

File: 280-20/195-30/CAPP

APR 01 2003

To: Ken Collingwood
Regional Manager
Vancouver Forest Region

From: The Honourable Michael de Jong
Minister of Forests

Re: Amendment No. 4 to the *Coast Appraisal Manual*

I hereby approve Amendment No. 4 to the *Coast Appraisal Manual* and attach a copy for your use. The amendments are shown in the attached highlights.

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

ORIGINAL SIGNED BY

DSW

for: Michael de Jong
Minister of Forests

Attachments

pc: Bill Howard, Director, Revenue Branch

All Subscribers, *Coast Appraisal Manual*



Coast Appraisal Manual – Amendment No. 4 Highlights

The Coast Appraisal Manual Amendment No. 4 includes the following changes

Section 1.2	Changes “Vancouver” to “Coast” forest region.
Section 1.3.2	Formalizes the cut block blending policy.
Section 2.2	Housekeeping.
Section 2.3(4)	Clarifies reappraisal policy on cutting authorities with fixed stumpage rates.
Section 2.3.1	Revised to clarify policy.
Section 2.3.2	Reappraisal procedure for road permits.
Section 2.4	Housekeeping.
Section 2.4.1	Housekeeping.
Section 2.5	Housekeeping.
Section 2.6(1)	Changes “Small Business Forest Enterprise Program” to “BC Timber Sales”.
Section 2.6(2)	Clarifies policy on non-adjusting rates for woodlots.
Section 2.6(4)	Repealed.
Section 3.2.1	Housekeeping.
Section 3.2.2	Housekeeping.
Section 3.2.4	Housekeeping.
Section 3.3.3(e)	Low volume cypress exception has been removed.

Section 4.1	Changes "Vancouver" to "Coast" forest region.
Section 4.1.1(3)	Clarifies single tree selection criteria.
Section 4.3.2.3(2)	Changes "Vancouver" to "Coast" forest region.
Section 4.4.2.1	Revised cost estimate for helicopter single standing stem.
Section 4.5.3	Changed to reflect amalgamation of the Mid-Coast and Port McNeill forest districts.
Section 4.8	Revised for Mid-Coast and Port McNeill district amalgamation.
Section 4.9	Trend factors extended until June 30, 2003.
Section 6.3	Right-of-way timber pricing policy.
Section 6.4	"Small Business Forest Enterprise Program" changed to "BC Timber Sales".
Section 6.6.3	Marine log salvage sections added.
Section 6.6.4	All timber licence cutting authorities that have not been appraised and have a term that began before May 1, 1995 must be appraised effective April 1, 2003.
Table 6-1	Rate added for deadhead logs.
Table 6-3	Has been repealed.



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. 4

ISSUE DATE
April 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	New Coast Appraisal Manual - Highlights	i- ii	After Title page
INSERT	Amendment No. 4 Highlights	i- ii	After Title page
REMOVE	Table of Contents	i- vi	After Table of Contents Tab
INSERT	Table of Contents	i- vi	After Table of Contents Tab
REMOVE	Chapter 1	3 - 10	After Chapter 1 Tab
INSERT	Chapter 1	3 - 10	After Chapter 1 Tab
REMOVE	Chapter 2	3 - 14	After Chapter 2 Tab
INSERT	Chapter 2	3 - 14	After Chapter 2 Tab
REMOVE	Chapter 3	3 - 4 7 - 12	After Chapter 3 Tab
INSERT	Chapter 3	3 - 4 7 - 12	After Chapter 3 Tab
REMOVE	Chapter 4	1 - 4 21 - 22 25 - 26 31 - 32 39 - 40	After Chapter 4 Tab
INSERT	Chapter 4	1 - 4 21 - 22 25 - 26 31 - 32 39 - 40	After Chapter 4 Tab
REMOVE	Chapter 6	3 - 10	After Chapter 6 Tab
INSERT	Chapter 6	3 - 12	After Chapter 6 Tab
INSERT	Index	1 - 4	After Index Tab
REMOVE	Index	1 - 4	After Index 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
4.5 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

5 Stumpage Rate Determination

5.1	Indicated Stumpage Rate.....	5-2
5.2	Value Index	5-3
5.3	Coast Mean Value Index	5-4
5.4	Market Value Indexing.....	5-5
5.5	Coast Base Rate.....	5-7
5.6	Calculation of Stumpage Rate.....	5-8

6 Misc. Timber Pricing Policies

6.1	Coast Value Indexes.....	6-2
6.2	Cutting Authorities With 5 000 m ³ or Less Volume.....	6-3
6.3	Right-of-Way Cutting Authorities.....	6-4
6.4	Partially Harvested Timber	6-5
6.5	BC Timber Sales	6-6
6.6	Levies	6-7
6.7	Miscellaneous Stumpage Rates.....	6-8
6.7.1	Special Forest Products and Other Miscellaneous Rates	6-8
6.7.2	Salvage Logging Rates.....	6-8
6.7.3	Marine Log Salvage	6-8
6.7.3.1	Beachcomb	6-8
6.7.3.2	Root Buck.....	6-9
6.7.3.3	Wahleach Island Catchment Basin.....	6-9
6.7.3.4	Deadhead Logs	6-9
6.7.4	Miscellaneous Stumpage Rates for Timber Licences	6-11

7 Market Pricing System

7.1	Introduction	7-2
7.2	Log Selling Prices	7-3
7.2.1	Log Grade Percentage	7-3
7.2.2	Calculation of Stand Selling Price	7-3
7.3	Stumpage Calculations	7-4
7.3.1	List of MPS Variables	7-4
7.3.2	Preliminary Market Stumpage Value	7-5
7.3.3	Preliminary Estimate of Number of Bidders That Would Compete for the Cutting Authority (PENB).....	7-5
7.3.4	Interim Market Stumpage Value (IMSV).....	7-6
7.3.5	Repeat PENB Calculation	7-6
7.3.6	Repeat IMSV Calculation	7-6
7.3.7	Test for Further Iteration and Final Market Stumpage Value (FMSV).....	7-6

7.3.8 Total Obligation Adjustment.....	7-7
7.3.9 Discount Factor (DF).....	7-7
7.3.9.1 High Development Cost Discount Factor	7-7
7.3.10 Indicated Stumpage Rate.....	7-8
7.3.11 Prescribed Minimum Stumpage Rate.....	7-8
7.3.12 Reserve Stumpage Rate.....	7-8
7.3.13 Upset Stumpage Rate	7-9
7.3.14 Total Stumpage Rate	7-9

Appendices

Appendix I Equipment and Labour Rates	A-2
Appendix II Reconstruction and Replacement.....	A-4
Appendix III Development Cost Allocation.....	A-5
Appendix IV Rock Mass Classification	A-6
Appendix V Specifications: Calculating Stumpage Rates for Coast Appraisals Using the Comparative Value Pricing System	A-8

Index

Tables

Table 3-1: Billing History Record for Licence or Timber Supply Area.....	3-3
Table 3-2: Billing History Record for Cutting Authority (Mark)	3-4
Table 4-1: Construction Categories.....	4-13
Table 4-2: Subgrade Construction Cost Estimate	4-15
Table 4-3: Log Bridge Cost Estimate.....	4-17
Table 4-4: Culvert Cost Estimate	4-17
Table 4-5: Permanent/Portable Bridge Cost Estimates	4-18
Table 4-6: Additional Loose Stabilizing Material Depths	4-20
Table 4-7: Towing Cost Estimates	4-29
Table 4-8: Barging Cost Estimates.....	4-30
Table 4-9: Barging Distance Estimate for the Market Pricing System	4-31
Table 4-10: District Silviculture Cost Estimates.....	4-39
Table 4-11: Trend Factor by Effective Date.....	4-40
Table 5-1: Coast Target Rate Date	5-6
Table 6-1: Miscellaneous Stumpage Rates	6-10

This page is intentionally left blank.

1.2 Area of Application

This manual applies to the "Coast" which is defined as that geographic area included within the Coast Forest Region, as established by the *Forest Act* and *Regulations under the Forest Act*.

1.3 Cutting Authority

The term "cutting authority" means one of the following:

1. A cutting permit issued under:
 - a. a forest licence,
 - b. a timber sale licence that provides for the issuance of cutting permits,
 - c. a tree farm licence,
 - d. a community forest agreement,
 - e. a woodlot licence, or
 - f. a timber licence.
2. A timber sale licence under which cutting permits have not or will not be issued.
3. A licence to cut.
4. A road permit.

1.3.1 Cutting Authority Area

The term "cutting authority area" means the area that:

1. Timber may be harvested from, under a cutting authority, and
2. Has a unique timber mark, or marks.

1.3.2 Cutblocks within a Cutting Authority Area

Where a completed application for a cutting authority area has been received by the district manager before April 1, 2003, the cutblocks must be contained within the same timber supply block or in the case of the tree farm licences, the same forest district.

1. Where a completed application for the appraised cutting authority is received by the district manager on and after April 1, 2003, the cutblocks included in a single cutting authority area should constitute a logical unit, must be tributary to the same appraised point of origin and must be within the same timber supply block.
2. There are no restrictions on which types of logging systems or which types of timber can be combined.

1.4 Responsibility for Stumpage

For the purposes of section 105 of the *Forest Act*, the following employees of the ministry are authorized to determine, redetermine and vary stumpage rates:

- regional managers, regional appraisal coordinators and employees of the regional revenue section, and
- director, Revenue Branch of the Ministry of Forests (Revenue Branch) and employees of the Revenue Branch.

1.5 Market Pricing System

The market pricing system (MPS), subject to the minimum stumpage rate and subsections 2.1 (3) and 2.1 (4), shall be used to determine a stumpage rate for coniferous sawlogs in a cutting authority area authorized to be harvested under a timber sale licence awarded under either section 20 or section 21 of the *Forest Act* on or after January 1, 1999, and any other cutting authority area as may be directed by the Minister of Forests.

1.6 Comparative Value Pricing System

Except as required by section 1.5 and subject to the minimum stumpage rate and subsections 2.1 (3), and 2.1 (4) the comparative value pricing system (CVP) shall be used to determine a stumpage rate for a cutting authority area.

The stumpage rate for a cutting authority area is more or less than the coast base rate (see section 5.5) depending on whether or not the timber in the cutting authority area is more or less valuable than timber from the average cutting authority area. To make that assessment and hence to determine a stumpage rate, the authorized Ministry of Forests employee (see section 1.4) will typically:

1. Estimate the average selling price of the logs for the cutting authority area (see chapter 3).
2. Estimate the least operating cost (see chapter 4) for the cutting authority area.
3. Determine the value index (see chapter 5) for the cutting authority area by subtracting the estimated least operating cost from the estimated average selling price.
4. Determine the indicated stumpage rate by comparing the value index for the cutting authority area with the coast mean value index and adding the coast base rate (see chapter 5).
5. Determine the reserve stumpage rate (see chapter 5) by selecting:
 - a. the greater of the indicated stumpage rate or the prescribed minimum stumpage rate, or
 - b. for an appraised cutting authority area containing timber licence volume, the greater of the adjusted indicated stumpage rate or the prescribed minimum stumpage rate.
6. Determine the upset stumpage rate by adding any development or silviculture levies (see section 6.6) to the reserve stumpage rate,
7. Determine the total stumpage rate by adding any bonus bid to the upset stumpage rate.

One stumpage rate is determined for all appraised timber in each cutting authority area with the exception of miscellaneous stumpage rates under section 6.7.

1.7 Stumpage Adjustments (CVP)

1. Unless a cutting authority or the application and tender for a timber sale licence specifies that stumpage rates are fixed for a specified period or for the full term of the cutting authority, stumpage rates are adjusted quarterly on January 1, April 1, July 1, and October 1 of each year, subject to section 6.5.
2.
 - a. Each quarterly stumpage adjustment will be calculated using stumpage appraisal parameters approved by the director, Revenue Branch.
 - b. Stumpage appraisal parameters are:
 - i. Statistics Canada coast composite index,
 - ii. coast target rate,
 - iii. coast base rate,
 - iv. coast mean value index,
 - v. average log market values.
3. Stumpage rates are adjusted to reflect changes in estimated average selling prices based on revised average log market values (as authorized in this manual since the previous adjustment) and the recalculated operating cost based on the appropriate trend factors in section 4.9. In addition, the adjustment reflects changes in the Statistics Canada coast composite index, the coast base rate and the coast mean value index (see section 5).

1.8 Stumpage Adjustments (MPS)

1. Unless a cutting authority or the application and tender for a timber sale licence specifies that stumpage rates are fixed for a specified period or for the full term of the cutting authority, stumpage rates are adjusted quarterly on January 1, April 1, July 1, and October 1 of each year.
2. At the time of the quarterly adjustment, the upset rate will be recalculated based on the equations applicable for the appraisal effective date and the cutting authority area specific data. The monthly parameters (log selling prices and CPI) effective for the month of the adjustment will be used in the calculation instead of the original values. All other data (including the estimated number of bidders) remain unchanged.

This process is repeated quarterly until the cutting authority area is reappraised.

This page is intentionally left blank.

2.2 Appraisal Procedure

1. An appraisal is a process used to determine a stumpage rate for a cutting authority area using the *Coast Appraisal Manual* in effect on the effective date of the cutting authority.
2. A licensee or BC Timber Sales (BCTS) shall submit a coast appraisal data submission to the district manager when the licensee or BCTS makes an application for a cutting authority.
3. The district manager or their designate may require the licensee or BCTS to complete and submit the least cost assessment page of the coast appraisal data submission for both aerial and cable harvesting methods when the district manager is not satisfied that the method proposed by the licensee or BCTS is the only method that is suitable for the area intended to be harvested.
4. The licensee or BCTS shall submit to the district manager any other information required by the district manager or their designate for the purposes of the appraisal.
5. The submissions under subsections (2) to (4) of this section must be signed and sealed by a professional forester registered in the Province of British Columbia.
6. The district manager or their designate may review the licensee or BCTS submission and will notify the licensee or BCTS, in writing, of any omissions, errors or provisions of the *Coast Appraisal Manual* that, in the opinion of the district manager or their designate, the signing professional forester may not have considered. The licensee or BCTS signing professional forester will consider the district manager's or their designate's notification and may revise the submission.
7. The district manager or their designate shall give any information supplied by the licensee or BCTS under this section to the person who determines the stumpage rate together with any other information that the district manager or their designate considers relevant to the appraisal.
8. The person who determines the stumpage rate may review the licensee or BCTS submission, and information supplied by the district manager or their designate, and will notify the licensee or BCTS, in writing, of any omissions, errors or provisions of the *Coast Appraisal Manual* that, in the opinion of the person who determines the stumpage rate, the signing professional forester may not have considered. The licensee or BCTS signing professional forester will consider the notification and may revise the submission.
9. The person who determines the stumpage rate when determining the stumpage rate shall consider:

- a. the information provided by the licensee or BCTS and the district manager or their designate, and
 - b. any information available to the person who determines the stumpage rate that is relevant to the appraisal.
10. Regional staff will notify the licensee or BCTS of the stumpage rate by way of a stumpage advisory notice and will provide the licensee or BCTS with a summary of the information used to determine the stumpage rate.
11. Within three (3) weeks of the date of the stumpage advisory notice, the licensee may notify regional revenue staff, in writing, of any objection to the information contained in the stumpage advisory notice that could be resolved without a review or appeal. The written objection must state the grounds for objection as well as a statement describing the relief requested. At this point, the objection is not considered a request for a review or an appeal under the *Forest Act* (sections 143 to 150).
12. Regional revenue staff will notify the licensee, in writing, if the objection referred to in subsection (11) cannot be resolved. In this notification, the regional revenue staff will indicate that the three (3) week time requirement for notice for review specified in section 144 (3) of the *Forest Act*, will commence upon receipt of this notification.

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 occurred, 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 (\$/m³) 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 lessor 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

1. A road permit must be appraised or reappraised effective June 1 of each year. The stumpage rate determined at the appraisal or reappraisal is fixed for one year.

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.

2.4 Changed Circumstance Reappraisal Procedure

1. The licensee shall submit to the district manager a coast appraisal data submission if the cutting authority area must be reappraised because of a changed circumstance under section 2.3.1.
2. The district manager or their designate may require the licensee to complete and submit the least cost assessment page of the coast appraisal data submission for both aerial and cable harvesting methods when the district manager is not satisfied that the method proposed by the licensee is the only method that will be suitable for the area intended to be harvested by that method.
3. The licensee shall submit to the district manager any other information required by the district manager or their designate for the purposes of the reappraisal.
4. The submissions under subsections (1), and (2) of this section must be signed by a professional forester registered in the Province of British Columbia.
5. The district manager or their designate may review the licensee's submission and will notify the licensee, in writing, of any omissions, errors or provisions of the *Coast Appraisal Manual* that, in the opinion of the district manager or their designate, the signing professional forester may not have considered. The licensee's signing professional forester will consider the district manager's or their designate's notification and may revise the submission.
6. The district manager or their designate shall give any information supplied by the licensee under this section to the person who determines the stumpage rate together with any other information that the district manager or their designate considers relevant to the reappraisal.
7. The person who determines the stumpage rate may review the licensee's submission, and information supplied by the district manager or their designate, and will notify the licensee, in writing, of any omissions, errors or provisions of the *Coast Appraisal Manual* that, in the opinion of the person who determines the stumpage rate, the signing professional forester may not have considered. The licensee's signing professional forester will consider the notification and may revise the submission.
8. The person who determines the stumpage rate when determining the stumpage rate shall consider:
 - a. any information provided by the licensee and the district manager or their designate, and
 - b. any information available to the person who determines the stumpage rate that is relevant to the reappraisal.

9. Regional staff will notify the licensee of the stumpage rate by way of a stumpage advisory notice and will provide the licensee with a summary of the information used to determine the rate.
10. Within three (3) weeks of the date of the stumpage advisory notice, the licensee may notify regional revenue staff, in writing, of any objection to the information contained in the stumpage advisory notice that could be resolved without a review or appeal. The written objection must state the grounds for objection as well as a statement describing the relief requested. At this point, the objection is not considered a request for a review or an appeal under the *Forest Act* (section 143 to 150).
11. Regional revenue staff will notify the licensee, in writing, if the objection referred to in subsection (10) cannot be resolved. In this notification, the regional revenue staff will indicate that the three (3) week time requirement for notice for review specified in section 144 (3) of the *Forest Act*, will commence upon receipt of this notification.

2.4.1 Effective Date of Changed Circumstance Reappraisal

1. The effective date of the reappraisal under section 2.3.1 is the first day of the month following the date of the licensee's written notification to the district manager or the district manager's notification to the licensee that a changed circumstance has occurred unless the reappraisal is because of:
 - a. Amendments to the cutting authority area are under subsection 2.3.1 (1)(c), in which case the reappraisal is effective on the first day of the month following the date that the district manager notifies the licensee of the amendment approval, or
 - b. sudden and severe damage to the appraised timber under subsection 2.3.1(1)(d), in which case the effective date of the reappraisal is the first day of the month following the date of the occurrence of the damage, unless otherwise specified by the regional manager.

2.4.2 Minister Directed Reappraisal Procedure

1. The licensee shall submit to the district manager a coast appraisal data submission, if requested by the district manager or their designate, within forty-five days of the minister's direction.
2. Thereafter the ministerial direction reappraisal procedure shall be the same procedure as that required by subsections 2.4 (3) through 2.4 (11).

2.5 Correctable Error

1. In this section, a correctable error means:
 - a. an error made by a Ministry of Forests employee in selecting or transcribing the correct log grade source, or
 - b. a stumpage adjustment calculation that has not been made by using a stumpage appraisal parameter in effect on the effective date of the stumpage adjustment.
2. Where a person believes that a correctable error has been made in a stumpage determination, that person shall give written notice of the correctable error as follows:
 - a. in the case of an appraisal or a reappraisal, the notice shall be given to the regional manager, and in the case of a quarterly adjustment, the notice shall be given to the director, Revenue Branch,
 - b. the notice shall identify the stumpage determination, the correctable error, and the cause of the correctable error to the extent reasonably possible.
3. The regional manager or the director, upon receipt of the notice shall determine whether or not a correctable error was made.
4. Where the regional manager or the director determines that a correctable error has not been made, the person who determined the stumpage rate or director shall notify the person who gave the notice of the correctable error.
5. Where the regional manager or the director determines that a correctable error has been made then:
 - a. the regional manager or the director shall notify the person who gave the notice of the correctable error,
 - b. the regional manager or the director shall take reasonable steps to ensure that all licensees who may have been affected by a similar correctable error are informed of the decision,
 - c.
 - (i.) where the regional manager determines that a correctable error has been made in an appraisal or a reappraisal the cutting authority area shall be reappraised by the person who determined the stumpage rate, using the same procedure as that required by subsections 2.4(8) to 2.4 (11).
 - (ii.) the effective date of the reappraisal shall be the first day of the month following the date on which the notice of the correctable error was received by the regional manager.

- d. (i.) where the director has determined that a correctable error has been made in the calculation of a quarterly stumpage adjustment, the adjustment must be correctly recalculated unless the cutting authority, the appraisal manual or the application and tender for a timber sale licence specifies that the stumpage rate is fixed,
- (ii.) the effective date of the redetermined rate shall be the first day of the month following the date on which the notice of the correctable error was received by the director.

2.6 Fixed Stumpage Rate and Extensions of Term

BC Timber Sales (BCTS)

1. A fixed stumpage rate for a cutting authority sold through BCTS means that the reserve stumpage rate, levies and bonus bids will not change during the term of the cutting authority and all extensions. The only exceptions are if a reappraisal is done under section 2.3.1(d) due to sudden and severe damage or under section 2.3.2 because of a minister's direction.

Woodlots

2.
 - a. The stumpage rate for a cutting authority area issued under a woodlot licence shall be adjusted quarterly unless a woodlot licensee chooses in accordance with this section, or is "grandfathered" under section 2.6(2)(c), to have a fixed stumpage rate for the term of the cutting authority and all extensions.
 - b. A licensee may choose to change the adjusting stumpage rate to a fixed stumpage rate at any time upon giving three (3) weeks prior written notice of that choice to the regional appraisal coordinator. This choice is a one time irrevocable option that is not retroactive. Where proper notice is given the stumpage rate will be fixed.
 - c. Where a woodlot licence cutting authority has a stumpage rate that is not adjusted quarterly, as of April 1, 2003 that stumpage rate shall remain fixed for the term of the cutting authority and all extensions.

The only exceptions are if a reappraisal is done under section 2.3.1(d) or under section 2.3.3.

District Average Value Index

3. Where the stumpage rate has been determined under section 6.1 or section 6.2 and the term of the cutting authority is extended the stumpage rate shall continue unchanged during the term of the cutting authority.

Miscellaneous Stumpage Rates

4. Miscellaneous stumpage rates (section 6.7) will be based on the *Coast Appraisal Manual* in effect on the date of scale, except for those cutting authorities that specify miscellaneous stumpage rates in their cutting authority document.

2.7 Calculation Conventions

1. All operating cost calculations will be performed to the full capacity of the calculating machine with the results truncated at four places of decimals and rounded to two places.
2. Results from 5 to 9 will be rounded upward and from 1 to 4 will be rounded downward.
3. Each phase cost estimate (\$/m³) (see chapter 4) will be rounded to the nearest cent and will be added to the other phase cost estimates to obtain the total cost estimate.
4. Where values are specified as limits (constraints or requirements for equations), they will be treated as absolute values and actual measurements or records will not be rounded before use unless otherwise specified in this manual.
5. CVP stumpage rate calculations will be performed according to the methods outlined in Appendix V, entitled *Specifications: Calculating Stumpage Rates for Coast Appraisals*.

2.8 Coniferous Timber

1. In this manual, second growth coniferous timber means coniferous timber that is less than 141 years old.
2. In this manual, mature coniferous timber means coniferous timber that is 141 years old or older.
3. The volume of mature coniferous timber and the volume of second growth coniferous timber in a cutting authority area will each be compiled from the timber cruise of the cutting authority area on a tree by tree basis.
4. Where the volume of second growth coniferous timber in a cutting authority area is eighty percent or greater of the volume of all coniferous timber in that cutting authority area, the cutting authority area will be appraised and reappraised as if all of the coniferous timber in that cutting authority area were second growth coniferous timber using the second growth average log market values.

3.2 Log Grade Percentages

Log grade percentages are obtained for each species of timber in each cutting authority area being appraised or reappraised as described in sections 3.2.1, 3.2.2, 3.2.3 and 3.2.4.

3.2.1 Billing History Record

The log scale data reported on stumpage invoices issued by Revenue Branch of the Ministry of Forests is the billing history record. The billing history record is kept by the Ministry of Forests.

A billing history record of a particular geographic area is a record of log scale data reported on stumpage invoices issued by the Revenue Branch of the Ministry of Forests for timber scaled under section 94 of the *Forest Act*.

Except as provided in sections 3.2.2, 3.2.3 and 3.2.4, the part of the billing history record that will be used when the person who determines the stumpage rate does an appraisal or reappraisal of a cutting authority area will be the two year billing history record as determined in Table 3-1 and Table 3-2. The date of issue on the stumpage invoice determines whether or not the log scale data is included in the two year billing history record.

Where the effective date of the appraisal or reappraisal falls within the period of the year listed in Column 1 of Table 3-1, the two year billing history record for the licence or timber supply area shall end on the corresponding date in Column 2 of Table 3-1 which immediately precedes the effective date of the appraisal or reappraisal.

Table 3-1: Billing History Record for Licence or Timber Supply Area

Column 1 Date of Appraisal or Reappraisal	Column 2 Billing History Record Ends on the Preceding
January 1 to March 31	November 30
April 1 to June 30	February 28/29
July 1 to September 30	May 31
October 1 to December 31	August 31

Where the effective date of the appraisal or reappraisal falls within the period of the year listed in Column 1 of Table 3-2, the two year billing history record for the cutting authority shall end on the corresponding date in Column 2 of Table 3-2 which immediately precedes the effective date of the appraisal or reappraisal.

Table 3-2: Billing History Record for Cutting Authority (Mark)

Column 1 Date of Appraisal or Reappraisal	Column 2 Billing History Record Ends on the Preceding
January 1 to 31	November 30
February 1 to 28/29	December 31
March 1 to 31	January 31
April 1 to 30	February 28/29
May 1 to 31	March 31
June 1 to 30	April 30
July 1 to 31	May 31
August 1 to 31	June 30
September 1 to 30	July 31
October 1 to 31	August 31
November 1 to 30	September 30
December 1 to 31	October 31

3.2.2 Log Grade Percentage Criteria

To determine the log grade percentages to be used for the cutting authority area being appraised or reappraised, the person who determines the stumpage rate will apply the following criteria:

1. The log grade percentage is the percentage by volume that log grade is of the total net cruise volume for the species of timber being considered.
2. Except as provided in subsections (6), (7), (8) and (9) of this section and section 3.2.4, the log grade percentages for a species of timber are derived from the billing history record.
3. The source of log grade percentages may vary by species of 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 m³ 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

- 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.
6. a. Where the species being considered has a billing history record for the entire supply block in the timber supply area 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 7 of this section.
7. a. Where the species being considered has a two year billing history record for the entire timber supply area 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 determine the log grade percentages for that species in accordance with subsection 3.2.2 (5).

3.2.4 Damaged Timber

Where the regional manager determines that timber in a cutting authority area is suddenly and severely damaged, then notwithstanding sections 3.2.1, 3.2.2 and 3.2.3, the log grade percentages for the cutting authority area being appraised or reappraised may be estimated from available site specific information.

3.3 Stand Selling Price

1. Except as required by section 7.2.1 and section 7.2.2, the stand selling price shall be calculated in an appraisal or reappraisal by using the net cruise volumes and species selling prices of the following species of timber regardless of utilization requirements:

Alder	Fir
Balsam	Hemlock
Cedar	Lodgepole Pine
Cottonwood	White Pine
Cypress	Sitka Spruce
Birch	Engelmann Spruce
Maple	

Stand Selling Price Calculation

2. Subject to subsection 3 of this section:
 - a. a species grade value for a species of timber in a cutting authority area is the product of the percentage of that grade of that species as derived from section 3.2 multiplied by the average log market value for that grade of that species of timber,
 - b. a species selling price for a species of timber in a cutting authority area is the sum of all of the species grade values for that species of timber in the cutting authority area,
 - c. the rounded species selling price is the species selling price for a species of timber in a cutting authority area rounded to the nearest cent,
 - d. a species value is the product of the rounded species selling price multiplied by the species net cruise volume in the cutting authority area, and
 - e. the stand selling price is the quotient of the sum of all of the species values in a cutting authority area divided by the total net cruise volume of all of the species in the cutting authority area.
3. For the purposes of determining a stand selling price:
 - a. birch and maple are deemed to be alder,
 - b. in the Pemberton, Yale and Nahatlatch timber supply blocks:
 - i. all spruce is deemed to be Engelmann spruce, and

- ii. the hemlock and balsam average log market value will be used to determine the species grade values for all spruce in the cutting authority area,
- c. where outside the Pemberton, Yale and Nahatlatch timber supply blocks:
 - i. Engelmann spruce is identified as the predominant spruce species in the cruise of the cutting authority area, or
 - ii. the district manager determines that Engelmann spruce is the predominant spruce species in the cutting authority area,

the hemlock and balsam average log market values will be used to determine the species grade values of all spruce in the cutting authority area,
- d. where a cutting authority area is located on Cortes Island or on an Island between Vancouver Island and the British Columbia mainland west of a line drawn between Grief Point near Powell River and the Tsawwassen ferry terminal, and south of 50 degrees north latitude, the second growth Douglas-fir average log market values will be used to calculate the species selling price for both old growth and second growth Douglas-fir timber.
- e. where the cypress net cruise volume of the cutting authority area is less than 2 000 m³ and a completed application for the appraised cutting authority area has been received by the district manager prior to April 1, 2003, the cypress J log grade average market value will be used to calculate the species selling price of cypress grades D, F, H, I, and J.

This subsection does not apply to cutting authority applications received by the district manager on and after April 1, 2003.

This page is intentionally left blank.

Operating Cost Estimation

4

4.1 Cost Estimates

1. The operating cost estimate is the sum of the trended total logging cost estimate and the trended basic silviculture cost estimate as detailed in this chapter.
2. Phase cost estimates, predictive formulas and most of the tables in this manual are derived from data collected through surveys of logging and forest management costs incurred by licensees and contractors operating in the Coast Forest Region.
3. The surveys collect licensee costs from both licensee and contractor operations: including wages, benefits, overtime, depreciation, fuel, supplies, repair and maintenance, moving assistance, freight, applicable licences, insurance, etc. from a representative sample of coast operations. Contract costs, including contractor profit and risk margins, overhead, crew transportation, etc., are also included.
4. Phase cost estimates reflect average conditions, operating practices, and phase accounting allocations as found in the survey data.
5. With the exception of specified operations listed in section 4.1.1, no additions to or subtractions from the phase cost estimates are permitted.
6. The person who determines the stumpage rate must estimate total operating costs for a cutting authority area in a manner that will produce the appraisal least total operating cost estimate for the cutting authority area.
7. The appraisal estimate of harvesting and transportation costs must be determined by using the criteria for determining the harvesting and transportation costs as set out in this manual.
8. The estimate of harvesting costs must be determined for the method of harvesting referred to in this manual, other than a method that the district manager states is unsuitable for the cutting authority area, that will produce the appraisal least total operating cost estimate.
9. The estimate of the transportation costs must be determined for the method of transportation referred to in this manual, other than a method that the district manager states is unsuitable for the cutting authority area, that will produce the appraisal least total operating cost estimate.

4.1.1 Specified Operations

1. In addition to the logging phases and systems that are covered by this manual, there are specified operations which require special cost estimates.
2. The following is a complete list of specified operations for which certain cost phase estimates are based on the information on hand rather than on the tables and formulas in this manual. Specified operation cost estimates are combined with associated *Coast Appraisal Manual* phase cost estimates to determine the total operating cost for the cutting authority being appraised.

SPECIFIED OPERATIONS	AFFECTED PHASE
A-frame Logging	Tree-to-Truck (section 4.4)
Blowdown Timber	Tree-to-Truck (section 4.4)
Single Tree Selection	Tree-to-Truck (section 4.4)
Group Selection	Tree-to Truck (section 4.4)
Skyline Logging	Tree-to Truck (section 4.4)
Lake Transportation	Log Transportation (section 4.5)
Skidder Swinging	Log Transportation (section 4.5)
Towing to Tie-up Grounds (over 10 km Distance)	Log Transportation (section 4.5)
Camp Moves (of greater than 10 km)	Administration and Other Costs (section 4.6) except Helicopter Logging
Destumping for Root Disease Control	Administration and Other Costs (section 4.6)
Tree Crown Modification	Administration and Other Costs (section 4.6)

3. In this Manual, single tree selection means the harvest of single trees and the retention of adjacent dominant and co-dominant single trees, resulting in a uniform cut and leave pattern with at least thirty percent of the volume within each one hectare sub-area of the cutting authority area retained as standing trees.
4. In this Manual, group selection means the harvest of several or many trees that results in a pattern of openings, with no qualifying opening more than 1 hectare in size.
5. The specified operations phase costs are monitored and updated by the regional manager and may not be part of the annual cost collection and analysis process.

4.2 Appraisal and Reappraisal Data Requirements

The cruise and all other pertinent information required for the appraisal must be submitted with the appropriate coast appraisal data submission.

Unless otherwise specified by the director, Revenue Branch, cruise data must be gathered and compiled according to the approved utilization specifications and in accordance with the following ministry of forests publications:

- Ministry of Forests *Cruising Manual*,
- Ministry of Forests *Cruise Compilation Manual*,
- Forest Service Policies (e.g., Timber Utilization Policy & Procedures for the Coast of the Province), and
- Regional Publications (e.g., chapter 9 of *Cruising Manual*).

In order to verify the accuracy of the cruise compilation program, the licensee must provide, on request, photocopies of the tally sheets and a magnetic copy of the compilation in a format required by the regional manager.

The appraisal is done using the net cruise volume of timber. The net cruise volume (m^3) is the gross volume (m^3) less decay, waste and breakage for all the species listed in section 3.3. The cutting authority total net cruise volume is determined by multiplying the net cruise volume per hectare (m^3/ha) by the total merchantable timbered area (ha) to be harvested under the cutting authority. The total merchantable timbered area is determined from the cruise summary.

If the application for a cutting authority is subsequently modified, the cruise submission must be recompiled by the applicant when more than five percent of the total number of compiled plots used in the cruise submission lie outside the boundaries established for the initial appraisal of the cutting authority.

Each reappraisal of a cutting authority area that has been amended after the appraisal must be done using the net cruise volume by species which is determined by adjusting the original cruise volume on the basis of approved amendments after the appraisal. If the accumulated amendments (either additions or deletions of areas containing merchantable timber) made to the cutting authority area exceed twenty-five hectares or twenty-five percent of the area containing merchantable timber, whichever is less, since the most recent cruise compilation or recompile was used for an appraisal or reappraisal the entire cruise must be recompiled.

Plots located in areas requiring helicopter logging or specified operations are included in the cruise compilation calculation of conventional logging.

The cost estimates assume borrow pits are located adjacent to a road right-of-way. If a new road needs to be constructed to access the borrow pit, then the access road cost estimates are required in addition to the unit cost estimates.

The unit cost estimates are based on two possibilities which are:

i. No trucking of stabilizing material

When a borrow pit is located adjacent to the subgrade to be stabilized and material is to be moved less than 0.1 km, no trucking of stabilizing material is assumed. The unit cost estimates (U) are:

Gravel	$U (\$/m^3) = 5.65$
Soft and Medium Rock	$U (\$/m^3) = 9.03$
Hard Rock	$U (\$/m^3) = 11.86$

Definition: m^3 = cubic metres of stabilizing material

ii. Trucking of stabilizing material

When suitable ballast must be moved a distance of 0.1 km or further, trucking of stabilizing materials is assumed. The unit cost estimates (U) are:

Gravel	$U (\$/m^3) = 7.74 + 0.616 (d)$
Soft and Medium Rock	$U (\$/m^3) = 11.11 + 0.616 (d)$
Hard Rock	$U (\$/m^3) = 13.94 + 0.616 (d)$

Where:

- d is the assumed trucking distance from the source to the mid-point of the road section to be stabilized. The minimum value of d = 0.1 km.

Definitions for in-place and quarry rock RMC (hardness):

"Soft-Medium"	less than 60 percent of the rock from the excavation is RMC 5
"Hard Rock"	60 percent or more of the rock from the excavation is RMC 5

2. Capping

Where the available material consists of large round or broken rock or "dirty" or fine gravel which is unsuitable for normal traffic conditions, the appraisal may include a cost estimate for "capping" of 0.2 m (loose depth) of suitable rock or gravel surfacing on road sections where required and providing the application is substantiated. This material is trucked in from a different borrow pit than the source of the stabilizing material unless the material has been sorted in the pit.

For further information, refer to the surfacing section in the regional manager's standardized methodology (i.e., *Detailed Engineering Estimates for Coast Stumpage Appraisal, Coast Forest Region*).

4.3.3 Detailed Engineering Cost Estimates

The cost for any of the detailed engineering projects identified in section 4.3.1 will be estimated by preparing a detailed engineering cost estimate. The regional manager may approve a standardized methodology to estimate the cost for the following projects:

1. End Hauling.
2. Road Reconstruction and Replacement.
3. Permanent Bridge Construction.
4. Bridge Structural Repair.
5. Regional manager approved projects (construction estimate forms).

When development projects require detailed engineering cost estimates, the district manager shall be advised by the licensee of project details prior to the commencement of construction. This notice is required to facilitate a current cost review of the project for later consideration in an appraisal.

In addition to the prior-to-construction requirement stated above, all cost data required for appraisals must be submitted according to the lead-time requirements of section 2.2.

For appraisal purposes, the project costs are estimated using site specific data (as defined in section 4.3.3.1) and the equipment and labour rates as specified in Appendix I. Where the equipment required is not recognized in Appendix I then the equipment rate can be attained from the *2000 - 2001 Equipment Rental Rate Guide "The Blue Book"*. All equipment rates are assumed to be for a 3 year old machine using the July 1, 2000 cost base. Some projects will be completed on the basis of arms length competitive bids and may be accepted for costs at the regional manager's discretion.

- 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 \$66.60/m³.

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/m³.

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:

$$(\$/\text{m}^3) = 3.564 + 0.098 (D)$$

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).

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	KHUTZEYMA TEEN 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
OUIV	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 (\$/m³) by forest district are:

Zone 1 (North)

Queen Charlotte	North Coast
North Island - Central Coast	
<hr/>	
Total Cost Estimate =	\$2.35/m ³

Zone 2 (South)

Sunshine Coast	Squamish
Campbell River	Chilliwack
South Island	
<hr/>	
Total Cost Estimate =	\$2.27/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

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.	2.64	South Island	2.24
Chilliwack	2.27	Campbell River	1.80
Squamish	2.62	North Island – Central Coast	1.76
Sunshine Coast	2.48	North Coast	2.05

* The dollar per cubic metre (\$/m³) 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, 2000
AND BEFORE APRIL 1, 2001 (cost base July 1, 1998)***

All Stumpage Adjustment Dates (or Appraisal Effective Date)	Trend Factor
July 1 to September 30, 2002	1.000
October 1 to December 31, 2002	1.000
January to March 31, 2003	1.000
April 1 to June 30, 2003	1.000

***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, 2002	1.000
October 1 to December 31, 2002	1.000
January 1 to March 31, 2003	1.000
April 1 to June 30, 2003	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, 2002	1.000
October 1 to December 31, 2002	1.000
January to March 31, 2003	1.000
April 1 to June 30, 2003	1.000

6.2 Cutting Authorities With 5 000 m³ or Less Volume

1. Where a cutting authority area has less than 2 000 m³ 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 m³ 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. The stumpage rate for a road permit will be determined using Ministry of Forests stumpage billing records.
2. The stumpage rate for a road permit is the weighted average stumpage rate for:
 - a. 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,
 - b. a licence to cut or a timber sale licence under which cutting permits have not or will not be issued, that entitles the licensee to apply for the road permit,
 - c. if there are no records from which the stumpage rate may be determined under (a) or (b),
 - i. cutting authorities, other than a road permit, that are issued under the licence that entitles the licensee to apply for the road permit,
 - ii. 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
 - iii. if the licence that the cutting authority is issued under has an annual allowable 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 annual allowable cut of less than 3 000 m³ in the same forest district as the area to which the road permit applies.
3. The weighted average stumpage rate is the sum of the stumpage billed for all species and grades during the billing period referred in subsection 4, divided by the sum of the volume of those species and grades.
4. The billing period referred to in subsection 3 for a road permit appraisal or reappraisal, with an effective date between June 1 of one year (the first year) and May 31 of the following year, is the twelve-month billing period ending March 31 in the first year.

The costs 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 (2).

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

6.4 Partially Harvested Timber

In the case of decked timber, or timber which has been felled and bucked, such as on rights-of-way, and the volume exceeds 300 m³, a full cost estimate appraisal is completed on an “as is, where is” basis.

6.5 BC Timber Sales

For appraisal purposes, the BC Timber Sales includes:

- a. all timber sale licences issued under the *Forest Act*, sections 20 and 21, and
- b. all timber sale licences issued under the *Forest Act*, section 23 except 23(1)(a) and 23(1)(b).

Fixed/Adjustable Stumpage Rates for BC Timber Sales Cutting Authorities

The adjustable rate option can be provided to a licensee only if the upset rate has been determined by means of a full appraisal. The data for the full appraisal may be site-specific or may be obtained from one or more comparable cutting authority areas. Once a selection has been made, it remains in effect for the term and all extensions. If the district value index method is used, the upset and hence the total stumpage rate is fixed for the term of the cutting authority and all extensions. The only exceptions are if a reappraisal is done under section 2.3.1(d) due to sudden and severe damage or section 2.3.3 because of a minister's direction.

A licensee's election of fixed stumpage rates precludes any correction to the upset stumpage rate determination that would otherwise be warranted because of an error in the appraisal.

For sections 20 and 21 timber sale licences (on and after January 1, 1999) refer to chapter 7.

6.6 Levies

The amount of any levy may be redetermined at reappraisals only.

1. Basic Silviculture Levy

A basic silviculture cost estimate is made for every cutting authority that will require basic silviculture, including those with a volume of less than 2 000 m³.

A basic silviculture levy may be added to the reserve stumpage rate. The levy is \$0.00/m³ if no Crown expenditures are anticipated for basic silviculture, or the district manager may set the levy at \$0.00/m³ if the sale is offered under the *Forest Act*, section 20, and the district manager is satisfied that there will be competition for the sale. Otherwise the silviculture levy is equal to the appraisal estimate of basic silviculture costs provided by the Crown (trended at the time of the appraisal).

2. Development Levy

A development levy may be added to the reserve stumpage rate. The levy is \$0.00/m³ if no Crown expenditures are anticipated for road construction and other services, or the district manager may set the levy at \$0.00/m³ if the sale is offered under the *Forest Act*, section 20, and the district manager is satisfied that there will be competition for the sale. Otherwise, the development levy is equal to the appraisal cost estimate of road construction and other extraordinary services provided by the Crown as determined by the regional manager (trended at the time of the appraisal).

The amount of any levy may be re-determined at reappraisal only.

6.7 Miscellaneous Stumpage Rates

Unless otherwise specified in a cutting authority certain special forest products, including deciduous species, low grade logs and timber in specified areas listed in Table 6-1, the miscellaneous stumpage rates in Table 6-1 shall apply.

6.7.1 Special Forest Products and Other Miscellaneous Rates

Table 6-1 is to be used for determining stumpage rates for the specified products when scaled.

6.7.2 Salvage Logging Rates

The qualifying criteria and methodology for developing salvage logging rates for round logs will be specified by the regional manager. The source of salvaged timber is:

1. Post Harvest Material:
 - a. Wooden culverts and bridges, and
 - b. Post logging residue.
2. Damaged Timber:
 - a. Blowdown green and aged timber, and
 - b. Fire, disease, snow press and insect damaged timber.

6.7.3 Marine Log Salvage

6.7.3.1 Beachcomb

A beachcomb rate may apply to logs salvaged in the Vancouver log salvage district under the *Forest Act*, Part 9, and stray logs salvaged elsewhere in coastal waters.

The rate for beachcomb is listed in table 6-1.

6.7.3.2 Root Buck

A root buck rate may apply to any species where the roots are attached at the time stray logs are salvaged in coastal waters. Excludes logs salvaged from coastal waters within the boundaries of the North Coast and Kalum Forest Districts.

The rate for root buck is listed in table 6-1.

6.7.3.3 Wahleach Island Catchment Basin

The rate for logs salvaged at Wahleach Island catchment basin operated by B.C. Debris Control Board is listed in table 6-1.

6.7.3.4 Deadhead Logs

A deadhead rate may apply to deadhead logs as defined in the log salvage regulation, salvaged in coastal waters and subject to scaling requirements under part 6 of the *Forest Act*.

The rate for deadhead logs is listed in table 6-1.

Table 6-1: Miscellaneous Stumpage Rates

Coniferous Species	Product	Reserve Rate
Cedar & other	Shake and Shingle Bolts and Blocks	\$ 5.30/m ³
Cedar	Shakes - Handsplit	\$ 6.00/m ³
Cedar	Shakes - Blanks	\$ 7.20/m ³
Cedar	Fence Posts and Fence Rails	\$ 3.00/m ³
Cedar	Sticks and Stakes (round or split)	\$ 2.00/m ³
Cedar	Hop Poles	\$ 1.30/m ³
Cedar & other	Cants *	\$ 9.60/m ³
Cypress	Cants *	\$ 9.60/m ³
Yew	All	\$ 0.25/m ³
<i>Deciduous Species</i>		
Alder & Cottonwood	Where alder and cottonwood are appraised in the stand as a whole reserve rate, then the lesser of the reserve rate reduced if applicable (CVP only), or \$1.00.	\$1.00/m ³
All other Deciduous Species	The reserve rate is	\$1.00/m ³
<i>All Species</i>		
All Species	Grade Y	\$ 0.25/m ³
All Species	Firewood	\$ 1.00/m ³
All Species	Christmas Trees: less than 3m 3 to 5m More than 5m	\$ 0.20 each \$ 1.00 each \$ 1.50 each
All Species	Root buck	\$7.80/m ³
All Species	Beachcomb	\$ 0.70/m ³
All Species	Wahleach Island catchment basin	\$ 0.25/m ³
All Species	Deadhead logs	\$ 0.25/m ³

* Note: Cants are produced from dead and down post logging material that would not make a sawlog as determined by the regional manager.

6.7.4 Miscellaneous Stumpage Rates for Timber Licences

Timber licence cutting authority areas that have not been appraised and have a cutting authority term that began before May 1, 1995 must be appraised effective April 1, 2003.

This page is intentionally left blank.

Index

A

Accessible Cutting Authority, 4-36
 Additional Stabilizing Material, 4-19
 Administration and Other Costs, 4-34
 A-frame Logging, 4-3
 Appendices, A-1
 Appraisal and Reappraisal Data Requirements, 4-4
 Appraisal Principles & Procedures, 2-1
 Appraisal Procedure, 2-3
 Area of Application, 1-3
 Average Cost Estimates, 4-6
 Average Log Market Value Determination, 3-2

B

Barge Transportation, 4-27
 Barging Cost Estimates, 4-30
 Barging Distance Estimate for the Market Pricing System, 4-31
 Basic Silviculture, 4-39
 BC Timber Sales, 2-11, 6-6
 Billing History Record, 3-3
 Blowdown Timber, 4-3
 Bridge Cost Estimates, 4-7

C

Calculating the Coast Composite Index, 5-5
 Calculating the Coast Target Rate, 5-5
 Calculation Conventions, 2-13
 Calculation of Indicated Stumpage Rate, 5-8
 Calculation of Stand Selling Price, 7-3

Calculation of Stumpage Rate, 5-8
 Camp Moves, 4-3
 Camp Operations and Overhead, 4-36
 Capping, 4-22
 Changed Circumstance Reappraisal Procedure, 2-7
 Changed Circumstances, 2-5
 Charges as a Share of Road Maintenance, 4-33
 Charges for Other than Road Maintenance, 4-33
 Clayoquot Sound, 4-37
 Coast, 1-3
 Coast Base Rate, 5-7
 Coast Mean Value Index, 5-4
 Coast Value Indexes, 6-2
 Comparative Value Pricing System, 1-7
 Coniferous Timber, 2-14
 Conventional Logging, 4-24
 Converting Indexes From 1997=100 Base to 1992=100 Base, 5-5
 Corporate and Forestry Overhead, 4-34
 Corporate Forestry and Engineering, 4-34
 Corporate General and Administrative Overhead, 4-34
 Correctable Error, 2-9
 Cost Estimates, 4-2
 Cost Trend, 4-40
 Crew Transportation(Labour), 4-35
 Cruise Data, 4-4
 Culverts, 4-17
 Cutting Authorities With 5 000 m³ or Less Volume, 6-3
 Cutting Authority, 1-4
 Cutting Authority Area, 1-4

D

Damaged Timber, 3-9
 Data Requirements, 4-23
 Definitions for In-Place and Quarry Rock RMC (hardness), 4-21
 Destumping, 4-3
 Detailed Engineering Cost Estimates, 4-5, 4-6, 4-22
 Development, 4-5

Development Cost Allocation, 4-9, A-5
Development Cost Categories, 4-6
Development Cost Estimates for Full
Appraisal on Timber Licence (TL) Cutting
Authorities, 4-10
Development Cost Estimates on Crown
Lands, 4-9
Development Costs on Private Land, 4-10
Development Works, 4-5
Distance, 4-26
District Average Value Index, 2-11
Drainage Structures, 4-16
Dump, Sort, Boom and Scale, 4-27

E

Existing Roads and Structures, 4-11
Extended Road Amortization, 4-11

F

Fixed Stumpage Rate and Extensions of
Term, 2-11
Forest Service Roads, 4-33

G

Group Selection, 4-3

H

Helicopter Logging, 4-24
High Development Cost Discount Factor,
7-7

I

Indicated Stumpage Rate, 5-2, 7-8
Interim Market Stumpage Value (IMSV),
7-6
Introduction, 7-2
Isolated Cutting Authority, 4-36

L

Lake Transportation, 4-3
Levy, Development, 6-7
List of MPS Variables, 7-4
Log Bridges, 4-16

Log Grade Percentage, 7-3
Log Grade Percentage Criteria, 3-4
Log Selling Prices, 7-3
Log Transportation, 4-26
Low Volume Cost Estimate Additive, 4-36

M

Main Service Road, 4-5
Market Pricing System, 1-6
Market Value Indexing, 5-5
Minister's Direction, 2-6
Misc. Timber Pricing Policies, 6-1
Miscellaneous Stumpage Rates, 6-8

N

New Construction, 4-6
No Trucking of Stabilizing Material, 4-21

O

Operating Cost Estimation, 4-1
Order-in-Council, 2-2
Other Land Use Charges, 4-33
Other Roads, 4-33

P

Permanent/Portable Bridges, 4-16
Permitted Roads, 4-33
Point of Appraisal, 4-27
Preliminary Estimate of Number of
Bidders, 7-5
Preliminary Market Stumpage Value, 7-5
Prescribed Minimum Stumpage Rate, 5-8,
7-8
Private Land, 4-10

R

Reappraisals, 2-5
Reconstruction and Replacement, 4-7, A-4
Repeat IMSV Calculation, 7-6
Repeat PENB Calculation, 7-6
Reserve Stumpage Rate, 5-8, 7-8
Responsibility for Stumpage, 1-5
Right-of-Way Cutting Authorities, 6-4

Road Use Charges, 4-32
Roads, 4-5
Rock Mass Classification, 4-13
Routine Maintenance and Deactivation,
4-32

S

Selling Price Estimation, 3-1
Single Tree Selection, 4-3
Skidder Swinging, 4-3
Skyline Logging, 4-3
Source of Log Grade Percentage for Each
Cutting Authority, 3-6
Special Forest Products, 6-8
Specified Operations, 4-3
Stand Selling Price, 3-10
Stand Selling Price Calculation, 3-10
Stumpage Adjustments (MPS), 1-9
Stumpage Calculations, 7-4
Stumpage Rate Adjustments (CVP), 1-8
Stumpage Rate Determination, 5-1
Subgrade Construction, 4-12
Subgrade Cost Estimates, 4-13

T

Tabular Cost Estimates, 4-5
Tabular Road and Bridge Cost Estimates,
4-12
Terms of Reference and Conventions, 1-2
Test for Further Iteration and Final Market
Stumpage Value (SMSV), 7-6
Timber Licence, 2-12
Total Corporate and Forestry Overhead,
4-34
Total Logging Cost Estimate, 4-38
Total Obligation Adjustment, 7-7
Total Stumpage Rate, 5-8, 7-9
Total Volume of less than 2 000 m³, 6-3
Towing Cost Estimates, 4-29
Towing or Barging, 4-28
Towing to Tie-up Grounds (over 10 km),
4-3
Tree Crown Modification, 4-3
Tree-To-Truck, 4-24

Tributary, 4-5, 4-11
Truck Hauling, 4-26
Trucking of Stabilizing Material, 4-21
Types of Determination, 2-2

U

Unit Cost Estimates (*U*), 4-20
Upset Stumpage Rate, 5-8, 7-9

V

Value Index, 5-3

W

Water Transportation, 4-27
Woodlot Licence, 2-11, 3-5, 4-11
Woodlots, 2-11

This page is intentionally left blank.