



File: 195-30/IAPP

MAR 23 1995

All Regional Managers and
All Holders of the Interior Appraisal Manual

Re: Interior Appraisal Manual Amendment No. 2

I approve this amendment to the *Interior Appraisal Manual*, effective April 1, 1995. The following sections are amended:

<u>Section</u>	<u>Nature of Amendment</u>
Generic	All references to "Valuation Branch" have been revised to "Revenue Branch" to reflect the name change which becomes effective April 1, 1995.
1.1	Sentence 1, the words 'British Columbia' have been deleted. Sentence 3, the words 'as required by the Forest Act' have been deleted.
1.4	The phrase 'determined by' has been changed to 'determined, redetermined and varied by'.
2.2 - 6	The term 'valuation package' has been revised to 'appraisal package'.
2.3.1	For clarification, the second paragraph wording has been changed from 'silviculture takes into account volume' to 'silviculture includes volume'.
4.3.1	The whole section has been revised to reflect the changes to timber licence administration.
4.6	Costs for winter road reconstruction are included in the road maintenance cost estimate and have therefore been added to the list of road maintenance items (also see Section 4.3.2.7).

- 4.8.1 The sentence 'Overhead also includes right of way easement, foreshore and other land leases' is deleted, as these items are already listed specifically.
- 6.7 The mis-alignment of the rates for miscellaneous stumpage rates has been corrected.
- Appendix III The development cost allocation flow chart has been added.

Yours truly,



Andrew Petter
Minister

Attachment: (1)

Contents

1 Introduction

1.1 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
1.4 Responsibility for Stumpage Determination.....	1-5
1.5 Comparative Value Timber Pricing	1-6
1.6 Stumpage Adjustments	1-7

2 Appraisal Principles and Procedures

2.1 Types of Determination.....	2-2
2.2 Time Schedule - New Appraisals and Reappraisals	2-3
2.3 Reappraisal	2-4
2.4 Extension of Term	2-7
2.5 Point of Appraisal	2-8
2.5.1 Method of Transportation to be Used in Determining Point of Appraisal	2-9
2.6 Calculation Conventions	2-10

3 Interior Selling Prices

3.1 Lumber Average Market Values (AMVS).....	3-2
3.1.1 Application of Lumber Average Market Values.....	3-3
3.1.2 Lumber Average Market Value (AMV) Zones	3-3
3.2 Chip Average Market Values	3-4
3.3 Calculation of Species Selling Price.....	3-4

4 Operating Cost Estimation

4.1 Cost Estimates.....	4-2
4.1.1 Specified Operations	4-2
4.2 Appraisal Data Requirements	4-4
4.3 Development	4-5
4.3.1 Development Cost Allocation.....	4-6
4.3.2 Tabular Cost Estimates	4-11

4.3.2.1 Subgrade Construction	4-11
4.3.2.2 Subgrade Construction Variables	4-12
4.3.2.3 Subgrade Cost Estimate	4-13
4.3.2.4 Drainage Structures	4-14
4.3.2.5 Additional Stabilizing Material (ballast, gravel)	4-17
4.3.2.6 Cattle Guards, Remedial Fences and Pipeline Crossings	4-18
4.3.2.7 Winter Road Reconstruction	4-18
4.3.3 Detailed Engineered Costs	4-18
4.4 Tree-to-Truck	4-21
4.4.1 Required Logging Systems	4-21
4.4.2 Tree-to-Truck Variables	4-23
4.4.3 Tree-to-Truck Cost Estimate	4-25
4.4.4 Tree-to-Truck Additive for Damaged Timber	4-27
4.4.5 Prorating Tree-to-Truck Cost Estimates	4-27
4.5 Log Transportation	4-29
4.5.1 Truck Haul Variables	4-29
4.5.2 Truck Haul Cost Estimates	4-31
4.5.2.1 Primary Haul	4-31
4.5.2.2 Secondary or Re-Haul	4-32
4.5.3 Water Transportation	4-32
4.5.4 Special Transportation Systems	4-33
4.6 Road Maintenance	4-35
4.7 Road and Land Use Charges	4-38
4.8 Administration and Other Costs	4-40
4.8.1 Overhead	4-40
4.8.2 Isolated Cutting Authorities	4-42
4.9 Post-Logging Treatment Costs	4-43
4.10 Basic Silviculture Cost Estimate	4-44
4.11 Manufacturing Cost Estimates	4-47
4.12 Cost Trend	4-49

5 Stumpage Rate Determination

5.1 Indicated Stumpage Rate	5-2
5.2 Value Index	5-3
5.3 Mean Value Index	5-4
5.4 Market Value Indexing	5-5
5.5 Base Rate	5-6
5.6 Calculation of Stumpage Rate	5-7

5.6.1 Calculation of Indicated Stumpage Rate	5-7
5.6.2 Prescribed Minimum Stumpage Rate	5-7
5.6.3 Reserve Stumpage Rate.....	5-7
5.6.4 Upset Stumpage Rate.....	5-7
5.6.5 Total Stumpage Rate.....	5-7

6 Miscellaneous Timber Pricing Policies

6.1 Average Value Indexes by District and Species	6-2
6.2 Cutting Authorities With 5,000 m ³ or Less Volume.....	6-3
6.3 Right-of-Way Cutting Authorities	6-5
6.4 Partially Harvested Timber.....	6-6
6.5 Small Business Forest Enterprise Program (SBFEP) Sales.....	6-7
6.6 Levies.....	6-8
6.7 Miscellaneous Stumpage Rates	6-9

Appendices

Appendix I Equipment and Labour Rates.....	0-2
Appendix II Lumber Recovery Factors (board feet/cubic metre).....	0-4
Appendix III Development Cost Allocation.....	0-5

Index

Introduction

1

1.1 Terms of Reference

The *Forest Act*, Sections 81 to 86, and regulations set out the conditions that apply to the determination and payment of stumpage and royalty for the purchase of Crown timber.

The *Forest Act*, Section 84, requires adherence to the policies and procedures approved for the forest regions by the Minister of Forests. This *Interior Appraisal Manual*, approved by the Minister, contains the policies and procedures for determining stumpage rates charged for Crown timber harvested in the area described in Section 1.2.

Data used in the manual are based on a broad sampling of timber harvesting, silviculture, manufacturing costs and lumber and chip selling prices experienced by licensees in the interior.

1.4 Responsibility for Stumpage Determination

The *Forest Act*, Section 84(1), states in part that the rates of stumpage shall be determined, redetermined and varied by the regional manager or a forest officer duly authorized in accordance with the policies and procedures approved for the forest region by the Minister of Forests.

The regional appraisal coordinator is the forest officer authorized by the regional manager to be directly responsible for determining stumpage rates, for both appraisals and reappraisals and providing interpretation of this manual in a manner that is consistent with the policies and procedures approved by the Minister.

Revenue Branch employees are forest officers for the purpose of carrying out stumpage rate adjustments under Section 1.6.

1.5 Comparative Value Timber Pricing

Comparative Value Pricing, subject to a minimum stumpage rate, is the basis for determining stumpage rates with the exceptions noted in subsection 2.1 (2, 3 and 4).

An average stumpage rate for the Interior has been set by the provincial government. The stumpage rate for a given stand of timber is more or less than the pre-set average rate depending upon whether the stand is more or less valuable than the average stand. To make that assessment and hence to determine a stumpage rate, the forest officer will typically:

1. estimate the selling price of the products that can be recovered from the timber stand (see Chapter 3);
2. estimate the costs necessary to harvest the timber and realize the estimated selling price (see Chapter 4);
3. determine the value index of the timber stand by subtracting the estimated operating cost from the estimated selling price (see Chapter 5);
4. determine the indicated stumpage rate by comparing the value index for the timber stand with the Interior Mean Value Index and adding the Interior Base Rate (see Chapter 5);
5. determine the reserve stumpage rate by selecting the greater of the indicated stumpage rate or the prescribed minimum stumpage rate (as defined in the Minimum Stumpage Rate Regulation, B.C. Reg. 354/87). The current minimum stumpage rate is \$0.25/m³ (see Chapter 5);
6. determine the upset stumpage rate by adding development and silviculture levies (if any) to the reserve stumpage rate (see section 6.6);
7. determine the total stumpage rate by adding the bonus bid (if any) to the upset stumpage rate, and

One stumpage rate is determined for all appraised timber in each cutting authority with the exception of miscellaneous stumpage rates for special forest products and for timber in specified areas listed under Section 6.7.

The average stumpage rate itself is indexed to lumber market values as explained in Chapter 5.

Appraisal Principles and Procedures

2

2.1 Types of Determination

Stumpage rates are determined by one of the following methods:

1. a full appraisal as described under Chapter 3 and 4 of this manual;
2. an Order-in-Council directive setting rates under the *Forest Act*, Section 84;
3. pricing under Chapter 6 of this manual;
4. the use of stumpage rates in a region developed by regional revenue staff, and approved by the regional manager.

2.2 Time Schedule - New Appraisals and Reappraisals

Timeliness is an important factor in the stumpage appraisal process. The following schedule applies:

1. For each cutting authority, the licensee must submit to the district manager, an appraisal data submission (Interior Appraisal Data Sheet), at least 90 calendar days prior to the appraisal effective date for new appraisals, or at least 60 calendar days prior to the anniversary date for reappraisals.

If the licensee fails to provide an appraisal data submission as stated above, then the district manager must use the best appraisal information available and steps 2 through 7 need not apply;

2. The district manager reviews the submitted data and all other available information, and completes the appraisal data sheet to reflect what best represents the cutting authority;
3. The district manager or the licensee may request a meeting to discuss the appraisal data submission;
4. At the meeting, the licensee may clarify data previously submitted. The district manager may revise the appraisal data sheet as a result of the meeting;
5. The licensee is notified by the district manager of changes, if any, made to the appraisal data;
6. The appraisal data sheet is then sent to the regional office by the district manager as part of the appraisal package;
7. The licensee and district manager are notified by the regional appraisal staff of any further changes made to the appraisal data sheet;
8. The licensee is notified, by letter or facsimile transmission, of the stumpage rate and summary of the appraisal information used in determining the stumpage rate;
9. The licensee must advise the issuing regional office immediately, in writing, of any disagreement with the information contained in the letter and provide adequate factual data to permit a review. At this point the disagreement is not considered an appeal under Section 154 of the *Forest Act*;
10. After such a review, the regional revenue staff send a letter notifying the licensee by mail or facsimile transmission of the results of the review and summary appraisal information.

2.3 Reappraisal

A reappraisal is a re-estimation of Operating Cost and Selling Price according to the Appraisal Manual in effect on the effective date of the re-estimation. Except in the case of "sudden and severe damage" as explained below, a reappraisal is based upon a complete reassessment of a cutting authority carried out by "standing up the trees, unbuilding the roads and drainage structures and returning the stand to its original condition" before making a re-estimation of the operating costs. *The operating cost data may be revised to reflect changes to the cutting authority or left unchanged at the time of the reappraisal.* At the time of a reappraisal, initial detailed engineering cost estimates may be re-estimated once after construction to reflect more accurate on-site information. However, development costs originally estimated using ministry approved competitive bids, or costs that have been apportioned to more than one cutting authority are not re-estimated in a reappraisal.

A reappraisal is made only if one of five situations arises:

1. Sudden and Severe Damage

If the Regional Manager is satisfied that sudden and severe damage has occurred to the appraised timber, the cutting authority is reappraised upon the licensee's request. *The effective date of the redetermined rate is the first of the month following the occurrence of the damage*, unless otherwise specified by the Regional Manager. A reappraisal is not made in the case of fire damage caused by the licensee if they have failed to comply with the *Forest Act*, Part 10, and relevant regulations.

In the case of "sudden and severe damage" the redetermined rate is based upon the remaining timber only. The Regional Manager may approve the use of appraisal data obtained from comparable cutting authorities. The reappraisal cost estimate for development and silviculture includes volume already removed.

This policy on "sudden and severe damage" applies to fixed rate cutting authorities as well as to adjustable rate cutting authorities. Any existing bonus bid and/or levy is payable in addition to the redetermined upset stumpage rate.

2. Amendments

A reappraisal may be triggered if a cutting authority area or cutting authority (see Section 1.3) is amended:

- i) If accumulated amendments (either addition or deletion of merchantable timbered stumpage-bearing area), exceed 10 hectares or 10 percent of the merchantable area, whichever is less, then the entire cruise must be recompiled and the stumpage rate redetermined,

Southern Cariboo (Zone 8)

100 Mile House

Chasm

Lillooet

Williams Lake

Fort Nelson - Peace (Zone 9)

Chetwynd

Fort Nelson

Fort St. John

Taylor

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

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

1. any destination referred to in the cutting authority, or
2. any document other than the cutting authority.

2.6 Calculation Conventions

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

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

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

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

Stumpage rate calculations are performed according to the methods specified in the document entitled, "SPECIFICATIONS: CALCULATING STUMPAGE RATES FOR INTERIOR APPRAISALS", approved by the Director, Revenue Branch.

Interior Selling Prices

3

Selling price estimates are based upon schedules of lumber and chip values collected and published by Revenue Branch. The values when compiled and distributed become an integral part of this manual.

3.1 Lumber Average Market Values (AMVS)

Monthly market value information from the Interior is obtained by Revenue Branch from lumber producers located in each of the recognized Average Market Value Zones. A zonal Average Market Value (AMV) for each species is compiled by dividing total sales value by total sales volume. Separate AMVs are derived for stud and for random lumber.

The total volume for each species includes all sizes and grades of rough or dressed lumber in the green or dried state, manufactured to Canadian Lumber Standard/American Lumber Standard (CLS/ALS) sizes and reported in foot-board measure (fbm). Also included are railroad ties, fingerjointed CLS/ALS lumber and machine stress rated (MSR) lumber.

Lumber manufactured in non-CLS/ALS sizes is adjusted to equivalent CLS/ALS volumes and included with the above.

The total net sales value for each species is reported in Canadian dollars, f.o.b. mill, after adjusting the selling price for all applicable freight charges, exchange adjustments, commissions, cash discounts, duty and entry charges and net railcar lease costs.

1. Small Log AMVs

Separate from stud and random length lumber AMVs is an AMV based on smaller, dimension lumber products capable of being produced from small trees.

Small log AMVs are used for all cutting authorities with an average volume per tree (conifers only) of less than 0.20 m³. Cutting authorities meeting this criteria will use lumber AMVs listed under Small Log AMV's in the Lumber AMV pages of the quarterly stumpage parameters published by Revenue Branch.

The selection of a Small Log AMV zone (Zones 15, 16, 17, 18 and 19) will only affect AMVs and will be made at the time of appraisal or reappraisal. Lumber Recovery Factors and Manufacturing costs will continue to be determined by zonation based on point of appraisal.

2. Stud Lumber AMVs

Studs are defined as all lumber which is 8 feet (approx. 2.5 metres) or shorter in length, and which has a nominal thickness and width of 2 inches x 6 inches (approx. 5 cm x 15 cm) or smaller, as produced by any lumber manufacturer. Stud AMVs are compiled for two species groups; Lodgepole Pine/Douglas-fir/Larch and Spruce/Balsam. No other species are recognized as "stud species".

3. Random Lumber AMVs

Random AMVs are compiled for all species.

3. Wherever the data are inadequate to provide a reasonable average for a species within a zone, the data are combined with other species or zones (with appropriate adjustments) before use.

3.1.1 Application of Lumber Average Market Values

Application of the Stud and Random lumber AMVs in appraisals for all cutting authorities are made according to the formula in Section 3.3.

3.1.2 Lumber Average Market Value (AMV) Zones

Refer to Section 2.5 for a list of Points of Appraisal by Lumber Average Market Value (AMV) Zones.

3.2 Chip Average Market Values

Monthly market value information is obtained and compiled by Revenue Branch.

3.3 Calculation of Species Selling Price

The total selling price in \$/m³ is determined for each species using lumber recovery factors (LRF) from the cruise compilation summary, LRF update add-ons, current applicable average market values for the species, zone, and species chip yield factors. Lumber and chip prices are each calculated to the nearest cent before being totalled.

In the case of burned timber, the appraisal chip price will be determined as the prorate of normal value for the volume undamaged or lightly burned, and zero value for the volume moderately and/or heavily damaged. The factors are determined from the following applicable formulas or tables:

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

<u>Zone</u>	<u>Species</u>	<u>LRF Update Add-Ons</u>	<u>Combined Product Recovery Factors</u>
Northern Interior (Zone 5) & Skeena (Zone 6)	Lodgepole Pine	60	424
	Spruce	63	424
	Balsam	59	424
	Douglas Fir	24	424
	Larch	23	424
	Cedar	19	424
	Hemlock	22	424
	White pine	22	424
<u>Southern Interior</u> (<u>Zone 7</u>)	Lodgepole Pine	60	402
	Spruce	66	402
	Balsam	59	402
	Douglas Fir	26	402
	Larch	25	402
	Cedar	21	402
	Hemlock	23	402
	White Pine	24	402
	Yellow Pine	26	402

SPECIFIED OPERATIONS**AFFECTED PHASE**

Salvage Logging*	Tree-to-Truck (Sec. 4.4)
Skyline Logging (over 300m or requiring intermediate supports)	Tree-to-Truck (Sec. 4.4)
Stump removal for Root Disease Control	Silviculture (Sec. 4.10)
Skidder Swinging	Log Transportation (Sec. 4.4)
Ocean Tow	Log Transportation (Sec. 4.4)
Timber Harvested in Licenced Domestic Watershed (less than or equal to 90 km ² in size)	Development (Sec. 4.3), Road Maintenance (S.4.6), Administration and Other Costs (S.4.8)

- * The salvage logging specified operation is for cutting authorities issued for the harvest of small, widely dispersed, patches of timber (e.g., blanket salvage permits).

Where appropriate, specified operations are weighted according to the applicable net cruise volume. Appraisal cost estimates exclude the cost of performing work that is carried out under the *Forest Act, Section 88*, or work for which funding is provided by any Crown agency, except as noted in Section 6.5.

4.2 Appraisal Data Requirements

The cruise and all other pertinent information required for the appraisal must be submitted with the appropriate **Interior Appraisal Data Sheet**.

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:

- *Forest Service Cruising Procedures & Cruise Compilation (Cruising Manual)*
- *Cruise Compilation Program - Documentation Manual*
- *Cruise Compilation System - Change Specification Detailed Requirements & Design*
- *Regional Publications - (e.g. Operational Cruising Requirements in a Forest Region)*
- *Forest Service Policies - (e.g. Timber Utilization Policy & Procedures for the Interior of the Province).*

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 prescribed by the Regional Manager.

The net cruise volume (m^3) is the gross volume (m^3) less decay, waste and breakage by species. 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 in the cutting authority.

4.3 Development

Development costs are estimated for the following construction phases: subgrade construction, placement of additional stabilizing material, and construction and installation of drainage and other pertinent structures.

The costs for development works may only be allocated to tributary cutting authorities. A cutting authority is considered to be tributary if:

1. timber from the cutting authority is appraised over the development works in question, or;
2. if the development works occur on a Main Service Road. A Main Service Road is defined as a main access road to the operation, necessary to maintain and supply the day-to-day harvesting activities of the cutting authority being appraised. To qualify, bulk fuels, supplies, equipment and the harvesting crew should be transported on this road on a daily basis.

Two methods of estimating development costs are used in the appraisal system:

1. Tabular cost estimates are made for construction of roads and drainage structures using the applicable formulas in Section 4.3.2 of this manual. Tabular estimates must be used for an appraisal when physical dimensions and conditions fall within the tabular limitations.
2. Detailed engineering cost estimates are made when the physical dimensions and conditions of a road section or a drainage structure exceed the tabular limitations of the manual. If a tabular estimate cannot be made due to table limitations then a detailed engineering estimate is made according to Section 4.3.3. Projects eligible for this costing method are listed in Section 4.3.3.

Total estimated costs are divided by the applicable net cruise volumes and summed to determine the unit cost estimate (\$/m³) for development. Where utilization of deciduous volume is mandatory, the deciduous volume must be included in the applicable net cruise volume.

Where applicable, these cruised volumes and development cost estimates must be segregated on the basis of legal boundaries.

Throughout this section the term "roads" is meant to include roads, drainage and other pertinent structures.

4.3.1 Development Cost Allocation

| Where proration is required for Section 4.3.1 part 1, 2 and 3:

$$| \text{Crown share} = \text{Total Estimated Cost} * \frac{\text{Appraised Timber Volume}}{\text{Total Timber Volume}}$$

Where:

Crown share (\$) = dollar amount to be allocated to stumpage-bearing timber in the cutting authority being appraised.

Total Cost Estimate (\$) = dollar amount of the total development cost estimate.

| Appraised Timber Volume (m³) = volume of appraised timber tributary to the project and under the control of the licensee or a company legally associated with the licensee, including volume in all areas contributing to the allowable annual cut determination.

Total Timber Volume (m³) = total volume tributary to the project and under the control of the licensee or a company associated with the licensee.

| In all cases, volumes are estimated from the latest approved operational or inventory cruise data and maps of the area within the drainage to the height of land.

The Crown share is a dollar amount which is written off against the first cutting authority, subject to Section 4.3.1 (5).

The development cost estimated is allocated as follows:

1. New development cost estimates in appraised timber areas on Crown lands.

- a. Development providing access to appraised timber only;

Total estimated costs by tabular or detailed engineering methods are included in the appraisal of the cutting authority;

- b. Development providing access to non-appraised timber only;

Cost estimates are not included in the appraisal.

- c. Development in appraised timber areas providing access to both appraised and non-appraised timber;

All costs are prorated between appraised and non-appraised timber, and then included in the appraisal.

2. Development cost estimates for full appraisal on Timber Licence (TL) cutting authorities.

- a. New development will be allocated as in part 1 of Section 4.3.1.
- b. Unamortized development on the TL that is required for access to the cutting authority will be included in the appraisal of that cutting authority. Unamortized development is defined as:
- i. the development started after January 1, 1988;
 - ii. development cost estimates were not included in any prior appraisal calculation for Crown timber (or were considered as zero), and
 - iii. having had no non-appraised timber transported over the development (excluding Right of Way timber).

Costs for this type of existing development are exempt from Section 4.3.1, part 4.

Cost estimates for these existing roads will be derived from the nearest appraised cutting authority by:

- i. establishing the average road cost per kilometre from that appraisal estimate, excluding bridges and pertinent structures, and
- ii. multiply that \$/km by the kilometres of tributary road in the TL cutting authority.

Cost estimates for bridges or pertinent structures will be derived from the tables in Section 4.3.2.4 or from the detailed engineering estimates as defined in Section 4.3.3. At reappraisal, these initial cost estimates for existing development will be trended as provided for in Section 4.12, but will not otherwise be revisited.

3. Development Costs on Private Land

A part of a new or reconstructed road may lie on private land and may have a reasonable probability of being required on a major or long term basis for either timber extraction, future management of Crown forest land and/or present or future public use. In order to be considered in stumpage appraisal cost estimates, the right-of-way ownership must first be transferred to the Crown, except as stated below.

When a road on private land is required for only short term timber extraction the estimated cost of the road is included in the appraisal according to the procedures of Sections 4.3.

4. Existing Roads and Structures

The costs of previously constructed roads that have been included in appraisals of Crown timber, roads constructed to develop non-appraised timber and roads constructed all or in part for purposes unrelated to logging the cutting authority being appraised are considered to be "existing roads" and are not eligible for inclusion in development cost estimates. If the "existing road" requires reconstruction, the cost estimate is made as described in Section 4.3.3. If the "existing road" is on private land, road and land use charges may be applicable as described in Section 4.7.

5. Extended Road Amortization

Development cost estimates are applied against the first cutting authority appraised. However, where the total development cost estimates exceeds \$4.00/m³, a written agreement may be made at the time of the initial appraisal which apportions the main access road cost estimate to two or more tributary cutting authorities. The main access road ends at the far boundary of the first cutting authority.

The agreement is subject to the following conditions:

- a. Only the main access roads serving the tributary cutting authorities (as defined in Section 4.3) may be considered. The roads must be on Crown land.
- b. Each cutting authority must be in the licensee's approved 5 year development plan.
- c. The agreement must be signed by the licensee and the licensor.
- d. The amount apportioned will be a fixed lump sum, which will be trended as provided for in Section 4.12 but not otherwise revisited.
- e. The term of the agreement must not exceed the terms of the cutting authorities.
- f. The agreement will only be valid under Comparative Value Timber Pricing (CVP) and confers no obligation on the Crown to compensate licensees for any unamortized costs.

6. Reconstruction and Replacement

Reconstruction and Replacement are defined as replacement or structural repair of; a major drainage structure (e.g. replacing stringers or cribbing), major resurfacing of a section of road or major reconstruction of a section of road.

Major resurfacing means resurfacing sections each more than 0.3 km in length that were initially surfaced but have deteriorated due to long term wear and tear.

Major reconstruction means restoring at least 0.1 km of road per occurrence that requires complete rebuilding of the subgrade. The occurrence must be due to some cause other than the failure of the licensee to carry out required maintenance procedures.

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

Reconstruction and replacement cost estimates will be determined as detailed engineering cost estimates (section 4.3.3.) and must be approved in advance by the District Manager. The cost estimates may only be applied to tributary timber.

Where bridge materials are re-used, at the second and subsequent locations, the cost estimate will include dismantling, transport and installation at the new site, but will exclude initial materials purchased and initial delivery costs of same.

Note: Costs may not be recognized if the licensee has been negligent or has not followed approved plans or standards.

7. Access Management

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

An access management cost estimate will be determined by an engineered estimate.

The access management must be required in the cutting authority document (based on a formal Access Management Plan).

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

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

4.5.4 Special Transportation Systems

A special transportation system is recognized in the appraisal where geographic conditions dictate its use.

The cost estimates include all costs associated with servicing the appropriate cutting authorities, excluding all on-site costs of owning and operating a camp facility.

The recognized special transportation systems are as follows:

1. *Railway*

a. Truck to Rail Transfer

When logs are appraised by railway for part of the way between the cutting authority and the point of appraisal, the cost estimate for the truck-to-rail transfer part of the phase is

B.C. Rail - Dease Lake Extension: \$4.57/m³

All Other Railways: \$1.89/m³

b. Railway Transportation

The railway transportation cost estimate is based on the following table for the points of origin shown. Otherwise, the best information on hand is used.

B.C. Rail Log Transportation

<u>Origin</u>	<u>Cost Estimate (\$/m³)</u>	<u>Point of Appraisal</u>
Leo Creek	10.91	Fort St. James
Lovell	12.30	Fort St. James
Bear Lake	13.91	Fort St. James
Minaret Creek	14.42	Fort St. James
Niteal	12.26	Fort St. John

2. *Barge/Ferry Used for Truck Haul (Private)*

When a truck haul road is interrupted by a body of water and the operation of a barge system is feasible to provide the road link for logging trucks, the cost estimate for this phase, regardless of ownership is:

- | | |
|--------------------------|-----------------------|
| a. Babine Lake (South): | \$1.52/m ³ |
| b. Kinbasket Lake: | \$2.44/m ³ |
| c. Revelstoke 1880 Lake: | \$2.58/m ³ |
| d. Williston Lake: | \$3.05/m ³ |

| For any other location, the cost estimate is determined by the Director, Revenue Branch.

3. *Barge/Ferry Not Used for Truck Haul (Private)*

The cost estimate includes all costs associated with the operation of the systems and includes bubble systems where applicable.

- a. When a cutting authority can be served only by water, and daily (operating days only) ferry/barge services are feasible for crew transportation, the cost estimate for this phase, regardless of ownership is:

- | | |
|-----------------|-----------------------|
| Babine Lake: | \$0.44/m ³ |
| Ootsa Lake: | \$0.39/m ³ |
| Kinbasket Lake: | \$2.46/m ³ |

| For any other location the cost estimate is determined by the Director, Revenue Branch.

4. *Other Systems*

The cost estimate for other systems are:

- | | |
|--|-----------------------|
| a. Arrow Dam Log Transfer: | \$1.88/m ³ |
| This includes raft dismantle and rebuild, and all related on-site costs. | |
| b. Hansard Low Water Bridge *: | \$0.38/m ³ |
| c. Williston Lake Dry Dump *: | \$2.36/m ³ |

* Applicable to winter logged volume estimate only.

4.6 Road Maintenance

Routine road maintenance includes, but is not limited to, the following:

- | | |
|---|---------------------------------------|
| • grading | • seasonal erosion control |
| • snowplowing and freezing in | • roadside treatments |
| • sanding | • sign maintenance |
| • spot gravelling (< 0.3 Km distance) | • dust control |
| • culvert repairs and thawing | • brushing |
| • culvert removal (< 950 mm) | • minor flood and storm damage repair |
| • culvert replacement (< 950 mm) | • slough removal |
| • non-structural maintenance of bridges | • water bar construction |
| • bridge re-decking | • road ripping |
| • ditching | • final erosion control |
| • winter road reconstruction | • cross ditch construction |
| | • grass seeding |

Routine road maintenance also includes minor repairs to roads due to slides, erosion and flood damage, and all road use charges paid to other licensees.

The cost estimate for all routine maintenance carried out on logging operations depend on the geographic location of the cutting authority. Cost estimates do not apply where there is less than one kilometre of road to be maintained.

For a management unit other than a Timber Supply Area or Tree Farm Licence (primarily Woodlot Licences), the routine road maintenance cost estimate is **\$1.07/m³**.

The geographic location is recognized by Forest Region, Timber Supply Area and Block, and Tree Farm Licence as follows.

Routine Road Maintenance Cost Estimates

<u>Region</u>	<u>TSA #</u>	<u>Name</u>	<u>Timber Supply Block etc.</u>	<u>\$/m³</u>
<u>Prince Rupert</u>	3	Bulkley	All	1.04
	4	Cassiar	All	1.36
	42	Cranberry	All	1.36
	10	Kalum	All	1.36
	12	Kispiox	All	0.86
	14	Lakes	All	0.62
	20	Morice	All	1.02
		TFLs 1,41		1.36

<u>Region</u>	<u>TSA #</u>	<u>Name</u>	<u>Timber Supply Block etc.</u>	<u>\$/m3</u>
<u>Kamloops</u>	11	Kamloops	1	1.42
	11	Kamloops	2, 3, 4	0.81
	15	Lillooet	All	2.17
	18	Merritt	All	1.04
	22	Okanagan	1, 2, 3	1.10
	22	Okanagan	4, 5	0.86
	22	Okanagan	6, 7, 8, 9	1.33
		TFL 15		1.10
		TFL 18		1.42
		TFL 33		1.33
		TFL 35		0.81
		TFL 49		0.86
<u>Prince George</u>	41	Dawson Creek	All	1.04
	8	Fort Nelson	All	2.02
	40	Fort St. John	All	1.15
	16	Mackenzie	All	1.71
	24	Prince George	G, H	1.24
	24	Prince George	E, F, I	0.87
	24	Prince George	D	0.84
	24	Prince George	A, B, C	0.94
	17	Robson Valley	All	1.72
	41	TFL 48		1.04
	24	TFLs 30,53		1.24
	24	TFL 42		0.94
<u>Nelson</u>	1	Arrow	All	1.90
	2	Boundary	All	1.24
	5	Cranbrook	All	1.41
	7	Golden	All	2.05
	9	Invermere	All	1.06
	13	Kootenay Lake	All	1.25
	27	Revelstoke	All	1.87
		TFL 3,23		1.90
		TFL 8		1.24
		TFL 13		1.41
		TFL 14		1.06
		TFLs 55,56		1.87

3. Other Land Use Charges

Foreshore leases, camp areas and dryland sorts are treated in the same manner as operations roads. Only non-governmental short term land use charges will be considered in appraisals.

Prior to a stumpage appraisal cost estimate (referred to in Section 4.7) being used in any appraisal, the licensee must:

- a. submit a "Request for Approval of a Road Use Charge" form with the appraisal data sheet; and
- b. receive written approval of the road or land use charge from the Director, Revenue Branch.

4.8 Administration and Other Costs

4.8.1 Overhead

Overhead cost estimates are for the related administration and supervisory activities attributed to logging and basic silviculture that occur at the head office, branch office and camp or operation.

Overhead costs include:

- Office Operations;
- Scaling;
- Engineering;
- Cruising;
- Environmental Protection,
- Waste and Residue surveys;
- Right-of-way easements;
- Foreshore and other land leases;
- Consultants fees where they are not specific to a project eligible for engineered costs.

| Any costs that will be reimbursed through Section 88 of the *Forest Act* are excluded.

Cost estimates for each point of appraisal are shown in the following table:

Group A \$3.43/m³	Group B \$3.52/m³	Group C \$3.36/m³	Group D \$2.99/m³
Carnaby	Chetwynd	Chasm	Bear Lake
Hazelton	Fort Nelson	100 Mile House	Burns Lake
Kitwanga	Fort St. John	Williams Lake	Clear Lake
Smithers	Taylor		Engen
Terrace			Fort St. James
			Fraser Lake
			Houston
			Isle Pierre
			Mackenzie
			Prince George
			Quesnel
			Strathnaver
			Upper Fraser
			Vanderhoof
Group E \$3.79/m³	Group F \$5.06/m³	Group G \$4.77/m³	
Armstrong	Adams Lake	Boston Bar	
Kamloops	Canoe	Canal Flats	
Kelowna	Castlegar	Cranbrook	
Lavington	Craigellachie	Creston	
Louis Creek	Donald	Elko	
Merritt	Lumby	Galloway	
Okanagan Falls	McBride	Grand Forks	
Princeton	Park Siding	Lillooet	
Squamish	Revelstoke	Lytton	
Westbank	Slocan	Midway	
	Thrums	Radium	
	Valemount		
	Vavenby		
	Ymir		

4.8.2 Isolated Cutting Authorities

An isolated cutting authority is defined as one that has no continuous road access from the nearest support center (listed in Section 4.4.2.8) to the centre of the cutting authority.

The exception is where there is continuous road access, but the route is not routinely used to transport people, equipment or supplies to the cutting authority. Continuous road access includes public ferry service or private daily ferry or daily barge service.

The isolation cost estimate covers the costs of moving people, equipment and supplies to and across the non-road portions of the route to the camp (or cutting authority where there is no camp) whether by crew boat, periodic barge service, air, or rail. Also covered are the depreciation, maintenance and operating costs of any camp facilities and the non-recoverable costs incurred for cookhouse, family quarters, bunk houses, shop, office and other pertinent buildings.

For isolated cutting authorities serviced by camps, the costs of moving people, equipment or supplies by road from the isolated camp location to the cutting authority are covered by the distance variable in the tree-to-truck equation.

The cost estimates for isolated cutting authorities at the following locations are:

- | | | |
|----|-----------------|-----------------------|
| 1. | Williston Lake: | \$6.07/m ³ |
| 2. | Niteal Rail: | \$4.18/m ³ |
| 3. | Quesnel Lake: | \$4.38/m ³ |

For any other locations, the cost estimate is determined by the Director, Revenue Branch.

5.2 Value Index

The stumpage rate charged on each cutting authority is keyed to the estimated Value Index of the stand to be harvested. The Value Index is defined as the Selling Price less the Operating Cost, both of which are estimates expected for an average operator in that stand. The formula to be used is:

$$VI = SP - OC$$

Where:

- VI = Value Index for the cutting authority
- SP = estimated stand Selling Price determined in accordance with Chapter 3
- OC = estimated Operating Cost applicable to the timber being appraised, and determined in accordance with Chapter 4.

5.3 Mean Value Index

The Interior Mean Value Index (MVI) is the benchmark against which individual stands of timber are compared. The Interior Mean Value Index is recalculated and published by Revenue Branch at the time of each quarterly stumpage adjustment. When distributed it becomes an integral part of this manual.

The MVI does not include appraisals from timber licences.

5.4 Market Value Indexing

At the times specified in Section 1.6, stumpage rates are adjusted upwards or downwards to reflect changes in the value of softwood lumber as indicated by the Statistics Canada British Columbia Softwood Lumber Index (INDEX) for the Interior number D693600.

New Interior Target Rate Calculation

1. If the INDEX is less than or equal to 161 then,
$$TR = \frac{INDEX}{139.0} * 8.59$$
2. If the INDEX is greater than 161, but less than or equal to 186 then,
$$TR = 9.95 + \left[\frac{(INDEX - 161)}{25} * 9.35 \right]$$
3. If the INDEX is greater than 186 then,
$$TR = 19.30 + \left[\frac{(INDEX - 186)}{49} * 6.74 \right]$$

Where: TR = New Target Rate (\$/m³)

Quarterly Stumpage Rate Adjustment Date

January 1
April 1
July 1
October 1

New Statistics Canada Index based on index values for the months of:

Preceding August, September, October
Preceding November, December, January
Preceding February, March, April
Preceding May, June, July

The applicable Statistics Canada Index is published by Revenue Branch at the time of each quarterly stumpage adjustment. When distributed it becomes an integral part of this manual.

5.5 Base Rate

| The Interior Base Rate is redetermined and published by Revenue Branch at the time of each quarterly stumpage rate adjustment. When distributed it becomes an integral part of this manual.

5.6 Calculation of Stumpage Rate

5.6.1 Calculation of Indicated Stumpage Rate

The Indicated Stumpage Rate for a cutting authority is defined as:

$$IR = BR + (VI - MVI)$$

Where:

- IR = Indicated Stumpage Rate
- BR = Interior Base Rate as defined in Section 5.5
- VI = Value Index for the cutting authority as defined in Section 5.2.
- MVI = Interior Mean Value Index, as defined in Section 5.3

5.6.2 Prescribed Minimum Stumpage Rate

The Minimum Stumpage Rate is prescribed by the *Minimum Stumpage Rate Regulation* (B.C. Reg. 354/87). The current Minimum Stumpage Rate is \$0.25 per cubic metre.

5.6.3 Reserve Stumpage Rate

For each cutting authority, the Reserve Stumpage Rate is the greater of its Indicated Stumpage Rate or the prescribed Minimum Stumpage Rate.

5.6.4 Upset Stumpage Rate

The Upset Stumpage Rate is the total of the Reserve Stumpage Rate plus any silviculture and development levies which may be charged as defined in Section 6.6.

5.6.5 Total Stumpage Rate

The Total Stumpage Rate is the Upset Stumpage Rate plus any Bonus Bid.

6.7 Miscellaneous Stumpage Rates

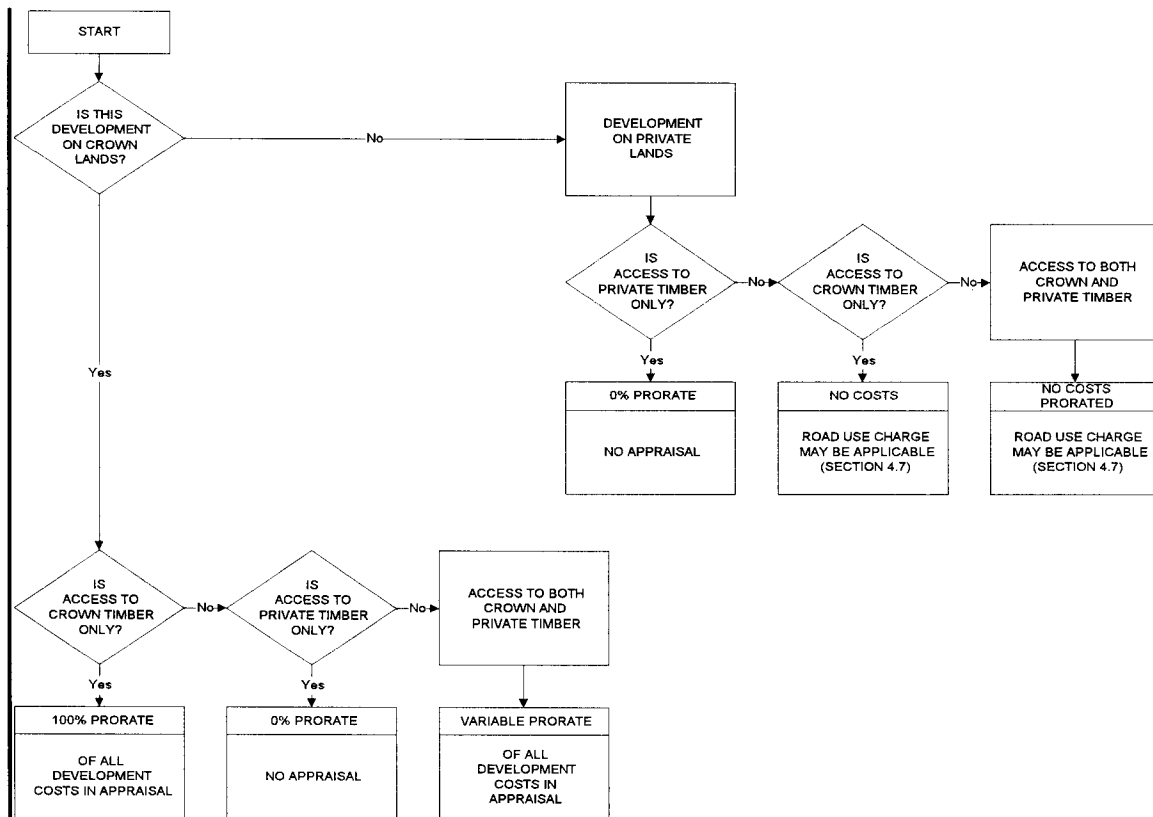
All Forest Regions

Species	Product	Reserve Stumpage Rate
Cedar	Shakes	\$6.00/m ³
Cedar	Blanks	\$7.20/m ³
Cedar	Fence Posts	\$3.00/m ³
Cedar	Mining Timbers & Fence Rails	\$3.00/m ³
All Species	Firewood	\$0.50/m ³
All Species	Bolts/Blocks	\$5.30/m ³
Yew	All	\$0.25/m ³
All Species	Grades: 3, 4, 5 and 6	\$0.25/m ³
All Deciduous	All (except Lumber Reject)	\$0.50/m ³
All Species	Orchard Props, Rails, Mining Timbers, Mine Cribbing, Fence Posts	\$1.20/m ³ \$1.20/m ³
	Pickets & Palings	\$1.20/m ³
	Car Stakes, Round Stakes & Sticks	\$1.20/m ³
	Rails (Split), Lagging (Split)	\$1.20/m ³
All Species	Christmas Tree: under 3m	\$0.20/each
	3-5 m	\$1.00/each
	over 5 m	\$1.50/each
All Species	Logs salvaged below the high water levels of the Mica, Arrow, Revelstoke, W.A.C. Bennett Dam Flood Basins and the Slocan, Kootenay, Mineral, Babine and Ootsa Lakes.	\$0.25/m ³
All Species	Trees classified as "Dead Potential" on Cruise-based cutting authorities	\$0.25/m ³

Forest District Specific

Description	District	Reserve Stumpage Rate
Gross area cleared for	Cranbrook	\$1,147/ha
seismic lines, gas or oil	Dawson Creek	\$579/ha
well sites and right-of-	Ft. Nelson	\$579/ha
way to well sites	Ft. St. John	\$579/ha

Appendix III Development Cost Allocation



Crown Timber = Appraised timber including appraised Timber Licences

Private Timber = Non-appraised timber

Variable Prorate = A tributary-volume type prorate between appraised and non-appraised timber

