stored at Town works yard. • Prune all live limbs on conifers >7.5cm DBH: prune limbs >2.0m height. Remove pruned limbs for chipping and removal. • Dead standing trees (any species): assess for removal and fell, limb and buck as required. • Upslope only: Cut and remove all Layer 3 (>1.3m - 7.5cm DBH) conifer stems. Remove for chipping. (Do not cut L3 sapling between trail and creek).

6: (SilverKing)	Treatment Unit 6 (Silver King zone) Within the full area of TU 6, bound by private land: (west boundary orange flagged) • Solid branch and wood debris (fine fuels) <7cm diameter: clean –up and; a) remove for chipping (where trail proximity allows). Chips will be removed off-site., or b) pile in openings with no overtopping conifer canopy, max 2m tall(min 1.5m tall) x 3m wide piles. • Fallen tree stems (logs) >7 cm diameter: delimb, buck sufficient to allow lay-down direct on ground. • All conifers >7.5cm DBH: prune limbs up >2.0m height. a) remove for chipping (where trail proximity allows), or b) pile in openings with no overtopping canopy, max 2m tall x 3m wide piles. • Cut and remove all Layer 3 (>1.3m - 7.5cm DBH) conifer stems. • Dead standing trees (any species): assess for removal and fell, limb and buck as required.

TREATMENT SPECIFICATION RATIONALE (See notes to assist)
Fine Fuels: Fine fuel (<7cm diameter) treatment is the primary focus in hazard reduction. This material contributes the most to fuel tonnage and its removal contributes the most to fuel reduction. Given the significance to fine fuels towards both ignition and fire spread, the reduction of fines focussed on removal from site where possible (TU 1 &5), removing from site, chipping and removing chipped material. In the more difficult accessed break and mid-slope zones (TUs 2,3 &4) fine fuel material will be removed from the TU 2 30m zone (Firesmart zone 3) downslope (away from private property) and piled for burning. Large material: Large fuels (>7cm diameter), stems and logs contribute a lower hazard in fuel tonnage therefore are to be left on site but limbed to remove fine fuel branches and bucked sufficiently to lay down on the ground to encourage decay from ground moisture. Pruning: With a reduction in surface fuels to reduce ignition potential and surface fire intensity, the increasing of ground-to-crown gap will reduce the potential for surface fire activity to spread into the standing timber crowns. This is important in this project area given the location of residences on the upslope zone above the treatment zones. Crown fire has a higher potential for increased rate of spread, sparking and ember distribution into the adjacent residential areas. Dead tree removal: The endemic presence of tomentosus root rot in the mixed spruce, aspen stand type has resulted in scattered dead and/or dying spruce within the project area. These trees present a future hazard through contributory fuel loading if permited to fall and accumulate as they have been.

I. TREATMENT DESCRIPTION
MERCHANTABLE TIMBER HARVEST **No merchantable harvest prescribed**
ROADS, LANDINGS AND TRAILS: N/A
FELLING: Only dead or dying mature trees that could pose a future fire hazard will be felled.
YARDING/SKIDDING: N/A
LOADING AND HAULING: N/A
SLASH DISPOSAL: N/A (described in other sections)
SITE DISTURBANCE: N/A
SPECIAL MEASURES: N/A
STAND MODIFICATION TREATMENTS
MERCHANTABLE TIMBER UTILIZATION: Was commercial timber harvest considered? Yes ☐ No ☒ If commercial timber harvest not prescribed, explain: The intent of this prescription is to complete fuel reductions through a combination of: fine fuel removal (chip and remove or pile/burn); large fuel abatement by delimbing (fines removal) and getting large debris onto the ground to encourage onset of decay to reduce flammability; removal of L3 sapling layers to reduce the "ladder" fuel component where found; and, conifer pruning. None of this involves commercial extraction or overstorey crown closure reduction.
BRUSHING: No. Brush species are to be left intact on-site. Brush species assist in retaining sub-canopy humidity, slowing the fine fuel drying process through the season. Project area is an important moose and mule deer wintering habitat, with brush species as a key source of forage and security cover.
PRUNING: The mature conifer component (>7.5cm DBH) will be pruned and branches disposed of as described herein. The objective of pruning is to lift the conifer crowns to >2.0m above the ground (particularly on the "high side"). This will be be achieved through manual cutting with pruning saws (either handpruning saw or pole prune saw). To achieve a 2.0m "above ground" branch height, branches will have to be cut at the bole above 2m to whatever height required to achieve this objective. Pruned branches will be; a) in TU1, 5 and 6, removed from the TU, chipped on-site and chip material removed from the trail zone to a disposal site to be determined by the Town, and b) TU 2,3,4 pruned branches will be piled (outside TU 2 or >30m downslope in TU 4), as described elsewhere in this prescription.
THINNING: To reduce ladder fuels in the lower height class of conifers, L3 saplings (>1.3m tall to 7.5cm DBH) will be cut and disposed of as described elsewhere in this prescription.
DEBRIS PILING: TU 2, 3 and 4 : due to lack of mobility and machine access, fine fuels and branches will have to carried downslope to the TU2/3 boundary or in TU 4, >30m from the upslope TU 4 boundary and piled in open gaps in the camopy or in deciduous tree clumps. Pile size is targeted to be ~2m tall x 3 m (max) width. Piles should not be less than 1.5m tall. Locate piles >2m from the "dripline" of standing overstorey conifers to prevent ignition of these overstory trees during burning.
PILE BURNING: Due to the difficulty in access (too steep for equipment) to TUs 2, 3 and 4, pile burning is to be considered. Proximity to residences and air quality concerns will require careful management of the process; from public engagement through to forecasting and ignition.
MULCHING: None planned.
MASTICATION: No
GRINDING: Fines and small to medium piece sizes (<7cm diameter) will be chipped in trailside zone and removed from site for disposal. To avoid burning as much as possible, fine fuels collected for abatement in Tus 1 and 5 will be brought to trailside and ground or chipped in mobile chippers, with chipped material then removed from the trail zone to a disposal site determined by the Town. Not grinding material will be left on-site.
PRESCRIBED FIRE: No.
PLANTING: No
OTHER: N/A

AUTHORIZATION AND TIMBER TENURE **No authorizations required.**
FRPA Section 52: Yes, required for TU 6, an area of Crown Provincial land inside the Town limits.
Forestry Licence to Cut (FLTC): N/A
Park Use Permit: N/A
Road Permit or Road Use Permit: N/A
Other (i.e. local government, utilities, etc.): Confirm works with Town engineering department; need for town permitting. Assess needs to BC Hydro notification (no works planned on right-of-ways but notification process).

J. POST TREATMENT
EXPECTED VEGETATION RESPONSE: Expect herbaceous and shrub growth to expand in cleared areas. No brush treatment is anticipated.
ADDITIONAL TREATMENTS OR MAINTENANCE: To be assessed in future and treated as prescribed. To be determined in conjunction with future Town wildfire assessments and/or planning.
SILVICULTURE OBLIGATIONS: Do silvicultural obligations apply to the treatment area? Yes ☐ No ☒

PLANTING: Is planting a treatment identified in this prescription or required as a legislative obligation? Yes ☐ No ☒

K. Outstanding Works
First Nations Consulting
Treatment Unit flagging
Danger Tree assessment
Terrain stability field review.
Public Engagement – neighbourhood visits, adjacent property notifications.
Engage DFO regarding streamside works next to Kathlyn Creek.

L. ADMINISTRATION	
PREPARATION	
Peter Tweedie, RPF	
FOREST PROFESSIONAL NAME *(Printed)*	FOREST PROFESSIONAL SIGNATURE
MEMBER NUMBER 2992	DATE April 21, 2022

M. ATTACHMENTS			
MAPS:	Yes ☒ No ☐	FIELD DATA CARDS:	Yes ☐ No ☐
WUI WTA Plots and Photos:	Yes ☐ No ☒	CRUISE DATA:	Yes ☐ No ☒
AIR PHOTOS/IMAGERY: (Ortho)	Yes ☒ No ☐	BURN PLAN:	Yes ☐ No ☒
MODELING/DATA ANALYSIS:	Yes ☐ No ☒	OTHER:	Yes ☐ No ☒
BROWNS TRANSECT:	Yes ☐ No ☒		
TERRAIN STABILITY ASSESSMENT Completed By: Date:	Yes ☐ No ☒	VISUAL IMPACT ASSESSMENT Completed By: Date:	Yes ☐ No ☒
ARCHAEOLOGY IMPACT ASSESSMENT Completed By: Date:	Yes ☐ No ☒	BIOLOGIST ASSESSMENT Completed By: Date:	Yes ☐ No ☒
ADDITIONAL COMMENTS:			