

Survey - Free Growing

Constrained
PEL350

FREE GROWING SURVEY PROJECT/TREATMENT MAP

DATE SURVEYED: SEPTEMBER 4, 2020 BY: GRIZZLY FOREST MANAGEMENT LTD.

TYPE	HISTORY	STATUS	DESCRIPTION	NET AREA (ha)
A	⊕L08-09 P10-P1, (Sx, Fd)	FG	INV.: P1 ₄ At ₂ Ep ₂ Fd ₁ Sx ₁ -12/10-4.1/2.5-22(I)-30-9329(20) SILV.: FG-P1 ₆₉ Sx ₂₅ Fd ₀₆ -12-3.0-22(I)-1071(20) TREAT.: Amend SP: Adjust SU boundaries, as per survey stratification. Declare Free Growing - 2020	49.0
B	⊕L08-09 P10-Sx, P1, (Fd)	SR	INV.: At ₂ Ep ₂ Sx ₂ P1 ₁ -12/10-6.0/2.4-20(M)-60-13,400(20) SILV.: SR-Sx ₆₉ P1 ₂₈ Fd ₀₃ -12-2.4-19(E)-1067(20) TREAT.: Amend SP: Adjust SU boundaries, as per survey stratification. MBW (cut competing aspen and birch) - Summer/2021 Free Growing Survey - Fall/2021	4.8

Ecosystem: Stratum A = SBSdw2/01; B = SBSdw2/08,01

- 1 ○ = 0-3 Well-spaced stems/ha
2 △ = 4+ Well-spaced stems/ha
3 □ = 4+ Free Growing stems/ha

2 → = photo point

Rust Hazard Rating: Low

Accom Interest
PEL351GPS TIE
(53 25 30
123 0700)Patch A+
(<1 ha cont.)S45
PEL308

2020 Free Growing Survey

Licence No.: A40873 CP/BLK: S45/PEL308 Stratum: A

By: Grizzly Forest Management Ltd. (J.Edwards, Registration No.: RAA9400067) Date: Sept. 4, 2020

STRATIFICATION RATIONALE:

This unit is divided into two strata based on standards units and competing aspen/free growing status. Stratum A comprises SU A and Stratum B comprises SU B. Note: the boundary for SU B was adjusted to follow a competing aspen boundary, which also corresponded with a dominant SBSdw2/08 site series. An SP amendment is recommended to adjust the SU boundaries. Note: this block is adjacent to a cattle ranch and has high cattle use (open range).

Stratum A was planted with a mix of pine, spruce and Douglas fir in 2010 and is currently stocked and free growing. It was surveyed using SU A stocking standards (FSP), while provincial free growing guidelines were used to assess the free growing status of the crop trees (quadrant system). It occurs on gently rolling terrain, within a predominantly mesic ecosystem.

STOCKING COMMENTS:

- Well-stocked and free growing throughout with a mix of planted and natural pine and spruce, along with a minor component of planted Douglas fir. Pine generally dominates the site and is the leading inventory and silviculture species.
- A few pockets are not free growing due to competing aspen, however they are too small and uneven to further stratify out.
- The majority (89%) of the pine are in good condition, while 11% are unacceptable (some are dead) due to a scattered occurrence of comandra blister rust, western gall rust, root collar weevil, cattle and snowpress damage.
- The spruce and Douglas fir are in good condition, with no significant pathogens noted.
- Future stocking problems are not anticipated and this stratum is expected to remain free growing at year 20.

COMPETITION COMMENTS:

- Brush and deciduous tree competition are not a problem and will not require treatment.
- There are a few areas of patchy aspen, as well as some scattered aspen and birch, however these competitors are not impacting the overall free growing status of the stratum and would be best left as is.

RECOMMENDATIONS:

- Amend SP: adjust the SU boundaries, as per the survey stratification (see above comments).
- Declare Free Growing – 2020

Photo #1: Overview showing mix of healthy, free growing pine, spruce and Douglas fir, along with scattered birch, on gently rolling, mesic site.



Photo #2: Overview showing healthy, free growing pine and spruce, along with some scattered aspen, on gently rolling, mesic site.



Photos #3 & #4: Overviews showing healthy, free growing pine (some spruce and Douglas fir mixed in), along with scattered birch, on gently rolling, mesic site.



SILVICULTURE SURVEY												
REGION	DISTRICT	LOCATION		PROJECT IDENTIFICATION		LICENSEE	LICENCE NO.	C.P. NO.	BLK. NO.			
RNI	DPG	Pelican		2020 FG SURVEY		CANFOR	A40873	S45	PEL308			
STRAT.	AREA(ha)	CONTRACTOR		PRIMARY SURVEYOR NAME & REGISTR. NO.				OTHER SURVEYOR(S) - INITIALS		DATE (YY/MM/DD)		
A	49.0	GRIZZLY FOREST MGMT. LTD.		Jerry Edwards RAA9400067				none		20/09/04		
HISTORY												
DISTURBANCE		L08-09		SITE PREPARATION		REGENERATION		P10-Pl,(Sx,Fd)		STAND TENDING		
SURVEY OBJECTIVES												
REGEN SURVEY		STOCKING		PLANTABILITY		X		FREE GROWING		BRUSHING		OTHER
SITE												
For detailed site description and soils information see original SP.												
GENERAL SITE DESCRIPTION: Gently rolling, predominantly mesic site.												
BGC ZONE, SUBZONE, VARIANT												
SBSdw2		01		100%				4		C		
ACCEPTABLE TREE CHARACTERISTICS AND SURVEY PARAMETERS (STOCKING STANDARDS)												
X	Silviculture Plan or Prescription Used				Free Growing Damage Standards Used		X FS 660		2008/03/18 Y/M/D		CONIFER to BRUSH RATIO (%)	
	Provincial Free Growing Guidelines Standards Used						X		Quadrant system used to assess free growing			
Surveyed using SU A stocking standards (FSP).					SINGLE STORY STOCKING STDS.		Inter-Tree Spacing		MSS		100	
ACCEPTABILITY	SPECIES	WS HT. / AGE	MIN. FG HT.	LAYER	TSS	MAX/PLOT	IDEAL	MIN.	PREF. + ACC.	PREF.		
Pref.	Pl	any	2.0	4	1200	7	N/A	2.0	700	700	MAX. DENSITY	
Pref.	Sx	"	1.0	3		0	N/A				10000 count con./ha	
Pref.	Bl	"	1.0	2		0	N/A					
Pref.	Fd	"	1.4	1		0	N/A				BAF	
Unacc.	Sb	"		PSS	1400	7	2.87	2.0			N/A	
Pref.	Lw	"	2.0				DISTANCE BETWEEN					
Unacc.	Hw	"		SAMPLING METHOD			PLOTS (m)		LINES (m)		RADIUS	AREA
Unacc.	Decid.	"		GRID SAMPLING			150		150		3.99m	50
DESCRIPTION OF ACCEPTABLE PLANTABLE SPOTS												
SCREEFING DEPTH (cm)	SCALP SIZE (cm)		ACCEPTABLE PLANTING MEDIUM				TREE SPECIES PLANTERS MUST RECOGNIZE		MIN. HEIGHT TREES TO BE VISIBLE (cm)		PLANTING DIFFICULTY	
N/A	N/A - DUFF PLANT		Mineral soil / well decomposed organic				Pl,Sx,Bl,Fd,Lw		10		N/A	
VISUAL ESTIMATE OF SITE CONDITIONS												
ESTIMATE SLASH COVER(%)	AVERAGE SLASH HEIGHT (cm)		SLASH CLASS		SLASH DISTRIBUTION		INDICATE THE PRESENCE OR ABSENCE OF THE FOLLOWING					
							Y / N TYPE					
TERRAIN			SLOPE		SOILS/LFH		WATER BODIES		NO			
							HIGH WATER TABLE		NO		DEPTH:	
WALKABILITY	VISIBILITY		MACHINE TRAFFICABILITY		SOIL COMPACTION HAZARD		FISHERIES VALUES		NO			
							WILDLIFE VALUES		YES		moose, deer, bear	
POTENTIAL DANGER TREES (dead snags and live residuals):				WORK HAZARD		RANGE USE		YES		high cattle use		
						RECREATION VALUES		NO				
OTHER COMMENTS: Stratum is FG. No further treatment required.						OTHER RES. VALUES		YES		adjacent to cattle ranch		
ACCESS												
ACCESS PROBLEMS:		NO		TYPE:								
DISTANCE		LAND (kms)					AIR (hrs)			WATER		
		2WD	4WD	ATV	WALK		FLOAT	WHEEL	HELICOPTER			
		X										
TOTAL TRAVEL TIME						ACCOMMODATION						
HOURS	FROM (LOCATION - City or major local landmark)					TYPE:						
1.00	PRINCE GEORGE					NONE						
						NAME:						

SILVICULTURE SURVEY SUMMARY																			
PROJECT IDENTIFICATION		LICENSEE		LICENCE NO.		C.P. NO.		BLK. NO.		COMPILED BY		DATE (YY/MM/DD)							
2020 FG SURVEY		CANFOR		A40873		S45		PEL308		GRIZZLY FOREST MGMT. LTD.		20/09/04							
STRATUM		STRATUM AREA (ha)		PLOT MULTIPLIER pm		TARGET		MW MFG		PLANTING MP		BGC ZONE, SUBZONE, VAR.							
A		49.0		200		7		7		SBSdw2		01							
				SPECIES															
NO. PLOTS (n)	TOTAL TREES (T)	TOTAL CONIFERS (TC)	COUNT CONIFERS (CC)	PI	Sx	Bl	Fd	Sb	Lw	Hw	At	Ep	Ac	TOTAL (W)	TOTAL (FG)	SAMPLE TREE (Avg)			
17	793	450	270	Pref.	Pref.	Pref.	Pref.	Unacc.	Pref.	Unacc.	Unacc.	Unacc.	Unacc.	45	56				
WS				77	29	0	8	0	0	0				CW	CFG	Age	12		
FG				64	23	0	6	0	0	0				9	5	Height(cm)	302		
TOTAL				351	66	0	30	3	0	0	157	184	2	P	PR	Leader(cm)	58		
% WS				68	25	0	7	0	0	0				3	1	SI	22(I)		
% FG				69	25	0	6	0	0	0				CP					
% T				44	8	0	4	0	0	0	20	23	0	0	TOTAL "IN" --> N/A				
																BA MODAL DIA --> N/A			
<p>T 793 X pm 200 / n 17 = 9329 TOTAL TREES / ha 4035 TOTAL DECIDUOUS TREES / ha</p> <p>TC 450 X pm 200 / n 17 = 5294 TOTAL CONIFERS / ha 471 AVERAGE GREEN-UP HEIGHT (cm)</p> <p>CC 270 X pm 200 / n 17 = 3176 COUNTABLE CONIFERS / ha</p> <p>TWS 114 X pm 200 / n 17 = 1341 TOTAL WELL-SPACED / ha</p> <p>TFG 93 X pm 200 / n 17 = 1094 TOTAL FREE GROWING / ha</p> <p>CW 9 X MW 7 + W 45 = 108 X pm 200 / n 17 = 1271 p a WELL-SPACED / ha</p> <p>CFG 5 X MFG 7 + FG 56 = 91 X pm 200 / n 17 = 1071 p a FG WELL-SPACED / ha</p> <p>CP 0 X MP 7 + P 3 = 3 X pm 200 / n 17 = 35 PLANTABLE SPOTS / ha</p> <p>PR 1 X pm 200 / n 17 = 12 POTENTIALLY PREPARABLE / ha</p> <p>SUM SILV. COMP. PREFERRED SP % 100 X p + a WS / ha 1271 = 1271 TOTAL PREFERRED WELL-SPACED / ha</p> <p>SUM SILV. COMP. PREFERRED SP % 100 X p + a FG / ha 1071 = 1071 TOTAL PREFERRED FG / ha</p> <p>TOTAL "IN" N/A / n 17 X BAF N/A = N/A LAYER 1 BASAL AREA / ha</p>																			
CALCULATION FOR SILVICULTURE SURVEY CONFIDENCE LIMITS																			
		n	Σ	S	Sx	t.90	CI (stems/ha)	LCL (stems/ha)	MSS	MAX. PLOTS?	STATUS								
WELL SPACED		17	1271	0.786	0.191	1.746	67	1204	700	no	SR								
FREE GROWING		17	1071	1.498	0.363	1.746	127	944	700	no	FG								
INVENTORY AND SILVICULTURE COMPONENT																			
		SPECIES COMPOSITION TO NEAREST 10%(Inv), 1% (Silv.)										AGE	HEIGHT	SITE	CC	T			
		SP	%	SP	%	SP	%	SP	%	SP	%	(years)	(m)	INDEX	(%)	FG	YEAR		
STATUS	Inv.	PI	40	At	20	Ep	20	Fd	10	Sx	10	12/10	4.1/2.5	22(I)	30	9329	2020		
	FG	Silv.	PI	69	Sx	25	Fd	6				12	3.0	22(I)		1071	2020		
SUMMARY OF COMPETING VEGETATION																			
SPECIES	Esti- mated cover	CURRENT HEIGHT (cm)			HT. INCRE- MENT	DIST- RIBU- TION	COM- PETI- TION	PEST CODE	T	TC	# AFFECTED		TTL HOST SP.	% T	% TC	% HOST TREES	SPEC- IES		
	%	MIN	MAX	AVG.	(cm)						LIVE	DEAD							
grass	8	10	40	25	0	cont.	nil-lo	DSC	793	450	18	2	351	2.5	4.4	5.7	PI		
rose	4	20	90	50	5	scatt.	nil-lo	DSG	793	450	13	1	351	1.8	3.1	4.0	PI		
saskatoon	3	40	100	70	5	patchy	nil-lo	IWW	793	450	0	2	351	0.3	0.4	0.6	PI		
alder	3	100	300	200	10	scatt.	low	AC	793	450	2	0	351	0.3	0.4	0.6	PI		
fireweed	3	20	80	50	0	scatt.	nil-lo	NY	793	450	1	0	351	0.1	0.2	0.3	PI		
OVERALL CURRENT BRUSH HAZARD:								LOW		TL	793	450	1	0	66	0.1	0.2	1.5	
OVERALL POTENTIAL BRUSH HAZARD:								LOW											
RECOMMENDATIONS: Amend SP: adjust SU boundaries, as per survey stratification. Declare Stratum A FG.																			

SURVEY PLOT DATA

LICENCE NO.
A40873

C.P. NO.
S45

BLK. NO.
PEL308

STRATUM
A

DATE (YY/MM/DD)
20/09/04

M = 7

PLOT#	T	TC	CC	PI-WS	PI-TOT	PI-FG	Sx-WS	Sx-TOT	Sx-FG	BI-WS	BI-TOT	BI-FG	Fd-WS	Fd-TOT	Fd-FG	Sb-WS	Sb-TOT	Sb-FG	Lw-WS	Lw-TOT	Lw-FG	Hw-WS	Hw-TOT	Hw-FG	TOT W	TOT FG	SP	HT	AGE	L. HT	PLANT	PREP	At	Ep	Ac	GU HT	Xcheck		
1	97	76	46	7	73	5	1	3	0																7	5	pl	230	12	64	0	0	19	2	460	0			
2	29	22	17	5	16	3	1	4	1							0	2	0							6	4					0	0	2	5		0			
3	9	8	7	7	7	7	0	1	0																7	7	pl	310	12	40	1	0		1	350	0			
4	18	13	10	5	9	4	1	2	1				2	2	2										7	7					0	0	1	4		0			
5	26	19	13	4	16	4	1	2	1				0	1	0										5	5	pl	250	12	54	0	0		7	490	0			
6	68	31	19	2	19	2	1	5	1				3	7	1										6	4					0	0	37		0				
7	36	23	13	3	13	3	4	4	4				1	6	1										7	7	fd	320	12	65	0	0		13	550	0			
8	20	6	6	0	1	0	5	5	5																5	5				1	0	8	5	1	0				
9	29	9	6	4	5	3	3	4	3																7	6	sx	370	12	50	0	0	17	2	1	540	0		
10	72	24	10	4	22	3	2	2	2																6	5					0	0	48		0				
11	25	23	14	4	17	3	2	4	0				0	2	0										6	3	pl	207	10	35	1	0	2		400	0			
14	66	40	22	3	34	3	3	6	3																6	6					0	0	4	22		0			
15	66	48	20	7	43	7	0	5	0																7	7	pl	460	12	70	0	0	1	17	530	0			
17	36	16	5	6	7	4	2	3	1				0	6	0										7	5	pl	390	12	70	0	0	1	19	470	0			
20	56	8	7	4	6	2	1	2	0																5	2					0	1	48		0				
21	64	32	21	5	21	5	1	5	1				2	6	2										7	7	pl	260	12	63	0	0		32	470	0			
23	76	52	34	7	42	6	1	9	0							0	1	0							7	6	pl	220	9	72	0	0	6	18	450	0			
check	793	450	270	77	351	64	29	66	23	0	0	0	8	30	6	0	3	0	0	0	0	0	0	0		AVG						3	1	157	184	2	471		
	793	450		AVG	21			4		####			4			2										AVG		302	12	58			13	13	1				
total trees/ha			9329							N	N-1	SQRT(N)													AVG-WS	AVG-FG	SD-WS	SD-FG	SX-WS	SX-FG	T-WS	T-FG	CI-WS	CI-FG	LCL-WS	LCL-FG			
total conifers/ha			5294								17	16	4.123												6.353	5.353	0.786	1.498	0.191	0.363	1.746	1.746	0.333	0.634	6.020	4.719			
total decid/ha			4035																																				
countable conifers/ha			3176																																				
total well-spaced/ha			1341																																				
GROWTH INTERCEPT SAMPLES: PI																																							
TREE #	AGE at br	Total Ht	Tree SI																																				
1	6	4.6	22.0																																				
2	6	3.5	18.0																																				
3	8	4.9	20.0																																				
4	8	5.5	21.5																																				
5	7	5.4	23.0																																				
6	6	4.0	20.0																																				
7	6	5.3	25.0																																				
8	6	4.7	23.0																																				
9	6	4.7	23.0																																				
10	6	4.5	22.0																																				
AVERAGE SITE INDEX				22																																			

2020 Free Growing Survey

Licence No.: A40873 CP/BLK: S45/PEL308 Stratum: B

By: Grizzly Forest Management Ltd. (J.Edwards, Registration No.: RAA9400067) Date: Sept. 4, 2020

STRATIFICATION RATIONALE:

This unit is divided into two strata based on standards units and competing aspen/free growing status, as per Stratum A comments. Note: this block is adjacent to a cattle ranch and has high cattle use (open range).

Stratum B was planted with a mix of spruce and pine (and a small amount of Douglas fir) in 2010 and is currently stocked, but is not free growing due to competing aspen and birch. It was surveyed using SUB stocking standards (FSP), while provincial free growing guidelines were used to assess the free growing status of the crop trees (quadrant system). It occurs on gently rolling terrain, within a subhygric to mesic ecosystem.

STOCKING COMMENTS:

- Stocked throughout with a mix of planted and natural spruce and pine, along with a very minor component of planted Douglas fir. On average, spruce is the leading silviculture species, while aspen leads for inventory.
- Not free growing due to high competing aspen and to a lesser extent, birch. For the most part the aspen is continuous, however there are a few small openings with free growing crop trees, which are too small and uneven to further stratify out.
- The spruce and Douglas fir are in good condition, with no significant pathogens noted.
- The majority (84%) of the pine are in good condition, while 16% are unacceptable (some are dead) due to a scattered occurrence of root collar weevil and cattle damage.
- Future stocking problems are not anticipated and this stratum is expected to achieve free growing status following a manual brushing treatment.

COMPETITION COMMENTS:

- Aspen competition is high throughout the majority of this stratum. The aspen are currently 100-800 cm tall, averaging approximately 600 cm tall. Distribution is mainly continuous, however there are a few scattered, small openings. Some scattered aspen residuals exist.
- Some scattered to clumpy birch also exists (50-400 cm tall).
- A manual brushing treatment is recommended. The area is fairly easily treatable, with fair walking and visibility and good access.
- Note: this area is actively used by cattle for cover and open range, so this should be taken into account when determining treatment timing and feasibility.

RECOMMENDATIONS:

- Amend SP: adjust the SU boundaries, as per Stratum A comments.
- MBW (cut competing aspen and birch) – Summer/2021
- Free Growing Survey – Fall/2021

Photos #5 & #6: Overviews showing competing aspen on gently rolling, subhygric site.
Stocked with a mix of spruce and pine under the aspen.



Photo #7: Overview showing a small opening in the aspen, with some free growing spruce and pine crop trees.



SILVICULTURE SURVEY												
REGION	DISTRICT	LOCATION		PROJECT IDENTIFICATION			LICENSEE	LICENCE NO.	C.P. NO.	BLK. NO.		
RNI	DPG	Pelican		2020 FG SURVEY			CANFOR	A40873	S45	PEL308		
STRAT.	AREA(ha)	CONTRACTOR		PRIMARY SURVEYOR NAME & REGISTR. NO.				OTHER SURVEYOR(S) - INITIALS		DATE (YY/MM/DD)		
B	4.8	GRIZZLY FOREST MGMT. LTD.		Jerry Edwards RAA9400067				none		20/09/04		
HISTORY												
DISTURBANCE		L08-09		SITE PREPARATION			REGENERATION		P10-Sx,Pl,(Fd)		STAND TENDING	
SURVEY OBJECTIVES												
REGEN SURVEY		STOCKING		PLANTABILITY		X		FREE GROWING		X		BRUSHING
OTHER												
SITE												
For detailed site description and soils information see original SP.												
GENERAL SITE DESCRIPTION: Gently rolling, subhygric to mesic site.												
BGC ZONE, SUBZONE, VARIANT												
SBSdw2		08		60%		01		40%		5-4		C
ACCEPTABLE TREE CHARACTERISTICS AND SURVEY PARAMETERS (STOCKING STANDARDS)												
X	Silviculture Plan or Prescription Used			Free Growing Damage Standards Used		X		FS 660		2008/03/18		Y/M/D
	Provincial Free Growing Guidelines Standards Used					X		Quadrant system used to assess free growing				CONIFER to BRUSH RATIO (%)
Surveyed using SP B stocking standards (FSP).				SINGLE STORY STOCKING STDS.				Inter-Tree Spacing		MSS		100
ACCEPTABILITY	SPECIES	WS HT. / AGE	MIN. FG HT.	LAYER	TSS	MAX/PLOT	IDEAL	MIN.	PREF. + ACC.	PREF.		
Pref.	Pl	any	2.0	4	1200	7	N/A	2.0	700	600	MAX. DENSITY	
Pref.	Sx	"	1.0	3		0	N/A				10000 count con./ha	
Pref.	Bl	"	1.0	2		0	N/A					
Pref.	Fd	"	1.4	1		0	N/A				BAF	
Unacc.	Sb	"		PSS	1400	7	2.87	2.0			N/A	
Pref.	Lw	"	1.0				DISTANCE BETWEEN					
Unacc.	Hw	"		SAMPLING METHOD			PLOTS (m)		LINES (m)		RADIUS	AREA
Unacc.	Decid.	"		GRID SAMPLING			75		150		3.99m	50
MULTIPLIER												
200												
DESCRIPTION OF ACCEPTABLE PLANTABLE SPOTS												
SCREEFING DEPTH (cm)	SCALP SIZE (cm)		ACCEPTABLE PLANTING MEDIUM				TREE SPECIES PLANTERS MUST RECOGNIZE		MIN. HEIGHT TREES TO BE VISIBLE (cm)		PLANTING DIFFICULTY	
N/A	N/A - DUFF PLANT		Mineral soil / well decomposed organic				Pl,Sx,Bl,Fd,Lw		10		N/A	
VISUAL ESTIMATE OF SITE CONDITIONS												
ESTIMATE SLASH COVER(%)	AVERAGE SLASH HEIGHT (cm)		SLASH CLASS		SLASH DISTRIBUTION		INDICATE THE PRESENCE OR ABSENCE OF THE FOLLOWING					
8%	10-50		low-moderate		scattered		Y / N TYPE					
TERRAIN			SLOPE		SOILS/LFH		WATER BODIES		NO			
gently rolling			0-10%		N/A		HIGH WATER TABLE		NO		DEPTH:	
WALKABILITY	VISIBILITY		MACHINE TRAFFICABILITY		SOIL COMPACTION HAZARD		FISHERIES VALUES		NO			
good	fair-good		good		high		WILDLIFE VALUES		YES		moose, deer, bear	
POTENTIAL DANGER TREES (dead snags and live residuals):				WORK HAZARD		RANGE USE		YES		high cattle use		
scattered				moderate		RECREATION VALUES		NO				
OTHER COMMENTS: Easily treatable ground. Healthy Sx and Pl crop trees under dense aspen (birch). Some small FG openings.						OTHER RES. VALUES		YES		adjacent to cattle ranch		
ACCESS												
ACCESS PROBLEMS:		NO		TYPE:								
DISTANCE		LAND (kms)					AIR (hrs)			WATER		
		2WD	4WD	ATV	WALK		FLOAT	WHEEL	HELICOPTER			
X												
TOTAL TRAVEL TIME						ACCOMMODATION						
HOURS	FROM (LOCATION - City or major local landmark)					TYPE:						
1.00	PRINCE GEORGE					NONE						
						NAME:						

SILVICULTURE SURVEY SUMMARY

PROJECT IDENTIFICATION		LICENSEE	LICENCE NO.	C.P. NO.	BLK. NO.		COMPILED BY		DATE (YY/MM/DD)	
2020 FG SURVEY		CANFOR	A40873	S45	PEL308		GRIZZLY FOREST MGMT. LTD.		20/09/04	
STRATUM	STRATUM AREA (ha)		PLOT MULTIPLIER pm		TARGET	MW MFG	PLANTING	MP	BGC ZONE, SUBZONE, VAR.	SITE SERIES
B	4.8		200		7		7		SBSdw2	08,01

SPECIES

NO. PLOTS (n)	TOTAL TREES (T)	TOTAL CONIFERS (TC)	COUNT CONIFERS (CC)	PI	Sx	Bl	Fd	Sb	Lw	Hw	At	Ep	Ac	TOTAL (W)	TOTAL (FG)	SAMPLE TREE (Avg)
6	402	72	40	Pref.	Pref.	Pref.	Pref.	Unacc.	Pref.	Unacc.	Unacc.	Unacc.	Unacc.	32	6	
WS				9	22	0	1	0	0	0				CW	CFG	Age 12
FG				4	2	0	0	0	0	0				0	0	Height(cm) 239
TOTAL				18	49	0	5	0	0	0	249	80	1	P	PR	Leader(cm) 45
% WS				28	69	0	3	0	0	0				1	3	SI 19(E)
% FG				67	33	0	0	0	0	0				CP		
% T				4	12	0	1	0	0	0	62	20	0	0	TOTAL "IN" --> N/A	
BA MODAL DIA --> N/A																

T	402	X pm	200	/ n	6	=	13400	TOTAL TREES / ha	11000	TOTAL DECIDUOUS TREES / ha								
TC	72	X pm	200	/ n	6	=	2400	TOTAL CONIFERS / ha	385	AVERAGE GREEN-UP HEIGHT (cm)								
CC	40	X pm	200	/ n	6	=	1333	COUNTABLE CONIFERS / ha										
TWS	32	X pm	200	/ n	6	=	1067	TOTAL WELL-SPACED / ha										
TFG	6	X pm	200	/ n	6	=	200	TOTAL FREE GROWING / ha										
CW	0	X MW	7	+ W	32	=	32	X pm	200	/ n	6	=	1067	p a WELL-SPACED / ha				
CFG	0	X MFG	7	+ FG	6	=	6	X pm	200	/ n	6	=	200	p a FG WELL-SPACED / ha				
CP	0	X MP	7	+ P	1	=	1	X pm	200	/ n	6	=	33	PLANTABLE SPOTS / ha				
PR	3	X pm	200	/ n	6	=	100	POTENTIALLY PREPARABLE / ha										
SUM SILV. COMP. PREFERRED SP %											100	X p + a WS / ha	1067	=	1067	TOTAL PREFERRED WELL-SPACED / ha		
SUM SILV. COMP. PREFERRED SP %											100	X p + a FG / ha	200	=	200	TOTAL PREFERRED FG / ha		
TOTAL "IN"											N/A	/ n	6	X BAF	N/A	=	N/A	LAYER 1 BASAL AREA / ha

CALCULATION FOR SILVICULTURE SURVEY CONFIDENCE LIMITS

	n	Σ	S	Sx	t.90	CI (stems/ha)	LCL (stems/ha)	MSS	MAX. PLOTS?	STATUS
WELL SPACED	6	1067	0.516	0.211	2.015	85	982	700	no	SR
FREE GROWING	6	200	1.673	0.683	2.015	275	-75	700	no	NFG

INVENTORY AND SILVICULTURE COMPONENT

STATUS	Inv.	SPECIES COMPOSITION TO NEAREST 10%(Inv), 1% (Silv.)								AGE (years)	HEIGHT (m)	SITE INDEX	CC (%)	T	YEAR		
		SP	%	SP	%	SP	%	SP	%								
		At	50	Ep	20	Sx	20	PI	10								
SR	Silv.	Sx	69	PI	28	Fd	3					12	2.4	19(E)		1067	2020

SUMMARY OF COMPETING VEGETATION

SPECIES	Esti- mated cover %	CURRENT HEIGHT (cm)			HT. INCRE- MENT (cm)	DIST- RIBU- TION	COM- PETI- TION	PEST CODE	T	TC	# AFFECTED		TTL HOST SP.	% T	% TC	% HOST TREES	SPEC- IES
		MIN	MAX	AVG.							LIVE	DEAD					
grass	7	10	40	25	0	cont.	nil-lo	IWW	402	72	1	1	18	0.5	2.7	10.5	PI
rose	4	30	70	50	5	scatt.	nil-lo	AC	402	72	1	0	18	0.2	1.4	5.6	PI
fireweed	2	30	70	50	0	scatt.	nil-lo										
alder	2	100	300	200	10	scatt.	low										

PEST INFORMATION SUMMARY

OVERALL CURRENT BRUSH HAZARD: LOW																	
OVERALL POTENTIAL BRUSH HAZARD: LOW																	

RECOMMENDATIONS:

Amend SP: adjust SU boundaries, as per survey stratification.

MBW (cut competing aspen and birch) - Summer/2021

Free Growing Survey - Fall/2021

SURVEY PLOT DATA

LICENCE NO.
A40873

C.P. NO.
S45

BLK. NO.
PEL308

STRATUM
B

DATE (YY/MM/DD)
20/09/04

M = 7

PLOT#	T	TC	CC	PI-WS	PI-TOT	PI-FG	Sx-WS	Sx-TOT	Sx-FG	BI-WS	BI-TOT	BI-FG	Fd-WS	Fd-TOT	Fd-FG	Sb-WS	Sb-TOT	Sb-FG	Lw-WS	Lw-TOT	Lw-FG	Hw-WS	Hw-TOT	Hw-FG	TOT W	TOT FG	SP	HT	AGE	L. HT	PLANT	PREP	At	Ep	Ac	GU HT	Xcheck		
12	62	10	5	0	1	0	5	9	0																5	0					0	1	49	3		0			
13	50	16	4	3	4	3	2	12	1																5	4	PI	340	12	55	0	0	8	26	380	0			
16	32	11	9	1	2	1	5	7	1				0	2	0										6	2	Sx	174	12	41	1	0	8	13	390	0			
18	74	11	7	0	2	0	5	7	0				1	2	0										6	0	Sx	203	12	40	0	0	55	8		0			
19	86	7	7	2	4	0	3	3	0																5	0					0	1	79			0			
22	98	17	8	3	5	0	2	11	0				0	1	0										5	0					0	1	50	30	1	0			
check	402	72	40	9	18	4	22	49	2	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0			AVG				1	3	249	80	1				
	402	72		AVG	3			8		####			2			####										AVG		239	12	45			42	16	1	385			
total trees/ha			13400							N	N-1	SQRT(N)														AVG-WS	AVG-FG	SD-WS	SD-FG	SX-WS	SX-FG	T-WS	T-FG	CI-WS	CI-FG	LCL-WS	LCL-FG		
total conifers/ha			2400								6	5	2.449													5.333	1.000	0.516	1.673	0.211	0.683	2.015	2.015	0.425	1.377	4.909	-0.377		
total decid/ha			11000																																				
countable conifers/ha			1333													Xpm (200)										1067	200							85	275	982	-75		
total well-spaced/ha			1067																																				
GROWTH INTERCEPT SAMPLES: Sx																																							
TREE #	AGE at br	Total Ht	Tree SI																																				
1	N/A trees overtopped by At.																																						
AVERAGE SITE INDEX			19(E)																																				



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SILVICULTURE SURVEY PLOT CARD

SURVEYOR NAME(S) & REGISTRATION NO(S)

GR1224 - J. Edwards

SURVEY DATE

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MAPSHEET - OPENING NO.

CANFOR

LICENCE NO.

A40873

CUTTING PERMIT

545

BLOCK

PEL308

STANDARDS UNIT

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STRATUM

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POINT OF COMMENCEMENT

Poc = GPS TIE (53 25 30 / 123 02 00)

BEARING & DISTANCE	PLOT NO.	STRATUM	LAYER	TOTAL TREES	TOTAL CON.	COUNT CON.	COUNT HEIGHT (cm)	WELL-SPACED		FREE-GROWING		TOTAL (W)	TOTAL (FG)	AGE	TOTAL HEIGHT (m)	GI SAMPLE & DATA SPP	PLANTABLE NUMBER "N"	PREPARABLE	COMPETING VEGETATION			FOREST HEALTH			
								PREFERRED AND ACCEPTABLE SPECIES											SPECIES	% COVER	HEIGHT (m)	PEST CODE	TREE SPECIES AFFECTED		
Project GPS			M					P1 Sx B1 Fa S6							P1 L=6						At	LIVE TREES	DEAD TREES		
S 600m	1	A	01	97	76	46	115	7/3 1/3				M	5	12	230	-	0	0	L		19	2			
	(At => S Count - 15% = NFG)								(5) (0) At			(GM-P1-460)							Grass	7	140	NY	1		
	(At: small P. deads and Scott stems - 1-3.5 Aug 2m tall)								175			(GI-P1-4.6/6)							Brush	4	2-3m	BSG	1		
N 150m	2	A	01	29	22	17	110	5/6 1/4		0/2		6	4	-	-	-	0	0	L		2	5			
	(INV - P1 = 12.4 / 3.5m At = 10.4 / 2.0m)								(3) (1)											3	40-20	BSG	4	2	
									TS													BSG	1		
N 150m	3	A	01	9	8	7	155	7/7 %				M	N	12	310	-	1	0	L						
	(All P1 = Acc cattle dung)								(7)			(GM-P1-350)											BSG	1	
	(1 place marginally - fork - originates @ < 30cm fr. ground)											(GI-P1-3.5/6)													
N 150m	4	A	01	18	13	10	170	5/9 1/2		2/2		M	M	-	-	-	0	0	L				1	4	
	(Several trees to Acc.)								(4) (1)	(2)													BSG	1	
	Cattle dung - 1 place severe sweep								TS														AC	1	
Notes:												Str & Layer	Ldg Spp	2nd Spp	Minor Spp		Cr Cl	Str & Layer	Ldg Spp	2nd Spp	Minor Spp		Cr Cl		
												%	Age	Ht (m)	%	Age	Ht (m)	%	%	%	%	%	%	%	%
- High cattle use - open range.																									

Well spaced/free growing age and height sample data is recorded for the representative well spaced/free growing tree within plots, (approx. 1 per 4 plots, min. 3 per stratum), then mathematically averaged. Inventory label data is collected periodically, (approx. 1 per 4 plots, min. 3 per stratum), from visual observations throughout the stratum, then 'roughly averaged' to represent the stratum.



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SILVICULTURE SURVEY PLOT CARD

SURVEYOR NAME(S) & REGISTRATION NO(S)

GR1224 - J. Edwards

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MAPSHEET - OPENING NO.

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POINT OF COMMENCEMENT

P104

BEARING & DISTANCE	PLOT NO.	STRATUM	LAYER	TOTAL TREES	TOTAL CON.	COUNT CON.	COUNT HEIGHT (cm)	WELL-SPACED () FREE-GROWING ()				TOTAL (W)	TOTAL (FG)	AGE	TOTAL HEIGHT (m)	GI SAMPLE & DATA SPP.	PLANTABLE NUMBER "1"	PREPARABLE	COMPETING VEGETATION			FOREST HEALTH		
								PREFERRED AND ACCEPTABLE SPECIES											SPECIES	% COVER	HEIGHT (m)	PEST CODE	TREE SPECIES AFFECTED	LIVE
N 150m	5	A	01	26	19	13	130	4/16 1/2	0/1				12	250	-	0	0	L-M	8	100	350	7		
	(INV - P1 = 12.4 / 4.2m) (4) (1)								(GU - P1 - 4.9/8)								(Infl.) Grass 10 10-40							
	(Ep = 10.4 / 3.2m) (Ep = 50 - 400 cm)								(GI - P1 - 4.9/8)								Rage 5 20-40							
NW 215m	6	A	01	68	31	19	110	2/19 1/5	3/7				6	4	-	-	0	0	Thicket 3 20-50				37	
	(1 P1 = 95cm - called FG) (2) (1)								(1)								M IWW 1							
	(FG trees = 100% above spp) or No Ep within 1m								Ep/s								Fd L = 65							
E 150m	7	A	01	36	23	13	160	3/13 1/4	1/6				m	m	12	320	-	0	0	L			13	
	(Fd = FG - 5 count Ep) (3) (4) (1)								(GU - P1 - 5.5)								bsc 1							
	(2 Sx to Acc IWS)								(GI - P1 - 5.5/8)								dsg 1							
E 150m 220m	8	A	01	20	6	6	155	9/1 5/5					5	5	-	-	1	0	L				8 5 1	
	(Cox Plot off Rd) (5) (2 Sx to Acc IWS)																							
Notes									Str & Ldg Layer Spp				2nd Spp				Minor Spp				Cr			
(5) Plot 5 (N) - 2WD - High cattle use - open range - small pockets and Scott stems									Age [Ht (m)] %				Age [Ht (m)] %				Age [Ht (m)] %				Age [Ht (m)] %			
- SRI/Ft in P1 (Sx, Fd) - doing (Infl.)									smaller Ac 55%				bsc				Scott				Ep			
- small pockets and Scott stems									At - bird not apparently															
	</																							



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SILVICULTURE SURVEY PLOT CARD

SURVEYOR NAME(S) & REGISTRATION NO(S)

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MAPSHEET - OPENING NO.

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POINT OF COMMENCEMENT

P106

BEARING & DISTANCE	PLOT NO.	STRATUM	LAYER	TOTAL TREES	TOTAL CON.	COUNT CON.	COUNT HEIGHT (cm)	WELL-SPACED () FREE-GROWING ()										GI SAMPLE & DATA SPP	PLANTABLE NUMBER	PREPARABLE	COMPETING VEGETATION			FOREST HEALTH																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
								PREFERRED AND ACCEPTABLE SPECIES													TOTAL (W)	TOTAL (FG)	AGE	TOTAL HEIGHT (m)	SPECIES	% COVER	HEIGHT (m)	PEST CODE	TREE SPECIES AFFECTED																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
										P1	Sx	B1	F1																			LIVE TREES	DEAD TREES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
S 20m								4/5 3/4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

Well spaced/free growing age and height sample data is recorded for the representative well spaced/free growing tree within plots, (approx. 1 per 4 plots, min. 3 per stratum), then mathematically averaged. Inventory label data is collected periodically, (approx. 1 per 4 plots, min. 3 per stratum), from visual observations throughout the stratum, then 'roughly averaged' to represent the stratum.

SURVEYOR NAME(S) & REGISTRATION NO(S).			SURVEY DATE		PAGE 4 OF 6	
CUTTING PERMIT		BLOCK	STANDARDS UNIT		STRUTUM	

MAPSHEET - OPENING NO.		LICENCE NO.		CUTTING PERMIT		BLOCK		STANDARDS		STRATUM											
POINT OF COMMENCEMENT																					
Plot 12																					
BEARING & DISTANCE	PLOT NO.	STRATUM	LAYER	TOTAL TREES	TOTAL CON.	COUNT CON.	COUNT HEIGHT (cm)	☒ WELL-SPACED ☒ FREE-GROWING				G1 SAMPLE & DATA SPP.	☒ PLANTABLE NUMBER "N"	☒ PREPARABLE	COMPETING VEGETATION			FOREST HEALTH			
								PREFERRED AND ACCEPTABLE SPECIES							TOTAL (W)	TOTAL (FG)	AGE	TOTAL HEIGHT (m)	SPECIES	% COVER	HEIGHT (m)
								P1	Sx	B1	FI										
S 75m	13	B	01	50	16	4	170	3 1/4	1/2												
								(3)	(1)												
296° 167m	14	A	01	66	40	22	150	3 3/4	3/6												
								(3)	(3)												
S 150m	15	A	01	66	48	20	230	7/43	9/5												
								(7)													
E 150m	16	B	01	32	11	9	60	1 1/2	5/7												
								(1)	(1)												
Notes: Plot 14 (NW) = PG PI 1/5x - doim G																					

FS 2508 2008/3/18 • Well spaced/free growing age and height sample data is recorded for the representative well spaced/free growing tree within plots, (approx. 1 per 4 plots, min. 3 per stratum), then mathematically averaged
7530881008 (100 / pak) Inventory label data is collected periodically, (approx. 1 per 4 plots, min. 3 per stratum), from visual observations throughout the stratum, then 'toughly averaged' to represent the stratum

SURVEY PLOT CARD

GRI 224 - J. Edwards		DATE	20 0204	PAGE	5	OF	6
CUTTING PERMIT	545	BLOCK	DE 1-28	STANDARDS UNIT	STRATUM		

[illegible]

Well spaced/free growing age and height sample data is collected for the representative well spaced/free growing tree within plots. (approx. 1 per 4 plots, min. 3 per stratum), then mathematically averaged. Inventory label data is collected periodically, (approx. 1 per 4 plots, min. 3 per stratum), from visual observations throughout the stratum, then 'roughly averaged' to represent the stratum.

SILVICULTURE SURVEY PLOT CARD

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CUTTING PERMIT	BLOCK	STANDARDS UNIT	STRATUM		

[illegible]

FS 658 2006/3/18 Well spaced/free growing age and height sample data is recorded for the representative well spaced/free growing tree within plots, (approx. 1 per 4 plots, min. 3 per stratum), then mathematically averaged.
7530881008 (100 / pak) Inventory label data is collected periodically, (approx. 1 per 4 plots, min. 3 per stratum), from visual observations throughout the stratum, then 'roughly averaged' to represent the stratum.