BRITISH COLUMBIA

Ministry of Forests

Office of the Minister

MEMORANDUM

File: 280-20

June 30, 2003

To: Ken Collingwood
Regional Manager
Coast Forest Region

From: The Honourable Michael de Jong
Minister of Forests

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

I hereby approve Amendment No. 5 to the *Coast Appraisal Manual* and attach a copy for your use. The amendment updates the appraisal cost estimates to the 2001 cost base, addresses cost increases due to closures on the Upper Harrison River, and takes further steps to eliminate grade setting on timber licences.

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

Deputy Minister
Michael de Jong
Minister of Forests

Attachments

pc: Bill Howard, Director, Revenue Branch

All Subscribers, *Coast Appraisal Manual*

VANCOUVER 2010
CANDIDATE CITY

IT'S OUR TIME
TO SHINE

BRITISH COLUMBIA Ministry of Forests

MANUAL REVISION TRANSMITTAL

FOR FURTHER INFORMATION CONTACT:

George Silvestrini
Sr. Timber Pricing Forester (Coast)
Revenue Branch
Ministry of Forests
Victoria, B.C.
V8W 3E7
Phone: 387-8377
E-mail: george.silvestrini@gems9.gov.bc.ca
FAX: 356-5909

MANUAL TITLE	
Coast Appraisal Manual	
REVISION No. Amendment No. 5	**ISSUE DATE** July 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.

ACTION (Remove/Insert)	(VOL.) CHAPTER-SECTION-SUBJECT	PAGE(S)	COMMENTS
REMOVE	Table of Contents	i – ii	After Table of Contents Tab
INSERT	Table of Contents	i – ii	After Table of Contents Tab
REMOVE	Chapter 2	5 - 6	After Chapter 2 Tab
INSERT	Chapter 2	5 - 6	After Chapter 2 Tab
REMOVE	Chapter 3	5 - 8	After Chapter 3 Tab
INSERT	Chapter 3	5 - 8	After Chapter 3 Tab
REMOVE	Chapter 4	23 - 40	After Chapter 4 Tab
INSERT	Chapter 4	23 - 40	After Chapter 4 Tab
REMOVE	Chapter 6	3 - 4	After Chapter 6 Tab
INSERT	Chapter 6	3 - 4	After Chapter 6 Tab
INSERT	Appendix	1 - 2	After Appendices Tab
REMOVE	Appendix	1 – 2	After Appendices Tab
INSERT	Minister's Letter and Manual Transmittal		After Amendments Tab

Table of Contents

1 Introduction

1.1 Terms of Reference and Conventions 1-2
1.1.1 Terms and Conventions 1-2
1.1.2 Terms of Reference 1-2
1.2 Area of Application 1-3
1.3 Cutting Authority 1-4
1.3.1 Cutting Authority Area 1-4
1.3.2 Cutblocks within a Cutting Authority Area 1-4
1.4 Responsibility for Stumpage 1-5
1.5 Market Pricing System 1-6
1.6 Comparative Value Pricing System 1-7
1.7 Stumpage Adjustments (CVP) 1-8
1.8 Stumpage Adjustments (MPS) 1-9

2 Principles and Procedures

2.1 Types of Determination 2-2
2.2 Appraisal Procedure 2-3
2.3 Reappraisals 2-5
2.3.1 Changed Circumstances 2-5
2.3.2 Annual Reappraisal for Road Permits 2-6
2.3.3 Minister's Direction 2-6
2.4 Changed Circumstance Reappraisal Procedure 2-7
2.4.1 Effective Date of Changed Circumstance Reappraisal 2-8
2.4.2 Minister Directed Reappraisal Procedure 2-8
2.5 Correctable Error 2-9
2.6 Fixed Stumpage Rate and Extensions of Term 2-11
2.7 Calculation Conventions 2-13
2.8 Coniferous Timber 2-14

3 Selling Price Estimation

3.1 Average Log Market Value Determination 3-2
3.2 Log Grade Percentages 3-3
3.2.1 Billing History Record 3-3
3.2.2 Log Grade Percentage Criteria 3-4
3.2.3 Source of Log Grade Percentage for Each Cutting Authority 3-6

3.2.3.1 Log Grade Percentages for a Cutting Authority Area Within the Geographic Boundaries of a Tree Farm Licence 3-6
3.2.3.2 Log Grade Percentages for a Cutting Authority Area Within a Timber Supply Area 3-8
3.2.4 Damaged Timber 3-9
3.3 Stand Selling Price 3-10

4 Operating Cost Estimation

4.1 Cost Estimates 4-2
4.1.1 Specified Operations 4-3
4.2 Appraisal and Reappraisal Data Requirements 4-4
4.3 Development 4-5
4.3.1 Development Cost Categories 4-6
4.3.1.1 Development Cost Allocation 4-9
4.3.2 Tabular Road and Bridge Cost Estimates 4-12
4.3.2.1 Subgrade Construction 4-12
4.3.2.2 Drainage Structures 4-16
4.3.2.3 Additional Stabilizing Material 4-19
4.3.3 Detailed Engineering Cost Estimates 4-22
4.3.3.1 Data Requirements 4-23
4.4 Tree To Truck 4-24
4.4.1 Conventional Logging 4-24
4.4.2 Helicopter Logging 4-24
4.4.2.1 Helicopter Logging 4-25
4.4.2.2 Helicopter Single Standing Stem Selection 4-25
4.5 Log Transportation 4-26
4.5.1 Truck Hauling 4-26
4.5.2 Water Transportation 4-27
4.5.2.1 Point of Appraisal 4-27
4.5.2.2 Dump, Sort, Boom and Scale 4-27
4.5.2.3 Towing or Barging 4-28
4.5.3 Routine Maintenance and Deactivation 4-32
4.5.4 Road Use Charges 4-32
4.6 Administration and Other Costs 4-34
4.6.1 Corporate and Forestry Overhead 4-34
4.6.2 Crew Transportation (Labour) 4-35
4.6.3 Camp Operations and Overhead 4-36
4.6.3.1 General Camp Overhead 4-36
4.6.4 Low Volume Cost Estimate Additive 4-36
4.6.5 Clayoquot Sound 4-37
4.7 Total Logging Cost Estimate 4-38
4.8 Basic Silviculture 4-39
4.9 Cost Trend 4-40

2.3 Reappraisals

1. A reappraisal is a process used to redetermine a stumpage rate for a cutting authority area using the *Coast Appraisal Manual* in effect on the effective date of the reappraisal.

2. A reappraisal is based on a complete reassessment of the cutting authority area at the time of the reappraisal, as if the area has been returned to the condition it was in prior to development or harvesting.

3. At the time of a reappraisal, initial detailed engineering cost estimates may be re-estimated once after construction utilizing information as specified in section 4.3.3. However, development costs originally estimated using ministry approved competitive bids, are not re-estimated in a reappraisal.

2.3.1 Changed Circumstances

1. A cutting authority other than a road permit shall be reappraised if the licensee submits to the district manager a request for a reappraisal stating in the request for reappraisal that a changed circumstance has occurred or the district manager notifies the licensee in writing that a reappraisal is required because a changed circumstance has occurrred, and in either instance the regional manager is satisfied that any of the following changed circumstances has occurred:

    a. (i.) The licensee plans to use a method of harvest to harvest at least twenty-five percent of the volume of timber in the cutting authority area that is different from the method planned to be used for that timber at the time of the last appraisal or reappraisal of the cutting authority area, and

        (ii) the method of harvesting that will produce the appraisal least total operating cost estimate in the reappraisal is different from the method of harvesting that was used to produce the appraisal least total operating cost estimate in the appraisal, or

    b. there has been a change of at least twenty-five percent in the total appraised development cost estimate ($/m^3) since the last appraisal or reappraisal caused by changes to the appraisal field data upon reappraisal, or

    c. land containing merchantable timber has been either added to or deleted from the cutting authority area since the most recent cruise compilation or recompilation was used in an appraisal or reappraisal that exceeds the lesser of:

        (i) twenty-five hectares or

(ii) twenty-five percent of the area of the cutting authority area as it was prior to the addition or deletion of the land containing merchantable timber, or

d. at least twenty-five percent of the volume of the appraised timber in a cutting authority area has been suddenly and severely damaged, unless the timber was damaged by a fire for which the licensee was responsible and the licensee failed to comply with any of sections 75 through 95 of the *Forest Practices Code of British Columbia Act* or the *Forest Fire Prevention and Suppression Regulation*. Despite subsection 2.3(2) where the cutting authority area is reappraised because of sudden and severe damage the redetermined stumpage rate is based upon the remaining timber only. The reappraisal cost estimate for development takes into account volume of timber already removed from the cutting authority area. This subsection is applicable to cutting authorities with either a fixed stumpage rate or a quarterly adjusted stumpage rate.

2. Where a cutting authority is reappraised under this section, any existing bonus bid remains in effect despite a redetermination of the upset rate.

2.3.2 Annual Reappraisal for Road Permits

Subject to section 6.3, road permits must be reappraised effective February 1, 2005 and annually every February 1st thereafter. The reappraised stumpage rate will be a fixed stumpage rate.

2.3.3 Minister's Direction

1. The Minister of Forests may direct that a reappraisal be made at any time and that the redetermined stumpage rate be effective on any future date, and may specify criteria and procedures for the reappraisal.

2. A reappraisal directed by the Minister of Forests, may be a re-estimation of operating cost, log grade percentages, or selling price, or any combination of them, as may be directed by the Minister of Forests.

3. The Minister of Forests may direct that a reappraisal be made using the market pricing system.

4. Before a two year billing history record for a species of timber can be used in an appraisal or reappraisal, that two year billing history record must be at least 25 percent of the cutting authorities' net cruise volume of that species or 2 000 m^3 whichever is greater. For timber licences outside a tree farm licence the volume in the two-year billing history record must also be at least 25 percent or 2000 m^3 for each species that comprise at least 20% of the cutting authorities' total net cruise volume.

5. Where there is not at least 25 percent of the cutting authorities' net cruise volume of that species or 2 000 m^3 whichever is greater, within the two year billing history record of a tree farm licence area or a timber supply area.

    a. the billing history record that will be used for that species of timber will be the five year billing history record, and

    b. where the effective date of the appraisal or reappraisal falls within the period of the year listed in Column 1 of Table 3-1 or Table 3-2, the five year billing history shall end on the corresponding date in Column 2 of Table 3-1 or Table 3-2, which immediately precedes the effective date of the appraisal or reappraisal.

6. Where the cutting authority area of a cutting authority is issued under a woodlot licence is appraised or reappraised the log grade percentages for each species of timber will be derived from the cruise compilation algorithm predictions.

7. Where the cutting authority area of a cutting authority issued under the small business forest enterprise program, or a replaceable timber sale licence that does not consist of second growth coniferous timber is appraised or reappraised, the log grade percentages for each species of timber will be derived from:

    a. the two year billing history record, where the two year billing history record for that cutting authority includes at least 25 percent of the cutting authorities' net cruise volume of that species or 2 000 m^3 whichever is greater, or

    b. the cruise compilation algorithm predictions, where the two year billing history record for that cutting authority does not include at least 25 percent of the cutting authorities' net cruise volume of that species or 2 000 m^3 whichever is greater.

8. Where the cutting authority area being appraised or reappraised contains second growth coniferous timber and is not a cutting authority area referred to in subsections (6) or (7) of this section, the log grade percentages for each species of timber will be derived from either:

    a. the two year billing history record, where the two year billing history record for that cutting authority includes at least 25 percent of the cutting authorities' net cruise volume of that species or 2 000 m^3 whichever is greater, or

b. the cruise compilation algorithm preditions, where the two year billing history record for the cutting authority does not include at least 25 percent of the cutting authorities' net cruise volume of that species or 2 000 m^3 whichever is greater.

9. Where the entire net cruise volume of the cutting authority area being appraised or reappraised will be harvested by single tree selection, the log grade percentage for each species of timber will be derived from the cruise compilation algorithm predictions.

10. a. For cruises compiled before April 1, 2002, the cruise summary log grade data for cedar grades D and K, F and L, and I and M must be separated by using the proportional grade percentages from the first appropriate level in section 3.2.3.

    b. For cruises compiled on and after April 1, 2002 the cedar grades will be separated by the cruise compilation program.

3.2.3 Source of Log Grade Percentage for Each Cutting Authority

1. Except for those cutting authorities or cutting authority areas referred to in subsections 3.2.2 (6), 3.2.2 (7), 3.2.2 (8) and 3.2.2(9), the log grade percentages for each species of timber for the cutting authority area being appraised or reappraised will be determined in accordance with:

    a. Section 3.2.3.1, where the cutting authority area is entirely within the geographic boundaries of one tree farm licence, or

    b. Section 3.2.3.2, where the cutting authority area is entirely within the geographic boundaries of one timber supply area.

3.2.3.1 Log Grade Percentages for a Cutting Authority Area Within the Geographic Boundaries of a Tree Farm Licence

Where the cutting authority area being appraised or reappraised is entirely within the geographic boundaries of a single tree farm licence area, the log grade percentages for the cutting authority area will be determined in the following manner:

1. a. Where the cutting authority area is comprised of at least eighty percent second growth coniferous timber, the log grade percentages for that cutting authority area will be determined in accordance with the requirements of subsection 3.2.2 (8).

    b. Where the cutting authority area is not comprised of at least eighty percent second growth coniferous timber, then the person determining the stumpage

rate will proceed to subsection 2 of this section.

2. a. Where the cutting authority area is the only cutting authority area in the cutting authority and is entirely within the geographic boundaries of a single timber licence, the person determining the stumpage rate will proceed to subsection 3 of this section.

   b. Where subsection 2 (a) of this section is not applicable, the person determining the stumpage rate will proceed to subsection 4 of this section.

3. a. Where the species being considered has a billing history record for that timber licence that meets the criteria of subsection 3.2.2 (4), then that billing history record will be the source of the log grade percentages for that species, or

   b. Where there is no such billing history record, the person determining the stumpage rate will proceed to subsection 4 of this section.

4. a. Where the species being considered has a billing history record for the portion of the tree farm licence area that lies within the geographic boundaries of the forest district that contains the cutting authority area and that meets the criteria of subsection 3.2.2 (4), then that billing history record will be the source of the log grade percentages for that species, or

   b. Where there is no such billing history record, the person determining the stumpage rate will proceed to subsection 5 of this section.

5. a. Where the species being considered has a two year billing history record for the entire tree farm licence area that contains at least 25 percent of the cutting authorities' net cruise volume of that species or 2 000 m^3 whichever is greater, then that billing history record will be the source of the log grade percentages for that species, or

   b. Where there is no such billing history record, the person determining the stumpage rate will determine the log grade percentages for that species in accordance with subsection 3.2.2 (5).

3.2.3.2 Log Grade Percentages for a Cutting Authority Area Within a Timber Supply Area

Where the cutting authority area being appraised or reappraised is entirely within the geographic boundaries of a single timber supply area, the log grade percentages for the cutting authority area will be determined in the following manner:

1. a. Where the cutting authority area is comprised of at least eighty percent second growth coniferous timber, the log grade percentages for that cutting authority area will be determined in accordance with the requirements of subsection 3.2.2 (8), or

   b. where the cutting authority area is not comprised of at least eighty percent second growth coniferous timber the person determining the stumpage rate will proceed to subsection 2 of this section.

2. a. Where the cutting authority area is entirely within the geographic boundaries of a timber licence or licences, the person determining the stumpage rate will proceed to subsection 3 of this section, or

   b. where the cutting authority area is not entirely within the geographic boundaries of a timber licence or licences, the person determining the stumpage rate will then proceed to subsection 4 of this section.

3. a. Where the species being considered has a billing history record for that timber licence or licences that meets the criteria of subsection 3.2.2 (4), then that billing history record will be the source of the log grade percentages for that species, or

   b. where there is no such billing history record, the person determining the stumpage rate will proceed to subsection 6 of this section.

4. a. Where the species being considered has a billing history record for the supply block of the timber supply area for the cutting authorities that were issued under the same licence as the cutting authority area being appraised or reappraised and that billing history record meets the criteria of subsection 3.2.2 (4), then that billing history record will be the source of the log grade percentages for that species, or

   b. where there is no such billing history record, the person determining the stumpage rate will proceed to subsection 5 of this section.

5. a. Where the species being considered has a billing history record for the timber supply area for the cutting authorities that were issued under the same licence as the cutting authority area being appraised or reappraised and that billing history record meets the criteria of subsection 3.2.2 (4), then that billing history record

4.3.3.1 Data Requirements

All detailed engineering design is based on minimizing quantities.

1. The data that may be required for "excavation and fill" cost estimates are:

   - plans, profiles, cross-sections showing the ground and design grade lines,
   - volume summary sheets giving quantities by various soil types,
   - time and materials, equipment and labour, repairs, drainage structures and surfacing where required, and
   - a cost estimate for the project.

2. The data that may be required for reconstruction and replacement cost estimates are:

   - a map showing details of the project including stations, drainage's, and other information important to the project,
   - time and materials, equipment and labour, estimate for excavation, repairs, drainage structures, reditching, and resurfacing where required, and
   - a cost estimate for the project.

3. The information and data that may be required for bridge and culvert construction cost estimates are:

   - for permanent structures of 30.4 m span or greater: plans, specifications and design for the proposed structure, detailed materials cost estimate, equipment and labour, amount of timber accessed by the structure, and usage in years for harvesting all the timber,
   - for permanent structures of 20.4 m span or less: an economic comparison between a log structure and the permanent structure, and
   - for pipe culverts greater than 1.8 m in diameter: the same information as required for permanent structures of 30.4 span or greater.

4.4 Tree To Truck

The cost estimate for the tree-to-truck phase includes falling, bucking, skidding/yarding, and loading.

All pertinent labour and equipment costs are accounted for. The costs include time lost by fallers due to adverse weather conditions, contractual requirements for falling non-merchantable trees, streambank-management yarding, right-of-way logging, and construction of back spar trails, or rigging of back spars, or cost of the mobile back spar unit.

4.4.1 Conventional Logging

Conventional logging means all logging methods other than helicopter logging and those specified operations listed in section 4.1.1.

The cost estimate for the tree-to-truck (TTT) phase for both isolated and accessible cutting authorities is $\$21.94/m^3$.

4.4.2 Helicopter Logging

The cost estimate given below applies to the net cruise volume that requires helicopter yarding.

Costs include falling and bucking, helicopter yarding, logging truck loading, landing construction, choker chasing, rental/lease/depreciation costs of a barge (if required), bag booming, towing of bag boomed logs to local tie up or sorting area, crew transportation (by air, water, or land), and camp mobilization/demobilization (including barge movement). Costs for these activities may be borne by the licensee or the contractor.

In addition, the following phases, when applicable, are estimated as detailed elsewhere in this manual:

- Development (section 4.3),
- Truck Hauling (section 4.5.1),
- Dump, Sort, Boom and Scale (section 4.5.2.2),
- Towing or Barging (section 4.5.2.3),
- Routine Maintenance (section 4.5.3),

- Road Use Charges (section 4.5.4),
- Specified Operations (section 4.1.1),
- Overhead (section 4.6.1), and
- Accommodation (section 4.6.3).

A cost estimate for the crew transportation phase (section 4.6.2) is not applicable.

4.4.2.1 Helicopter Logging

The tree-to-truck cost estimate for helicopter logging other than the method described in section 4.4.2.2 is $\$70.13/m^3$.

4.4.2.2 Helicopter Single Standing Stem Selection

1. In this manual helicopter single standing stem selection means the harvesting of standing single trees that have been marked, limbed, undercut and wedged and then broken from the stump and removed using a helicopter. It is not a single tree selection or group selection specified operation under section 4.1.1.
2. In addition to the costs identified in section 4.4.2, the cost estimate for helicopter single standing stem selection harvesting shall include the cost of marking, climbing, limbing, undercutting, wedging, breaking and removal of the tree by helicopter.
3. The tree-to-truck cost estimate for helicopter single standing stem selection is $\$107.91/m^3$.

4.5 Log Transportation

4.5.1 Truck Hauling

The truck hauling phase cost estimate is for the movement of logs from the roadside or landing in the woods to the appraisal final off-loading destination selected for the cutting authority. This cost estimate includes all rehaul situations except those involving lake transportation. Both on-highway and off-highway hauling are calculated with the same formula and variable.

1. Distance: The variable used to determine the truck hauling phase cost estimate is distance (km). This is the weighted average one-way haul distance from the centre of the cutting authority to the appraisal log dump where trucks are off-loaded. The weighted average haul distance (D) is estimated by:

   a. establishing the geographical centre point of each block or cutting area and projecting this point to the nearest road for measurement purposes,

   b. from this point determining the haul distance to the nearest junction serving all blocks or cutting areas,

   c. weighting the distance for each block by the volume on the block and determining the average weighted distance to the junction, and

   d. measuring the haul distance from the junction to the final appraised place of unloading and adding this to the average weighted distance to the junction as outlined above.

2. Formula: Where truck hauling is required, the cost estimate formula for the truck hauling phase for both isolated and accessible operations is:

$$(\$/m^3) = 3.900 + 0.0813\ (D)$$

Where:

D is the weighted average one-way haul distance in kilometres, rounded to the nearest 0.1 km.

When:

D = 0, then the truck hauling cost estimate is equal to zero.

The appraisal log dump selected for trucks to off load is also the point of origin for the towing or barging phase (section 4.5.2.2).

4.5.2 Water Transportation

This phase covers all operating cost elements from the local tie-up ground to the point of appraisal.

4.5.2.1 Point of Appraisal

1. The point of appraisal that produces the least total operating cost estimate shall be used when calculating the least total operating cost estimate.
2. The Points of Appraisal are:

Points of Appraisal	Location
Alberni	The head of Alberni Inlet.
Chemainus	The vicinity of Chemainus Bay.
Gambier Island	The vicinity of Gambier Harbour on Gambier Island.
Pitt River Bridge	The vicinity of the confluence of the Fraser and Pitt Rivers.

4.5.2.2 Dump, Sort, Boom and Scale

Cost estimates for this phase are based on two log transportation systems:

- towing logs, and
- barging logs.

Barge transportation is recognized where part of the route from local tie-up grounds at the appraised point of origin to point of appraisal is exposed to the open ocean swell.

Only points on the west coast of Vancouver Island north of Port Renfrew, (except those routes totally east of a line drawn from Cape Beale to Amphitrite Point, including Ucluelet Harbour), and all points north of Cape Caution on the mainland are considered to require barge transportation.

Where barge transportation is not recognized, towing of sorted logs or camp-run logs from the local tie-up ground at the appraised point of origin to point of appraisal is assumed.

All on-site and central sort costs related to dump, sort, boom, scale and re-load from dryland sorts where required, are included for the system as follows. Local towing of up to 10 km is also included.

Condition	Cost Estimate for all Operations
Towing	$9.03/m^3
Barging	$9.57/m^3

This cost estimate is also applied when neither towing nor barging is required (i.e., when point of origin and point of appraisal are the same location).

4.5.2.3 Towing or Barging

The following tables list the towing and barging cost estimates from specific points of origin. For unlisted points of origin the cost estimates from two adjacent points of origin may be averaged.

Table 4-7: Towing Cost Estimates

Code	Point of Origin	P/A	$/m3	Code	Point of Origin	P/A	$/m3
ALBE	ALBERNI	A	0.00	BUIM	M. OF BUTE INLET	G	1.69
CHCK	CHINA CREEK	A	0.73	KIIM	M. OF KINGCOME INLET	G	2.66
COCK	COLEMAN CREEK	A	0.82	KNIM	M. OF KNIGHT INLET	G	2.36
SARV	SARITA RIVER	A	0.95	LOUM	M. OF LOUGHBOROUGH	G	1.89
SPCK	SPENCER CREEK	A	0.85	TOIM	M. OF TOBA	G	1.71
TOBY	TOQUART BAY	A	1.09	NACK	NAKA CREEK	G	2.24
UCHU	UCHUCKLESIT	A	0.90	NOBY	NORTHWEST BAY	G	1.14
UCLU	UCLUELET	A	1.15	PHAR	PHILLIPS ARM	G	1.84
CHEM	CHEMAINUS	C	0.00	PTEB	PORT ELIZABETH	G	2.39
COBY	COWICHAN BAY	C	0.85	PTHD	PORT HARDY	G	2.75
JORV	JORDAN RIVER	C	2.31	PTHV	PORT HARVEY	G	2.23
LADY	LADYSMITH	C	0.75	PTMN	PORT McNEILL	G	2.53
NANA	NANAIMO	C	0.87	PTNE	PORT NEVILLE	G	2.18
SOOK	SOOKE	C	1.39	PORV	POWELL RIVER	G	1.32
VICT	VICTORIA	C	1.19	SENA	SECOND NARROWS	G	0.92
AGAM	AGAMEMNON	G	1.12	SYIN	SEYMOUR INLET	G	3.54
BECV	BEAVER COVE	G	2.45	SEBY	SOUTHWEST BAY	G	2.14
COUR	COURTENAY	G	1.45	SQUA	SQUAMISH	G	0.90
DRIN	DRURY INLET	G	2.85	STIL	STILLWATER	G	1.19
EVRV	EVE RIVER	G	2.18	TEAR	TEAKERNE ARM	G	1.57
FOHA	FORWARD HARBOUR	G	2.01	THIN	THEODOSIA INLET	G	1.57
FRAR	FREDERICK ARM	G	1.79	THSO	THOMPSON SOUND	G	2.51
BUIH	H. OF BUTE INLET	G	2.08	WASA	WAKEMAN SOUND	G	2.81
JEIH	H. OF JERVIS INLET	G	1.52	GAMB	GAMBIER ISLAND	G	0.00
KIIH	H. OF KINGCOME INLET	G	2.86	CHWK	CHILLIWACK	P	1.40
KNIH	H. OF KNIGHT INLET	G	2.86	HALF	FOOT HARRISON LAKE	P	5.33
LOUH	H. LOUGHBOROUGH	G	2.06	PILF	FOOT OF PITT LAKE	P	0.35
SEIH	H. OF SECHELT INLET	G	1.40	HABY	HARRISON BAY	P	1.85
TOIH	H. OF TOBA INLET	G	1.91	HATZ	HATZIC	P	1.03
INAR	INDIAN ARM	G	1.05	HALH	HEAD HARRISON LAKE	P	7.71
KLBY	KELSEY BAY	G	2.04	PILH	HEAD OF PITT LAKE	P	0.95
MNCK	McNAB CREEK	G	0.82	HALM	MID HARRISON LAKE	P	6.88
MEBY	MENZIES BAY	G	1.91	PIRV	PITT RIVER BRIDGE	P	0.00
MESD	MEREWORTH SOUND	G	3.20	SICK	SILVERHOPE CREEK	P	3.66
JEIM	MOUTH JERVIS INLET	G	1.15	WHON	WHONNOCK	P	0.58

P/A = Point of Appraisal as follows:

A = ALBE - ALBERNI
C = CHEM - CHEMAINUS
G = GAMB - GAMBIER ISLAND
P = PIRV - PITT RIVER BRIDGE

Table 4-8: Barging Cost Estimates

Code	Point of Origin	P/A	$/m3	Code	Point of Origin	P/A	$/m3
BACK	BARR CREEK	A	5.32	BOIN	BOSWELL INLET /SECURITY BAY	G	6.77
BLBY	BLOWHOLE BAY	A	5.01	CAIS	CAMPBELL ISLAND	G	7.62
CLCK	CLEAGH CREEK	A	6.18	DIBY	DINAN BAY	G	11.85
COHA	COAL HARBOUR	A	6.39	ELHA	ELCHO HARBOUR	G	7.77
CYRV	CYPRE RIVER	A	4.36	FEBY	FERGUSON BAY	G	11.72
EAIN	EASY INLET	A	5.58	RIIH	HEAD OF RIVERS INLET	G	7.08
ESIN	ESPINOSA INLET	A	5.35	SBEH	HEAD OF SOUTH BENTINCK ARM	G	8.28
GORV	GOLD RIVER	A	5.06	HNRV	HONNA RIVER	G	10.75
HEBY	HEAD BAY	A	4.98	KMBY	KEMANO BAY	G	9.79
BESH	HEAD OF BEDWELL SOUND	A	4.46	KHIN	KHUTZEYMATEEN INLET	G	10.99
HENO	HECATE CHANNEL - NOOTKA	A	5.02				
HOLB	HOLBERG	A	6.65	KIMS	KIMSQUIT	G	8.39
HORV	HOUSTON RIVER	A	4.93	KLEM	KLEMTU	G	8.06
HUCK	HUSHAMU	A	6.49	KUIN	KUMEALON INLET	G	9.88
INGE	INGERSOLL	A	6.21	KWBY	KWATNA BAY/MINERVA CREEK	G	7.66
JELA	JEUNE LANDING	A	6.36	KWRV	KWINAMASS RIVER	G	10.94
KEIN	KENDRICK INLET	A	4.88	MCBY	McCLINTON BAY	G	11.90
KOHA	KOPRINO HARBOUR	A	6.08	MOIN	MOSES INLET/INRIG BAY	G	7.11
KUCV	KULTUS COVE	A	6.26	NAHA	NADEN HARBOUR	G	11.56
MCCK	McCURDY CREEK	A	5.04	NABY	NASS BAY	G	11.20
MORV	MOOYAH RIVER	A	4.88	NORV	NOOTUM RIVER	G	7.27
OUIN	OUOUKINSH INLET	A	5.66	OCFA	OCEAN FALLS	G	7.66
PLHA	PLUMPER HARBOUR	A	4.83	POIS	PORCHER ISLAND	G	10.16
PTEL	PORT ELIZA	A	5.19	PRRU	PRINCE RUPERT	G	10.29
RACV	RANKIN COVE	A	4.59	RESO	RENNELL SOUND	G	10.81
STCV	STEAMER COVE	A	4.49	REPA	RENNERS PASSAGE	G	10.78
TLRV	TLUPANA RIVER	A	4.96	SCRV	SCOTIA RIVER	G	*11.42
TSRV	TSOWWIN	A	4.93	SWIN	SEWELL INLET	G	10.26
WIHA	WINTER HARBOUR	A	6.08	SKIN	SKIDEGATE INLET	G	10.73
ZEBA	ZEBALLOS	A	5.43	SOBY	SOUTH BAY	G	10.81
ALAR	ALICE ARM	G	11.69	STEW	STEWART	G	12.03
ALBY	ALLIFORD BAY	G	10.73	TASU	TASU SOUND	G	10.23
BEAN	BEATTIE ANCHORAGE	G	10.21	TUIN	TUCK INLET	G	10.39
BECO	BELLA COOLA	G	8.05	WECK	WEEWANIE CREEK	G	9.40
BIBY	BISHOP BAY	G	9.04	WOCH	WORK CHANNEL	G	10.99

Note: P/A = Point of Appraisal as described on the previous page.

* Includes river towing.

Table 4-9: Barging Distance Estimate for the Market Pricing System

Code	Point of Origin	P/A	km	Code	Point of Origin	P/A	km
BACK	BARR CREEK	A	295	BOIN	BOSWELL INLET /SECURITY BAY	G	462
BLBY	BLOWHOLE BAY	A	259	CAIS	CAMPBELL ISLAND	G	560
CLCK	CLEAGH CREEK	A	394	DIBY	DINAN BAY	G	1047
COHA	COAL HARBOUR	A	418	ELHA	ELCHO HARBOUR	G	577
CYRV	CYPRE RIVER	A	184	FEBY	FERGUSON BAY	G	1032
EAIN	EASY INLET	A	325	RIIH	HEAD OF RIVERS INLET	G	498
ESIN	ESPINOSA INLET	A	298	SBEH	HEAD OF SOUTH BENTINCK ARM	G	636
GORV	GOLD RIVER	A	265	HNRV	HONNA RIVER	G	921
HEBY	HEAD BAY	A	256	KMBY	KEMANO BAY	G	810
BESH	HEAD OF BEDWELL SOUND	A	196	KHIN	KHUTZEYMATEEN INLET	G	948
HENO	HECATE CHANNEL - NOOTKA	A	260				
HOLB	HOLBERG	A	448	KIMS	KIMSQUIT	G	648
HORV	HOUSTON RIVER	A	250	KLEM	KLEMTU	G	610
HUCK	HUSHAMU	A	430	KUIN	KUMEALON INLET	G	820
INGE	INGERSOLL	A	397	KWBY	KWATNA BAY/MINERVA CREEK	G	564
JELA	JEUNE LANDING	A	415	KWRV	KWINAMASS RIVER	G	942
KEIN	KENDRICK INLET	A	244	MCBY	McCLINTON BAY	G	1053
KOHA	KOPRINO HARBOUR	A	382	MOIN	MOSES INLET/INRIG BAY	G	501
KUCV	KULTUS COVE	A	403	NAHA	NADEN HARBOUR	G	1014
MCCK	McCURDY CREEK	A	262	NABY	NASS BAY	G	972
MORV	MOOYAH RIVER	A	244	NORV	NOOTUM RIVER	G	519
OUIN	OUOUKINSH INLET	A	334	OCFA	OCEAN FALLS	G	564
PLHA	PLUMPER HARBOUR	A	238	POIS	PORCHER ISLAND	G	852
PTEL	PORT ELIZA	A	280	PRRU	PRINCE RUPERT	G	867
RACV	RANKIN COVE	A	211	RESO	RENNELL SOUND	G	927
STCV	STEAMER COVE	A	199	REPA	RENNERS PASSAGE	G	924
TLRV	TLUPANA RIVER	A	253	SCRV	SCOTIA RIVER *	G	944
TSRV	TSOWWIN	A	250	SWIN	SEWELL INLET	G	864
WIHA	WINTER HARBOUR	A	382	SKIN	SKIDEGATE INLET	G	918
ZEBA	ZEBALLOS	A	307	SOBY	SOUTH BAY	G	927
ALAR	ALICE ARM	G	1029	STEW	STEWART	G	1068
ALBY	ALLIFORD BAY	G	918	TASU	TASU SOUND	G	860
BEAN	BEATTIE ANCHORAGE	G	858	TUIN	TUCK INLET	G	879
BECO	BELLA COOLA	G	609	WECK	WEEWANIE CREEK	G	765
BIBY	BISHOP BAY	G	723	WOCH	WORK CHANNEL	G	948

Note: P/A = Point of Appraisal as described on the previous page.

* Distance does not include river towing.

4.5.3 Routine Maintenance and Deactivation

Routine maintenance includes grading, brush control, minor surfacing repairs, sanding, snowplowing, ditch maintenance and repair, replacement of culverts ≤ 0.9 m on active roads, slough removal and all deactivation costs.

Routine maintenance also includes minor repairs to roads due to slides, erosion and flood damage. All road use charges except those recognized in section 4.5.4 are also included.

The cost estimate for all routine maintenance carried out on logging operations, including roads required for basic silviculture and protection, depends on the geographic location of the cutting authority area. Cost estimates do not apply where there are no roads to be maintained.

The routine maintenance and deactivation cost estimates ($/m^3) by forest district are:

Zone 1 (North)

Queen Charlotte North Island - Central Coast	North Coast
Total Cost Estimate =	$2.61/m^3

Zone 2 (South)

Sunshine Coast Campbell River South Island	Squamish Chilliwack
Total Cost Estimate =	$2.64/m^3

4.5.4 Road Use Charges

1. No road use charge shall be used to calculate a cost estimate, unless:

   a. the licensee submits to the district manager with the coast appraisal data submission:

      i. a completed *Request for Approval of a Road Use Charge Form*,

      ii. a copy of the written road use agreement, and

iii. written confirmation by the regional manager or their designate that the road use charge specified in the application, or an amount specified by the regional manager or their designate, is approved, and

b. the term of the road use agreement is completely within the period for which the appraisal shall apply.

2. The licensee when requested by the regional manager or their designate shall submit copies of auditable monetary transactions evidencing payment by the licensee for road use.

3. Charges as a Share of Road Maintenance

No recognition is made of such charges. The routine road maintenance cost estimate (section 4.5.3) includes all relevant costs whether incurred directly by the licensee or by payment to another party for services performed.

4. Charges for Other than Road Maintenance

There are three main categories of road status:

a. Forest Service Roads

A road that is declared, determined, built, maintained or modified by the ministry, as defined in forest legislation. No road use charges will be considered in appraisals;

b. Permitted Roads

Roads built on Crown land, authorized by road permit or other cutting authority documents. No road use charges will be considered in appraisals;

c. Other Roads

Road use charges for roads on indian reserves or on private land owned by an arm's length third party and not subject to a lease held by the licensee, their affiliate or agent of either, may be considered in appraisals provided there is no lower cost route capable of development through Crown land.

The charges recognized must be reasonable, must not exceed compensation that might be determined under the forest legislation, and must be proven through the presentation of auditable documents.

5. Land Use Charges

No land use charges will be considered in appraisals. These costs are included in section 4.6.1 corporate and forestry overhead.

4.6 Administration and Other Costs

4.6.1 Corporate and Forestry Overhead

Corporate general and administrative overhead cost estimates are compiled from surveyed expenses at the corporate licensee level and include all aspects of executive and administrative support functions at the head office attributable to logging operations, operating and support costs of the logging and log supply departments, all right-of-way easements, foreshore and other land leases necessary for the logging function.

Corporate forestry and engineering is compiled from the surveyed harvesting operations and includes supervisory, administrative and vehicle support functions; it also includes cruising, environmental protection measures (including hydro and other seeding) and the cost of performing residue and waste surveys. Silviculture overheads are also included in this phase. Any costs that will be reimbursed through the *Forest Act,* section 110, or by funding from any Crown agency are excluded except as noted in section 6.5.

The cost estimates are:

Corporate, General and Administrative Overhead	($/m^3) =	7.38
Corporate Forestry and Engineering	($/m^3) =	5.40
Total Corporate and Forestry Overhead	($/m^3) =	12.78

4.6.2 Crew Transportation (Labour)

Crew transportation refers to the labour costs associated with moving logging crews by vehicles from the appraisal marshalling area to the centre of the work area in the cutting authority being appraised, and return.

The appraisal marshalling area is defined as follows:

1. In situations where the cutting authority area being appraised is accessible (as determined in section 4.6.3), the licensees' contractually binding designated marshalling area, or in the absence of one, the nearest of (a) a contractually binding designated marshalling area, (b) the camp, (c) the crew vehicle storage area, or (d) centre of the nearest community.

2. In a situation where the cutting authority area being appraised is isolated (as determined in section 4.6.3), the licensees' contractually binding designated marshalling area, or in the absence of one, the nearest of (a) a contractually binding designated marshalling area, (b) the camp or (c) the vehicle storage area.

The appraisal marshalling area need not be the location actually used by a given licensee.

Where more than one appraisal marshalling area or route is reasonable, the area or route chosen for appraisal purposes will be the one that yields the least total operating cost estimate according to this manual.

For the purposes of this section, a "vehicle" may be a motor vehicle or a boat. When "vehicle" is taken to mean boat, the "vehicle storage area" may be a boat dock or wharf where the crew can embark and disembark.

The formula for crew transportation is:

$$\$/m^3 = 2.244 + 0.0261\ (D)$$

Where: D is the weighted average one way distance in kilometres (rounded to the nearest 0.1 km) from the centre of the appraisal marshalling area to the centre of the work area in the cutting authority area being appraised. In situations where the appraisal marshalling area is a community, D will be measured from the post office of that community.

Where: D=0, the crew transportation cost estimate is equal to zero.

The crew transportation cost estimate includes both crew travel time costs and crew vehicle operator time costs.

The cost of vehicle ownership, lease, rental, maintenance and operations are included in section 4.6.3, camp overhead.

4.6.3 Camp Operations and Overhead

4.6.3.1 General Camp Overhead

The general camp overhead phase cost estimate recognizes two types of logging operations according to the mode of access for logging crews to the highway system:

1. Accessible Cutting Authority

   An accessible cutting authority area is one which is connected, or the service landing used to support the yarding of timber from a cutting authority area by helicopter is connected, by a road suitable for motor vehicles to the centre of the nearest community. The nearest community must be a city, district municipality, town or village and must have retail food and gasoline services located nearby. This includes all communities serviced by public ferry.

   The cost estimate covers the depreciation, maintenance and operating costs of camp and crew marshalling area facilities non-recoverable costs for cookhouses, freight by air or water, shop and office and other pertinent buildings; and provides for daily and/or periodical commuting costs.

   The cost estimate for accessible cutting authorities is: $12.82/m^3

2. Isolated Cutting Authority

   An isolated cutting authority area is one which is not 'accessible'.

   The cost estimate covers the depreciation, maintenance and operating costs of camp and marshalling area facilities; the non-recoverable costs incurred for cookhouses, bunkhouse, shop and office and other pertinent buildings; daily and/or periodical commuting cost from the camp to residential facilities; and camp and equipment moves of less than 10 km by water.

   The cost estimate for isolated cutting authorities is: $14.37/m^3

4.6.4 Low Volume Cost Estimate Additive

All fully appraised cutting authorities may be eligible for a low volume cost estimate additive.

The cost estimate additive is: $/m^3 = 7.38 - [0.00246 (V-2 000)]

Where:

- V is the lesser of the cutting authority net cruise volume or the licence's allowable annual cut of Crown timber (if applicable),

- V must be less than or equal to 5 000 m^3,
- The licence, under which the cutting authority has been issued, has an allowable annual cut of Crown timber not exceeding 10 000 m^3,
- The maximum cost estimate is \$7.38/m^3.

4.6.5 Clayoquot Sound

A cost estimate of \$19.52/m3 will be included in appraisals of cutting authorities in the Clayoquot Sound area (as defined below).

The Clayoquot Sound area is defined as Hesquiat Peninsula, Esowista Peninsula, the Islands, sea and all lands and waters draining into the Pacific Ocean from the height of land between Escalante Point in the north and Quisitis Point in the south.

4.7 Total Logging Cost Estimate

The total logging cost estimate is the sum of all phase cost estimates identified in chapter 4 for the cutting authority being appraised, including specified operations and least cost methods. Subsequently, basic silviculture costs are added and a trend factor applied to derive a total weighted logging cost.

4.8 Basic Silviculture

Basic silviculture cost estimates are made for all appraised cutting authority areas where basic silviculture is required.

The cost used for basic silviculture treatment carried out on land on which the licensee is required to establish a free-growing crop of trees, as specified in the *Forest Act,* depends on the geographic location of the appraised cutting authority area.

Basic silviculture treatment may not be required on some cutting authorities (e.g., right-of-way, licence-to-cut, commercial-thinning). A basic silviculture cost estimate is not included in the appraisal where this intent has been specified in the licence document, cutting authority or by applicant's agreement. Nor is a basic silviculture cost estimate included in the appraisal if the work is funded through the *Forest Act,* section 110, or by any Crown agency, except as noted in section 6.6.

Table 4-10: District Silviculture Cost Estimates

Forest District	$/m^3 *	Forest District	$/m^3 *
Queen Charlotte Isl.	2.89	South Island	2.49
Chilliwack	3.53	Campbell River	2.05
Squamish	2.50	North Island – Central Coast	2.35
Sunshine Coast	3.28	North Coast	2.40

* The dollar per cubic metre ($/m^3) cost estimates are net of overhead.

4.9 Cost Trend

A cost trend factor is separately applied to the total logging cost estimate and the basic silviculture cost estimate at the effective appraisal date and at the date of each stumpage rate adjustment. The factors cover the period from the effective date of the cost base to the effective date of the stumpage rate calculation. Cost trends are shown in the following table.

Table 4-11: Trend Factor by Effective Date

APPRAISAL EFFECTIVE DATES FROM APRIL 1, 2001 AND BEFORE APRIL 1, 2002 *(cost base July 1, 1999)*

All Stumpage Adjustment Dates (or Appraisal Effective Date)	Trend Factor
July 1 to September 30, 2003	1.000
October 1 to December 31, 2003	1.000
January 1 to March 31, 2004	1.000

APPRAISAL EFFECTIVE DATES FROM APRIL 1, 2002
(cost base July 1, 2000)

All Stumpage Adjustment Dates (or Appraisal Effective Date)	Trend Factor
July 1 to September 30, 2003	1.000
October 1 to December 31, 2003	1.000
January to March 31, 2004	1.000

APPRAISAL EFFECTIVE DATES FROM JULY 1, 2003
(cost base July 1, 2001)

All Stumpage Adjustment Dates (or Appraisal Effective Date)	Trend Factor
July 1 to September 30, 2003	1.000
October 1 to December 31, 2003	1.000
January to March 31, 2004	1.000

6.2 Cutting Authorities With 5 000 m^3 or Less Volume

1. Where a cutting authority area has less than 2 000 m^3 of timber:

   a. A stumpage rate may be determined by estimating the species volumes and using the relevant coast value indexes to determine the stand value index. For a cutting authority where the licensee is not required to establish a free growing crop of trees, the value index must be adjusted by adding a basic silviculture cost estimate. The total stumpage rate is not adjusted quarterly.

2. Where a cutting authority area has less than 5 000 m^3 of timber:

   The appraisal data used to determine the stumpage rate may be based on the characteristics of the cutting authority area or may be based on data obtained from one or more cutting authority areas with similar terrain and stand characteristics as determined by the person who determines the stumpage rate.

6.3 Right-of-Way Cutting Authorities

1. Commencing September 1, 2003, and except where noted in section 2 below, the stumpage rate for a road permit will be determined using Ministry of Forests stumpage billing records.

2. This section does not apply to timber sale licences issued under sections 20 and 23 of the *Forest Act* or Licences to Cut issued under Section 51 of the *Forest Act*.

3. For the purposes of this section, stumpage billing records for Timber Licences within a Tree Farm Licence will be included with the applicable Tree Farm Licence.

4. Where there is a stumpage billing record, the stumpage rate for a road permit is the weighted average sawlog stumpage rate of cutting authorities, other than a road permit, that are located in the same forest district as the area to which the road permit applies, and that are issued under the licence that entitles the licensee to apply for the road permit.

5. The weighted average sawlog stumpage rate is the sum of the stumpage billed for all coniferous sawlogs (i.e., excludes grades Y and Z) during the billing period referred to in subsection 6, divided by the sum of the volume of those species and grades.

6. The billing period referred to in subsection 5 for a road permit appraisal or reappraisal, with an effective date between September 1, 2003 and January 31, 2005, is the twelve-month billing period ending April 30, 2003.

7. Where there are no stumpage billing records from which the stumpage rate may be determined under 4, the stumpage rate for a road permit is the weighted average sawlog stumpage rate of:

   a. cutting authorities, other than a road permit, that are issued under the licence that entitles the licensee to apply for the road permit,

   b. all the cutting authorities, other than road permits, that are for areas located in the same forest district as the area to which the road permit applies, or

   c. if the licence that the cutting authority is issued under has an allowable annual cut of Crown timber less than 3 000 m3 per year, all the cutting authorities, other than road permits, that are for licences that have an allowable annual cut of less than 3 000 m3 in the same forest district as the area to which the road permit applies.

8. The cost of roads constructed under road permits are eligible for inclusion as development cost estimates under section 4.3 in the appraisal of the first tributary cutting authority. These roads will not be considered as existing roads under section 4.3.1.1.4.

9. All road permits will be reappraised in accordance with section 2.3.2.

Appendices

Appendix I Equipment and Labour Rates

(Cost Base July 1, 2001)

MACHINE DESCRIPTION	TYPICAL MODEL	$/HOUR
Crawler Tractor	Cat D9R, Komatsu D275/355	249.10
Crawler Tractor	Cat D9N (years: 1992 thru 1996)	236.20
Crawler Tractor	Cat D8NLGP, Komatsu D135	186.25
Crawler Tractor	Cat D7H, Liebherr PR742, Fiat Allis FD255	151.65
Crawler Tractor	Komatsu D75A, D65EX	129.10
Crawler Tractor	Cat D6, JD 850C	98.35
Rock Drill (includes labour)	Compressor: 750 cfm on tank chassis	206.01
Grader	Cat 14G, Komatsu GD705,725	112.90
Front End Loader (Gravel)	Cat 970F, Komatsu WA45031, Case 921B	140.65
Front End Loader (Logs)	Cat 972G, Komatsu WA500-1, Volvo 4600	163.15
Hydraulic Excavator incl. Brush Guard & Thumb	Cat 235C, Hitachi EX400, Komatsu PC400LC	238.70
Hydraulic Excavator incl. Brush Guard & Thumb	Cat 330B, Case 220B, Link Belt 4300QTL	196.41
Hydraulic Excavator incl. Brush Guard & Thumb	Cat 229D/EL300/330, Komatsu PC300LC	173.14
Hydraulic Excavator incl. Brush Guard & Thumb	Cat 225DLC, Hitachi EX270LC, JD 792D	158.62
Hydraulic Excavator incl. Brush Guard & Thumb	Cat EL240, Komatsu PC200LC-6, JD 790ELC	146.58
Hydraulic Excavator incl. Brush Guard & Thumb	Cat 320BL, Hitachi EX200LC-5, JD 200LC	136.90
Gradall	Gradall G1000, XL5200	158.50
Logging Truck (Highway)	All Triaxle	90.60
Logging Truck (Off Highway)	All	138.21
Self Loading Log Truck	Highway log truck + 4.5 t deck crane	103.80
Gravel Truck	10.7 m^3	78.93
Gravel Truck Articulated (labour included)	25 - 29 tonne: Cat D30C/D, Terex 766/3066	123.65
Lowbed	5 axle unit: tandem tractor and lowbed	81.50
Lowbed	150 tonne (same as Off-Hwy Truck)	138.21
Concrete Mix Truck	6.1 m^3	87.60
Concrete Vibrator (labour not included)	5 m^3	4.18
Concrete Mixer (labour not included)	0.17 m^3	6.66
Crane - Truck Mounted	18 tonne	93.70
Soft Track Skidder	KMC 2100/2400	137.75
Rubber Tired Skidder	Clark Ranger F68, Franklin 595	94.60
Vibrator Compactor	Clark F68 + 2.7 to 3.6 roller	107.15
Tractor and Grid Roller	Clark F68 + grid roller	108.05
Labourer	Includes 40% payroll loading	30.16
Roadman	Includes 40% payroll loading	30.41
Crib/Culvert Maker, Powderman	Includes 40% payroll loading	31.93
Landingman	Includes 40% payroll loading	32.35
Rockdriller & Powderman (for load & blast only)	Includes 40% payroll loading	69.53
Bridgeman	Includes 40% payroll loading	38.35
Powersaw (labour not included)	All	4.70
Faller, including powersaw cost	Includes 40% payroll loading	58.59

Sources:

Cost surveys, Province of British Columbia Hydro and Power Authority and B. C. Rail Equipment Rental Rate Guide, (rates based on a 3 year old machine), and IWA agreement rates including payroll loading.