BRITISH COLUMBIA

Ministry of Forests, Lands, Natural Resource Operations and Rural Development Minister's Office

MEMORANDUM

File: 237186

March 27, 2018

To: Coast Executive Directors

From: Honourable Doug Donaldson, Minister, Ministry of Forests, Lands, Natural Resource Operations and Rural Development

Re: Amendment No. 2 to the *Coast Appraisal Manual (CAM)*

I hereby approve Amendment No. 2 to the *Coast Appraisal Manual* to be effective on April 1, 2018. The amendment:

1. Provides for certification by a forest professional regarding changed circumstance.
2. Provides for prorated:
    a. 'isolated' variable in the estimated winning bid equation; and
    b. cost estimates for specified operations regarding Clayoquot Sound and ecosystem based management.
3. Provides for new development distribution agreements to replace extended amortization agreements.
4. Adds a new tabular road cost estimates table.
5. Updates the "Forest District Low Grade Fractions by Timber Species" table.

Copies of the amendment and the amended CAM are available at the following link:

https://www2.gov.bc.ca/gov/content/industry/forestry/competitive-forest-industry/timber-pricing/coast-timber-pricing/coast-appraisal-manual

Further amendments or revisions to this manual require my approval.

Doug Donaldson
Minister

pc Chris Stagg, Assistant Deputy Minister, Timber Operations, Pricing and First Nations
Vera Sit, Executive Director, Timber Pricing and Softwood Lumber
Allan Bennett, Director, Timber Pricing Branch
Jason Nunn, A/Manager, Timber Pricing Branch

TIMBER PRICING BRANCH

Coast Appraisal Manual

Effective December 15, 2017

Includes Amendments	Effective Date
Amendment No. 1	March 1, 2018
Amendment No. 2	April 1, 2018

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1 Definitions and Interpretations

1.1 Definitions and Interpretations

In this manual:

"**Act**" means *Forest Act*;

"**Accurate**" for the purposes of Section 105.1 of the *Act* as it applies to this manual means submitted in accordance with the requirements of this manual;

"**Anniversary date**" means the annual recurrence of the month and day when the term of the cutting authority began;

"**Appraisal Data Submission (ADS)**" means the information required by the person who determines the stumpage rate to determine the stumpage rate including a forest professional's signed submission in the form required by the director and any other information required by the regional manager or district manager;

"**Billing history record**" means a record of log scale data derived from a record kept by the Timber Pricing Branch of log scale data reported on stumpage invoices issued by the Timber Pricing Branch for timber scaled under Section 94 of the *Act*; and for greater certainty does not include billing data from cruise based cutting authorities; but for any cutting authority with an effective date prior to October 1, 2012, the billing history record to be used in a minister-directed reappraisal under Section 3.3.8 shall include billing data from cruise based cutting authorities;

"**BCTS**" means BC Timber Sales;

"**BCTS licence**" means a timber sale licence entered into under Section 20 of the *Act* or Section 21 as it was before it was repealed;

"**Bonus Bid**" means a bonus bid described in Section 103(1)(d) of the *Act*;

"**Bonus Offer**" means a bonus offer described in Section 103(2) of the *Act*;

"**Changed Circumstance Certification**" means a Changed Circumstance Certification statement submitted in ECAS by a forest professional (refer to section 3.3.1);

"Coast Area" means West Coast and South Coast forest regions or Coast Forest Region;

"Coast Mountain Forest District" means that part of the Coast Mountain forest district that is within the geographic boundaries of the Great Bear Rainforest North;

"**Coniferous cruise volume**" means that part of the total net cruise volume which is coniferous timber;

"**Controlled Recreation Area**" means controlled recreation area as defined in the *Resort Timber Administration Act*;

"**Cruise based billing cutting authority**" means a cutting authority where under Section 106 of the *Act* the stumpage payable is calculated using information provided by a cruise of the timber conducted before the timber is cut;

"**Cutting authority**" means:

a. a cutting permit issued under a forest licence, a timber sale licence, a timber licence, tree farm licence, a community forest agreement, a community salvage licence, a woodlot licence, a master licence to cut, a forestry licence to cut, or First Nations woodland licence;

b. a timber sale licence that does not provide for the issuance of a cutting permit,

c. all other licences to cut, or

d. a road permit;

"**Cutting authority area**" means the area where timber may be harvested under authority of;

a. a cutting permit,

b. a timber sale licence that does not provide for the issuance of a cutting permit,

c. a licence to cut, or

d. a road permit;

"**Deciduous timber**" means timber that is any of the alder, birch, cottonwood and maple species;

"**Detailed engineering**" means non-tabular;

"**Director**" means director of Timber Pricing Branch of the Ministry of Forests, Lands Natural Resource Operations and Rural Development, or the Director's designate;

"**District manager**" means:

a. Except as provided in paragraph (b) of this definition, the district manager or district manager's designate;

b. Where the cutting authority area being appraised or reappraised is located in a controlled recreation area designated under the *Resort Timber Administration Act*, then district manager means an employee of the Ministry to whom the minister has delegated the minister's powers and duties under Section 2 of the *Resort Timber Administration Act;*

"**Effective Date**" means, unless otherwise specified in the manual:

a. the date the upset stumpage rate is determined when required for advertising for competitive award, or

b. the effective date of the cutting authority when the stumpage rate is determined for a cutting permit or a direct award licence;

"**Executive Director, BCTS**" means Executive Director, BCTS or Executive Director, BCTS' designate;

"**Forest Professional**" means a Registered Professional Forester (RPF) or a Registered Forest Technologist (RFT) or a special permit holder acting within the scope of their permit, registered and in good standing with the Association of British Columbia Forest Professionals;

"Great Bear Rainforest North (GBRN)" means all Crown land that is within the geographic boundaries of:

a. the GBR North Timber Supply Area as prescribed by regulation; and

b. that part of the Tree Farm Licence No. 25 within the Coast Mountain and North – Island Central Coast Forest Districts; and

c. within Forest Licences A91438 and A94535;

"**Harvest Area**" means the area indicated for harvest on an appraisal map submitted by the licensee;

"**Helicopter Selection**" means the harvesting of single trees within standing residual timber that have been felled and then removed using a helicopter;

"**Hogged Tree Material**" means tree residues or by-products that have been shredded into smaller fragments by mechanical action and is made from post-harvest material where a waste assessment has been made. Where the post-harvest material is removed from an area that is or was a cruise based billing cutting authority, a waste assessment is not required;

"**Immature coniferous timber**" means coniferous timber that is younger than 121 years old;

"Intact cutblock" means 90% or more of a cutblock's total net cruise volume approved under the cutting authority remains unharvested (standing, felled or decked);

"**Licensee**" means the holder of a cutting authority;

"**Low grade**" means grades 'X' and 'Y' of all species and 'U' grade hemlock and balsam;

"**Main Access Road**" means a long-term (i.e., in use for more than ten years) mainline road that is tributary to the appraised cutting authority area, or is used to transport bulk fuels, supplies, equipment or harvesting crews necessary to carry out day-to-day harvesting activities on that area, and has an average stabilized subgrade width greater than seven metres;

"**Manual**" means *Coast Appraisal Manual*;

"**Mature coniferous timber**" means coniferous timber that is 121 years old or older;

"**Minister**" means Minister of Forests, Lands, Natural Resource Operations and Rural Development;

"**Ministry**" means Ministry of Forests, Lands,Natural Resource Operations and Rural Development (FLNRORD);

"**Net cruise volume**" means the gross volume of all species listed in Section 4.2.3(1), plus alder, birch, cottonwood and maple in the cutting authority area minus the volume of decay, waste and breakage in that timber unless otherwise specified in the *Cruising Manual*;

"**Old growth coniferous timber**" means coniferous timber that is 141 years old or greater;

"**Primary Harvesting Activities**" means the cutting and removal of timber from a cutting authority area;

"**Problem forest stands**" means a cut block approved by the district manager for inclusion in the coast problem forest stand pilot project under Section 2.2.3;

"**Regional Executive Director**" means regional executive director of the West Coast Region or South Coast Region or the regional executive director's designate;

"**Regional manager**" means regional executive director of the Ministry or except for Section 2.1.1(1)(a), regional executive director's designate;

"**Regulations**" means regulations under the *Act*;

"**Remaining volume**" means the total net cruise volume of a cutting authority area minus the total volume of timber in the billing history record of the cutting authority area on the effective date of the reappraisal of the cutting authority area;

"**Road Permit**" means road permit or the timber mark for a road permit that is associated with the applicable tenure listed in Section 115(1) of the *Act*;

"**Scale Based cutting authority**" means a cutting authority where under Part 6 of the *Act*, the stumpage payable is based on a scale of the timber harvested from the cutting authority area;

"**Second growth coniferous timber**" means coniferous timber that is less than 141 years old;

"**Selling price zone 51**" means the table of coast market pricing system log values for old growth coniferous timber, approved by the Director;

"**Selling price zone 52**" means the table of coast market pricing system log values for second growth coniferous timber, approved by the Director;

"**Skyline**" means any method of yarding where the logs are fully suspended above the ground by a short span, long span, or multi-span system using a carriage with standing or running lines;

"Stand as a Whole (SAAW) Pricing`` means the stumpage payable is a single amount for the Total Net Cruise Volume of the cutting authority area that will be based on a cruise of the timber as authorized under Section 106 of the *Act*,

"Stumpage Appraisal Parameters" means the:

a. BC Consumer Price Index (CPI);

b. Applicable Coast Domestic or Export-Adjusted Log Average Market Values;

c. Total Coast Harvest and Export Share; and

d. Lumber Average Market Values for each of Cedar, Fir and Hemlock

as approved and published by the Director;

"**Timber Pricing Branch**" means Timber Pricing Branch of the Ministry of Forests, Lands, Natural Resource Operations and Rural Development;

"**Timber Sales Manager**" means a timber sales manager appointed under the *Ministry of Forests and Range Act* for a BC Timber Sale business area, or the timber sales manager's designate;

"**Total net cruise volume**" of a cutting authority area (tncv) is the product of the net cruise volume per hectare of the cutting authority area (ncv/ha) multiplied by the total merchantable timbered area to be harvested under the cutting authority (tmta). Expressed as an equation: $tncv = \frac{ncv}{ha} x\ tmta$;

"**Tributary cutting authority area**" means a cutting authority area from which timber must be transported over the road that is developed, or a cutting authority area to which bulk fuels, supplies, equipment and harvesting crews necessary to carry out the day-to-day harvesting activities on that area must be taken on a regular basis over the road that is developed;

"**Unit cost**" means cost estimate expressed in dollars per cubic metre;

"**Woodchips**" means timber that has been cut into small pieces by a chipper and is made from post-harvest material where a waste assessment has been made. Where the post-harvest material is removed from an area that is or was a cruise based billing cutting authority, a waste assessment is not required.

2.2 Numbering System

The following exemplifies the numbering system that is used in this manual.

1.	= Chapter
1.1 or 1.1.1.1	= Section
1.1.1.1 (2)	= Section with subsection
1.1.1 (2)(a)	= Section with subsection and paragraph.
Table 4-2	= Table 2 within Chapter 4

2.2.1 Calculation Conventions

1. Every calculation required to be performed will be performed to the full capacity of a calculating machine with the results truncated at four places of decimals and rounded to two places.

2. A result from 5 to 9 will be rounded upward and a result from 1 to 4 will be rounded downward.

3. Each calculation of a tenure obligation adjustment or specified operation adjustment expressed in dollars per cubic metre will be rounded to the nearest cent.

4. Where a value is specified as a limit, for example a constraint or a requirement for an equation,

    a. the value will be treated as an absolute value, and

    b. an actual measurement or record will not be rounded before use unless otherwise specified in this manual.

2.2.2 Cutblocks within a Cutting Authority Area

1. Except as provided for in subsections 1(c), 2, 5 and Section 2.2.4, all cutblocks within a cutting authority area must:

    a. have each of their geographic centres within the same appraised point of origin area as identified in Section 4.2.5.3; and

    b. be fully contained within the same timber supply block, or in the case of a cutting authority area under a tree farm licence, be contained within the same forest district.

    c. For a cutting authority issued under Section 20 of the *Act* within the GBRN Timber Supply Area, all cutblocks within a cutting authority area must:

        i. have each of their geographic centres within the same appraised point of origin area as identified in Section 4.2.5.3; and

ii. be located and fully contained within only Timber Supply Blocks:

1. 46A, 46B, 46C, 46D, 46E and or 46F; or

2. 46G, 46H, 46I, 46J and or 46K.

2. A cutting authority approved by the district manager under Section 2.2.3:

   a. is not constrained by subsection 1 above;

   b. must be located anywhere within the same timber supply area, or in the case of a tree farm licence or first nations woodland licence, be contained within the same forest district, where the licensee is entitled to harvest under the licence that the cutting authority has been issued under; and

   c. is not eligible for a development distribution agreement.

3. Helicopter single standing stem selection as described in Section 4.4.4 must not be combined with any other harvest method within the same cutting authority area.

4. Except as provided in subsection (3) of this section, there are no other restrictions on what types of harvest methods may be used in or which types of timber can be contained in a cutting authority area.

5. The road right of way that provides access to and is sold as part of a BCTS licence, is exempt from the requirement to be located within the same timber supply block or tree farm licence as the BCTS licence.

2.2.3 Coast Problem Forest Stands Pilot

1. A problem forest stand is a cutblock comprised completely of one or more of the following stand characteristics:

   a. Poor timber types (old growth timber height class 3 or less), or

   b. located at elevations greater than 700 metres, or

   c. greater than 80% old growth hemlock/balsam.

2. A cutting authority considered for this pilot must be under a tree farm licence, a First Nations woodland licence or a replaceable forest licence and have one or more cutblocks meeting the criteria of subsection 1.

3. Licensees participating in this pilot must submit appraisal information allowing for the determination of the value differential in accordance with the requirements prescribed by the director.

4. Licensees must not exceed their value allocations for this pilot.

3.3 Reappraisals

1. Where these policies and procedures require a reappraisal to be performed, except as provided in Section 3.6, the stumpage rate must be redetermined in accordance with the relevant policies and procedures that are or were in effect as the case may be on the effective date of the reappraisal.

2. Except as provided in subsection (3) of this section, paragraph 3.3.1(1)(d), or sections 3.3.2 to 3.3.7, or otherwise directed by the Minister under Section 3.3.8, a reappraisal is a complete reassessment of the cutting authority area at the time of the reappraisal by the person who determines the stumpage rate taking into account:

   a. a revised appraisal data submission submitted by the licensee in accordance with this manual, and

   b. information available to the person who determines the stumpage rate.

3. Road development costs originally estimated using ministry approved competitive bids may not be re-estimated in a reappraisal.

3.3.1 Changed Circumstances

1. A changed circumstance on or in relation to a cutting authority area means a circumstance where:

   a. i. the licensee or a contractor working on the licensee's behalf has harvested or will harvest at least fifteen percent of the volume of timber on the cutting authority area using a harvest method that is different from the harvest method used in the most recent appraisal or reappraisal of the cutting authority area, and

      ii. the different harvest method when taken into account in a changed circumstance reappraisal will produce the highest stumpage rate within the meaning of Section 4.1.

   b. there will be a difference of at least fifteen percent between the total road development unit cost in the changed circumstance reappraisal and the total road development unit cost that was used in the most recent appraisal or reappraisal where this difference results from circumstances other than a change in the manual or a change as a result of a stumpage adjustment.

   c. the cutting authority is scale based and land containing merchantable timber has been either added to or deleted[1] from the cutting authority area since the most recent cruise compilation or recompilation that was used in that most recent appraisal or reappraisal that exceeds either:

      i. fifteen hectares or

ii. fifteen percent of the area of the cutting authority area as it was prior to the addition or deletion of the land, or

d. at least fifteen percent of the total net cruise volume that was used in the most recent appraisal or reappraisal of the 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 the *Wildfire Act* and Regulations.

e. the cutting authority is cruise based billing and there has been a change[1] in the harvest area when compared to the most recent appraisal map submitted that exceeds three hectares.

The area used for cruise based billing shall only be changed to reflect the new area when:

i. the harvest area has decreased and the cutting authority has been amended,

ii. the harvest area has increased, or

iii. the change in harvest area described in this subsection triggers a changed circumstance under this Section.

f. i. the cutting authority is scale-based, consists of two or more cutblocks, has expired or has been surrendered, and one or more intact cutblocks remain and greater than fifteen percent of the cutting authority area remains unharvested.

ii. The cutting authority will be reappraised:

aa. excluding all applicable appraisal information associated with the intact cutblock(s), provided that at least one cutblock in the cutting authority is not an intact cutblock; or

bb. including all applicable appraisal information associated with the timber removed, provided that each cutblock in the cutting authority is an intact block.

iii. Planned and existing road development cost estimates associated with the intact cutblock(s) that is excluded from the cutting authority reappraisal may be included in future appraisals or reappraisals.

iv. This subsection is only applicable to cutting authorities with an effective date on or after September 1, 2016.

2. The licensee must notify the district manager immediately of a changed circumstance.

3. Where the district manager believes that a changed circumstance has occurred, the district manager will notify the licensee of that belief.

4. A cutting authority area other than a cutting authority area that is the subject of a road permit or a cutting authority with fixed rates must be reappraised when a changed circumstance has occurred.

[1] Measured as the absolute change, e.g. an addition of 15 hectares and the subtraction of 15 different hectares is a 30-hectare change for the purposes of this section.

5. Where a cutting authority area is reappraised because of a changed circumstance, any bonus bid or bonus offer in existence prior to the reappraisal does not change and remains in effect.

6. For cutting authority areas appraised under a cutting authority issued on or after July 1, 2018, and except for a minister's direction or sudden and severe damage reappraisal, the forest professional must certify:

    a. that no changed circumstances exist; or
    b. a changed circumstance reappraisal

    no later than 60 days after the completion of primary harvesting activities, or the cutting authority expiry date, whichever comes first.

7. The forest professional may request an extension to the 60-calendar day submission deadline of a changed circumstance certification by submitting a work plan and a proposed new submission date to the Coast Area appraisal staff. If agreed to, the proposed submission date is the new submission deadline date.

3.3.1.1 Changed Circumstance Reappraisal Procedure

1. Where the cutting authority area must be reappraised because of a changed circumstance, the licensee shall submit to the district manager an appraisal data submission.

2. Thereafter, the reappraisal procedure shall be the procedure required by Section 3.2(2) through 3.2(11).

3.3.1.2 Effective Date of Changed Circumstance Reappraisal

1. Except as provided in subsections (2) and (3) of this section, a reappraisal because of a changed circumstance under Section 3.3.1(1) is effective on the day after the effective date of the most recent appraisal or reappraisal of the cutting authority area prior to the changed circumstance reappraisal.

2. Where the changed circumstance is a result of sudden and severe damage referred to in subsection 3.3.1(1) (d), the effective date of the reappraisal is the first day of the month following the date when the event that caused the sudden and severe damage stopped on the cutting authority area.

3. A Section 3.3.8 minister directed reappraisal after January 15, 2009, will not be considered an appraisal or reappraisal for the purpose of determining the effective date of the changed circumstance reappraisal.

3.3.2 Annual Reappraisal of a Road Permit

1. Subject to Sections 3.3.7 and 7.3, a cutting authority area that is the subject of a road permit must be reappraised effective February 1 of every year.

2. The stumpage rate determined under subsection (1) of this section will be a fixed stumpage rate until the cutting authority area is reappraised.

3.3.3 Annual Reappraisal of Salvage Logging Stumpage Rates

1. Except where a cutting authority requires the payment of a bonus bid or a bonus offer, where the stumpage rate for a cutting authority has been determined under Section 7.4, the cutting authority area authorized for harvest under that cutting authority must be reappraised effective March 1st of every year.

2. A stumpage rate determined under subsection 1 of this section will be a fixed stumpage rate between the time that the cutting authority area is reappraised and the time that it is subsequently reappraised.

3.3.4 Annual Reappraisal of a Linear Tenure

1. Subject to Section 7.7, a cutting authority area that is the subject of a linear tenure must be reappraised effective March 1 of every year.

2. A stumpage rate determined under subsection (1) of this section will be a fixed stumpage rate until the cutting authority area is reappraised.

3.3.5 Annual Reappraisal of a Cutting Authority in a Controlled Recreation Area

1. Subject to Section 7.8, a cutting authority area within a controlled recreation area must be reappraised annually on the anniversary date of the cutting authority.

2. A stumpage rate determined under subsection (1) of this section will be a fixed stumpage rate until the cutting authority area is reappraised.

3.3.6 Annual Reappraisal of a Cutting Authority with Stumpage Rates Determined Under Section 7.5

1. A cutting authority area with stumpage rates determined under Section 7.5 must be reappraised effective March 1 of every year.

2. A stumpage rate determined under subsection (1) of this section will be a fixed stumpage rate until the cutting authority area is reappraised.

3.3.7 Annual Reappraisal of a Cutting Authority in the Great Bear Rainforest North

1. Subject to Section 7.10, all road permits, and a cutting authority area with an effective date on or after June 15, 2016, located within the Great Bear Rainforest North must be reappraised effective March 1 of every year.

2. Stumpage rates determined under subsection (1) of this section will be fixed stumpage rates until the cutting authority area is reappraised.

3.3.8 Minister's Direction

1. The Minister may direct:

   a. a determination, redetermination or variance of a stumpage rate at any time, and that

   b. the determined, redetermined or varied stumpage rate will be effective on any future date.

3.3.8.1 Minister's Direction Procedure

1. If requested by the person responsible for stumpage determinations, the licensee shall submit to the district manager an appraisal data submission within forty-five days of the request.

2. Thereafter, the procedure for determining, redetermining or varying a stumpage rate under Section 3.3.8 shall be the same procedure as that required by subsections 3.2 (3) through 3.2 (12) except as may otherwise be directed by the minister.

3.4 Quarterly Adjustments

1. Unless a cutting authority, previous manual, or a provision of this manual specifies that the stumpage rates of a cutting authority are fixed, the stumpage rate of a cutting authority is adjusted quarterly on January 1, April 1, July 1, and October 1, of each year.

2. At the time of the quarterly adjustment referred to in subsection (1), the stumpage rate will be recalculated using the following criteria that is effective on the month of the adjustment:

    a. The equation applicable for the appraisal effective date and the appraisal data submission which was used in the most recent appraisal or reappraisal; and

    b. The stumpage appraisal parameters as approved by the Director for the month, in conjunction with, and as and where applicable with the following appraisal or reappraisal effective dates:

        i. Coast domestic log market values for effective dates prior to March 1, 2016 and on or after December 15, 2017;

        ii. Coast export-adjusted log market values for effective dates on or after March 1, 2016 and before December 15, 2017;

        iii. EXPORTSHARE, and TOTALHARVEST, for effective dates on or after December 15, 2017;

        iv. Lumber AMVs for each of cedar, fir and hemlock, for effective dates on or after December 15, 2017; and

        v. BC Consumer Price Index (CPI); and

    c. All other data will remain unchanged.

The procedure referred to in this subsection is conducted each quarter until the cutting authority area is reappraised or the cutting authority expires.

CRUISE	If cruise is used as source of log grades for the appraisal for greater than 50 percent of the total net cruise volume, then CRUISE = 1, otherwise CRUISE = 0
ISOLATED	As applicable, an isolated cutting authority area or individual cut block(s) is one where all parts of the cutting authority area or individual cut block(s) are not connected, or the service landings used to support the yarding of timber from a cutting authority area or individual cut block(s) by helicopter are not connected, by a road suitable for motor vehicles to the centre of the nearest community. The nearest community must be a city, district municipality, town or village and must have retail food and gasoline services located nearby. This includes all communities serviced by public ferry. For appraisals or reappraisals effective prior to July 1, 2018, ISOLATED = 1 if all parts of the cutting authority area are isolated, otherwise ISOLATED = 0. For appraisals or reappraisals effective on or after July 1, 2018, ISOLATED will be the fraction that results from dividing the net cruise volume of the individual cut block(s) that is/are ISOLATED, by the net cruise volume of the cutting authority.
LUMPSUM	If the cutting authority is a cruise based competitive timber sale with a stand-as-a-whole rate, then LUMPSUM = 1, otherwise LUMPSUM = 0
EXPORTSHARE	Rolling 12-month average of non-BCTS export volume divided by the total exportable non-BCTS harvest volume, as published in the approved stumpage appraisal parameters.
*CEDARCYPRESS	The fraction of the coniferous cruise volume that is cedar and cypress. CEDARCYPRESS is in decimal form, rounded to 2 decimal places.
TOTALHARVEST	Rolling 12-month total Coast harvest volume, as published in the approved stumpage appraisal parameters.
VOL	That part of the total net cruise volume in the cutting authority area that is coniferous timber except that where the cutting authority is a timber licence or is issued under a licence with an AAC greater than 10 000 m^3, then VOL = 34,300. VOL is expressed in m^3, rounded to the nearest whole number.
DISTAVGNBID	The average number of bidders for the forest district within which the cutting authority area is located is listed in Table 4-2.

Table 4-1: BC Albers Coordinates

BC Albers		At or Near	Code
Northing	**Easting**		
555,923	1,053,751	Campbell River	CARV
471,591	1,297,829	Chilliwack	CHWK
1,042,589	957,885	Houston	HOUS
580,589	1,373,908	Merritt	MERR
463,314	1,149,638	Nanaimo	NANA
1,041,636	719,914	Prince Rupert	PRRU
1,060,362	832,121	Terrace	TERR
+476,584	1,211,198	Vancouver	VANC
381,554	1,196,533	Victoria	VICT

Table 4-2: Average Number of Bidders by Forest District

Forest District	Average Number of Bidders
Campbell River Forest District	5.30
Chilliwack Forest District	3.19
Coast Mountain (North Coast) Forest District	1.67
Haida Gwaii Forest District	2.92
North Island - Central Coast Forest District	4.46
Sea to Sky (Squamish) Forest District	3.17
South Island Forest District	5.13
Sunshine Coast Forest District	4.01

4.3.2 EWB – Call Grade Net Factor Based

EWB ($/m3) = CPIF * [-53.69

+ 0.4446 (ALP/CPIF)

+0.06093 ((CEDLBRAMV/CPIF)*CEDAR)

+0.05989 ((FIRLBRAMV/CPIF)*FIR)

+ 0.02037 ((HEMLBRAMV/CPIF)*HEMLOCK)

+ 32.25 (CYPRESS)

– 0.4266 (SLOPE(1-HELI))

–52.28 (HELILAND*HELI)

–41.84 (HELIWATER*HELI)

+34.23 (VPH/1000)

-0.07517 (LOCATION)

+5.432 (DFIR2G)

– 19.29 (GAMBDIST400)

+ 2.318 (CRUISE)

– 10.20 (ISOLATED)

-7.725 (LUMPSUM)

+35.59 (EXPORTSHARE)*(1-CEDARCYPRESS)

+0.6738 (TOTALHARVEST)

+0.5829 (Ln(VOL/1000))

+1.963 (DISTAVGNBID)]

Note: Ln = natural logarithm

4.4 Specified Operations

1. The specified operations in sections 4.4.1 to 4.4.9 may be considered in an appraisal or a reappraisal.

4.4.1 Skyline

1. A skyline adjustment expressed in $/m^3 may be calculated for those areas within a cutblock that:

   a. are 600 metres or greater measured in a straight line horizontal distance from the centre of the closest possible landing or place where a landing may be located, and

   b. are yarded by skyline.

2. The skyline adjustment may be calculated by adding the volume of timber to which the skyline may apply to the volume of timber to be helicopter yarded as prescribed in Section 4.2.

4.4.2 Inland Water Transportation

1. An inland water transportation adjustment will be determined for that part of the cutting authority area where timber must be towed on Great Central, Owikeno or Powell Lake or any other inland water authorized by the person that determines the stumpage rate in order for the timber to be transported to the point of appraisal.

2. The adjustment shall be $6.75 per cubic metre.

4.4.3 Clayoquot Sound Operating Costs

1. The Clayoquot Sound operation adjustment may be considered in the appraisal of a cutting authority that lies within that part of the Coast Area when the licensee has an approved forest stewardship plan which conforms with the land use objectives made applicable under the order by the Ministry of Agriculture and Lands pursuant to Section 93.4(1) of the *Land Act* entitled:

   a. Order Establishing Land Use Objectives for Clayoquot Sound, dated May 28, 2008.

2. A Clayoquot Sound Operation adjustment will be determined based on the following criteria. For an appraisal or a reappraisal of a cutting authority area that is:

   a. located entirely within the Clayoquot Sound area, the adjustment shall be $7.13/m^3; or
   b. not located entirely within the Clayoquot Sound area and has an appraisal or reappraisal effective date on or after July 1, 2018, the adjustment shall be the product of:

      i. $7.13/m^3 multiplied by

      ii. the fraction that results from dividing the net cruise volume portion of the

cutting authority located within the Clayoquot Sound area by the net cruise volume of the entire cutting authority.

3. In the case of paragraph (b) above, the licensee must provide the prorated Clayoquot operating cost calculation in the appraisal data submission.

4.4.4 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.

2. This adjustment may only be included in the appraisal or reappraisal of a cutting authority area if:

   a. helicopter single standing stem selection is the only harvest method that has been permitted by the district manager to harvest timber in the cutting authority area, and

   b. helicopter single standing stem selection is also, the only harvest method used to harvest all of the timber in the cutting authority area.

3. The adjustment for helicopter single standing stem selection includes the cost of marking, climbing, limbing, undercutting, wedging, breaking and removal of the tree by helicopter.

4. The adjustment for helicopter single standing stem selection is $\$37.78/m^3$.

4.4.5 Destumping for Root Disease Control

1. Destumping is the activity of:

   a. lifting and rolling of stumps out of the ground to lessen soil disturbance and root breakage,

   b. destumping may also include the shaking of stumps to remove soil, and

   c. raking the area immediately around the hole to remove any large root pieces.

2. A destumping adjustment will be determined for that part of the cutting authority area where destumping for root disease control is required. The treatment area must be accurately delineated and shown on the appraisal map and be included in the site plan.

3. The adjustment shall be $1,114.00 per hectare of area that will be destumped.

4.4.6 Tree Crown Modification

1. Where the protection of trees is deemed necessary by a forest professional to achieve forest management objectives, a tree crown modification adjustment may be considered in the appraisal or reappraisal.

2. For the purposes of subsection (1), tree crown modification means the removal of 25% to 50% of the tree crown of standing trees by spiral pruning or tree topping.

3. The adjustment is the sum of the costs for all of the trees that are modified divided by the total net cruise volume of the cutting authority area.

4. The area requiring tree crown modification must be shown or described on the appraisal map and the calculations in support of the appraisal submission must be available for inspection upon request by the district manager.

5. The gross number of potential stems per hectare to treat will be based on the cruise stand table for the timber type that the treatment area is located within or is adjacent to. The potential stems exclude dead and deciduous trees.

6. The rate for tree crown modification:

    a. for each old growth coniferous tree that is modified is $35.05, and

    b. for each second growth coniferous tree that is modified is $15.17.

4.4.7 Ecosystem Based Management Operating Costs

1. Except as provided in subsection (2) of this section, the ecosystem based management adjustment may be considered in the appraisal of a cutting authority area that lies within that part of the Coast Area when the licensee has an approved forest stewardship plan which conforms with the objectives listed under the Land Use Order to which land use objectives have been made applicable by orders made by the Minister, pursuant to Section 93.4 of the *Land Act* entitled:

    a. Great Bear Rainforest Order, dated January 21, 2016; and

    b. Haida Gwaii Land Use Objectives Order, dated December 16, 2010, and as further amended pursuant to the *Haida Gwaii Reconciliation Act* and the *Haida Stewardship Law*, on April 2, 2014 and September 21, 2017.

2. The ecosystem based management adjustment shall not be considered in the appraisal or reappraisal of a cutting authority area that is authorized for harvest under:

    a. a woodlot licence referred to in Section 1(2); or

    b. a community forest agreement or the non-replaceable forest licences that are referred to in Section 1(3)

    of the Great Bear Rainforest Order.

3. The Ecosystem Based Management Operating Cost will be determined based on the following criteria. For an appraisal or a reappraisal of a cutting authority area that is:

   a. located wholly within that part of the Coast Area described in subsection (1) of this section, the adjustment shall be $4.13/m^3; or

   b. not located wholly within the Coast Area described in subsection (1) of this section, and has an appraisal or reappraisal effective date on or after July 1, 2018, the adjustment shall be the product of:

      i. $4.13/m^3 multiplied by

      ii. the fraction that results from dividing the net cruise volume portion of the cutting authority located within the Coast Area described in subsection (1) above by the net cruise volume of the entire cutting authority.

4. In the case of paragraph (b) above, the licensee must provide the prorated Ecosystem Based Management Operating Cost calculation in the appraisal data submission.

4.4.8 Long Haul Cost

Where the haul distance (HD) determined under Section 4.2.4 is greater than 100 km, the long haul cost specified operations estimate (LHC) is calculated as follows:

LHC ($/m^3) = (HD – 100) * 0.135

If HD $\leq$100, LHC = 0

4.4.9 High Development Cost

For BCTS timber sale licences only, where the development cost estimate determined under Chapter 5, is greater than $11.88/m^3, the high development cost specified operations estimate (HDC) is calculated as follows:

HDC $/m^3 = DC – 6.81

If DC <=11.88, HDC = 0

4.5 Final Estimated Winning Bid

1. Subject to subsection 3 of this section the Final Estimated Winning Bid (FEWB) is the difference between the estimated winning bid and the total of the specified operations adjustments that are applicable to the appraisal or reappraisal of the cutting authority.

2. Expressed as an equation:

$$FEWB = EWB - SOA$$

Where:

EWB = The Estimated Winning Bid determined under Section 4.3.

SOA = The sum of specified operations adjustments in an appraisal or a reappraisal of a cutting authority area as may be calculated under sections 4.4.1 through 4.4.9 and expressed in $\$/m^3$.

3. Where the FEWB calculated is less than $\$0.25/m^3$, then the FEWB shall be $\$0.25/m^3$.

5.2 Forest Planning and Administration Cost

1. Forest planning and administration costs are those costs directly related to supervision and administration required to manage the public forest on behalf of the province. They are the costs that the long-term licensee bears, but that a market logger does not.

   The forest planning and administration costs do not include business related or discretionary costs such as certain legal fees, corporate aircraft, stumpage, directors fees and expenses, sales expenses, restructuring costs, etc., unless portions of these costs are directly attributable to the management of the forest.

2. The total forest planning and administration cost is $13.29/m^3.

5.2.1 Low Volume Cost

1. A low volume cost of $7.51/m^3 may be included in the tenure obligation adjustment where:

   a. the cutting authority area being appraised or reappraised is the subject of cutting authority issued under either a licence or its parent licence prior to subdivision that provides for an allowable annual cut of not more than 10,000 m^3 of Crown timber, and

   b. the total net cruise volume of the cutting authority area is not more than 10,000 m^3.

5.3 Road Development Cost

1. Except as provided in Section 5.3.2, where a road development provides access to Crown timber a road development cost may be estimated for new road construction, and road reconstruction.

2. a. except as provided in subsections (2)(b) and (2)(c) of this section the total net cruise volume is used to calculate the unit cost for new road construction and road reconstruction in an appraisal or reappraisal of a cutting authority area.

   b. where a road development project was not taken into consideration in a prior appraisal or reappraisal of the cutting authority area, the remaining volume shall be used to calculate the road development unit cost for that project in the reappraisal of the cutting authority area.

   c. where the reappraisal is because of sudden and severe damage the road development cost is calculated as follows:

      i. the road construction project costs prior to the sudden and severe damage reappraisal are totalled,

      ii. the sum of those project costs is the total project cost,

      iii. from the total project cost calculated in subsection 2(c)(i) of this section is subtracted the product of the total project cost multiplied by the total volume of timber in the billing history record of the cutting authority area on the effective date of the reappraisal, divided by the total net cruise volume of the cutting authority area,

      iv. the difference calculated in subsection (2)(c)(iii) of this section is then divided by the sum of the remaining volume plus the volume of timber that was suddenly and severely damaged,

      v. the calculation of the road development cost expressed as an algorithm is:

$$\text{Road Development Cost} = \frac{\text{total project cost} - (\text{total project costs x volume in the billing history record}) / \text{total net cruise volume}}{\text{remaining volume} + \textit{volume suddenly and severely damaged}}$$

3. Except as further provided for in this manual the road development cost for a road development may only be used in the appraisal or reappraisal of a tributary cutting authority area.

4. A road development cost may be distributed in accordance with Section 5.3.2.2.

5.3.1.3 Total Road Development Cost

1. The total road development cost is the sum of the total new road construction unit cost plus the total road reconstruction unit cost.

5.3.2 Existing Roads

1. The following roads may not be considered in the appraisal or reappraisal of a cutting authority area:

   a. a constructed road that has been previously included in an appraisal or reappraisal of another cutting authority area,

   b. a road previously constructed to access private timber, or

   c. a road previously constructed in whole or in part for a purpose unrelated to the harvesting of timber on the cutting authority area being appraised or reappraised.

5.3.2.1 Extended Road Amortization

1. For extended road amortization agreements approved prior to April 1, 2018, use the manual in effect as of March 31, 2018.
2. All first and tributary cutting authorities identified in an extended road amortization agreement referred to in subsection (1) above will be appraised using the effective date of the cutting authority(s).

5.3.2.2 Development Distribution

1. For the purposes of this section:

   a. "authorized project" means a project that the person who determines the stumpage rate has accepted as consistent with this manual; and

   b. "same licensee" means the same licensee in all cases.

2. Where the development cost estimate in an appraisal of a cutting authority (the "first cutting authority")

   a. includes development costs for an authorized project that the licensee requires to be distributed to one or more cutting authority areas within the same point of origin area, and

   b. exceeds $4.00/m^3 exclusive of development costs apportioned to the first cutting authority under any prior agreement under this section or under section 5.3.2.1, then

   c. the regional executive director may enter into a written agreement with the licensee authorizing distribution of a portion of the development cost estimate, exclusive of previously distributed costs as specified in paragraph (b) of this subsection, to one or more cutting authorities that may be issued under one or

more licences that are each held exclusively and entirely by the same licensee.

3. An agreement under subsection (2) is subject to the following conditions:

   a. The amount to be distributed in the agreement may not be revised to take into account new information submitted by the licensee about the development, unless pursuant to an amendment to the agreement necessitated by a changed circumstance reappraisal as authorized under paragraph (f) of this section.

   b. The amount to be distributed in the agreement may, at the discretion of the licensee, be used in an appraisal or reappraisal of a cutting authority(s) referred to in subsection (2)(c).

   c. At the time of appraisal or reappraisal referred to in subsection (3)(b), the licensee must report in a summary format within the appraisal data submission information that includes the:

      i. original amount identified in the agreement;

      ii. amount used in the appraisal or reappraisal; and

      iii. amount remaining in the agreement.

   d. The agreement is entered into only for the purposes of determining a stumpage rate and confers no obligation on the Crown to compensate the licensee for any undistributed costs.

   e. The agreement must be signed by the licensee and the regional executive director, and must not be for a term, including extensions, longer than ten years unless otherwise approved by the regional executive director.

   f. In the event of a changed circumstance reappraisal of the first cutting authority, the amount specified in the agreement must be amended to reflect the new total amount of the development cost estimate to be distributed as determined in the changed circumstance reappraisal, and is to be used only for those cutting authorities that have not yet been issued as of the submission date of the changed circumstance reappraisal.

4. The regional executive director will not enter into any development distribution agreements for cutting permits issued under a woodlot licence with an effective date after November 30, 2008.

5.3.3 Tabular Cost Estimates

A tabular cost estimate must be calculated on the basis that the construction project will be completed using commonly used logging road construction practices and that the roads will have single lane width roads, turnouts and landings.

5.3.3.1 New Road Construction

1. New road construction cost estimate includes the cost of clearing and grubbing, stripping, stump removal, incidental log decking, ditch construction, landing and turnout construction.

2. For appraisals or reappraisals effective on or after December 15, 2017, and prior to July 1, 2018, the estimated cost per kilometre for new road construction is provided for each combination of rock hardness and bank height category, as detailed in Table 5-1A.

3. For appraisals or reappraisals effective on or after July 1, 2018, the estimated cost per kilometre for new road construction is provided for:

   a. each combination of rock hardness and bank height category; and

   b. where and as applicable, is further adjusted by the estimated cost per kilometre add-on for each road located in the cutting authority area as follows, for:

      i. Isolation, as calculated in full or by fraction under the ISOLATED variable in Section 4.2; and or

      ii. Point of Origin Area of the cutting authority area,

      as detailed in Table 5-1B.

4. New road section data is recorded using Appendix VII and the following criteria:

   a. road section lengths are measured along the road centreline and recorded to the nearest 0.001 km, and

   b. the bank height is measured at right angles to the road centreline from the road surface to the top of the rock face.

   c. road sections are measured over culverts (including wood culverts with a span length less than 4 m).

   d. total bridge deck length for permanent and portable bridges, and span length on log bridges, is excluded from a road section length.

   e. rock face height measurement on a through-cut section is taken from the highest side of the two road cuts.

5. If a tabular road section requires the trucking in of additional stabilizing material greater than 3.2 kilometres, use the non-tabular method to estimate the additional cost of trucking this distance.

6. Rock mass classification (RMC) is based on the physical characteristics of rock encountered in forest road development and is the subject of a report commissioned by the Forest Engineering Research Institute of Canada in 1978 and prepared by Piteau & Associates/Geotechnical Consultants. The text and tables in Appendix IV are based on this report and are used to determine the RMC-based factors required for road cost estimates.

7. Rock can be classified into five types referred to as rock mass classification (RMC) values and identified as RMC 1, 2, 3, 4 and 5. For the purpose of determining rock hardness, 'soft/medium' rock hardness category includes RMCs 1, 2, 3 and 4; 'hard' rock hardness category is equivalent to RMC 5.

8 The steps taken to determine RMC values and apply these to road development cost estimates are:

   a. examine and record surface hardness, weathering, and block diameter in the field,

   b. determine subsurface hardness from the table in Appendix IV with this title,

   c. determine RMC value from the table Appendix IV with this title, and apply selected RMC values to applicable tables and formulas for road cost estimates.

9. In all circumstances where a complete interpretation of the rock mass classification system is required, the Piteau & Associates report is to be consulted directly.

Table 5-1A: Road Cost Estimates Expressed in Dollars per Kilometre of Road Length, for Appraisals or Reappraisals Effective on or After December 15, 2017 and Prior to July 1, 2018

Bank Height Category	Rock Face Height (m)	Cost Estimate per Kilometre ($/km)	
		Soft/Medium	**Hard**
OMLB	n/a	66,114	66,114
OMPR	n/a	73,436	73,436
OMRB	n/a	87,026	104,453
TOE	(up to 1.50)	87,026	104,453
MRK	(1.51 – 3.00)	117,281	128,462
HRK	(3.01 – 4.50)	147,193	161,988
XRK	(4.51 – 6.00)	173,864	173,864
XXRK	(6.01 – 7.50)	202,972	202,972

Table 5-1B: Road Cost Estimates Expressed in Dollars per Kilometre of Road Length, for Appraisals or Reappraisals Effective On or After July 1, 2018

Bank Height Category	Rock Face Height (m)	Cost Estimate per Kilometre ($/km)	
		Soft/Medium	**Hard**
OMLB	n/a	59,665	59,665
OMPR	n/a	73,693	73,693
OMRB	n/a	88,315	103,496
TOE	(up to 1.50)	88,315	103,496
MRK	(1.51 – 3.00)	113,816	130,941
HRK	(3.01 – 4.50)	147,301	157,698
XRK	(4.51 – 6.00)	168,607	184,231
XXRK	(6.01 – 7.50)	199,087	239,177
Add-on			
Isolated		+6,981	+6,981
DRSE, GKIN, GRIS, MIDC, or NTHC Point of Origin Areas		+5,758	+5,758

5.3.3.2 Bridges and Culverts

1. A cost estimate for a bridge or a culvert may only be made and used in the appraisal or reappraisal of a cutting authority area where its necessity is substantiated by field data.

2. Crib back-fills and all site preparation and bridge protection features are included, as well as material supply and erection. Except where noted below, no adjustment of table values is permitted.

3. Input data within table boundaries is rounded to fit; no interpolation of values is permitted.

5.3.3.2.1 Log Bridges

1. Cost estimates for log bridges are based on span lengths (distance between the centres of the top sill logs) and average crib height (distance from the bottom of the bottom sill log to the point where the stringer rests on the top sill log as measured along the centre line of the bridge) from Table 5-2. The average crib height is the numerical average of the crib heights on both banks of the water course.

2. Table 5-2 is used for estimating costs of all timber-decked and gravel surfaced log bridges with span lengths from 3.5 to 20.4 m and crib heights from single log to 5.4m.

Table 5-2: Log Bridge Cost Estimates Expressed in Thousands of Dollars

Span Length (m)	Single Log Sill	Multi-Log Crib Average Crib Height (m)			
	1	2	3	4	5
4	3.1	5.2	8.9	14.0	20.6
5	4.2	6.3	10.0	15.1	21.7
6	5.5	7.6	11.3	16.5	23.0
7	7.1	9.3	12.9	18.0	24.7
8	9.0	11.2	14.8	20.0	26.5
9	11.1	13.2	16.9	22.0	28.6
10	13.5	15.6	19.3	24.5	31.0
11	16.1	18.2	21.9	27.0	33.6
12	19.0	21.1	24.8	29.9	36.5
13	22.0	24.3	27.8	33.0	39.5
14	25.4	27.6	31.2	36.4	42.9
15	28.9	31.2	34.9	40.0	46.6
16	32.8	35.1	38.7	43.8	50.3
17	36.9	39.1	42.8	47.9	54.5
18	41.3	43.5	47.1	52.3	58.8
19	45.9	48.1	51.8	56.9	63.4
20	50.8	52.9	56.6	61.7	68.3

5.3.3.2.2 Permanent or Portable Bridges

1. Cost estimates for permanent or portable bridges, built of any material except logs and concrete (excluding abutments), are based on total span length and average abutment height (distance from the ground surface interface to the bottom contact point with the girders) from Table 5-3. Each bridge abutment must be measured at the mid-point, from the ground surface interface to the bottom contact point with the girders. Each measured abutment height is then added together and averaged to get a resultant abutment height.

2. Table 5-3 is used for estimating costs of permanent or portable bridges with span lengths from 2.0 to 25.4 m and abutment heights from 0 to 4.4 m.

3. Table 5-3 includes costs for supervision, design, site preparation, supply and installation, freight and haulage (excluding barging), and rip-rap to flood design. Barging costs are allowed as an add-on to the tabular cost estimate. If the barging of bridge materials is done in conjunction with other equipment/materials, then the cost

of barging the bridge material should be prorated by the licensee. This table covers any bridge with L60 to L165 load rating.

4. Table 5-3 does not apply to:

   a. multi-span bridges: A construction estimate form must be completed.

   b. pile driving: Where piles may be driven to depths of 13 m or more, a construction estimate form must be completed for the bridge construction.

   c. portable bridges that are reused (see Section 5.3.1).

   d. cost estimates for bridge sizes outside the table limits and pipe culverts greater than the aforementioned sizes require non-tabular cost estimates completed in accordance with Section 5.3.4.

   e. extra width bridges with one or more additional stringers and/or deck panels installed (i.e., exceeding 4.9 metres in total width between guardrails measured at mid-span).

Table 5-3: Permanent/Portable Bridge Cost Estimates Expressed in Thousands of Dollars

Span Length (meters)	Abutment Height (meters)				
	0	1	2	3	4
2	25.5	27.5	33.5	43.7	57.9
3	26.8	28.7	34.9	45.0	59.2
4	28.5	30.6	36.7	46.9	61.1
5	30.9	32.9	39.0	49.2	63.4
6	33.8	35.9	41.9	52.1	66.2
7	37.2	39.2	45.4	55.4	69.6
8	41.1	43.1	49.2	59.3	73.6
9	45.6	47.6	53.6	63.8	78.0
10	50.5	52.5	58.6	68.8	83.0
11	56.0	58.0	64.1	74.2	88.5
12	62.0	64.0	70.1	80.2	94.5
13	68.5	70.5	76.6	86.7	101.0
14	75.5	77.6	83.7	93.8	108.0
15	83.2	85.1	91.2	101.4	115.6
16	91.2	93.3	99.3	109.5	123.6
17	99.8	101.8	107.9	118.0	132.3
18	109.0	111.0	117.1	127.2	141.4
19	118.6	120.7	126.7	136.9	151.0
20	128.8	130.8	136.9	147.1	161.2
21	139.5	141.5	147.6	157.8	171.9
22	150.7	152.7	158.8	169.0	183.2
23	162.5	164.5	170.5	180.7	194.9
24	174.7	176.7	182.8	192.9	207.2
25	187.5	189.5	195.6	205.8	219.9

5.3.3.2.3 Culverts

1. All pipe culverts 0.3 m diameter to 1.8 m diameter are estimated using Table 5-4.
2. All wood culverts up to 3.4 m span length are estimated at $1,000.00 each.

Table 5-4 Culvert Cost Estimate

Diameter (m)	Cost per lineal metre	Diameter (m)	Cost per lineal metre
0.3	$51.00	0.9	$159.00
0.4	$71.00	1.0	$175.00
0.5	$94.00	1.2	$347.00
0.6	$108.00	1.4	$450.00
0.7	$117.00	1.6	$548.00
0.8	$134.00	1.8	$651.00

5.3.4 Non-tabular Cost Estimates

1. The cost for any of the non-tabular projects identified in Section 5.3.1.1(4)(a) will be estimated by preparing a non-tabular cost estimate. The regional manager may approve a standardized methodology to estimate the cost for the following projects:

   a. end hauling,

   b. road reconstruction and replacement,

   c. stabilizing material, including:

      i. capping,

      ii. surfacing,

      iii. material hauls (greater than 3.2 km),

      iv. bridge approaches,

      v. fords,

      vi. culverts,

      vii. keyed-in fills,

   d. overlanding, including:

      i. trucked in fills,

      ii. large fills,

iii. stored fills,

e. permanent bridge construction,

f. bridge structural repair.

g. regional manager approved tributary development projects.

2. The cost information contained in Appendix VIII is to be used in conjunction with the Detailed Engineering Estimates for Coast Stumpage Appraisal - February 1, 2001 and as amended to September 1, 2002.

3. The following non-tabular cost estimate projects require notification by the licensee to the district manager prior to commencement of construction:

   a. road reconstruction,

   b. re-surfacing, or

   c. permanent bridge construction.

   Notification must allow a minimum of fifteen (15) work days, or such other time as may be mutually agreed to between the district manager and the licensee. Such notification is needed to provide time for a field review of pre-construction site conditions.

4. Regional manager approved development projects require notification by the licensee to the regional manager. Sufficient lead time will be determined on a project by project basis.

5. The road development project cost estimate will be based on the data that is required by the regional manager and the equipment and labour rates as specified in Appendix I. Equipment rates are determined as follows for the actual or expected piece of equipment required to complete the project:

   a. from equipment rates found in Appendix I,

   b. where the actual or expected piece of equipment is not in Appendix I then the equipment rate may be obtained from the 2017-2018 Equipment Rental Rate Guide (the ‘Blue Book'). All equipment rates are assumed to be for a three-year old machine, or

   c. where a required piece of equipment is in neither Appendix I nor the ‘Blue Book’, prior approval for any other rate must be obtained from the regional manager for use in the project cost estimate.

6. Where equipment is not, or will not be already on site for adjoining tabular road, bridge or culvert construction, then the costs of mob and demob may be included in the non-tabular cost estimate.

7. Where the cost of a project is the subject of a contract entered into after arms-length competitive bids have been made for the contract, the cost of completing that project may be used as the development project cost estimate where that is authorized by the regional manager.

5.3.4.1 Data Requirements

1. A project requiring a non-tabular cost estimate must be designed so as to require only the amount of materials and labour that are necessary to build a safe and functional structure.

2. The data that may be required by the district manager for non-tabular "excavation and fill" cost estimates are:

   a. plans, profiles, cross-sections showing the ground and design grade lines,

   b. volume summary sheets giving quantities by various soil types,

   c. time and materials, equipment and labour, repairs, drainage structures and surfacing where required, and

   d. a cost estimate for the project.

3. The data that may be required by the district manager for non-tabular reconstruction cost estimates are:

   a. a map showing details of the project including stations, drainages, and other information important to the project,

   b. time and materials, equipment and labour, estimate for excavation, repairs, drainage structures, reditching, and resurfacing where required, and

   c. a cost estimate for the project.

4. The data that may be required by the district manager for non-tabular bridge and culvert construction cost estimates are:

   a. for permanent structures of 25.5 m span or greater: plans, specifications and design for the proposed structure, detailed materials cost estimate, equipment and labour, amount of timber accessed by the structure, and usage in years for harvesting all the timber,

   b. for permanent structures of 20.4 m span or less: an economic comparison between a log structure and the permanent structure, and

   c. for pipe culverts greater than 1.8 m in diameter: the same information as required for permanent structures of 25.5 m span or greater.

5.4 Road Management Cost

1. A road management cost may be used in the calculation of a tenure obligation adjustment to take into account the licensee's performance of the following activities:

   a. grading,

   b. brush control,

   c. minor surfacing repairs,

   d. sanding,

   e. snowplowing,

   f. ditch maintenance and repair,

   g. replacement of culverts ≤ 0.9 m on active roads,

   h. slough removal (confined to ditchline),

   i. deactivation,

   j. minor repairs to roads due to slides, erosion and flood damage,

   k. road use charges except those described in Section 5.5.

2. A road management cost may only be included in the calculation of a tenure obligation adjustment for those parts of a cutting authority area where the logs will be transported over a road by truck.

3. The road management cost is $\$1.90/m^3$.

5.5 Road Use Charges

1. A road use charge may be used in the calculation of a tenure obligation adjustment, if:

    a. the road to which the road use charge applies is required to transport logs from the cutting authority area to the appraisal log dump,

    b. the road use charge is not referred to in subsection 2(a), or 2(b) or 2(c) of this section,

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

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

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

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

    d. the term of the road use agreement is completely within the period for which the appraisal or reappraisal shall apply, and

    e. the licensee promises in writing to submit a copy of every auditable monetary transaction evidencing payment by the licensee for road use when that is requested by the regional manager.

2. A road use charge may not be used in the calculation of a tenure obligation adjustment, if it is:

    a. a share of road maintenance charge,

    b. a charge with respect to a road that is declared, determined, built, maintained or modified by the provincial government,

    c. a charge with respect to a road on Crown land.

    d. a charge for a road on an Indian reserve or on private land owned by a third party at arm's length from the licensee and not subject to a lease held by the licensee, its affiliate or agent of either the licensee or the third party, unless

        i. there is no route capable of being used to build a road at a lower cost through Crown land, and

ii. the charge is:

aa. reasonable,

bb. does not exceed compensation that could be determined under the forestry legislation, and

cc. is established to the satisfaction of the district manager by the licensee by way of auditable documents.

5.5.1 Land Use Charge

A land use charge may not be considered in an appraisal or a reappraisal.

5.6 Basic Silviculture Cost

1. Except where basic silviculture performed or to be performed on a cutting authority area is or will be funded by the Crown or an agent of the Crown a basic silviculture cost may be used in the calculation of a tenure obligation adjustment where the licensee is required to perform basic silviculture on the cutting authority area being appraised or reappraised.

2. The basic silviculture cost depends on the geographic location of the cutting authority area being appraised or reappraised as described in Table 5-5.

Table 5-5: Basic Silviculture Cost

Where the cutting authority area is located in:	The basic silviculture cost expressed in $/m^3 is:
Campbell River Forest District	3.18
Chilliwack Forest District	5.02
Coast Mountain (North Coast) Forest District	10.64
Haida Gwaii Forest District	5.11
North Island - Central Coast Forest District	3.01
Sea to Sky (Squamish) Forest District	6.05
South Island Forest District	3.43
Sunshine Coast Forest District	3.95

5.7 Low Grade Number

1. The forest district low grade fractions by timber species as shown in Table 5-6 shall be used in the calculation of the tenure obligation adjustment to account for the low grade timber that is not subject to the appraised stumpage rate.

2. The low grade fraction for each timber species to be used in the appraisal or reappraisal of the cutting authority area shall be the fraction by timber species by the forest district in which the cutting authority area is located (refer to Table 5-6).

3. The low grade number to be used in the calculation of the tenure obligation adjustment for a cutting authority area being appraised or reappraised is the sum of the products of the net cruise volume of each timber species in the cutting authority area multiplied by the low grade fraction for that species, divided by the total net cruise volume in the cutting authority area.

Table 5-6: Forest District Low Grade Fractions by Timber Species

District	BA	CE	CY	FI	HE	LO	SP	WH	Deciduous
Campbell River	0.2037	0.0782	0.2598	0.0269	0.2264	0.1092	0.0536	0.0490	1.0000
Chilliwack	0.2403	0.0619	0.1812	0.0508	0.2758	0.3360	0.0665	0.1376	1.0000
Coast Mountain (North Coast)	0.1434	0.0972	0.2321	0.1427	0.2306	0.1015	0.1538	0.1427	1.0000
Haida Gwaii	0.1468	0.0860	0.1840	0.1468	0.2848	0.1244	0.0401	0.1468	1.0000
North Island - Central Coast	0.1911	0.0896	0.1910	0.0429	0.2004	0.1470	0.1306	0.0669	1.0000
Sea to Sky (Squamish)	0.2310	0.0591	0.1941	0.0507	0.2637	0.1497	0.0617	0.1710	1.0000
South Island	0.2000	0.0575	0.1694	0.0298	0.1905	0.1744	0.0276	0.0945	1.0000
Sunshine Coast	0.1444	0.0775	0.1751	0.0620	0.2257	0.1456	0.0415	0.0283	1.0000

5.8 Market Logger Cost

5.8.1 Market Logger Cost

1. The market logger cost (MLC) is used in the calculation of the tenure obligation adjustment in an appraisal or reappraisal of a cutting authority area. MLC is expressed in $/m^3$.

2. Where the volume of second growth coniferous timber in a cutting authority area is less than eighty percent of the volume of all of the coniferous timber in that cutting authority area, the MLC is calculated as follow:

$$MLC = \left[\frac{7.06\ (1 - HW) - BCTS}{1 - LG}\right] + CTSSO$$

3. Where the volume of second growth coniferous timber in a cutting authority area is at least eighty percent of the volume of all of the coniferous timber in that cutting authority area, the MLC is calculated as follows:

$$MLC = \left[\frac{6.71\ (1 - HW) - BCTS}{1 - LG}\right] + CTSSO$$

4. For the purpose of subsection 5.8.1(2) and 5.8.1(3):

HW = Is the fraction of the cutting authority area's volume harvested by helicopter to a water drop

LG = Low grade number calculated under Section 5.7

BCTS = BCTS cost from Section 5.8.2

CTSSO = Competitive timber sales specified operation cost from Section 5.8.3

5.8.2 BC Timber Sales Infrastructure and Services

The cost of infrastructure and services provided by BC Timber Sales for competitive timber sale licences (minus specified operations in the MPS data set) is $0.18/m^3$.

5.8.3 Competitive Timber Sales Specified Operations Adjustment

The cost of the competitive timber sales specified operation (CTSSO) already included in the competitive timber sale licences that are in the MPS dataset is $0.30/m^3$.

5.9 Return to Forest Management (RFM)

The return to forest management factor is 1.070.

5.10 Tenure Obligation Adjustment

1. The tenure obligation adjustment is used to calculate the stumpage rate for a cutting authority other than a timber sale licence entered into under Section 20 of the *Act*.

2. The tenure obligation adjustment (TOA) is calculated as follows:

$$TOA = \left[\frac{FPA + LVC + RD + RM + RU + BS}{1 - LG}\right] * RFM - MLC$$

Where:

FPA	=	forest planning and administration cost
LVC	=	low volume cost
RD	=	total road development cost
RM	=	road management cost
RU	=	road use charges cost
BS	=	basic silviculture cost
LG	=	low grade number
RFM	=	return to forest management
MLC	=	market logger cost