

File: 280-20

April 30, 2003

To: Regional Managers - Interior

From: The Honourable Michael de Jong
Minister of Forests

Re: Amendment No. 5 to the *Interior Appraisal Manual*

I hereby approve Amendment No. 5 to the *Interior Appraisal Manual* and attach a copy for your use. The following sections have been amended.

Section 4.9 Basic Silviculture. Table 4-9 has been modified to provide dollar per hectare cost estimates for biogeoclimatic zone, subzone and variants. Also, there is an estimating formulae to modify the cost estimates for partial cut harvest.

Section 4.11 Cost Trend. The table for appraisals with effective dates from July 1, 2001 to October 31, 2002, has been revised with a factor which normalizes the previous manual with the current one.

This amendment will come into force on May 1, 2003. Further amendments or revisions to this manual require my approval.



for Michael de Jong
Minister of Forests

Attachments

pc: Bill Howard, Director, Revenue Branch

All Subscribers, *Interior Appraisal Manual*



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MANUAL TITLE

Interior Appraisal Manual

REVISION No.

Amendment No.5

ISSUE DATE

May 1, 2003

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.

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4.3.1 Development Cost Categories

Development cost allocation (section 4.3.1.1) applies to all cost estimates made under this section.

New Construction

1. New construction is defined as the following construction phases: subgrade construction, placement of additional stabilizing material and the construction and installation of drainage and other pertinent structures.

New construction costs are allocated to the first tributary cutting authority (subject to section 4.3.1.1.5).

- a. Road Cost Estimates

- i. Tabular cost estimates

Each road section cost estimate is determined from the appropriate tables (section 4.3.2). These section costs are totalled to give a road cost estimate for each road. The road costs for all roads are then totalled to give a total cost for tabular roads.

- ii. Detailed engineering cost estimates

Each project cost is estimated according to section 4.3.3. These projects may include: (see section 4.3.3 for a complete listing).

The total of the estimated costs for each project is summed to give a total cost (\$) for engineered roads.

- b. Drainage Structure Cost Estimates

Each drainage structure cost estimate is determined either from the appropriate table (section 4.3.2.4) or as a detailed engineering cost estimate (section 4.3.3).

Where materials are reused by the original purchaser at a second or subsequent location, the cost estimate will include dismantling, transportation and installation at the new site. The initial materials cost and delivery costs are excluded.

Where used bridge materials are purchased from a legally non-associated party, the cost of purchase and shipping those materials will be included in the cost estimate. The requirements of section 4.1 still apply.

The total of the estimated costs for all bridges are summed to give a total cost for bridges.

The total costs for tabular roads, engineered roads, and bridges are totalled and then divided by the total net cruise volume to give a unit cost (\$/m³) for new construction.

Reconstruction and Replacement

2. Reconstruction and Replacement are defined as:

- a. replacement or structural repair of a major drainage structure (e.g., replacing stringers, cross ties, or cribbing), or
- b. 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
- c. 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”, or are otherwise funded by the Crown will not be included in any appraisal. Other major forest service road reconstruction or upgrades that are funded by the Crown will not be included in appraisals.

Where a Ministry of Transportation (public) road requires reconstruction or upgrade to forest service standards for hauling Crown timber, the project must be approved in advance by the director of Revenue Branch before it can be included in an appraisal of tributary timber. The detailed engineering cost estimate for each project must be based on arms length competitive bids. The approved project costs may be apportioned to multiple users as per section 4.3.1.1.5.

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) provided the project was not known of or planned for at the time of appraisal. If the cost estimate is not applied to the remaining tributary volume, it must be applied to the first tributary cutting authority appraised over the reconstruction or replacement. Section 4.3.1.1.5 may be applicable for main roads. Cost estimates for reconstruction and replacement are not to exceed the tabular costs for new construction under similar conditions.

Costs will 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.

3. Where the licence to which cutting authority belongs has no AAC and the cutting authority net cruise volume is less than 3 000 m³;

$$$/\text{m}^3 = 0.00$$

4.9 Basic Silviculture Cost Estimate

Basic silviculture cost estimates are made for all cutting authorities where basic silviculture is required.

Basic silviculture treatment cost estimates include all treatment costs that are required to achieve the free-growing stocking standards, as referred to in the *Timber Harvesting and Silviculture Practices Regulation* (B.C. Reg. 352/2002).

Basic silviculture treatment may not be required on some cutting authorities where:

1. this intent has been specified in the licence, cutting authority, or by applicants agreement, or,
2. basic silviculture work is funded by any Crown agency.

When any of these circumstances exist the basic silviculture cost estimate is not included in the appraisal, except as noted in section 6.6 of this manual.

The Table 4-9 lists the associated cost estimates (\$/ha) for each BioGeoClimatic (BGC) zone, subzone, and variant across the interior.

Where a cutting authority area includes more than one BGC/subzone/variant, the predominant BGC/subzone/variant by area shall be used for the cost estimate in the appraisal of the cutting authority.

The area to be appraised for silviculture is the net merchantable area(NMA) from the cruise. The area must be the same as the area directly attributed to the appraised Net Merchantable Volume(NMV) of the cutting authority. Where deciduous harvest volume is included in an appraisal the area for the deciduous must also be included as part of the net merchantable area.

The cutting authority silviculture cost estimate is calculated as follows:

$$\$/m^3 = \frac{[NMA(ha) * [BGC/subzone/variant cost(\$/ha) * (CAPCUT \%/100)*1.25]]}{NMV(m^3)}$$

Where:

If (CAPCUT %) is greater than 80%, then CAPCUT % = 80

(CAPCUT %) = (CANMV(m³) / CA Gross NMV(m³)) * 100

CA Gross NMV(m³) = ^vGS(C) + (^vGS(P) / GS(PCUT/100)) + ^vOC(C) + (^vOC(P) / OC(PCUT/100)) + ^vSK(C) + ^vHorse(C) + ^vHeli(C) + (^vHeli(P) / Heli(PCUT/100))

And variables are defined as:

PCUT	=	Logging method PCUT (%) from section 4.4.2,(5)
CAPCUT	=	Cutting Authority (CA) partial cut percent
v	=	Net merchantable volume (m3) required to be logged by each system
Heli (C)	=	helicopter logging (clear cut)
Heli (P)	=	helicopter logging (partial cut)
Horse(C)	=	horse logging (clear cut)
GS (C)	=	ground skidding (clear cut)
GS (P)	=	ground skidding (partial cut)
OC(C)	=	overhead cable logging (clear cut)
OC(P)	=	overhead cable logging (partial cut)
SK(C)	=	skyline logging (clear cut)

Table 4-9 BGC Silviculture Cost Estimates*

BGC Zone	Subzone	Variant	\$/ha	BGC	Subzone	Variant	\$/ha
BWBS	dk	1	1302	ICH	mk	2	1418
BWBS	dk	2	1302	ICH	mk	3	1406
BWBS	mw	1	1779	ICH	mm		1965
BWBS	mw	2	1888	ICH	mw	1	2014
BWBS	un		1655	ICH	mw	2	1799
BWBS	vk		1655	ICH	mw	3	2426
BWBS	wk	1	1320	ICH	un		1965
BWBS	wk	2	1320	ICH	vc		1965
BWBS	wk	3	1320	ICH	vk	1	2854
CWH	un		1727	ICH	vk	2	2415
CWH	vh	1	1727	ICH	wc		1965
CWH	vh	2	1727	ICH	wk	1	2431
CWH	vm		1727	ICH	wk	2	2195
CWH	vm	1	1727	ICH	wk	3	2195

BGC Zone	Subzone	Variant	\$/ha
CWH	vm	2	1727
CWH	vm	3	1727
CWH	wh	1	1727
CWH	wh	2	1727
CWH	wm		1727
CWH	ws	1	1727
CWH	ws	2	1727
CWH	xm	1	1727
CWH	xm	2	1727
ESSF	dc	1	1723
ESSF	dc	2	1578
ESSF	dcp	1	1599
ESSF	dcp	2	1599
ESSF	dk		1317
ESSF	dkp		1599
ESSF	dku		1599
ESSF	dv		1709
ESSF	dvp		1599
ESSF	mc		1585
ESSF	mcp		1599
ESSF	mk		1599
ESSF	mkp		1599
ESSF	mm	1	1599
ESSF	mm	2	1599
ESSF	mmp	1	1599
ESSF	mmp	2	1599
ESSF	mv	1	1130
ESSF	mv	2	1358
ESSF	mv	3	1234
ESSF	mv	4	1505
ESSF	mvp	1	1599
ESSF	mvp	2	1599
ESSF	mvp	3	1599
ESSF	mvp	4	1599
ESSF	mw		1566
ESSF	mwp		1599
ESSF	un		1599
ESSF	vc		2855
ESSF	vcp		1599

BGC	Subzone	Variant	\$/ha
ICH	wk	4	2195
ICH	xw		1965
IDF	dk	1	727
IDF	dk	2	1209
IDF	dk	3	555
IDF	dk	4	673
IDF	dm	1	922
IDF	dm	2	614
IDF	dw		851
IDF	mw	1	1925
IDF	mw	2	1892
IDF	un		851
IDF	ww		851
IDF	xh	1	1076
IDF	xh	2	1076
IDF	xm		851
IDF	xw		851
MH	un		1727
MS	dc	1	2380
MS	dc	2	2380
MS	dk		1180
MS	dm	1	1490
MS	dm	2	1285
MS	dv		1247
MS	un		1247
MS	xk		1523
MS	xv		861
PP	dh	1	25
PP	dh	2	25
PP	un		25
PP	xh	1	25
PP	xh	2	25
SBPS	dc		711
SBPS	mc		699
SBPS	mk		975
SBPS	un		699
SBPS	xc		548
SBS	dh		1234
SBS	dh	1	1234

BGC Zone	Subzone	Variant	\$/ha
ESSF	vv		1696
ESSF	vvp		1599
ESSF	wc	1	2092
ESSF	wc	2	1743
ESSF	wc	3	1606
ESSF	wc	4	2290
ESSF	wcp	2	1599
ESSF	wcp	3	1599
ESSF	wcp	4	1599
ESSF	wk	1	1945
ESSF	wk	2	1526
ESSF	wm		1636
ESSF	wmp		1599
ESSF	wv		1599
ESSF	wvp		1599
ESSF	xc		1547
ESSF	xcp		1599
ESSF	xv	1	1176
ESSF	xv	2	1108
ESSF	xvp	1	1599
ESSF	xvp	2	1599
ICH	dk		1965
ICH	dw		1717
ICH	mc	1	1372
ICH	mc	2	1969
ICH	mk	1	1351

BGC	Subzone	Variant	\$/ha
SBS	dh	2	1234
SBS	dk		1078
SBS	dw	1	1220
SBS	dw	2	908
SBS	dw	3	951
SBS	mc	1	1235
SBS	mc	2	1221
SBS	mc	3	1123
SBS	mh		1234
SBS	mk	1	1290
SBS	mk	2	1268
SBS	mm		1369
SBS	mw		1502
SBS	un		1234
SBS	vk		1557
SBS	wk	1	1534
SBS	wk	2	1555
SBS	wk	3	981
SWB	dk		1505
SWB	dks		1505
SWB	mk		1505
SWB	mks		1505
SWB	un		1505
SWB	vk		1505
SWB	vks		1505

* The dollar per hectare (\$/ha) cost estimates are net of overhead.

4.10 Manufacturing Cost Estimates

In the interior, appraisal calculations include estimates of the cost of manufacturing lumber and chips. Manufacturing cost estimates are developed from a survey of sawmills and encompass all phases of manufacturing beginning with the dewatering of logs or unloading of logging trucks at the mill log yard, (land or water or satellite log yards), and ending when the lumber and chips have been loaded on rail cars or trucks for transport to market.

The survey collects actual costs to the licensee, including wages, benefits, overtime, depreciation, fuel, supplies, repair, maintenance, applicable licences, insurance, etc. from a representative sample of interior operations.

The cost estimates reflect average conditions, operating practices, and phase accounting allocations experienced in the survey data. Because of this averaging, no additions to or subtractions from these estimates are permitted to reflect operation-specific conditions.

The estimates have an effective cost base date of July 1, 2000, and will be used for all appraisals, reappraisals and adjustments of stumpage rates.

Table 4-10 Untrended Manufacturing Cost Estimates

Untrended Manufacturing Cost Estimates (\$/m³) 2000 Cost Survey Base		
	Species	Manufacturing cost (\$/m³) 0% Decay
Northern Interior (Zone 5)	LO	34.71
	SP	34.28
	BA	37.39
	FI, LA, WH, YE	52.14
	CE	46.27
	HE	42.93
Skeena (Zone 6)	LO	30.15
	SP	29.62
	BA	33.03
	CE	40.19
	HE	36.99
Southern Interior (Zone 7)	LO	38.56
	SP	37.31
	BA	41.06
	FI, LA, WH, YE	56.72
	CE	50.38
	HE	49.40

Untrended Manufacturing Cost Estimates (\$/m³) 2000 Cost Survey Base		
	Species	Manufacturing cost (\$/m³) 0% Decay
Southern Cariboo (Zone 8)	LO	37.68
	SP	36.83
	BA	40.37
	FI, LA, WH, YE	55.52
	CE	46.37
	HE	45.02

Fort Nelson/Peace (Zone 9)	LO	31.77
	SP	31.29
	BA	33.72

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 % * 0.1783 + base value from table.

For a list of points of appraisal by zone, refer to section 2.6.

4.11 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 November 1, 2002, refer to earlier *Interior Appraisal Manuals*.

Appraisal Effective Dates From October 1, 1994 to July 31, 1995

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
May 1 to June 30, 2003	1.154	1.0
July 1 to September 30, 2003	1.154	1.0
October 1 to December 31, 2003	1.154	1.0
January 1 to March 31, 2004	1.154	1.0

Appraisal Effective Dates From August 1, 1995 to July 31, 1996

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
May 1 to June 30, 2003	1.045	1.0
July 1 to September 30, 2003	1.045	1.0
October 1 to December 31, 2003	1.045	1.0
January 1 to March 31, 2004	1.045	1.0

Appraisal Effective Dates From August 1, 1996 to November 30, 1997

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
May 1 to June 30, 2003	0.986	1.0
July 1 to September 30, 2003	0.986	1.0
October 1 to December 31, 2003	0.986	1.0
January 1 to March 31, 2004	0.986	1.0

Appraisal Effective Dates From December 1, 1997 to August 31, 1998

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
May 1 to June 30, 2003	0.917	1.0
July 1 to September 30, 2003	0.917	1.0
October 1 to December 31, 2003	0.917	1.0
January 1 to March 31, 2004	0.917	1.0

Appraisal Effective Dates From September 1, 1998 to September 30, 1999

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
May 1 to June 30, 2003	0.968	1.0
July 1 to September 30, 2003	0.968	1.0
October 1 to December 31, 2003	0.968	1.0
January 1 to March 31, 2004	0.968	1.0

Appraisal Effective Dates From October 1, 1999 to August 31, 2000

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
May 1 to June 30, 2003	1.017	1.0
July 1 to September 30, 2003	1.017	1.0
October 1 to December 31, 2003	1.017	1.0
January 1 to March 31, 2004	1.017	1.0

Appraisal Effective Dates From September 1, 2000 to June 30, 2001

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
May 1 to June 30, 2003	1.0	1.0
July 1 to September 30, 2003	1.0	1.0
October 1 to December 31, 2003	1.0	1.0
January 1 to March 31, 2004	1.0	1.0

Appraisal Effective Dates From July 1, 2001 to October 31, 2002

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
May 1 to June 30, 2003	0.960	1.0
July 1 to September 30, 2003	0.960	1.0
October 1 to December 31, 2003	0.960	1.0
January 1 to March 31, 2004	0.960	1.0

Appraisal Effective Dates On or After November 1, 2002

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
May 1 to June 30, 2003	1.0	1.0
July 1 to September 30, 2003	1.0	1.0
October 1 to December 31, 2003	1.0	1.0
January 1 to March 31, 2004	1.0	1.0

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INTERIOR APPRAISAL DATA SUBMISSION

Basic Silviculture (Section 4.9)

Predominant Biogeoclimatic (BGC)		
Zone	Sub Zone	Variant

Specified Operation (Root Disease Control) (Section 4.1.1)

Total Cost (\$) _____

