Tolko Industries Ltd. TSL

Silviculture Ground Rules

July 2017

Project [1186-2]

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1 Introduction

Silviculture ground rules (SGR) identify the current and expected future forest conditions, silviculture systems, management options, and harvest and stand tending treatments for a specific development type. SGRs guide prescriptions for operational treatments (i.e., harvest and stand tending) and actively managed areas which experience stand-replacing natural disturbance. They also provide linkages between stand development types, silviculture regimes and modelling assumptions.

Nine SGRs were developed for the Tolko TSL FMP and details on the SGR's are noted in ***Table 1*** and ***Table 2***. Information about the content of each table follows:

Table 1 provides details on the Existing Stands, planned treatment, Future managed stand analysis unit, and net area.

Existing Stands

The existing stand section consists of the analysis unit (AU), strata description, yield group, provincial forest type, Minimum & Maximum age for harvest, and % of area transitioning to the future analysis unit.

Analysis Unit
Analysis Units (AU) are what will be used in the Patchworks model to to define growth and yield (as per Forest Estate Modelling Assumptions document).

Description
Description is made up of Eco zone (Boreal Transition or Mid-Boreal Upland) – Forest Development Type – Stand Density – Site Index group.

Yield Group
As per Forest Estate Modelling Assumptions document.

Percent
% of area that will transition to the future analysis unit.

Future Stands

The future stand consists of the analysis unit that the existing natural stand will be managed as, and the initial age.

Table 2 identifies the silviculture ground rules for Tolko TSL.

Reference Code

The reference code is used to identify each SGR for reference in the FMP, operational plans and reports. The three-part code (separated by dashes) indicates the appropriate: SGR number (1 to 9), species type and development type.

% Future Development Type

Based on the area (ha) of strata contributing to one of the nine silviculture ground rules.

Treatment (A and/or B)

Up to two treatments (A, B) are identified for each SGR Reference Code. Treatment A is the preferred treatment and Treatment B is the alternative treatment if it is determined that Treatment A will not achieve the desired future condition. Where only one treatment is identified, that treatment is expected to achieve the desired future condition.

For the various SGR Reference Codes, treatments are either:

- Plant *(wS or bS leading stand)*,
- Scarify *(jP leading pure softwood or mixedwood stand)*,
- Leave for Natural - LFN *(leading hardwood stand)*,
- Leave for Natural - LFN (A) or Plant (B) *(hardwood leading mixedwood with wS)*,
- Plant *(Softwood Leading Mixedwood – wS)*, and
- Leave for Natural – LFN (A) or Scarify (B) *(hardwood leading mixedwood with jP)*

% Area Treated

Area Treated % is an approximate estimate of the proportion of area that will be sufficiently regenerated with only Treatment A and what area will require Treatment B.

Regeneration Prescription

Includes additional details on treatments such as planting densities for straight plant and for in-fill planting.

Comment

The SGR's identify the proposed treatment(s) for regenerating the same development type under normal conditions. Points to consider:

- As per the FMP standard (1-31) the treatments proposed are based on best practices applicable to the development type as recognized by MLOSB, and were developed through local knowledge and the experience gained through past management practices and activities;
- The proposed treatments are what is expected to be required under normal site types and conditions to regenerate the same development type;
- MLOSB recognizes that there will be sites that require a different treatment or series of treatments not scheduled in the SGR's to develop the same development type;
- MLOSB recognizes that a change in transition of a stand may be required to meet other landscape objectives (e.g., cover type balancing) requiring treatment schedules not detailed in the SGR tables; and
- Ultimately, FMP VOITs will also hold MLOSB accountable for reforestation efforts and meeting landscape commitments.

Table 1. Existing stands, proposed treatment, Future managed stand, and net area.

Existing Stands							Treatment*	Future Stands		Net Area (Time 0)
AU	Description	Yield Group	PFT	Min. Age	Max. Age	%		AU	Initial Age	
101	BT_SwS_D:AB_SG:All	1	WSF	80	194	100%	CC-Plant	201	-1	27
102	BT_SwS_D:CD_SG:All	2	WSF	80	194	100%	CC-Plant	202	-1	288
103	BT_SbS_D:AB_SG:All	3	BSL	80	189	100%	CC-Plant	203	-1	3
104	BT_SbS_D:CD_SG:All	4	BSL	80	200	100%	CC-Plant	204	-1	39
108	BT_SjP_D:CD_SG:All	8	JLP	73	139	100%	CC-Scarify	208	-1	9
114	BT_SHsPtA_D:AB_SG:All	14	SMW	80	168	100%	CC-LFN-Plant	214	-1	52
115	BT_SHsPtA_D:CD_SG:All	15	SMW	80	179	100%	CC-LFN-Plant	215	-1	675
118	BT_HStAsP_D:AB_SG:All	18	HSM	64	139	100%	CC-LFN-Plant	218	0	55
119	BT_HStAsP_D:CD_SG:All	19	HSM	60	179	100%	CC-LFN-Plant	219	0	278
121	BT_HStAjP_D:AB_SG:All	21**	HSM	N/A	N/A	100%	CC-LFN-Scarify	N/A	N/A	0
123	BT_HtA_D:AB_SG:All	23	TAB	60	120	100%	CC-LFN	223	0	747
126	BT_HtA_D:CD_SG:<14	26	TAB	60	137	100%	CC-LFN	226	0	3,076
127	BT_HtA_D:CD_SG:>=14, <16	27	TAB	60	137	100%	CC-LFN	227	0	2,324
128	BT_HtA_D:CD_SG:>=16	28	TAB	60	138	100%	CC-LFN	228	0	3,155
129	BT_HbP_D:AB_SG:All	29	AOH	62	126	100%	CC-LFN	229	0	15
130	BT_HbP_D:CD_SG:All	30	AOH	60	184	100%	CC-LFN	230	0	17
141	MBU_SwS_D:AB_SG:All	41	WSF	80	193	100%	CC-Plant	241	-1	567
142	MBU_SwS_D:CD_SG:<17	42	WSF	80	193	100%	CC-Plant	242	-1	2,222
143	MBU_SwS_D:CD_SG:>=17	43	WSF	80	193	100%	CC-Plant	243	-1	1,811
144	MBU_SbS_D:AB_SG:All	44	BSL	80	186	100%	CC-Plant	244	-1	1,052
145	MBU_SbS_D:CD_SG:<12	45	BSL	80	196	100%	CC-Plant	245	-1	1,538
146	MBU_SbS_D:CD_SG:>=12	46	BSL	80	200	100%	CC-Plant	246	-1	1,838
147	MBU_SjP_D:AB_SG:All	47	JLP	70	140	100%	CC-Scarify	247	-1	832
148	MBU_SjP_D:CD_SG:<17	48	JLP	70	140	100%	CC-Scarify	248	-1	1,569
149	MBU_SjP_D:CD_SG:>=17	49	JLP	80	139	100%	CC-Scarify	249	-1	1,626
150	MBU_SbSjP_D:AB_SG:All	50	BSJ	80	189	100%	CC-Scarify	250	-1	48
151	MBU_SbSjP_D:CD_SG:All	51	BSJ	80	189	100%	CC-Scarify	251	-1	1,458
152	MBU_SjPbS_D:AB_SG:All	52	BSJ	70	150	100%	CC-Scarify	252	-1	516
153	MBU_SjPbS_D:CD_SG:All	53	BSJ	70	160	100%	CC-Scarify	253	-1	1,131
154	MBU_SHsPtA_D:AB_SG:All	54	SMW	80	178	100%	CC-Plant	254	-1	1,352
155	MBU_SHsPtA_D:CD_SG:All	55	SMW	80	179	100%	CC-Plant	255	-1	6,122
156	MBU_SHjPtA_D:AB_SG:All	56	PMW	70	142	100%	CC-Scarify	256	-1	413
157	MBU_SHjPtA_D:CD_SG:All	57	PMW	73	150	100%	CC-Scarify	257	-1	762
158	MBU_HStAsP_D:AB_SG:All	58	HSM	60	159	100%	CC-LFN-Plant	258	0	1,636

159	MBU_HStAsP_D:CD_SG:<17	59	HSM	60	177	100%	CC-LFN-Plant	259	0	2,304
160	MBU_HStAsP_D:CD_SG:>=17	60	HSM	60	178	100%	CC-LFN-Plant	260	0	4,508
161	MBU_HStAjP_D:AB_SG:All	61	HPM	63	131	100%	CC-LFN-Scarify	261	0	414
162	MBU_HStAjP_D:CD_SG:All	62	HPM	60	150	100%	CC-LFN-Scarify	262	0	842
163	MBU_HtA_D:AB_SG:<15	63	TAB	60	128	100%	CC-LFN	263	0	2,664
164	MBU_HtA_D:AB_SG:>=15, < 18	64	TAB	60	133	100%	CC-LFN	264	0	3,731
165	MBU_HtA_D:AB_SG:>=18	65	TAB	60	138	100%	CC-LFN	265	0	1,565
166	MBU_HtA_D:CD_SG:<17	66	TAB	60	139	100%	CC-LFN	266	0	17,770
167	MBU_HtA_D:CD_SG:>=17, < 19	67	TAB	60	139	100%	CC-LFN	267	0	14,098
168	MBU_HtA_D:CD_SG:>=19	68	TAB	60	139	100%	CC-LFN	268	0	25,726
169	MBU_HbP_D:AB_SG:All	69	AOH	60	130	100%	CC-LFN	269	0	4,186
170	MBU_HbP_D:CD_SG:All	70	AOH	60	157	100%	CC-LFN	270	0	3,149
171	MBU_HwB_D:AB_SG:All	71	TAB	66	126	100%	CC-LFN	271	0	227
172	MBU_HwB_D:CD_SG:All	72	TAB	60	140	100%	CC-LFN	272	0	198
									Total:	**118,636**

*CC refers to clear cut with modification (retention).

LFN = Leave for Natural

** excluded from the net landbase because the Yield Group does not achieve 60 m3 per hectare within 100 years of age

Table 2. Tolko TSL Silviculture Ground Rules, organized by Yield Group to align with Table 1.

	Existing Forest Condition									Regeneration Prescription			
SGR Reference Code	**Area (ha)**	**Yield Group**	**Forest Develop Type**	**% of Future Develop. Type**	**Yield Group**	**Min. Age**	**Max. Age**	**Treatment**	**Silvi. System***	**Treat. A**	**% Area Treated**	**Treat. B**	**% Area Treated**
1-H-bP	15	29	HbP	0.2%	29	62	126	LFN	CC	LFN	100%		
1-H-bP	17	30	HbP	0.2%	30	60	184	LFN	CC	LFN	100%		
1-H-bP	4,186	69	HbP	56.8%	69	60	130	LFN	CC	LFN	100%		
1-H-bP	3,149	70	HbP	42.7%	70	60	157	LFN	CC	LFN	100%		
Total:	**7,367**			**100%**									
2-H-HW	747	23	HtA	1.0%	23	60	120	LFN	CC	LFN	100%		
2-H-HW	3,076	26	HtA	4.1%	26	60	137	LFN	CC	LFN	100%		
2-H-HW	2,324	27	HtA	3.1%	27	60	137	LFN	CC	LFN	100%		
2-H-HW	3,155	28	HtA	4.2%	28	60	138	LFN	CC	LFN	100%		
2-H-HW	2,664	63	HtA	3.5%	63	60	128	LFN	CC	LFN	100%		
2-H-HW	3,731	64	HtA	5.0%	64	60	133	LFN	CC	LFN	100%		
2-H-HW	1,565	65	HtA	2.1%	65	60	138	LFN	CC	LFN	100%		
2-H-HW	17,770	66	HtA	23.6%	66	60	139	LFN	CC	LFN	100%		
2-H-HW	14,098	67	HtA	18.7%	67	60	139	LFN	CC	LFN	100%		
2-H-HW	25,726	68	HtA	34.2%	68	60	139	LFN	CC	LFN	100%		
2-H-HW	227	71	HwB	0.3%	71	66	126	LFN	CC	LFN	100%		
2-H-HW	198	72	HwB	0.3%	72	60	140	LFN	CC	LFN	100%		
Total:	**75,281**			**100%**									
3-HS-HjP	414	61	HStAjP	33.0%	61	63	131	LFN-Scarify	CC	LFN	75%	Scarify	25%
3-HS-HjP	842	62	HStAjP	67.0%	62	60	150	LFN-Scarify	CC	LFN	75%	Scarify	25%
Total:	**1,256**			**100%**									
4-HS-HsP	55	18	HStAsP	0.6%	18	64	139	LFN-Plant	CC	LFN	80%	Plant 800/ha where required.	20%
4-HS-HsP	278	19	HStAsP	3.2%	19	60	179	LFN-Plant	CC	LFN	80%	Plant 800/ha	20%

	Existing Forest Condition									Regeneration Prescription			
SGR Reference Code	**Area (ha)**	**Yield Group**	**Forest Develop Type**	**% of Future Develop. Type**	**Yield Group**	**Min. Age**	**Max. Age**	**Treatment**	**Silvi. System***	**Treat. A**	**% Area Treated**	**Treat. B**	**% Area Treated**
												where required.	
4-HS-HsP	1,636	58	HStAsP	18.6%	58	60	159	LFN-Plant	CC	LFN	80%	Plant 800/ha where required.	20%
4-HS-HsP	2,304	59	HStAsP	26.2%	59	60	177	LFN-Plant	CC	LFN	80%	Plant 800/ha where required.	20%
4-HS-HsP	4,508	60	HStAsP	51.3%	60	60	178	LFN-Plant	CC	LFN	80%	Plant 800/ha where required.	20%
Total:	**8,781**			**100%**									
5-SH-sPH	52	14	SHsPtA	0.6%	14	80	168	LFN-Plant	CC	Plant 800/ha	100%		
5-SH-sPH	675	15	SHsPtA	7.2%	15	80	179	LFN-Plant	CC	Plant 800/ha	100%		
5-SH-sPH	1,352	54	SHsPtA	14.4%	54	80	178	LFN-Plant	CC	Plant 800/ha	100%		
5-SH-sPH	6,122	55	SHsPtA	65.3%	55	80	179	LFN-Plant	CC	Plant 800/ha	100%		
5-SH-sPH	413	56	SHjPtA	4.4%	56	70	142	Scarify	CC	Scarify	100%		
5-SH-sPH	762	57	SHjPtA	8.1%	57	73	150	Scarify	CC	Scarify	100%		
Total:	**9,376**			**100%**									
6-S-jP	9	8	SjP	0.2%	8	73	139	Scarify	CC	Scarify	100%		
6-S-jP	832	47	SjP	20.6%	47	70	140	Scarify	CC	Scarify	100%		
6-S-jP	1,569	48	SjP	38.9%	48	70	140	Scarify	CC	Scarify	100%		
6-S-jP	1,626	49	SjP	40.3%	49	80	139	Scarify	CC	Scarify	100%		
Total:	**4,036**			**100%**									
7-S-jPbS	48	50	SbSjP	1.5%	50	80	189	Scarify-plant	CC	Scarify	80%	Plant 800/ha	20%

	Existing Forest Condition									Regeneration Prescription			
SGR Reference Code	**Area (ha)**	**Yield Group**	**Forest Develop Type**	**% of Future Develop. Type**	**Yield Group**	**Min. Age**	**Max. Age**	**Treatment**	**Silvi. System***	**Treat. A**	**% Area Treated**	**Treat. B**	**% Area Treated**
												where required	
7-S-jPbS	1,458	51	SbSjP	46.2%	51	80	189	Scarify-plant	CC	Scarify	80%	Plant 800/ha where required	20%
7-S-jPbS	516	52	SjPbS	16.4%	52	70	150	Scarify	CC	Scarify	100%		
7-S-jPbS	1,131	53	SjPbS	35.9%	53	70	160	Scarify	CC	Scarify	100%		
Total:	**3,153**			**100%**									
8-S-wS	27	1	SwS	0.5%	1	80	194	Plant	CC	Plant 1200/ha	100%		
8-S-wS	288	2	SwS	5.9%	2	80	194	Plant	CC	Plant 1200/ha	100%		
8-S-wS	567	41	SwS	11.5%	41	80	193	Plant	CC	Plant 1200/ha	100%		
8-S-wS	2,222	42	SwS	45.2%	42	80	193	Plant	CC	Plant 1200/ha	100%		
8-S-wS	1,811	43	SwS	36.8%	43	80	193	Plant	CC	Plant 1200/ha	100%		
Total:	**4,915**			**100%**									
9-S-bS	3	3	SbS	0.1%	3	80	189	Plant	CC	Plant 1200/ha	100%		
9-S-bS	39	4	SbS	0.9%	4	80	200	Plant	CC	Plant 1200/ha	100%		
9-S-bS	1,052	44	SbS	23.5%	44	80	186	Plant	CC	Plant 1200/ha	100%		
9-S-bS	1,538	45	SbS	34.4%	45	80	196	Plant	CC	Plant 1200/ha	100%		
9-S-bS	1,838	46	SbS	41.1%	46	80	200	Plant	CC	Plant 1200/ha	100%		
Total:	**4,470**			**100%**									

*CC refers to clear cut with modification (retention).