

Watercourse Buffers - Watercourses were buffered, as per current operating ground rules:

1. Lakes > 4 ha: 100 metre buffer width surrounding the lake.
2. Rivers: 60 metre buffer width on each side, for a total of 120 metres.
3. Large Permanent Streams: 60 metre buffer width on each side, for a total of 120 metres.
4. Small Permanent Streams: 30 metre buffer width on each side, for a total of 60 metres.
5. Lakes < 4 ha: 20 metre buffer width surrounding the lake.

Subjective Deletions — Includes areas identified by ANC staff as inoperable and/or inaccessible. These areas were digitized from 1:50,000 topographic maps.

Merchantability Tests — The following merchantability tests were applied to all stands within the FMA area:

1. Stands with an unproductive Timber Productivity Rating (site).
2. Stands with black spruce, larch or balsam fir as primary species, a fair timber productivity rating, and a pure softwood species group.

Figure 3.6 is a flow chart explaining the net down process applied to the ANC FMA area. Figure 3.7 depicts the spatial location in the FMA area of the net down categories.

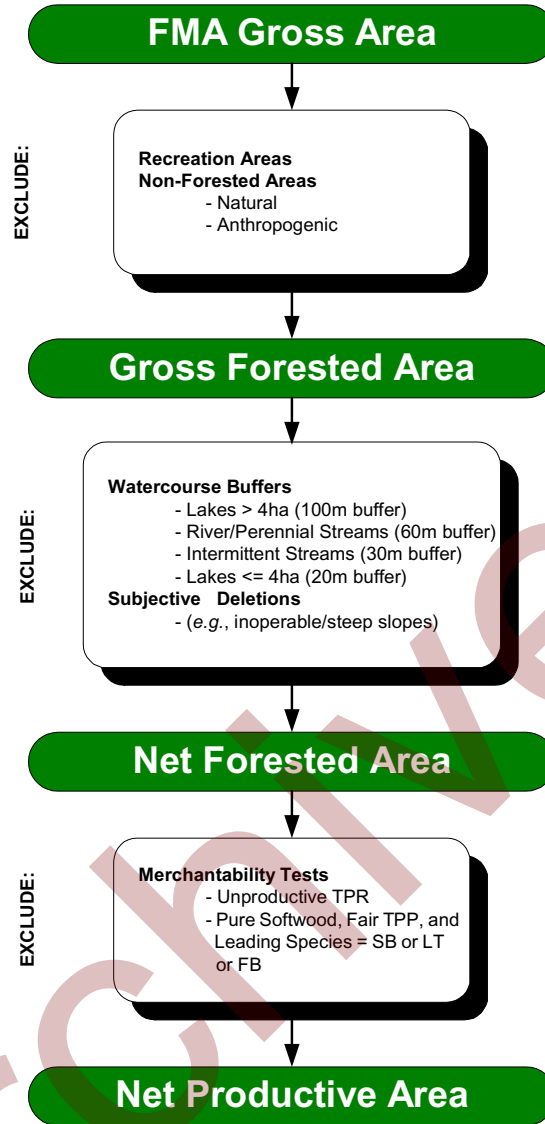


Figure 3.6 The Net Production Area – Net Down Process Applied to the ANC FMA Area

Rge 5 Rge 4 Rge 3 Rge 2 Rge 1 6th MER Rge 27 Rge 26 Rge 25 Rge 24 Rge 23 Rge 22 Rge 21 Rge 20 Rge 19 Rge 18 Rge 17

Twp 64  
Twp 63  
Twp 62  
Twp 61  
Twp 60  
Twp 59  
Twp 58  
Twp 57  
Twp 56  
Twp 55

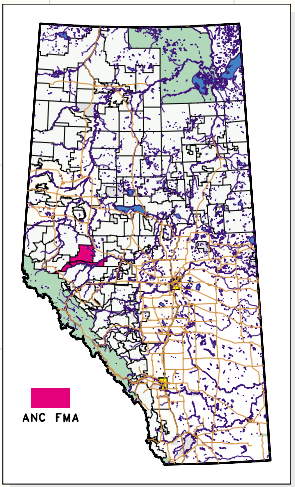
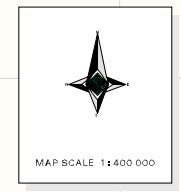
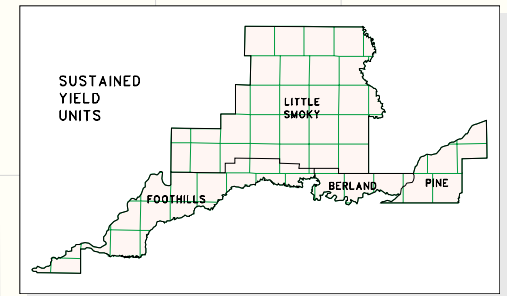
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








**ALBERTA NEWSPRINT COMPANY  
FOREST MANAGEMENT AREA**

**LANDBASE CATEGORIES**

Figure 3.7



**LANDBASE CATEGORIES**

	RECREATION AREA		NATURALLY NON-FORESTED
	100m LAKE BUFFER		ANTHROPOGENIC NON-FORESTED
	60m RIVER BUFFER		UNPRODUCTIVE SITE
	60m STREAM BUFFER		FAIR SITE SB/LT/FB *
	30m STREAM BUFFER		LAKES/RIVERS
	20m BUFFER ON SMALL LAKES ( ≤ 4 ha)		
	SUBJECTIVE DELETION		

\* Sites in this landbase category have all of the following attributes:  
 - fair timber productivity rating  
 - pure softwood species group  
 - 'SB', 'LT', or 'FB' leading species

Map Production: Silvacom Ltd  
 Map Date: June 5, 1999  
 Map Scale: 1:400,000  
 Silvacom Ref.: C-049  
 Map File:  
 ...lg-049/maps/report\_map/sinet\_land1



### 3.4.2 Net Landbase Estimates

The following profiles provide a detailed description of landbase categories on an FMA area-wide and individual FMU basis. Deductions from the “gross” area were calculated in the sequence shown (i.e., the hierarchy of decision rules produced a cumulative, non-duplicating result). Tables 3.5–3.9 list the specific net downs for each sustained yield unit.

Table 3.5 FMA area landbase summary

Net Landbase Determination		Area (ha)
Gross Area		378,726
Recreation Areas:		4,899
Non-Forested Areas:		
Natural		11,668
Anthropogenic		7,250
Sub-Total		18,918
Gross Forested Area		354,909
Hydrological Buffers:		
Lake Buffers – 100 m		541
River Buffers – 60 m		3,503
Stream Buffers – 60 m		1,652
Stream Buffers – 30 m		5,925
Lake Buffers – 20 m		34
Sub-Total		11,656
Net Forested Area		343,253
Subjective Deletions:		3,356
Unmerchantable Areas:		
Unproductive Timber Productivity Rating		41,689
Fair Site Sb, Lt or Fb Leading Species, and Pure Softwood Species Group		15,525
Sub-Total		57,214
Net Productive Area		282,683

Some minor differences in totals may exist due to rounding.

Table 3.6 Landbase summary: Berland SYU.

<b>Net Landbase Determination</b>	<b>Area (ha)</b>
Gross Area	23,588
Recreation Areas:	262
Non-Forested Areas:	
Natural	467
Anthropogenic	410
Sub-Total	877
Gross Forested Area	22,449
Hydrological Buffers:	
Lake Buffers – 100 m	114
River Buffers – 60 m	367
Stream Buffers – 60 m	0
Stream Buffers – 30 m	337
Lake Buffers – 20 m	2
Sub-Total	820
Net Forested Area	21,629
Subjective Deletions:	755
Unmerchantable Areas:	
Unproductive Timber Productivity Rating	854
Fair Site Sb, Lt or Fb Leading Species, and Pure Softwood Species Group	659
Sub-Total	1,512
Net Productive Area	19,361

Some minor differences in totals may exist due to rounding.

Table 3.7 Landbase summary: Foothills SYU.

<b>Net Landbase Determination</b>	<b>Area (ha)</b>
Gross Area	86,528
Recreation Areas:	332
Non-Forested Areas:	
Natural	3,329
Anthropogenic	751
Sub-Total	4,080
Gross Forested Area	82,116
Hydrological Buffers:	
Lake Buffers – 100 m	63
River Buffers – 60 m	503
Stream Buffers – 60 m	644
Stream Buffers – 30 m	1,378
Lake Buffers – 20 m	9
Sub-Total	2,598
Net Forested Area	79,518
Subjective Deletions:	598
Unmerchantable Areas:	
Unproductive Timber Productivity Rating	8,912
Fair Site Sb, Lt or Fb Leading Species, and Pure Softwood Species Group	5,067
Sub-Total	13,979
Net Productive Area	64,941

Some minor differences in totals may exist due to rounding.

Table 3.8 Landbase summary: Little Smoky SYU.

Net Landbase Determination	Area (ha)
Gross Area	229,950
Recreation Areas:	4,305
Non-Forested Areas:	
Natural	7,095
Anthropogenic	4,099
Sub-Total	11,194
Gross Forested Area	214,451
Hydrological Buffers:	
Lake Buffers – 100 m	352
River Buffers – 60 m	2,354
Stream Buffers – 60 m	846
Stream Buffers – 30 m	3,480
Lake Buffers – 20 m	17
Sub-Total	7,049
Net Forested Area	207,402
Subjective Deletions:	527
Unmerchantable Areas:	
Unproductive Timber Productivity Rating	30,951
Fair Site Sb, Lt or Fb Leading Species, and Pure Softwood Species Group	9,278
Sub-Total	40,229
Net Productive Area	166,647

Some minor differences in totals may exist due to rounding.

Table 3.9 Landbase summary: Pine SYU.

Net Landbase Determination	Area (ha)
Gross Area	38,660
Recreation Areas:	0
Non-Forested Areas:	
Natural	777
Anthropogenic	1,990
Sub-Total	2,767
Gross Forested Area	35,893
Hydrological Buffers:	
Lake Buffers – 100 m	12
River Buffers – 60 m	279
Stream Buffers – 60 m	162
Stream Buffers – 30 m	730
Lake Buffers – 20 m	6
Sub-Total	1,189
Net Forested Area	34,703
Subjective Deletions:	1,476
Unmerchantable Areas:	
Unproductive Timber Productivity Rating	972
Fair Site Sb, Lt or Fb Leading Species, and Pure Softwood Species Group	521
Sub-Total	1,494
Net Productive Area	31,734

Some minor differences in totals may exist due to rounding.



## 3.5 Timber Supply Procedures

### 3.5.1 Introduction

Theoretical timber supply estimates were generated for merchantable conifer and deciduous species using a 15/10 utilization standard for the FMA area as a whole, as well as for individual Forest Management Units within the FMA area (original FMUs W1, W8, E6, E7). The net productive forest landbase used in these AAC calculations, described in Chapter 3 of the ANC TSA, was determined in consultation with ANC and the Alberta Forest Service. Decision rules used in the “net down” reflected forest management and wildlife guidelines, the imposition of operating ground rules, and the application of merchantability criteria. Cutblocks identified in the new AVI, as well as those used during the orthophoto update, were assigned to pure conifer yield strata on medium sites (unless an AVI TPR was identified). Plot-based yield curves used in the analysis were developed from temporary sample plot data collected by ANC in the company’s volume sampling program.

Three standard procedures, approved by the Forest Service, were used to provide baseline AAC estimates:

1. Long run sustained yield average (LRSYA)
2. Area-volume check
3. Simulated harvest sequencing

These three procedures are discussed in detail below.

### 3.5.2 Long Run Sustained Yield Average (LRSYA)

LRSYA is a measure of forest productivity and is calculated as the sum of growth per year of regenerated stands at a selected rotation age. It is derived from the theoretical concept of a regulated forest with a static and uniform age class distribution, a single rotation age, and a single yield function operating across equally productive sites. Under these assumptions, the annual harvest equates to the annual growth in the oldest age class. LRSYA was calculated using the following formula:

$$LRSYA = \sum_{i=1}^n MAI_i \cdot A_i$$

where:

LRSYA =	long run sustained yield average (m <sup>3</sup> /yr)
MAI <sub>i</sub> =	mean annual increment (m <sup>3</sup> /ha/yr) for yield class <i>i</i>
A <sub>i</sub> =	net area (ha) for yield class <i>i</i>

Tables 3.10-3.14 list the specific LRSYA for each sustained yield unit under various regeneration scenarios.

Table 3.10 Preliminary LRSYA estimates for the FMA area - tree improvement regeneration transition.

Yield Curve	Description	Area(ha) by Yield Curve					MAI (m <sup>3</sup> /ha/yr) @ 90 Years	Preliminary LRSYA (m <sup>3</sup> /yr)				
		Berland (E6)	Foothills (E7)	Little Smoky (W1)	Pine (W8)	FMA area		Berland (E6)	Foothills (E7)	Little Smoky (W1)	Pine (W8)	FMA area
1	AB-S-10-G	118	826	1,456	231	2,630	3.42	402	2,824	4,979	788	8,993
2	AB-S-10-M	120	5,881	8,946	454	15,401	2.18	263	12,845	19,538	991	33,636
3	AB-S-10-F	83	2,435	2,155	216	4,888	1.24	102	3,009	2,663	267	6,041
4	CD-S-10-G	172	4,059	9,399	1,862	15,492	3.42	589	13,881	32,144	6,367	52,982
5	CD-S-10-M	713	31,344	43,756	2,356	78,169	2.18	1,557	68,455	95,564	5,146	170,722
6	CD-S-10-F	85	13,428	5,386	529	19,427	1.24	105	16,597	6,657	654	24,012
7	AB-S-11-G	499	218	2,619	655	3,990	3.26	1,628	711	8,549	2,137	13,024
8	AB-S-11-M	1,355	802	8,658	1,504	12,319	2.52	3,415	2,022	21,818	3,789	31,044
9	AB-S-11-F	124	49	1,619	714	2,506	1.56	194	76	2,525	1,114	3,909
10	CD-S-11-G	1,463	667	8,455	5,640	16,225	3.26	4,775	2,177	27,599	18,409	52,960
11	CD-S-11-M	6,422	3,421	38,654	9,194	57,690	2.52	16,183	8,620	97,409	23,168	145,379
12	CD-S-11-F	729	544	4,090	1,407	6,769	1.56	1,136	848	6,381	2,194	10,560
13	AB-MX-A-A	1,106	162	3,537	976	5,781	1.73	1,918	280	6,131	1,692	10,021
14	CD-MX-A-A	4,567	437	8,493	4,378	17,875	1.73	7,916	757	14,722	7,588	30,983
15	AB-H-A-A	337	22	4,637	480	5,477	0.82	277	18	3,813	395	4,504
16	CD-H-A-A	1,469	649	14,786	1,140	18,043	0.82	1,208	533	12,157	937	14,836
Totals		19,361	64,941	166,647	31,734	282,683		41,667	133,652	362,648	75,637	613,605



Table 3.11 Preliminary LRSYA estimates for the FMA area - 50% empirical regeneration transition.

Yield Curve	Description	Area (ha) by Yield Curve					MAI (m <sup>3</sup> /ha/yr) @ 90 Years	Preliminary LRSYA (m <sup>3</sup> /yr)				
		Berland (E6)	Foothills (E7)	Little Smoky (W1)	Pine (W8)	FMA area		Berland (E6)	Foothills (E7)	Little Smoky (W1)	Pine (W8)	FMA area
1	AB-S-10-G	118	826	1,456	231	2,630	4.53	532	3,736	6,588	1,043	11,900
2	AB-S-10-M	120	5,881	8,946	454	15,401	3.20	385	18,823	28,632	1,452	49,292
3	AB-S-10-F	83	2,435	2,155	216	4,888	1.17	97	2,851	2,523	253	5,724
4	CD-S-10-G	172	4,059	9,399	1,862	15,492	4.53	779	18,367	42,531	8,425	70,102
5	CD-S-10-M	713	31,344	43,756	2,356	78,169	3.20	2,281	100,317	140,045	7,542	250,185
6	CD-S-10-F	85	13,428	5,386	529	19,427	1.17	99	15,725	6,307	620	22,752
7	AB-S-11-G	499	218	2,619	655	3,990	4.48	2,234	975	11,731	2,932	17,873
8	AB-S-11-M	1,355	802	8,658	1,504	12,319	3.49	4,724	2,797	30,182	5,242	42,945
9	AB-S-11-F	124	49	1,619	714	2,506	1.45	180	70	2,343	1,033	3,626
10	CD-S-11-G	1,463	667	8,455	5,640	16,225	4.48	6,552	2,987	37,872	25,262	72,673
11	CD-S-11-M	6,422	3,421	38,654	9,194	57,690	3.49	22,387	11,924	134,753	32,050	201,114
12	CD-S-11-F	729	544	4,090	1,407	6,769	1.45	1,054	787	5,919	2,036	9,796
13	AB-MX-A-A	1,106	162	3,537	976	5,781	1.73	1,918	280	6,131	1,692	10,021
14	CD-MX-A-A	4,567	437	8,493	4,378	17,875	1.73	7,916	757	14,722	7,588	30,983
15	AB-H-A-A	337	22	4,637	480	5,477	0.82	277	18	3,813	395	4,504
16	CD-H-A-A	1,469	649	14,786	1,140	18,043	0.82	1,208	533	12,157	937	14,836
Totals		19,361	64,941	166,647	31,734	282,683		52,624	180,950	486,249	98,501	818,324

Table 3.12 Preliminary LRSYA estimates for the FMA area - 25% PSP regeneration transition.

Yield Curve	Description	Area (ha) by Yield Curve					FMA area	MAI (m <sup>3</sup> /ha/yr) @ 90 Years	Preliminary LRSYA (m <sup>3</sup> /yr)				
		Berland (E6)	Foothills (E7)	Little Smoky (W1)	Pine (W8)	FMA area			Berland (E6)	Foothills (E7)	Little Smoky (W1)	Pine (W8)	FMA area
1	AB-S-10-G	118	826	1,456	231	2,630	3.32	391	2,744	4,840	766	8,741	
2	AB-S-10-M	120	5,881	8,946	454	15,401	2.07	249	12,161	18,498	938	31,846	
3	AB-S-10-F	83	2,435	2,155	216	4,888	1.17	96	2,840	2,514	252	5,702	
4	CD-S-10-G	172	4,059	9,399	1,862	15,492	3.32	572	13,492	31,242	6,189	51,495	
5	CD-S-10-M	713	31,344	43,756	2,356	78,169	2.07	1,474	64,811	90,478	4,872	161,636	
6	CD-S-10-F	85	13,428	5,386	529	19,427	1.17	99	15,666	6,284	617	22,665	
7	AB-S-11-G	499	218	2,619	655	3,990	3.20	1,598	698	8,390	2,097	12,782	
8	AB-S-11-M	1,355	802	8,658	1,504	12,319	2.33	3,162	1,872	20,201	3,508	28,744	
9	AB-S-11-F	124	49	1,619	714	2,506	1.44	180	70	2,338	1,031	3,620	
10	CD-S-11-G	1,463	667	8,455	5,640	16,225	3.20	4,686	2,137	27,085	18,067	51,975	
11	CD-S-11-M	6,422	3,421	38,654	9,194	57,690	2.33	14,984	7,981	90,193	21,452	134,610	
12	CD-S-11-F	729	544	4,090	1,407	6,769	1.44	1,052	785	5,908	2,032	9,777	
13	AB-MX-A-A	1,106	162	3,537	976	5,781	1.73	1,918	280	6,131	1,692	10,021	
14	CD-MX-A-A	4,567	437	8,493	4,378	17,875	1.73	7,916	757	14,722	7,588	30,983	
15	AB-H-A-A	337	22	4,637	480	5,477	0.82	277	18	3,813	395	4,504	
16	CD-H-A-A	1,469	649	14,786	1,140	18,043	0.82	1,208	533	12,157	937	14,836	
Totals		19,361	64,941	166,647	31,734	282,683		39,862	126,846	344,794	72,434	583,936	