



MEMORANDUM

File: 280-30
195-30/IAPP

JUN 24 1997

To: Regional Managers

From: The Honourable David Zirnheld
Minister of Forests

Re: *Interior Appraisal Manual*

I hereby approve amendment No. 3 to the *Interior Appraisal Manual*, and attach a copy of it for your use.

This amendment will come into force on July 1, 1997. The amendment will segregate the manufacturing costs and lumber recovery factors for the Kalum and Kispiox Forest Districts. It also clarifies how bridges replaced under the Forest Renewal BC "Bridge Replacement Program on Forest Service Roads" will be dealt with in appraisals. The following sections are amended.

Section	Nature of Amendment
Section 2.5	Reassign three points of appraisal to Zone 6 from Zone 5.
Section 3.1.1	Correct wording to include licences which require utilization of small logs.
3.3(1)	Split Northern Interior/Skeena LRF update add-on and combined product recovery factors table into two separate zonal tables for Zone 5 and Zone 6.
4.3.1(6)	Bridges replaced on Forest Service Roads, which are part of the Forest Renewal BC "Bridge Replacement Program on Forest Service Roads" will not be included in appraisals.
4.11	Split Northern Interior/Skeena untrended manufacturing cost estimate tables for Zone 5 and Zone 6.
4.12	Add additional trend factors.

David Zirnheld
Minister

Attachment: (1)

cc: Bill Howard, Director, Revenue Branch
All Subscribers, *Interior Appraisal Manual*



FOR FURTHER INFORMATION CONTACT:

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MANUAL TITLE

Interior Appraisal Manual

REVISION No.
3

ISSUE DATE
July 1, 1997

MANUAL CO-ORDINATOR

Judy Laton
Revenue Branch

AUTHORIZATION (Name, Title)

W. Howard
Director, Revenue Branch

Please make the following changes to your copy of the above Ministry manual. Please insert the following specified pages and **file this notice** immediately after the Amendments Tab.

ACTION (Remove/Insert)	(VOL.) CHAPTER-SECTION-SUBJECT	PAGE(S)	COMMENTS
	TABLE OF CONTENTS		
REMOVE	Table of Contents	i - ii	
INSERT	Table of Contents	i - ii	
REMOVE	Chapter 2	11 - 16	
INSERT	Chapter 2	11 - 16	
REMOVE	Chapter 3	5 - 8	
INSERT	Chapter 3	5 - 8	
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Amendments to cutting authorities with the annual stumpage adjustment option would be subject to reappraisal at the time of the amendment (as defined in Section 2.3, (2.)). The new stumpage rate would not be adjusted until the cutting permit's anniversary date or expiry, whichever occurs first.

3. Regional Manager's Rates

If a stumpage rate was determined under Section 2.1, (4.) and the term of the cutting authority is extended, the Regional Manager may either leave the stumpage rate unchanged or reappraise the cutting authority. When the term of a cutting authority is extended and that cutting authority is reappraised, the notification requirements of Section 2.2 do not apply.

4. District Average Value Index

If the stumpage rate was determined under Section 2.1, (3.) and the term of the cutting authority is extended, the Regional Manager or District Manager may either leave the stumpage rate unchanged or reappraise the cutting authority. When the term of a cutting authority is extended and that cutting authority is reappraised, the notification requirements of Section 2.2 do not apply.

Cutting authorities that have been reappraised using the District Average Value Index method must be reappraised upon extension after three years.

5. Miscellaneous Stumpage Rates

Miscellaneous stumpage rates (Section 6.7) will be based on the appraisal manual in effect on the date of scale, except for those cutting authorities that specify miscellaneous stumpage rates in their cutting authority document.

6. Timber Licence

When a cutting authority that includes the authorization to harvest timber licence volume has the term extended, the stumpage rate will be determined under Subsection 5. of this section if:

- the cutting authority has a term that began before May 1, 1995, and
- the cutting authority area was not appraised.

2.5 Point of Appraisal

The appraiser must select the point of appraisal, from the list below, which will produce the least total operating cost estimate for the cutting authority area. All species, qualities and sizes of timber must be appraised to a single point of appraisal. The appraiser must estimate the cost of transporting timber to the sawmill, which is nearest the point of appraisal and produces the least total operating cost estimate and must assume manufacturing costs and average market values applicable for that point of appraisal.

A sawmill is defined as a conversion facility capable of producing lumber and chips, and includes the log sorting/storage areas and satellite mill yards if applicable. A sawmill is considered capable of producing lumber and chips unless it has been damaged by fire or a destructive force of nature. A damaged sawmill will not be considered a location for a point of appraisal if it has not been repaired within three months of the damage. It will be considered a location for a point of appraisal on the first day it is capable of producing lumber and chips.

The logs are deemed to have reached the point of appraisal once they have entered the site upon which the sawmill is located. All further log handling costs except scaling (see Section 4.8) are deemed to be part of the manufacturing cost estimate.

Points of Appraisal (for appraisals effective prior to "July 1, 1997")

Northern Interior (Zone 5) (If volume per tree is less than 0.20 m ³ /tree, use Zone 15)			
Bear Lake	Fort St. James	Kitwanga	Smithers
Burns Lake	Fraser Lake	Mackenzie	Strathnaver
Carnaby	Hazelton	Prince George	Upper Fraser
Clear Lake	Houston	Quesnel	Vanderhoof
Engen	Isle Pierre		
Skeena (Zone 6) (If volume per tree is less than 0.20 m ³ /tree, use Zone 16)			
Terrace			
Southern Interior (Zone 7) (If volume per tree is less than 0.20 m ³ /tree, use Zone 17)			
Adams Lake	Elko	Lytton	Revelstoke
Armstrong	Galloway	McBride	Slocan
Boston Bar	Grand Forks	Merritt	Squamish
Canal Flats	Kamloops	Midway	Thrms
Canoe	Kelowna	Okanagan Falls	Valemount
Castlegar	Lavington	Park Siding	Vavenby
Craigellachie	Louis Creek	Princeton	Westbank
Cranbrook	Lumby	Radium	Ymir
Creston			

Southern Cariboo (Zone 8) (If volume per tree is less than 0.20 m ³ /tree, use Zone 18)			
100 Mile House	Chasm	Lillooet	Williams Lake
Fort Nelson - Peace (Zone 9) (If volume per tree is less than 0.20 m ³ /tree, use Zone 19)			
Chetwynd	Fort Nelson	Fort St. John	Taylor

Points of Appraisal (for appraisals effective on or after July 1, 1997)

Northern Interior (Zone 5) (If volume per tree is less than 0.20 m ³ /tree, use Zone 15)			
Bear Lake	Fort St. James	Mackenzie	Smithers
Burns Lake	Fraser Lake	Prince George	Strathnaver
Clear Lake	Houston	Quesnel	Upper Fraser
Engen	Isle Pierre		Vanderhoof
Skeena (Zone 6) (If volume per tree is less than 0.20 m ³ /tree, use Zone 16)			
Terrace	Carnaby	Hazelton	Kitwanga
Southern Interior (Zone 7) (If volume per tree is less than 0.20 m ³ /tree, use Zone 17)			
Adams Lake	Elko	Lytton	Revelstoke
Armstrong	Galloway	McBride	Slocan
Boston Bar	Grand Forks	Merritt	Squamish
Canal Flats	Kamloops	Midway	Thrms
Canoe	Kelowna	Okanagan Falls	Valemount
Castlegar	Lavington	Park Siding	Vavenby
Craigellachie	Louis Creek	Princeton	Westbank
Cranbrook	Lumby	Radium	Ymir
Creston			
Southern Cariboo (Zone 8) (If volume per tree is less than 0.20 m ³ /tree, use Zone 18)			
100 Mile House	Chasm	Lillooet	Williams Lake
Fort Nelson - Peace (Zone 9) (If volume per tree is less than 0.20 m ³ /tree, use Zone 19)			
Chetwynd	Fort Nelson	Fort St. John	Taylor

2.5.1 Method of Transportation to be Used in Determining Point of Appraisal

The appraiser must base his estimate of transportation costs on the method of transportation which will produce the least total operating cost estimate for the cutting authority area, unless that particular method of transportation is not possible under the cutting authority. In considering whether or not a particular method of transportation is possible under the cutting authority, the appraiser must not have regard for:

1. Any destination referred to in the cutting authority.
2. Any document other than the cutting authority.

2.6 Calculation Conventions

All operating cost calculations are performed to the full capacity of the calculating machine with the results truncated at four places of decimals and rounded to two places.

Results from 5 to 9 are rounded upward and from 1 to 4 rounded downward.

After each phase cost estimate (\$/m³) (see Chapter 4) has been rounded to the nearest cent it is summed with other estimates to obtain the total cost estimate.

Where values are specified as limits (constraints or requirements for equations), they are treated as absolute values and actual measurements or records are not rounded before use unless otherwise specified.

Stumpage rate calculations are performed according to the methods specified in the document entitled, *Specification: Calculating Stumpage Rates for Interior Appraisals*, approved by the Director, Revenue Branch.

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The LRFs are determined from the following formulas and tables:

1. Zonal LRF Update Add-Ons and Combined Product Recovery Factors

Zone	Species	LRF Update Add-Ons	Combined Product Recovery Factors
Northern Interior (Zone 5) & Skeena (Zone 6) (for appraisals effective prior to July 1, 1997)	Lodgepole Pine	68	422
	Spruce	69	422
	Balsam	65	422
	Douglas Fir	28	422
	Larch	26	422
	Cedar	23	422
	Hemlock	25	422
	White pine	25	422
Northern Interior (Zone 5) (for appraisals effective on and after July 1, 1997)	Lodgepole Pine	71	427
	Spruce	72	427
	Balsam	66	427
	Douglas Fir	30	427
	Larch	28	427
	Cedar	25	427
	Hemlock	24	427
	White pine	27	427
Skeena (Zone 6) (for appraisals effective on and after July 1, 1997)	Lodgepole Pine	41	382
	Spruce	43	382
	Balsam	41	382
	Cedar	1	382
	Hemlock	1	382

Zone	Species	LRF Update Add-Ons	Combined Product Recovery Factors
Southern Interior (Zone 7)	Lodgepole Pine	70	409
	Spruce	74	409
	Balsam	66	409
	Douglas Fir	29	409
	Larch	29	409
	Cedar	25	409
	Hemlock	26	409
	White Pine	28	409
	Yellow Pine	30	409

Southern Cariboo (Zone 8)	Lodgepole Pine	51	416
	Spruce	52	416
	Balsam	48	416
	Douglas Fir	13	416
	Larch	12	416
	Cedar	9	416
	Hemlock	10	416
	White pine	12	416
	Yellow pine	13	416

Fort Nelson-Peace (Zone 9)	Lodgepole Pine	53	416
	Spruce	52	416
	Balsam	45	416

Example: (Zone 5) Lodgepole Pine	Cruise LRF		Update Add-on		Appraisal LRF
All Logs	180	+	68	=	248

2. Chip Yield Derivation

$$\text{Chip Yield (BDU/m}^3\text{)} = (\text{Combined Product Recovery Factor} - \text{Appraisal LRF}) \\ * \text{Species Chip Yield Factor}$$

3. Chip Yield Factors

Species	Factor (BDU/fbm)
Balsam	.00072
Cedar	.00067
Fir	.00098
Hemlock	.00089
Larch	.00119
Lodgepole Pine	.00087
Spruce	.00076
White Pine	.00078
Yellow Pine	.00095

4. Determination of Stud Log Percent

The stud log percent (%) is determined as follows:

The stud log percent for each stud species (spruce, balsam, lodgepole pine, Douglas fir and larch) is determined from the cruise compilation summary. The stud log percent is defined as the net volume of 5 m logs with top diameters under 20 cm expressed as a percentage of the total net cruise volume. The stud log percent is calculated and rounded to the nearest whole percentage point.

The percent (%) stud AMV is determined as follows:

If the stud log percent is 45 or greater and less than or equal to 65:

$$\text{the percent stud AMV} = (5 * \text{stud log \%}) - 225$$

If the stud log percent is less than 45, the percent stud AMV = 0;

If the stud log percent is more than 65, the percent stud AMV = 100.

5. Shipping Differential

The Shipping Differential for the following points of appraisal are:

\$0.40/m ³	\$0.70/m ³	\$4.03/m ³
Bear Lake Fort St. James Mackenzie Quesnel Strathnaver	Adams Lake Clear Lake Louis Creek Merritt Midway Okanagan Falls Princeton Thrums Westbank Ymir	Fort Nelson

6. Manufacturing Cost Differential

\$2.95/m ³
Fort Nelson

7. Calculation of Total Species Selling Price

- a. Lumber AMV = $(\% \text{ Stud AMV}/100) * (\text{Stud AMV}/1000)$
 $+ (1.0 - (\% \text{ Stud AMV}/100)) * (\text{Random AMV}/1000),$
- b. Lumber SP = Lumber AMV * Appraisal LRF,
- c. Chip SP = Chip Value * Chip Yield, and
- d. Total Species SP = (b) + (c) - D

Where	SP	=	Selling Price in \$/m ³
	AMV	=	The Lumber Average Market Value (of the appropriate species in the appropriate zone)
	Appraisal LRF	=	The LRF for all logs from Section 3.3.1
	Chip Value	=	The Chip Average Market Value (of the appropriate species for the appropriate point of appraisal)
	Chip Yield	=	The Chip Yield for all logs from Section 3.3.2
	D	=	The Differentials for the appropriate points of appraisal from Section 3.3.5 and 3.3.6.

- e. The term of the agreement must not exceed the terms of the cutting authorities, and
- f. The agreement will only be valid under Comparative Value Timber Pricing (CVP) and confers no obligation on the Crown to compensate licensees for any unamortized costs.

6. Reconstruction and Replacement

Reconstruction and Replacement are defined as:

- replacement or structural repair of a major drainage structure (e.g., replacing stringers, cross ties, or cribbing), or
- major resurfacing, which means resurfacing sections of more than 0.3 km in length that were initially surfaced, but have deteriorated due to long term wear and tear, or
- major reconstruction, which means restoring at least 0.1 km of road (per occurrence) that requires complete rebuilding of the subgrade.

The costs approved under this section must not qualify under routine maintenance as described in Section 4.6.

Bridges replaced on Forest Service Roads that are included in the Forest Renewal B.C. five year "Bridge Replacement Program on Forest Service Roads" will not be included in any appraisal.

Reconstruction and replacement cost estimates are determined as detailed engineering cost estimates (Section 4.3.3) and must be approved in advance by the district manager. The cost estimates may be applied to remaining tributary timber (i.e., applicable volume). Cost estimates for reconstruction are not to exceed the tabular costs for new construction under similar conditions.

Where bridge materials are re-used, the cost estimate will include dismantling, transportation and installation at the new site, but will exclude initial materials purchased and initial delivery costs.

Costs may not be recognized if the licensee has been negligent or has not followed approved plans or standards as defined under the Forest Practices code and regulations.

7. Access Management

Access management is defined as the temporary removal of a major drainage structure or construction of a barrier, including a gate, excavation, or placement of boulders with the purpose of temporarily eliminating all vehicle access.

An access management cost estimate will be determined by a detailed engineered estimate.

The access management required in the cutting authority must be based on a formal Access Management Plan or forest development plan.

Costs may be determined for more than one removal/replacement of the structure/barrier if the cutting authority term warrants it.

Costs approved under this section must not qualify under routine maintenance as described in Section 4.6.

4.3.2 Tabular Cost Estimates

These roads are generally a single lane width with turnouts. These roads may or may not be stabilized (ballasted or surfaced) with additional materials.

4.3.2.1 Subgrade Construction

The subgrade construction cost estimate includes clearing and grubbing, stripping, stump removal, ditch construction, turnout construction, material costs and installation of culverts with diameters up to 950 mm or the equivalent cross-section area or single log abutment culverts up to 3.4 m span. Right-of-way felling and logging is excluded.

4.3.2.2 Subgrade Construction Variables

For appraisal purposes the following subgrade construction variables are recognized:

1. Section length: (L)

Road sections are recorded in multiples of 0.1 km. Each section should be representative of a single moisture class. Each section should be 1 km or longer, although some individual section lengths less than 1 km but greater than 0.1 km are acceptable for extreme variations of slope or percent rock. The section length includes that portion traversing through landings. For ground skidding short roads (up to 100 m long) that access single landings are included in the Tree-to-Truck cost estimates (Section 4.4) and are not eligible for development cost estimates.

Untrended Manufacturing Cost Estimates (\$/m ³) 1994 Cost Survey Base		
	Species	Manufacturing cost (\$/m ³) 0% Decay
Northern Interior (Zone 5) & Skeena (Zone 6) (for appraisals effective prior to July 1, 1997)	LO	32.27
	SP	27.65
	BA	32.51
	FI, LA, WH, YE	40.67
	CE	38.53
	HE	35.61

Northern Interior (Zone 5) (for appraisals effective on and after July 1, 1997)	LO	32.81
	SP	28.13
	BA	33.06
	FI, LA, WH, YE	41.33
	CE	39.22
	HE	37.23

Skeena (Zone 6) (for appraisals effective on and after July 1, 1997)	LO	27.04
	SP	23.33
	BA	28.05
	CE	32.97
	HE	30.37

Southern Interior (Zone 7)	LO	38.74
	SP	32.51
	BA	38.58
	FI, LA, WH, YE	48.01
	CE	46.82
	HE	45.07

Untrended Manufacturing Cost Estimates (\$/m³) 1994 Cost Survey Base		
	Species	Manufacturing cost (\$/m³) 0% Decay
Southern Cariboo (Zone 8)	LO	30.96
	SP	26.26
	BA	31.20
	FI, LA, WH, YE	38.13
	CE	33.44
	HE	32.73

Fort Nelson/Peace (Zone 9)	LO	31.07
	SP	26.49
	BA	30.57

To derive the manufacturing cost estimate for decay % from 1 to 50, use the above table values in the following equation:

The cost estimate is calculated to four decimal places, then rounded to the nearest cent. Where decay exceeds 50 percent, the manufacturing cost estimate for 50 percent decay is used.

Manufacturing cost (\$/m³) = decay% * 0.1581 + base value from table.

For a list of points of appraisal by zone, refer to Section 2.5.

4.12 Cost Trend

Cost trend factors are separately applied to the total logging, silviculture and manufacturing cost estimates. The factors cover the period from the effective date of the cost base to the effective date of the rate calculation. Cost trend factors are applied at the appraisal effective date and at the date of each stumpage adjustment.

For trend factors applicable prior to July 1, 1996, refer to the August 1, 1995 *Interior Appraisal Manual*.

Appraisal Effective Dates From January 1, 1990 to May 31, 1992 Inclusive

<u>Appraisal Effective Date</u> <u>or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
July 1 to September 30, 1996	1.400	1.270
October 1 to December 31, 1996	1.470	1.280
January 1 to March 31, 1997	1.480	1.290
April 1 to June 30, 1997	1.490	1.300
July 1 to September 30, 1997	1.500	1.310
October 1 to December 31, 1997	1.510	1.320

Appraisal Effective Dates From June 1, 1992 to October 31, 1992 Inclusive

<u>Appraisal Effective Date</u> <u>or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
July 1 to September 30, 1996	1.400	1.210
October 1 to December 31, 1996	1.470	1.220
January 1 to March 31, 1997	1.480	1.230
April 1 to June 30, 1997	1.490	1.240
July 1 to September 30, 1997	1.500	1.250
October 1 to December 31, 1997	1.510	1.260

Appraisal Effective Dates From November 1, 1992 to September 30, 1993 Inclusive

<u>Appraisal Effective Date</u> <u>or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
July 1 to September 30, 1996	1.360	1.210
October 1 to December 31, 1996	1.430	1.220
January 1 to March 31, 1997	1.440	1.230
April 1 to June 30, 1997	1.450	1.240
July 1 to September 30, 1997	1.460	1.250
October 1 to December 31, 1997	1.470	1.260

Appraisal Effective Dates From October 1, 1993 to September 30, 1994

<u>Appraisal Effective Date</u> <u>or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
July 1 to September 30, 1996	1.340	1.150
October 1 to December 31, 1996	1.410	1.160
January 1 to March 31, 1997	1.420	1.170
April 1 to June 30, 1997	1.430	1.180
July 1 to September 30, 1997	1.440	1.190
October 1 to December 31, 1997	1.450	1.200

Appraisal Effective Dates From October 1, 1994 to July 31, 1995Appraisal Effective DateTrend Factoror Stumpage Adjustment Date

	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
July 1 to September 30, 1996	1.300	1.128
October 1 to December 31, 1996	1.370	1.138
January 1 to March 31, 1997	1.380	1.148
April 1 to June 30, 1997	1.390	1.158
July 1 to September 30, 1997	1.400	1.168
October 1 to December 31, 1997	1.410	1.178

Appraisal Effective Dates From August 1, 1995 to July 31, 1996Appraisal Effective DateTrend Factoror Stumpage Adjustment Date

	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
July 1 to September 30, 1996	1.200	1.090
October 1 to December 31, 1996	1.270	1.100
January 1 to March 31, 1997	1.280	1.110
April 1 to June 30, 1997	1.290	1.120
July 1 to September 30, 1997	1.300	1.130
October 1 to December 31, 1997	1.310	1.140

Appraisal Effective Dates On or After August 1, 1996Appraisal Effective DateTrend Factoror Stumpage Adjustment Date

	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
August 1 to September 30, 1996	1.140	1.080
October 1 to December 31, 1996	1.150	1.090
January 1 to March 31, 1997	1.160	1.100
April 1 to June 30, 1997	1.170	1.110
July 1 to September 30, 1997	1.180	1.120
October 1 to December 31, 1997	1.190	1.130

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