

# **Planning Unit 078154 Forest Harvest Plan**

## **1. Introduction**

This Forest Harvest Plan (FHP) for Planning Unit 078154 includes maps and reports that clearly show and document the planned harvest area boundaries, roads and water crossings within the planning unit.

Planning Unit 078154 is an integrated plan between Alberta-Pacific Forest Industries Inc. (Alberta-Pacific) and Northland Forest Products Ltd. (NFPL).

This plan is being submitted for appraisal, for a 5-year FHP approval under both Companies' 2016-17 Alberta-Pacific Annual Operating Plans (AOPs).

## **2. Planning Unit Specific Comments**

Planning Unit 078154 is located southwest of Crow Lake Provincial Park.

The planning unit is located in Forest Management Unit (FMU) L3. Alberta-Pacific has rights to D as deciduous landbase. NFPL has rights to conifer from DC, CD, and C as coniferous landbase. Northland holds active timber disposition CTL L030047 within FMU L3.

The harvest design utilizes the 2006 Spatial Harvest Sequence (SHS).

### **Watershed**

The House River is within the planning unit boundary, and is surveyed as a fish bearing river.

All unsurveyed channeled creeks have been buffered and crossed as though they were fish bearing.

### **Stand Structure**

Within Alberta-Pacific harvesting areas, an average of 5% of the merchantable volume will be left in stand structure over the FMU. The structure will be left as layout patches, and as single trees and small clumps of timber at the operators' discretion.

In NFPL blocks less than 24 hectares, retention will focus on snags, immature coniferous understories, non-merchantable stems and clumps to safeguard special features and/or other forest values – no specific target for merchantable structure.

In NFPL harvest areas from 24 to 100 hectares, an average of 1% of the coniferous merchantable volume and 5% of the merchantable deciduous volume at the FMU level will be retained.

When coniferous and deciduous harvest areas combine to exceed 100 hectares, an average of 5% of the deciduous merchantable volume and 5% of the merchantable coniferous volume shall be retained by both companies. This includes all blocks harvested within 1-5 years of each other.

### **Debris Management**

All of the blocks in this unit are outside FireSmart community zones as identified by Alberta Agriculture and Forestry (AAF). One or more of the following debris management strategies apply for blocks within this planning unit:

- Methods described in the Forest and Prairie Protection Act and Regulations, and/or
- Thinly spread slash throughout the block.

The utilization standards for Alberta-Pacific will be 15/10 for deciduous and 15/11 for coniferous. NFPL's coniferous utilization standard will be 15/11.

### **Design Comments**

During the layout phase of this operation, the field crew looked for signs of insect or disease infestations. No signs were found within the planning unit.

### **3. Block Information**

The following table summarizes the volumes within NFPL and Alberta-Pacific's FHP blocks.

### Landbase Volume Summary

Company	Area (ha)	Decid (m3)	Conif (m3)	Inc Conif (m3)	Total (m3)
Alberta-Pacific (Decid)	603	155,586	1,068	16,809	173,436
NFPL (Conif)	102	8,859	15,730	32	24,620

Alberta-Pacific FHP block FC07815409221 will have its coniferous volume hauled as quota (CTL) primary coniferous chargeable.

### Alberta-Pacific Deciduous First Entry Block Listing

(Values Affected by Rounding)

Source Id	Opening Num	Harv Season	Conif Charge	Detail Plan	Area (ha)	Decid (m3)	Conif (m3)	Inc Conif (m3)	Total (m3)
07715431381	4150773138	F	INC		16	4,163	0	157	4,321
07715431661	4150773166	F	INC		12	2,704	0	303	3,008
07715431741	4150773174	F	INC		7	1,950	0	147	2,098
07715431971	4150773197	F	INC		36	8,444	558	1,124	10,126
07715432681	4150773268	F	INC		3	688	0	103	791
07715432881	4150773288	F	INC		4	1,081	0	99	1,180
07715433881	4150773388	F	INC		1	131	0	22	154
07716436891	4160773689	F	INC		2	413	28	171	612
07815403591	4150780359	F	INC		15	3,825	0	301	4,127
07815404211	4150780421	F	INC		4	869	0	60	929
07815404721	4150780472	F	INC		2	451	0	35	486
07815405321	4150780532	F	INC		8	2,054	0	245	2,298
07815405331	4150780533	F	INC		8	1,833	0	203	2,036
07815405641	4150780564	F	INC		12	3,182	0	273	3,455
07815405821	4150780582	F	INC		1	299	0	68	368
07815405911	4150780591	F	INC		9	2,238	0	346	2,584
07815406131	4150780613	F	INC		29	8,072	12	525	8,609
07815406281	4150780628	F	INC		1	276	0	9	284
07815406561	4150780656	F	INC		37	10,754	0	353	11,107
07815406721	4150780672	F	INC		15	3,798	0	436	4,234
07815407611	4150780761	F	INC		28	8,070	0	322	8,391
07815407681	4150780768	F	INC		50	13,624	0	1,229	14,853
07815407951	4150780795	F	INC		1	154	0	39	193
07815408161	4150780816	F	INC		1	109	0	77	186
07815408421	4150780842	F	INC		101	28,424	134	1,675	30,234
07815408581	4150780858	F	INC		27	7,555	0	437	7,992
07815409221	4150780922	F	CTL		30	7,579	43	1,093	8,715
07815409381	4150780938	F	INC		15	3,701	0	311	4,011

**Alberta-Pacific Deciduous First Entry Block Listing**  
(Values Affected by Rounding)

<b>Source Id</b>	<b>Opening Num</b>	<b>Harv Season</b>	<b>Conif Charge</b>	<b>Detail Plan</b>	<b>Area (ha)</b>	<b>Decid (m3)</b>	<b>Conif (m3)</b>	<b>Inc Conif (m3)</b>	<b>Total (m3)</b>
07815409561	4150780956	F	INC		1	180	0	16	196
07815410231	4150781023	F	INC		11	2,770	0	244	3,015
07816401331	4160780133	F	INC		73	15,215	293	4,095	19,603
07816401641	4160780164	F	INC		23	5,282	0	1,233	6,515
07816402621	4160780262	F	INC		4	777	0	212	989
07816403711	4160780371	F	INC		5	941	0	261	1,202
07816403821	4160780382	F	INC		4	838	0	278	1,116
<b>Total</b>					<b>592</b>	<b>152,444</b>	<b>1,068</b>	<b>16,504</b>	<b>170,016</b>

### NFPL First Entry Block Listing

(Values Affected by Rounding)

NFPL Block Id	Opening Num	Harv Season	Conif Charge	Detail Plan	Area (ha)	Decid (m3)	Conif (m3)	Inc Conif (m3)	Total (m3)
WMT-32264	4150773226	F	CTL		7	1,179	676	0	1,855
WMT-32784	4150773278	F	CTL		14	634	2,895	0	3,529
WMT-04544	4150780454	F	CTL		5	183	582	0	764
WMT-05424	4150780524	F	CTL		1	19	32	0	50
WMT-05544	4150780554	F	CTL		1	213	181	12	406
WMT-05664	4150780566	F	CTL		3	236	570	0	806
WMT-05784	4150780578	F	CTL		4	537	336	0	873
WMT-05814	4150780581	F	CTL		4	523	495	0	1,018
WMT-05924	4150780592	F	CTL		2	196	280	0	476
WMT-06634	4150780663	F	CTL		2	174	359	2	535
WMT-06974	4150780697	F	CTL		3	207	225	0	432
WMT-07524	4150780752	F	CTL		5	520	784	0	1,304
WMT-07744	4150780774	F	CTL		6	955	548	0	1,503
WMT-07874	4150780787	F	CTL		5	194	1,170	0	1,365
WMT-07894	4150780789	F	CTL		5	387	773	2	1,162
WMT-808274	4150780827	F	CTL		4	128	893	0	1,021
WMT-08894	4150780889	F	CTL		5	1,105	452	16	1,573
WMT-09344	4150780934	F	CTL		11	875	2,438	0	3,313
MWT-09354	4150780935	F	CTL		2	50	412	0	462
WMT-09454	415078945	F	CTL		3	167	557	0	724
WMT-18914	4150781891	F	CTL		10	378	1,068	0	1,446
<b>Total</b>					<b>102</b>	<b>8,859</b>	<b>15,730</b>	<b>32</b>	<b>24,620</b>

### Retention Area Listing

(Values Affected by Rounding)

Retention Id	Area (ha)	Decid (m3)	Conif (m3)	Inc Conif (m3)	Total (m3)
07715431489	4	1,102	0	57	1,159
07815417419	4	1,198	0	37	1,235
07816402829	4	842	0	211	1,053
<b>Total</b>	<b>12</b>	<b>3,142</b>	<b>0</b>	<b>305</b>	<b>3,447</b>

## NFPL Block Tracking

NFPL Block No.	AI-Pac Source Id
WMT-32264	NC07715432264
WMT-32784	NC07715432784
WMT-04544	NC07815404544
WMT-05424	NC07815405424
WMT-05544	NC07815405544
WMT-05664	NC07815405664
WMT-05784	NC07815405784
WMT-05814	NC07815405814
WMT-05924	NC07815405924
WMT-06634	NC07815406634
WMT-06974	NC07815406974
WMT-07524	NC07815407524
WMT-07744	NC07815407744
WMT-07874	NC07815407874
WMT-07894	NC07815407894
WMT-08274	NC07815408274
WMT-08894	NC07815408894
WMT-09344	NC07815409344
WMT-09354	NC07815409354
WMT-09454	NC07815409454
WMT-18914	NC07815418914

### 4. Access and Road Information

Landuse agreements will be in place prior to use of any third party dispositions being used.

#### Main Access to Planning Unit

Township	Crossing Location	Field Call
76-15-4	3231	P
77-15-4	1817	P
	3123	P
	3124	P

#### Planning Unit Temporary Road Information

Existing access has been utilized where possible to minimize the clearing of new Right of Way (RoW).

New access and channelled watercourse crossings will be reclaimed in order to restrict access. All terrain vehicle (ATV) access may be left to facilitate silviculture activities.

New access and channelled watercourse crossings will be reclaimed as per Section 11.3.4 of the Operating Ground Rules (OGRs). Road reclamation and abandonment details are listed in the AOP when the blocks and roads are scheduled.

### Inter Block Roads and Crossings

Road No.	Class	Length (Km)	Construction Season	Crossing Location	Field Call	Navigability
01331	4W	2.62	Frozen	0283	E	U
01641	4W	0.96	Frozen	0162	E	U
				3669	E	U
				3679	E	U
02621	4W	0.12	Frozen	0272	E	U
03591	4W	0.92	Frozen			
03711	4W	0.67	Frozen			
03821	4W	0.30	Frozen	0392	I	U
04211	4W	2.01	Frozen			
04544	4W	2.29	Frozen			
04721	4W	0.17	Frozen			
05321	4W	0.91	Frozen	0531	E	U
				0532	E	U
				0551	E	U
				3239	E	U
				3249	E	U
05331	4W	1.46	Frozen	0513	I	U
				0524	E	U
				0673	I	U
				0684	I	U
05544	4W	0.22	Frozen			
05641	4W	0.60	Frozen			
05664	4W	0.45	Frozen	0566	E	U
05784	4W	0.86	Frozen			
05814	4W	0.26	Frozen			
05911	4W	0.97	Frozen			
05924	4W	0.09	Frozen	0582	E	U
06131	4W	1.08	Frozen	0184	E	U
				0621	NW	U
06281	4W	1.12	Frozen	0623	SP	U
				0634	SP	U
06561	4W	0.04	Frozen			
06634	4W	0.08	Frozen			
06721	4W	1.54	Frozen	0662	E	U
				0681	E	U
07524	4W	0.56	Frozen	0744	E	U
07611	4W	1.45	Frozen	0751	E	U
				0762	E	U
07681	4W	0.89	Frozen	0796	E	U
07744	4W	0.30	Frozen	0772	SP	U
07874	4W	0.18	Frozen			
07894	4W	0.20	Frozen			
07951	4W	0.18	Frozen	0815	E	U

### Inter Block Roads and Crossings

Road No.	Class	Length (Km)	Construction Season	Crossing Location	Field Call	Navigability
08161	4W	0.05	Frozen			
08274	4W	0.10	Frozen			
08421	4W	3.22	Frozen	0567	E	U
				0813	E	U
08581	4W	1.24	Frozen			
08894	4W	1.41	Frozen	0887	LP	N
09221	4W	2.51	Frozen	0915	E	U
				0935	E	U
09344	4W	0.68	Frozen	0944	I	U
				0924	E	U
09354	4W	0.04	Frozen			
09381	4W	0.95	Frozen	0947	E	U
				0957	E	U
09561	4W	0.07	Frozen			
10231	4W	1.19	Frozen	0329	SP	U
18914	4W	0.09	Frozen			
31381	4W	1.97	Frozen	3159	E	U
31661	4W	1.16		3124	SP	U
				3134	SP	U
				3165	E	U
				3166	E	U
				3176	E	U
31741	4W	0.63	Frozen			
31971	4W	3.23	Frozen	3186	E	U
				3188	E	U
				3227	E	U
				3228	E	U
32264	4W	0.43	Frozen			
32681	4W	0.67	Frozen			
32784	4W	0.47	Frozen	3288	E	U
				3298	E	U
32881	4W	0.25	Frozen			
33881	4W	1.74	Frozen			
36891	4W	0.10	Frozen	3699	SP	U
<b>Total Class 4W:</b>		<b>45.7</b>				

In the above tables possible “Field Call” channelled watercourse classifications are ephemeral (E), intermittent (I), transitional (T), small permanent (SP) or no channelled watercourse (NW). The “Navigability” rating identifies channelled watercourse as being potentially navigable (N) or potentially unnavigable (U) based on the possibility of traveling the stream with a vessel. The “Field Call” channelled watercourse classifications in the above table are based on Table 1 of the OGRs at the time, and during the conditions, when layout was conducted.





## **Historical Resources**

No known historical resource sites are located within this unit. Lands on which historical resource sites are likely to occur will be checked prior to commencement of operations.

## **Forest Aesthetics**

No concerns have been indentified.

## **Land Use**

As per a Land Status Automated System (LSAS) land standing report dated October 30, 2016 and a review of the Alberta Government's Digital Integrated Dispositions (DIDs) digital mapping program on January 15, 2017, there are currently no dispositions within this planning unit that restrict harvesting timber.

Alberta-Pacific holds two industrial sample plots (ISP), ISP090021 and ISP950066, within the planning unit boundary. Any plots that fell within blocks scheduled for harvest have been removed from the harvest design.

## **Wildlife**

Portions of this planning unit are within Caribou Range. Operations will adhere to the Caribou Protection Plan submitted annually in the fall by the Companies.

After a review of the Fisheries and Wildlife Management Information System (FWMIS), it was determined that operations will not conflict with the fish and wildlife within the planning unit boundary.

No areas of concentrated terrestrial lichens were identified during layout.

All known sensitive wildlife sites have been buffered according to section 7.7.6.2 of the OGRs. These buffers have been placed into retention areas (RAs).

The following blocks have been buffered according to section 7.1.1 of the OGRs:

07815407611

07815407681

07815407524

07815407744

## ***Access and Access Management***

Existing access has been utilized where possible to minimize the clearing of new RoW.

Continuous flow roads have been designed to reduce the amount of two-way traffic through certain areas of the planning unit (i.e. Road 08421).

Continuous flow roads have been utilized in larger blocks to reduce skidding distances and cycle times. Their use outside of blocks has been minimized to control access and reduce potential wildlife disturbance.

The following policies have been implemented to mitigate access management concerns:

- Temporary road systems will be closed as soon as possible after the harvesting, hauling, and silviculture activities have been completed.

The following access control practices will also be implemented:

- If a significant delay occurs between harvesting and hauling, temporary access controls on roads will be utilized to restrict access by motorized vehicles. These controls may include the placement of logs on the road, snow berms, and/or removal of creek crossings.
- Slash rollback at strategic points (such as at the ends of the block or at the junction of the temporary road and permanent road) will be completed as soon as possible after logging to discourage access by all terrain or four wheel drive vehicles.

### ***Timing***

Since the planning unit falls within a Caribou Range, the timing of operations will be completed as per the Caribou Protection Plan.

Since a portion of this planning unit falls within a Key Wildlife and Biodiversity Zone, harvest and haul activities within in the zone will commence as early as possible, and will be completed in a timely manner to exit the Wildlife and Biodiversity Zone as quickly as possible.

## **6. Spatial Harvest Sequence Summary**

The table below summarizes the variance (in area) from the SHS, for Alberta-Pacific and NFPL harvesting.

The SHS variance exceeds the 20% allowable by cover type for acceptance as per the OGRs.

The primary cause for the variance is steep terrain along channelled watercourses, and the corresponding buffers in place. Wherever possible, efforts have been made to minimize the variance.

## SHS Tracking

SHS Tracking	Decid. Cover Type	Sw Cover Type	Sb Cover Type	Pj Cover Type	Total Cover Type
Total SHS in Planning Unit	590.3	78.2	22.6	14.7	705.8
FHP SHS Harvest ha.	354.3	28.5	5.8	2.2	390.8
Deleted SHS ha. (reportable)	126.5	19.5	8.8	12.4	167.2
Deferred SHS ha. (reportable)	71.2	20.1	0.0	0.0	91.3
Variance % <sup>(1)</sup> (reportable)	33.5%	50.7%	38.9%	84.2%	36.6%
Addition ha.	193.3	39.1	0.0	11.2	243.6
Bypassed ha.	0.0	0.0	0.0	0.0	0.0
Total Harvest ha. <sup>(2)</sup>	547.6	67.6	5.8	13.4	634.4
SHS Variance ha. (unreportable) <sup>(3)</sup>	38.3	10.1	8.0	0.1	56.5
Additions ha. (unreportable) <sup>(4)</sup>	31.2	21.8	10.2	0.1	63.3

(1) Variance % is the reportable Deleted and Deferred SHS ha. expressed as a percentage of the Total SHS in the Planning Unit.

(2) Total Harvest ha. is the sum of FHP SHS Harvest ha. and Additions ha. (reportable).

(3) SHS Variance ha. (unreportable) are the deletions and deferrals from the SHS that are less than 2.0 ha. in size.

(4) Additions ha. (unreportable) are the additions to the FHP design that are less than 2.0 ha. in size.

## 7. Silviculture Information

The following two tables outlines the initial silviculture declarations for FHP blocks within Planning Unit 078154. Cover group balanced declarations will be submitted post harvest.

### Alberta-Pacific Silviculture Declarations

Source Id	Opening Num	Area (ha)	Lanbase Desig
07715431381	4150773138	15.6	ALPC0501
07715431661	4150773166	11.8	ALPC0501
07715431741	4150773174	7.1	ALPC0501
07715431971	4150773197	35.5	ALPC0501
07715432681	4150773268	2.8	ALPC0501
07715432881	4150773288	4.0	ALPC0501
07715433881	4150773388	0.6	ALPC0501
07716436891	4160773689	2.4	ALPC0501
07815403591	4150780359	15.4	ALPC0501
07815404211	4150780421	3.7	ALPC0501
07815404721	4150780472	1.7	ALPC0501
07815405321	4150780532	8.1	ALPC0501
07815405331	4150780533	7.8	ALPC0501
07815405641	4150780564	12.0	ALPC0501
07815405821	4150780582	1.2	ALPC0501
07815405911	4150780591	9.2	ALPC0501
07815406131	4150780613	29.2	ALPC0501
07815406281	4150780628	1.0	ALPC0501
07815406561	4150780656	36.7	ALPC0501
07815406721	4150780672	14.7	ALPC0501
07815407611	4150780761	28.1	ALPC0501
07815407681	4150780768	50.4	ALPC0501
07815407951	4150780795	0.9	ALPC0501
07815408161	4150780816	0.6	ALPC0501
07815408421	4150780842	100.9	ALPC0501
07815408581	4150780858	26.7	ALPC0501
07815409221	4150780922	29.5	ALPC0501
07815409381	4150780938	14.6	ALPC0501
07815409561	4150780956	0.8	ALPC0501
07815410231	4150781023	10.5	ALPC0501
07816401331	4160780133	72.7	ALPC0501
07816401641	4160780164	23.2	ALPC0501
07816402621	4160780262	3.7	ALPC0501
07816403711	4160780371	4.7	ALPC0501
07816403821	4160780382	4.1	ALPC0501

## NFPL Silviculture Declarations

Block Id	Opening Num	Area (ha)	Lanbase Desig
WMT-32264	4150773226	7.4	ALPC0505
WMT-32784	4150773278	13.7	ALPC0510
WMT-04544	4150780454	4.9	ALPC0509
WMT-05424	4150780542	0.2	ALPC0507
WMT-05544	4150780554	1.6	ALPC0501
WMT-05664	4150780566	2.7	ALPC0510
WMT-05784	4150780578	3.6	ALPC0501
WMT-05814	4150780581	3.8	ALPC0507
WMT-05924	4150780592	1.7	ALPC0507
WMT-06634	4150780663	2.1	ALPC0510
WMT-06974	4150780697	2.7	ALPC0512
WMT-07524	4150780752	5.5	ALPC0510
WMT-07744	4150780774	6.0	ALPC0505
WMT-07874	4150780787	4.9	ALPC0510
WMT-07894	4150780789	4.8	ALPC0510
WMT-08274	4150780827	4.1	ALPC0510
WMT-08894	4150780889	5.3	ALPC0501
WMT-09344	4150780934	11.4	ALPC0510
WMT-09354	4150780935	2.0	ALPC0510
WMT-09454	4150780945	3.4	ALPC0510
WMT-18914	4150781891	9.6	ALPC0511

All deciduous blocks will be Leave for Natural (LFN). All coniferous blocks will be treated as per Appendix 4, of the current Forest Management Plan (FMP).

### 8. OGRs Variances

#### Blocks

The variance exceeds the 20% allowable by cover type for acceptance as per the OGRs. Refer to Section 7 of this document for further details.

The following blocks have boundary bordering lakes less than 4.0 hectares in size and a 30 metre buffer has been utilized.

07715431971	07715432681	07715432781	07815406131
07815406141	07815409354	07816401331	

Block 07815407611 is greater than 10ha and contains >2 ha clumps of  $\geq 600$  stems/ha of White Spruce understorey. However, due to terrain issues within the block and irregular block shape, it will not have high intensity understorey protection and will be harvested using avoidance methods.

Block 0781540721 contains  $\geq 600$  stems/ha of White Spruce understorey, but is too small for understorey protection methods, and will not have the understorey protected by avoidance or high intensity understorey protection. No understorey assessments will be submitted for this block.

The following tables identify blocks greater than 7.0 ha that may exceed 5% road disturbance once turnabouts are constructed.

### Road Percent

Source Id	% Road Class	Comments
FC07715431661	14	Access to other blocks
FC07715431741	5	Access to other blocks
FC07715431971	6	Access to other blocks
NC07715432264	6	Access to other blocks
FC07815405321	8	Access to other blocks
FC07815405331	13	Access to other blocks
FC07815405641	5	Access to other blocks
FC07815405911	5	Access to other blocks
FC07815406131	5	Access to other blocks
FC07815406721	5	Access to other blocks
FC07815407681	5	Required due to terrain
FC07815409221	6	Access to other blocks
NC07815409344	7	Access to other blocks
FC07815410231	22	Access to other blocks
NC07815418914	6	Required due to terrain
FC07816401331	5	Large timber/high volume

The percent road class values have been achieved by rounding the road disturbance percent to the nearest whole number.

## Roads

### Road Comments

Road No.	Class	Comments
04544	4W	Contains a spur road that may be within 30m of a Lake <4ha at grid location 0441.
06281	4W	Contains a spur road that may be within 30m of a Lake <4ha at grid location 0634.
06131	4W	Contains a spur road that may be within 30m of a Lake <4ha at grid location 0184.
08894	4W	Contains a spur road that may be within 30m of a Lake <4ha at grid location 0897.
10231	4W	Contains a spur road that may be within 30m of a Lake <4ha at grid location 0329.
32681	4W	Contains a spur road that may be within 30m of a Lake <4ha at grid location 3279.