

File: 195-30/RWMM
123657

June 9, 2010

BY EMAIL

To: Regional Executive Directors

From: Murray Stech
Director
Pricing Branch

Re: Amendment No. 14 to the *Provincial Logging Residue and Waste Measurement Procedures Manual*

I hereby approve Amendment No. 14 to the *Provincial Logging Residue and Waste Measurement Procedures Manual*, and attach a copy for your use. The following sections have been amended:



- Section 2.1 Housekeeping changes.
- Section 2.2 Housekeeping changes.
- Section 2.3 Sub-section (2) is added to enable TSM to carry out a waste assessment and charge cost to a licensee who fails to conduct a waste assessment.
- Section 2.4 Housekeeping changes.
- Section 2.4.2 Sub-section (6) is added to require the use of a higher C.V. where the sampling objective was not met.
- Section 3.1 RSI thresholds are increased to allow a greater use of the RSI method.
- Section 3.2 Extend the use of the parent block method to blocks greater than 20 hectares where DM deems to be low revenue risk.
- Section 3.3 A new sub-section (1) is added to clarify that District Manager approval is not required to conduct oculars. Sub-section (4) clarifies that the DM may exempt waste certification for holders of woodlot licences.
- Section 3.4 Housekeeping changes, sub section (2) confirms the use of HBS billing history records to 12 month- period defined.

This amendment comes into force on June 15, 2010.

A handwritten signature in black ink, appearing to read 'M. Stech', with a long horizontal flourish extending to the right.

Murray Stech
Director
Pricing Branch

Attachment



Ministry of
Forests and Range



MANUAL REVISION TRANSMITTAL

<p>FOR FURTHER INFORMATION OR IF YOU HAVE A CHANGE OF ADDRESS, PLEASE CONTACT:</p> <p>John Wai Residue Forester and Log Salvage Policy Forester Revenue Branch Ministry of Forests and Range 1 Floor, 1520 Blanshard Street Victoria, BC V8W 3K1 Phone: 250-356-7671 Email: John.Wai@gov.bc.ca FAX: 250-387-5670</p>	MANUAL TITLE	
	Prov. Logging Residue & Waste Measurement Procedures Manual	
	AMENDMENT	ISSUE DATE
	Amendment No. 14	June 15, 2010
MANUAL CO-ORDINATOR		
Judy Laton Publications/Administative Co-ordinator		
AUTHORIZATION (Name, Title)		
Murray Stech Director, Revenue Branch		

Please make the following changes to your copy of the above Ministry manual.

ACTION (Remove/Insert)	(VOL.) CHAPTER-SECTION-SUBJECT TABLE OF CONTENTS	PAGE(S)	COMMENTS
REMOVE	Table of Contents	i - vi	After Table of Contents Tab
INSERT		i - vi	
REMOVE	Chapter 2	1 - 6	After Chapter 2 Tab
INSERT		1 - 6	
REMOVE	Chapter 3	1 - 10	After Chapter 3 Tab
INSERT		1 - 10	
INSERT	Letter from Murray Stech, Director Transmittal Sheet		After Amendments Tab

Table of Contents

Introduction

To Obtain a Provincial Logging Residue and Waste Measurement Procedures Manual.....	ii
Comments and Suggestions	iii
Manual Amendments	iv
Software Support	v

1 Policy and Administration

1.1 Waste Assessment Policy	1-2
1.2 Purpose and Rationale	1-6
1.2.1 Purpose.....	1-6
1.2.2 Rationale	1-9
1.2.3 Definitions	1-9
1.2.4 Monetary Billings	1-10
1.2.4.1 Coast	1-10
1.2.4.2 Interior	1-10
1.2.5 Deciduous	1-10
1.2.6 Amount Payable.....	1-10
1.3 Authority	1-12
1.4 Background.....	1-13
1.5 Responsibility	1-15
1.5.1 Revenue Branch.....	1-15
1.5.1.1 Director, Revenue Branch.....	1-15
1.5.1.2 Waste Assessment Policy Forester, Revenue Branch.....	1-15
1.5.2 Regional Manager.....	1-15
1.5.3 District Manager	1-16
1.5.4 Timber Sales Manager	1-16
1.5.5 Licensees.....	1-17

2 General Assessment Requirements and Reporting Units

2.1 Field Assessments and Reporting Time Frames.....	2-2
2.2 Continuing Liability.....	2-3
2.3 Overdue Waste Assessments and Reports	2-4
2.4 Reporting Unit Options.....	2-5
2.4.1 Cutblock Option.....	2-5
2.4.2 Aggregate Option.....	2-5

2.4.3 Ocular Estimate Option 2-6

3 Alternative Methods

3.1 The RSI Method..... 3-2
 3.1.1 RSI Method Procedures 3-2
3.2 Parent Block (PB) Method..... 3-4
 3.2.1 Parent Block Method Conditions..... 3-4
3.3 Ocular Estimate (OE) Method 3-5
3.4 The OE Method and Standing Timber..... 3-7

4 Block Planning and Plot Layout

4.1 The Plot Sampling Process 4-2
4.2 Sampling Design..... 4-3
 4.2.1 Population 4-3
 4.2.2 Sub-Populations 4-3
 4.2.3 Stratification..... 4-3
 4.2.4 Block Survey Plan 4-4
 4.2.5 Sampling Objective..... 4-4
4.3 Sampling Method..... 4-5
 4.3.1 Number of Plots (Sample Size)..... 4-5
 4.3.2 Procedure to Determine the Number of Plots 4-6
 4.3.3 Grid Spacing 4-6
4.4 Plot Layout..... 4-8
 4.4.1 Dispersed 4-8
 4.4.2 Roadside Accumulations 4-10
 4.4.3 Spot Accumulations..... 4-11
4.5 Stratification Procedures for Roadside Accumulations 4-12
 4.5.1 Roadside Consisting of Strip Accumulations 4-12
 4.5.2 Spot Accumulations Resulting From Piling Roadside Slash..... 4-12
 4.5.3 Accumulations Within Dispersed Sub-population 4-12
 4.5.4 Debuilt Road 4-12
4.6 Road Rights-of-Way 4-18
 4.6.1 Reporting 4-18
 4.6.2 Procedures..... 4-18
4.7 Partial Cutting (Variable Retention) Cutblocks..... 4-19

5 Field Procedures

5.1 General Requirements..... 5-2
 5.1.1 Material to be Measured 5-2
 5.1.1.1 Road Deactivation Material..... 5-2

5.1.1.2 Decked Timber.....	5-2
5.1.2 Recording Standards	5-2
5.1.3 Waste Class	5-3
5.1.3.1 Some Unavoidable Examples	5-4
5.1.4 Piece Numbers	5-4
5.1.5 Grading Pieces	5-5
5.1.6 Visual Estimates	5-5
5.1.7 Measure Factor	5-5
5.1.8 Deductions for Rot.....	5-6
5.1.9 Waste Survey Safety Procedures	5-6
5.2 Plot Establishment	5-8
5.2.1 Locating Landing Plots	5-10
5.2.2 Locating Dispersed Plots	5-10
5.2.3 Moving Dispersed Plots.....	5-10
5.2.3.1 Using Border Plots.....	5-10
5.2.3.2 Using Compass	5-11
5.2.4 Plot Sizes.....	5-12
5.3 Kind of Material.....	5-14
5.3.1 Logs.....	5-14
5.3.2 Trees.....	5-15
5.3.2.1 Clearcut	5-15
5.3.2.2 Partial Cut	5-16
5.3.2.3 Unharvested Cutblocks	5-16
5.3.2.4 Tabular Stumpage Rates	5-17
5.3.3 Slabs.....	5-17
5.3.4 Stumps.....	5-18
5.3.4.1 Measuring and Recording Stumps	5-19
5.3.4.2 Waste in Stumps	5-20
5.3.4.3 Recording Stumps in Segments	5-21
5.3.4.4 High Stumps - Snowpack.....	5-21
5.3.4.5 Blowdown Stumps	5-22
5.3.4.6 Borderline Stumps	5-23
5.3.5 Bucking Waste	5-23
5.3.5.1 Avoidable/Unavoidable	5-24
5.3.6 Breakage	5-25
5.3.6.1 Recording Breakage.....	5-26
5.3.7 Forks	5-26
5.3.8 Long Butts.....	5-27
5.3.9 Coarse Woody Debris	5-27
5.3.10 Special Cases	5-28
5.4 Field Standards	5-29
5.4.1 Maps.....	5-29
5.4.2 Field Equipment and Supplies	5-29
5.4.3 Traverse Notes	5-30
5.5 Measurement Protocol and Standards.....	5-31
5.5.1 Lengths.....	5-31

5.5.1.1 Broken Tops.....	5-31
5.5.1.2 Shattered Ends	5-32
5.5.1.3 Stump Heights.....	5-33
5.5.2 Diameters	5-33
5.5.2.1 Stump Diameters.....	5-34
5.5.3 Bucking Waste	5-34
5.5.4 Deductions	5-35
5.6 Data Status and Recording Format	5-36
5.7 Completing the FS 444 (Block Summary Card).....	5-37
5.7.1 Header	5-37
5.7.2 Area Statement.....	5-42
5.7.2.1 Dispersed and Accumulated Types.....	5-42
5.7.2.2 Standing Trees	5-45
5.7.3 Timber Merchantability Specifications	5-47
5.8 Completion of the FS 161 (Plot Tally Card).....	5-50
5.8.1 Header	5-50
5.8.2 Piece Descriptions.....	5-52
5.8.3 Gross 'In Plot' Dimensions for Pieces.....	5-54
5.8.4 Deduction for Rot or Holes.....	5-56
5.8.5 Outside Plot Measurements	5-57

6 Check Surveys

6.1 Check Surveys	6-2
6.2 Check Survey Standards	6-3
6.2.1 Number of Blocks	6-3
6.2.2 Check Requirements	6-3
6.3 Maximum Allowable Errors	6-5
6.3.1 Net Volume or Value	6-5
6.3.2 Individual Parameters	6-6
6.4 Acceptability of Block Results	6-7
6.5 Non-Compliance With Check Survey Standards.....	6-8
6.5.1 Second Check Survey	6-8
6.5.2 Dispute Resolution (BCTS).....	6-9
6.6 Material Disposed of Prior to Waste Assessments	6-10

7 Reporting

7.1 Data Compilation	7-2
7.2 Reporting Requirements	7-3
7.3 Review of Reports.....	7-6
7.3.1 Report Checklist	7-6
7.4 Processing Waste Volume Estimate (FS 702)	7-8
7.4.1 Waste Rate	7-8
7.5 Interior Log Grade Changes	7-10

Appendices

Appendix 1 Glossary	A-2
Appendix 2 Standing Stem Harvesting.....	A-8
A2.1 Standing Stem Harvesting.....	A-8
A2.2 Waste Accounting Methodology	A-8
A2.3 Standing Stem Harvesting Tables.....	A-10
A2.3.1 Species – Douglas Fir	A-10
A2.3.2 Species – Western Red Cedar	A-11
A2.3.3 Species – Yellow Cedar	A-12
Appendix 3 Waste Rate Determination	A-13
A3.1 Cutblocks with Harvesting.....	A-13
A3.2 Cutblocks with No Harvesting.....	A-13
A3.3 Deciduous Waste Rate	A-14
A3.4 Occupant Licence to Cut.....	A-14
Appendix 4 Riparian Management Zone (RMZ)	A-15
A4.1 Assessment Method	A-15
A4.2 Stream Clean-out.....	A-15
Appendix 5 Waste Benchmarks.....	A-16
Appendix 6 Coast Grading	A-20
A6.1.1 Bucking Waste and Long Butts	A-20
A6.1.2 Stumps.....	A-20
A6.1.3 Logs.....	A-20
A6.1.4 Standing Trees	A-21
A6.1.5 Breakage.....	A-21

List of Figures

Figure 1.1	Waste Assessment Policy.....	1-2
Figure 3.1	RW01 Estimate Form - Interior	3-8
Figure 3.2	RW01 Estimate Form - Coast	3-9
Figure 4.1	Plot Sampling Process.....	4-2
Figure 4.2	Strip and Plots Placement.....	4-9
Figure 5.1	Measure Factor.....	5-6
Figure 5.2	Border Plot.....	5-11
Figure 5.3	Measuring Slabs.....	5-18
Figure 5.4	Avoidable and Unavoidable Waste (High Side).....	5-20
Figure 5.5	Windfall Stump.....	5-22
Figure 5.6	Examples of Bucking Waste.....	5-24
Figure 5.7	Avoidable/unavoidable Bucking Waste.....	5-25
Figure 5.8	Examples of Breakage.....	5-26
Figure 5.9	Forked Log.....	5-27
Figure 5.10	Measuring Broken Tops.....	5-32
Figure 5.11	Measuring Shattered Ends.....	5-32
Figure 5.12	Front of FS 444 (Block Summary Card).....	5-48
Figure 5.13	Back of FS 444 (Block Summary Card).....	5-49
Figure 5.14	Front of the FS 161 (Plot Tally Card).....	5-58
Figure 5.15	Back of the FS 161 (Plot Tally Card).....	5-59
Figure 7.1	FS 702 - Volume Estimate - Waste Form (Page 1).....	7-4
Figure 7.2	Volume Estimate - Waste Form (Page 2).....	7-5
Figure A2.1	Douglas Fir.....	A-10
Figure A2.2	Western Red Cedar.....	A-11
Figure A2.3	Yellow Cedar.....	A-12
Figure A5.1	Sample of Worksheet for Waste Billing Against Benchmarks (Coast).....	A-18
Figure A5.2	Sample of Worksheet for Waste Billing Against Benchmarks for Blocks.....	A-19

General Assessment Requirements and Reporting Units

2

2.1 Field Assessments and Reporting Time Frames

(1) Where the amount of stumpage payable on the timber harvested on a cutblock by the holder of:

- (a) a major licence,
- (b) a community forest agreement,
- (c) a community salvage licence,
- (d) a woodlot licence,
- (e) a road permit,
- (f) a master licence to cut, or
- (g) a timber sale licence where specified in that timber sale licence,

is calculated using the information reported in a scale of the timber, the holder of the agreement must conduct a waste assessment on that cutblock within a period of:

- (i) sixty (60) days after primary logging has been completed on the cutblock, or
 - (ii) within sixty (60) days after the cutting authority authorizing the harvesting of that timber expires or is otherwise terminated, whichever occurs first, or
 - (iii) as soon thereafter that the ground is sufficiently free of snow that an assessment may be carried out on the cutblock.
- (2) The holder must submit a waste assessment report for the cutblock to the district manager within thirty (30) days of the completion of the waste assessment.

2.2 Continuing Liability

In accordance with section 79 of the *Forest Act*, and notwithstanding the time frames specified in Section 2.1 for conducting and submitting a waste assessment, and despite the expiry, surrender, suspension or cancellation of a holder's agreement, the holder of an agreement is required to conduct a waste assessment, and pay the fees, costs and invoice billings owing to the government in respect of the waste assessment.

2.3 Overdue Waste Assessments and Reports

- (1) Where the holder of an agreement, other than an agreement entered into with the timber sales manager, does not complete the waste assessment and submit it to the district manager as required under Section 2.1, the district manager may carry out the assessment and in a notice given to the licensee, may require the licensee to pay the costs incurred by the district manager in carrying out the assessment.
- (2) Where the holder of an agreement entered into with the timber sales manager that is required by that agreement to conduct a waste assessment, fails to conduct that waste assessment, the timber sales manager may carry out the assessment, and in a notice given to the holder, may require the holder to pay the costs incurred by the timber sales manager in carrying out the assessment.

2.4 Reporting Unit Options

- (1) Subject to the provisions of this manual, the holder of an agreement may use the following reporting unit options when conducting a waste assessment:
 - (a) the cutblock option,
 - (b) the aggregate option, and
 - (c) the ocular estimate option.


2.4.1 Cutblock Option

- (1) Where the holder of an agreement uses the cutblock option, each cutblock is a separate reporting unit.
- (2) Each cutblock **must be** sampled in accordance with the number of plots required to meet the approved sampling error objective **that applies to that cutblock as required in Chapter 4 of this manual.**



2.4.2 Aggregate Option

- (1) Where the holder of an agreement uses the aggregate option, cutblocks may be amalgamated to form an Aggregate Reporting Unit. **An aggregate reporting unit must be comprised of at least two cutblocks which can be originated from different cutting authorities.**
- (2) Subject to subsection (3) of this section, aggregate reporting unit may only be comprised of cutblocks from within a single Forest District that have been harvested by the holder of an agreement.
- (3) Each aggregate reporting unit may consist of:
 - (a) only cutblocks that contained old growth timber,
 - (b) only cutblocks that contained second growth timber, or
 - (c) only cutblocks that contained timber that was transported from the cutblock by a helicopter.

- (4) Each cutblock within the aggregate reporting unit must be surveyed individually using the number of plots as calculated using the pertinent algorithm in Table 4-1 of this manual.
- (5) The  aggregate reporting unit must be sampled in accordance with number of plots required to meet the sampling error objective that applies to that reporting unit as required in Chapter 4 of this manual.
- (6) Where the holder of an agreement uses the aggregate option and did not meet the sampling error objective when using an aggregate option previously, the holder must use the next higher coefficient of variation required to be used by this manual unless the district manager determines that the use of the lower coefficient of variation will not create a significant revenue risk to the government.



2.4.3 Ocular Estimate Option

- (1) Where the holder of an agreement uses the ocular estimate option, each reporting unit may be comprised of one or more cutblocks.
- (2) Where the waste benchmark will be exceeded using the ocular estimate option, the holder of the agreement must use another option authorized by this manual unless the district manager determines that the revenue risk to the government caused by the use of the ocular estimate option is minimal.
- (3) Where the ocular estimate option is used, there is no requirement to meet the sampling error objective required under Chapter 4 of this manual.

Alternative Methods

3

Waste assessments may be conducted using:

- (a) the Full Sampling Intensity survey method (the FSI method),
 - (b) the Reduced Sampling Intensity survey method (RSI method),
 - (c) the Parent Block survey method (the PB method), and
 - (d) the Ocular Estimate survey method (the OE method),
- as and when permitted by the provisions of this manual.

3.1 The RSI Method

- (1) The RSI Method may only be used in a dispersed stratum on a cutblock if:
- (a) the cutblock option is used on that cutblock, and
 - (b) subject to subsection 2 of this section, the estimated volume per hectare of avoidable waste in the dispersed stratum is less than the maximum dispersed volume prescribed in the Table 3-1 of this manual.

Location of Cutblock	Stand Description	Maximum Dispersed Volume
In the Coast Forest Region	Second Growth	20 m ³ /ha
	Old Growth	35 m ³ /ha
In the Southern or Northern Interior Forest Region	Dry Belt *	8 m ³ /ha
	Transition *	20 m ³ /ha
	Wet Belt *	35 m ³ /ha

Table 3-1, RSI Thresholds

- (2) The district manager may permit the use of the RSI survey method in a dispersed stratum where the estimated volume per hectare measurement of avoidable waste in the dispersed stratum exceeds the maximum dispersed volume prescribed in Table 3-1 of this manual if the district manager determines that there is not a significant revenue risk to the government.

3.1.1 RSI Method Procedures

- (1) The number of dispersed plots on the cutblock:
- (a) must be in accordance with Table 4-2 of this manual where the cutblock is in the Coast Forest Region, and,
 - (b) must be in accordance with Table 4-4 of this manual where the cutblock is in one of the Interior Forest Regions.
- (2) The coefficient of variation (C.V.) that must be used is 100 percent.

- (3) The number of dispersed plots that **must** be used is one quarter of the number of plots that are required by:
- (a) Table 4-2 of this manual where the cutblock is in the Coast Forest Region, or
 - (b) Table 4-4 of this manual where the cutblock is in one of the Interior Forest Regions.
- (4) The plot must be:
- (a) circular, rectangular, a line transect, and
 - (b) at least 400 m² in size.
- (5) (a) Where the cutblock is a partial cutting cutblock specified under Section 4.7 of this manual, a plot size smaller than 400 square meters may be used.
- (b) Where a smaller plot size is used under this subsection the number of plots that must be used must be calculated in accordance with the new C.V. formula that is set out in:
- i. Table 4-2 of this manual where the cutblock is in the Coast Forest Region, or
 - ii. Table 4-4 of this manual where the cutblock is in one of the Interior Forest Regions.
- (6) There is no requirement to meet the sampling error objectives in Tables 4-2 and 4-4 of this manual
- (7) The field measurements that must be made and the recording requirements that must be met when using the RSI method are the same as those that must be made and met when using the FSI method.

* These site types are defined in the BEC zones link in the waste system homepage at:

<http://www.for.gov.bc.ca/hva/waste/index.htm>

3.2 Parent Block (PB) Method

The PB method includes the use of waste survey data from a surveyed cutblock hereinafter referred to as the “parent block” for applying the volume per hectare data to an unsurveyed cutblock hereinafter referred to as the “exempted block” which meets the conditions in Section 3.2.1.

3.2.1 Parent Block Method Conditions

The holder of an agreement may only use the PB method where:

- (a) the area of the exempted block is 20 ha or less, unless the district manager determines that the use of the PB method on a larger cutblock will not create a significant revenue risk to the government,
- (b) the parent block was surveyed using plots,
- (c) the parent block waste survey is in the Waste System records, and on the Coast, the parent block was surveyed using Appendix 6, Coast grading procedures,
- (d) the district manager determines that:
 - (i) the anticipated amount of waste in the exempted block is similar to the amount of waste in the parent block, and
 - (ii) the species composition in each of the two blocks was similar.

3.3 Ocular Estimate (OE) Method

- (1) Where the estimated volume per hectare of avoidable waste on the cutblock is below the maximum volume prescribed in Table 3-2 of this manual, the use of the OE method does not require approval of the district manager.
- (2) The use of the OE method will not be permitted on a cutblock if the estimated volume per hectare of avoidable waste on the cutblock exceeds the maximum waste volume prescribed in Table 3-2 of this manual, unless the district manager determines that the use of this method will not create a significant revenue risk to the government.

Location of Cutblock	Stand Description	Maximum Avoidable Waste Volume (sawlogs)
In the Coast Forest Region	Second Growth	10 m ³ /ha
	Old Growth	35 m ³ /ha
In the Northern Interior or the Southern Interior Forest Regions	Dry Belt	4 m ³ /ha
	Transition	10 m ³ /ha
	Wet Belt	20 m ³ /ha

Table 3-2, Ocular Estimate Thresholds

- (3) Subject to subsection (4) of this section, the holder of an agreement may not use the OE method unless a licensed waste surveyor, licensed scaler, RPF or RFT certifies the accuracy of and submits the results of the assessment on behalf of the holder of an agreement to the district manager.
- (4) The district manager may permit the holder of the agreement to use the OE method and to submit the results of waste assessment directly to the district manager without the certification required by subsection (3) of this section where the agreement held by the holder is a woodlot licence, if the district manager determines that there is not significant revenue risk to the government by receiving the results of the waste assessment directly from the holder of the agreement.
- (5) Transect line or inspection plots:
 - (a) should be used when using the OE method and
 - (b) should be located in areas of the cutblock where the levels of avoidable waste reasonably represent the avoidable waste on the cutblock.
- (6) Where inspection plots are used, each plot should be:
 - (a) Circular or rectangular, and

- (b) At least 50 m² in size.
- (7) Where a field audit conducted on behalf of the district manager determines that the waste assessment conducted by the holder of an agreement on the cutblock using the OE method does not reasonably represent the avoidable waste on the cutblock, the district manager may reject the waste assessment.

3.4 The OE Method and Standing Timber

- (1) Where a waste assessment is conducted on standing timber using the OE method, the average net piece volume for each 5 cm DBH class for each species contained in the Extended Type Stand and Stock Tables or the net Merch Volume per tree in the Timber Type Summary, in the cruise compilation may be used to derive the standing timber volume.
- (2) Subject to subsection (3) of this section, the species and grades for the standing timber on a cutting authority area must be derived from the HBS billing history records held by the Revenue Branch of the Ministry of Forests and Range for the timber that has been harvested on the cutting authority area during the 12-month period prior to the date that primary logging was completed on the cutting authority area.
- (3) The species and grades for the standing timber may be established by an RPF or RFT by conducting a visual on site examination of the standing timber if:
 - (a) there are no billing history records, or,
 - (b) the RPF, RFT or the Ministry employee who is responsible for reviewing waste assessments determines that the billing history records do not reasonably represent the species and grade profile of the standing timber on the cutting authority area.

Waste Volumes

Forest District:		Licensee:				
Timbermark:		RU:	Return Number:			
Licence:	CP:	Block:				
Block Net Area: ① + ② + ③		ha				
Date Primary Logging Completed:	Avoidable Waste Benchmark: m ³ /ha		Block Leading Species:			
Ocular Estimates						
	DISPERSED		ACCUMULATED		STANDING TREES	TOTAL
Stratum Code *						
Area (ha)	①		②		③	
Avoidable	m /ha	Total (m ³)	m /ha	Total (m ³)	Total (m ³)	Total (m ³)
Sawlog waste (1)						
Sawlog waste (2)						
Grade 4 (Y)						
Total Avoidable						
Unavoidable						
Sawlog waste						
Grade 4 (Y)						
Total Unavoidable						
Grand Total						
<p>* Refer to Section 5.7.2 of the Provincial Logging Residue and Waste Measurement Procedures Manual.</p> <p>I hereby provide the above estimates in lieu of a waste survey. I agree to the use of these figures for cut control and waste monetary billing purposes.</p>						
Additional Comments:						
Surveyor/Scaler Name and No:			RPF/RFT Name and No:			
Signature (Licensee or Representative):			Forest Officer			
Date:						

2010/03

Please be advised that this information may be released under the Freedom of Information and Protection of Privacy Act.

Figure 3.1 RW01 Estimate Form - Interior.

Waste Volumes

Forest District:		Licensee:				
Timbermark:		RU:	Return Number:			
Licence:	CP:	Block:				
Block Net Area: ① + ② + ③ ha		Stand (check box)		<input type="checkbox"/> Immature <input type="checkbox"/> Mature		
Date Primary Logging Completed:	Avoidable Waste Benchmark: m ³ /ha		Block Leading Species:			
Ocular Estimates						
	DISPERSED		ACCUMULATED		STANDING TREES	TOTAL
Stratum Code *						
Area (ha)	①		②		③	
Avoidable	m ³ /ha or #	Total (m ³)	m ³ /ha or #	Total (m ³)	Total (m ³)	Total (m ³)
Conifer U grade or better						
HemBal U grade						
Conifer X grade						
Conifer Y grade						
Decid sawlog						
Decid Y grade						
Unavoidable						
Piles						
Decked wood						
<p><small>* Refer to Section 5.7.2 of the Provincial Logging Residue and Waste Measurement Procedures Manual. Conifer U grade or better excludes HemBal U grade. Piles = Avg. Vol/Pile * number of Piles. Enter number of decks and volume of decked wood under Accumulated.</small></p> <p>I hereby provide the above estimates in lieu of a waste survey. I agree to the use of these figures for cut control and waste monetary billing purposes.</p>						
Additional Comments:						
Surveyor/Scaler Name and No:			RPF/RFT Name and No:			
Signature (Licensee or Representative):			Forest Officer			
Date:						

2010/03 COAST

Please be advised that this information may be released under the Freedom of Information and Protection of Privacy Act.

Figure 3.2 RW01 Estimate Form - Coast.

This page is intentionally left blank.