Forests for Tomorrow
Aerial Forest Fertilization Prescription

ADMINISTRATION/AREA DESCRIPTION					
Resource District	**TSA/TFL/Licensee**	**Location**		**Field Work Completed by and date**	
Cascades	Merritt TSA	Red Creek/McNulty Creek		Jeff McWilliams, RPF / Matthew Thompson, FIT December 2019 (Heli)	
Mapsheet	**RESULTS Opening ID**	**Treatment Unit/Block**		**Project Number/Plan name**	
92H.060/070	1710394	RedCrk19		IM18DCS003 (003)	
Gross Opening(s) Area (ha)		**No Treatment Area (ha)**	***Net Treatment Area (ha)**		
64.8		0.8	64.0		
Stand Tending History		**Aspect**	**Topography**		
Polygons A, B, and E Juvenile Spaced to 1600 SPH.		Variable	Even to gently rolling		
Latitude:	49°36'22.5"N	**Longitude:**	120°5'1.9"W		
Elevation (min):	1580m	**Elevation (max):**	1680m		

*The net treatment area accounts for areas removed for NP (natural), permanent access structures, riparian reserve zones, and areas identified as not suitable for treatment. Area estimates are based on digitized (non-traversed) treatment boundaries.

STAND DESCRIPTION[1]				
Dom/Co-Dom trees of target species expected to respond to fertilization (sph)	**Live Crown % (of crop trees)**	**Crown Closure %**		**Age (yrs)**
Pl1400	70	50		35
Estimate Species Composition/Inventory Component (based on volume or basal area)	**Estimated Height** (top height of leading species)	**Total Estimated (sph)**	**Estimated SI[2] (Pl)**	**Ht. to Diam (DBH) Ratio**
A, B: Pl80(SxBl) C-F: Pl90(SxBl)	11	1600	17	0.6

ECOSYSTEM INFORMATION[1]						
Polygon	**Net Area(ha)**	**Zone Subzone Variant**	**Site Series**	**Edatope Moisture/Nutrients**	**Slope Position**	**Slope Avg. % & Range**
A	20.2	MSxk	01(03,05)	(2)3-4/B-D	Mid-Slope	25
B	4.3	MSxk	01(03,05)	(2)3-4/B-D	Mid-Slope	20
C	11.3	MSxk	01(03,05)	(2)3-4/B-D	Mid-Slope	20
D	4.3	MSxk	01(03,05)	(2)3-4/B-D	Mid-Slope	20
E	12.8	MSxk	01(05)	3-4/B-D	Mid-Slope	15
F	11.1	MSxk	01(05)	3-4/B-D	Mid-Slope	15

[1] Stand and ecological descriptions and stand tending history estimates are based on VRI, RESULTS information, aerial photo review and helicopter and/or field recce assessments.
[2] Based on "Site Index Estimates Derived from RESULTS or field measurements and Site Index Curves or Growth Intercept data.

Forests for Tomorrow
Aerial Forest Fertilization Prescription

TREATMENT DETAILS					
Foliar Analysis: (reference any foliar analysis work) N/A **Re-Treatment: (indicate if area has been previously treated; number of times; years since last treatment and fertilizer used)** Not previously fertilized.					
Polygon	**Net Treatment Area(ha)**	**Type of Fertilizer**	**Prescribed Application Rate**	**Season/ Timing**	**Fertilizer Amount (kg)**
A	20.2	NS Blend (35.5-0-0-10.1)	545 kg/ha	Fall or spring repeated every 7-10 years, up to 10 years prior to harvest	11,009
B	4.3	NS Blend (35.5-0-0-10.1)	545 kg/ha	Fall or spring repeated every 7-10 years, up to 10 years prior to harvest	2,344
C	11.3	NS Blend (35.5-0-0-10.1)	545 kg/ha	Fall or spring repeated every 7-10 years, up to 10 years prior to harvest	6,159
D	4.3	NS Blend (35.5-0-0-10.1)	545 kg/ha	Fall or spring repeated every 7-10 years, up to 10 years prior to harvest	2,344
E	12.8	NS Blend (35.5-0-0-10.1)	545 kg/ha	Fall or spring repeated every 7-10 years, up to 10 years prior to harvest	6,976
F	11.1	NS Blend (35.5-0-0-10.1)	545 kg/ha	Fall or spring repeated every 7-10 years, up to 10 years prior to harvest	6,050
Total Area:	64.0	NS Blend (35.5-0-0-10.1)	545 kg/ha	**Total kg:**	34,880

RISK ASSESSMENT: FOREST HEALTH, WILDFIRE
Forest Health Minor rusts
Wildfire (e.g. risk ranking) Low
Private Property There are no private properties directly adjacent to the treatment area.

MANAGEMENT OBJECTIVES/IRM VALUES
Treatment Objective(s) and Future Regime:
The treatment objective is to increase the diameter and height growth of dominant and co-dominant Lodgepole pine crop trees resulting in an increased merchantable volume per hectare. The benefit of treatment is that either the same volume (as with no treatment) can be harvested at an earlier age, or more volume will be available at the originally planned harvest age.

Research Installations or Permanent Sample Plots:
The treatment area does not conflict with any known research installations or permanent sample plots.
Visuals:
The treatment area is not within a visually sensitive polygon.
Cultural Heritage:
A First Nations referral will be completed prior to each treatment.
Recreation:
Polygon E is 250 m E of Hamilton Pond Recreation Site.
Wildlife/Biodiversity /Species at Risk:
The treatment area does not conflict with managed areas for wildlife, biodiversity or species at risk
Range:
The treatment area is within an active range tenure. RAN077476 belongs to Rock Hill Investments Ltd.
Other Resources or Tenure/Issues: (e.g. Karst; Trappers; hydro rights-of-way; weather stations)
The treatment area is within trapline TR0807T064. Fertilization is not expected to have significant detrimental effects on wildlife in the area.
Water Bodies/Fish/Water Quality:
Management Objectives: 1. To maintain the water quality of streams flowing in and adjacent to this unit

Riparian Classes	**Location/Measures Prescribed/ Buffers/ Comments**
Streams (NCD, S4, S6)	Major streams and gullied reaches have been removed from the treatment unit. Streams found to be visible from the air during the pre-treatment aerial recce will be protected by establishing 10-20 m no treatment zones. Streams not visible from the air will be treated over. Fertilizer loading zones will not be located within Riparian Management Zones.
Wetlands W1-W5	N/A
Lakes L1-L5	N/A
Non-classifiable wetland (NCW; NCL; NCD)	N/A
Residential Water Intakes	N/A
Watersheds &Water Quality Sampling (if in community watershed)	
The treatment area is not within a community watershed.	

LOGISTICS AND SAFETY	
General Access:	
Distance from Nearest Town (Princeton)	Approximately 52km from Princeton. From Princeton proceed N on Highway 5A for 1km, turning right at Old Hedley Rd. In 0.3km keep left to follow Princeton-Summerland Rd. Continue 15.5km, turning right on to Red Creek FSR. Stay on the Red Creek FSR mainline for 37.4km.At the junction, stay left continuing on to McNulty Rd, travelling 1.5 km to the treatment area.
Access Condition	4x4
Access Improvements Required	None required at this time. Access and stagings should be re-confirmed prior to treatment.
Potential Staging Areas	Red21 - 120°4'40.4"W 49°35'51.5"N Red22 - 120°6'0.2"W 49°36'27.4"N Red27 - 120°4'9.6"W 49°36'31.0"N
Staging Improvements Required	None required at this time. Access and stagings should be re-confirmed prior to treatment.

Comments:

Safety: (Distance to hospital and contact information; radio frequencies for access; any safety specific protocols; snags)

Approximately 52 km to Princeton General Hospital.

(250) 295-3233
98 Ridgewood Drive Princeton, BC V0X 1W0

STORAGE/HANDLING OF FERTILIZER

Storage/Transport: (e.g. type of fertilizer; any regulations as far as transport; conditions of storage)

Forest-grade fertilizers are not regulated for rail or road transportation. Because of water solubility, fertilizer must be stored in dry containers and protected from moisture. Storage areas must be secure to prevent wildlife from eating fertilizer – small doses of urea are lethal to ungulates.

Accidental Spills: (e.g. ground, water)

To be handled consistent with the applicator's spill and safety protocols.

FOREST FERTILIZATION PRESCRIPTION CERTIFICATION

Attachments:
1:10,000 Aerial Fertilization Prescription Map

Plan Prepared By: Alex Ainsworth, FIT

Date Prepared: March 13, 2020

RPF's Signature and Seal

RPF Name: Jeff McWilliams, RPF

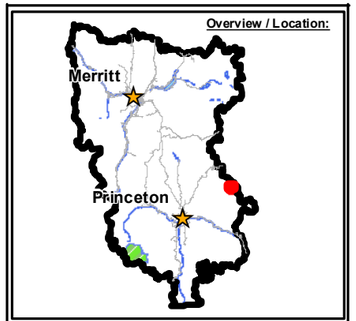
Date Signed: March 20, 2020

B.A. Blackwell & Associates Ltd.

Cascades NRD - Aerial Fertilization Prescription Map - FFT

Prescription Name: RedCrk19

Name	Polygon	Gross Area	PAS	Net Area	Planned Kg
RedCrk19	A	20.2	0.0	20.2	11,009
	B	4.3	0.0	4.3	2,344
	C	11.5	0.2	11.3	6,159
	D	4.3	0.0	4.3	2,344
	E	12.8	0.0	12.8	6,976
	F	11.7	0.6	11.1	6,050
Totals		64.8	0.8	64.0	34,882



Forest Region: Thompson-Okanagan
Nat. Res. District: Cascades
Location: Red/McNultyCrk
Mapsheet(s): 92H.070/060

RedCrk22 A
RedCrk22 B
Red25
RedCrk19F
11.1 Ha
RedCrk21 E
Red22
RedCrk19E
12.8 Ha
RedCrk19A
20.2 Ha
RedCrk19B
4.3 Ha
RedCrk19D
4.3 Ha
RedCrk19C
11.3 Ha
Red27
Red21
RedCrk20 A
HAMILTON POND
RedCrk18

R14834 197.104.01
R14834 261.105.06
R07753 2.3.1
R14834 197.104.04
R14834 197.104.03
R14834 197.104.02
R14834 188.101.22
R14834 188.101.21
R20579 107.06
R20579 107.04
R20039 106.11
R20039 106.10
R20039 106.08
R20039 106.07
R14834 261.105.02
R20039 106.14
R07751 50418.10

0 250 500 750 1000 Meters

Name	BEC Zone	Site Series	Species Comp	Age	Site Index	Treatment Type
RedCrk19	MSxk	A-D: 01(03,05) E, F: 01(05)	A, B: Pl80(SxBl) C-F: Pl90(SxBl)	35	17	Aerial Fert

Legend

- Prescription Unit
- Fertilization Prescriptions
- Access Limit
- Heli Staging
- Reload / Refuel
- Turnaround
- Local Rd
- Highway
- Forest Service Road
- Road Permit
- Special Use Permit Road
- Cutblock: Active
- Cutblock: Pending
- Cutblock: Retired
- Lake
- Wetland
- River
- Stream
- Forest Cover Reserves
- Crown RW
- OGMA (nonlegal)
- OGMA (legal)
- Community Watersheds
- Indian Reserve
- Dominion Government Block
- Treaty Land
- Private - Crown Grant
- Crown and Private A and B
- Community Forest / Woodlot
- Crown Park Equivalent / Reserve
- Military Reserve
- Federal Reserve
- Crown UREP Reserves
- Crown Miscellaneous Reserves
- Crown Christmas Tree Permit
- Parks and Ecological Reserves
- Research Installations
- Growth and Yield
- UWR: Conditional Harvest Zone
- UWR: No Harvest Zone
- WHA: Conditional Harvest Zone
- WHA: No Harvest Zone
- WHA: Proposed
- Interpretative Forest
- Recreation Reserve
- Recreation Site

Scale: 1:10,000
Coordinate System: NAD 1983 UTM Zone 10

B.A. Blackwell & Associates Ltd.
Date: March 2, 2020
Map created by: MT