

APPENDIX V

Current Resource Inventories

March 2001

Current Resource Inventories

This Appendix describes the current status of the different resource inventories in TFL 39.

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Appendix I

Terms of Reference Operability Assessment TFL 39 (dated May 1, 1992) pp. 8

1.0 FOREST (TIMBER) INVENTORY

Area summaries by Block and tenure for the inventory update to December 31, 1995 are tabled in Appendix VI.

The basic building block in the forest inventory is the “stand”. Each stand is identified by the following variables:

- A measure of productivity: expressed by site index.
- Age of immature (second-growth) by establishment year. Broad age classes are applied to mature (greater than 130 years) stands.
- Up to three species: in descending order of significance.
- A measure of stocking:
 - Volume class in mature and in older second-growth cruised during the last 20 years.
 - Basal area in cruised second-growth stands.
 - Number of stems per hectare and distribution in younger stands.

1.1 Mature Forest Inventory

Since the original cruise in 1964, the inventory has been continuously upgraded and updated as follows:

- In 1966, mature volumes were recompiled, as required by MoF, to close utilization standards (15 cm top diameter for trees 22.5 cm and larger).
 - In 1972, mature volumes were recompiled using new MB decay factors.
 - In 1988 and in 1999, operational cruising was combined with the inventory to improve the less intensive original inventory on these areas. A third of the total mature inventory is now derived from operational cruise information.
 - On both occasions, in the remaining area (not included in the operational cruise), average lines were recalculated to reflect the samples remaining.
 - The volume recompile in 1999 used MB's 1973 loss factors and Kozak's Taper Equation Version 4.1. The dead useless category was removed from the TFL 39 inventory.
 - In addition, the inventory has been updated to reflect areas and volumes logged.
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Audits

The TFL 39 mature inventory includes areas cruised in 1964 and areas that have more recently (since the late 1970s) been cruised. Audits for most of the 1964 portion (original cruise) have been completed during the last 10 years. The last plots for the Block 5 comparison were completed in 1999. Block 3 is the only block that has not been audited. It has only a small volume of mature volume.

The audits have occurred in accessible timber (MC1) and inaccessible timber (MC3) as typed in the 1964 inventory. Inventory volumes in the MC1 type are compiled from samples, while in the MC3 type, volumes have been estimated from photo coding. More recent (1993 and upgraded 1999) operability mapping has replaced the accessibility classification.

Because the MC3 volume estimates are not based on direct plot measurement, it was agreed that these volumes would be adjusted according to the results of the audit comparison. Refer to the correspondence with Resource Inventory Branch, attached to the Information Package (Appendix II). Table 1.1 shows that the audit volume estimate is higher than the inventory photo coded estimate, varying from +8% for Block 6 to +56% for Block 2.

Since the MC1 volume estimates are based on plots, these volumes are adjusted only if the audit result is significantly different from the inventory. A significant difference occurs only in Block 6 (QCI). The differences (non-significant) for the other blocks (refer to Table 1.1) are discussed in the context of the sensitivity analysis on mature volumes in the Timber Supply Analysis for MP #8 (Appendix III)

Table 1.1 Summary of TFL 39 Inventory Audit Results**1964 Inventory Stands (MC1)**

	Blocks					
	1	2	4	5	6	7
• Inventory (m ³ /ha)	765.8	765.2	896.4	759.5	688.3	660.7
• Audit (m ³ /ha)	758.8	834.7	848.2	856.6	616.0	629.6
• Ratio of audit/inventory	0.99	1.09	0.95	1.13	0.89	0.95
• Observations	71	116	66	91	200	100
• Df	70	115	65	90	199	99
• T	0.14580	1.78010	0.95118	1.91134	3.10807	0.95552
• P(T<=t) two-tail	0.88450	0.07770	0.34503	0.05887	0.00216	0.34164
• t Critical two-tail	1.99444	1.98081	1.99714	1.98667	1.97196	1.98422

No significant difference was noted in the 1964 Inventory, except in Block 6.

1980 Photocoded stands (MC3)

	Blocks					
	1	2	4	5	6	7
• Photocoded (m ³ /ha)	563.6	493.6	551.3	556.1	434.6	426.7
• Audit (m ³ /ha)	737.5	770.5	695.9	848.1	468.0	542.7
• Ratio of audit/inventory	1.31	1.56	1.26	1.53	1.08	1.27
• Observations	78	91	20	91	96	100
• Df	77	90	19	90	95	99
• T	3.45744	7.15911	2.18624	6.37415	1.13791	3.76650
• P(T<=t) two-tail	0.00089	0.00000	0.04152	0.00000	0.25802	0.00028
• t Critical two-tail	1.99125	1.98667	2.09320	1.98667	1.98525	1.98422

Significant differences were noted for the photo coded MC3 stands in all blocks except for Block 6.

1.2 Inventory of the New Forest

During the 1964/1965 forest inventories, all the immature forest was cruised and mapped. Each stand was described according to age, species, site index class and stocking.

The new forest inventory is updated in a two-stage process. First the stand information for new, planted and natural stands is added into the inventory yearly. Any changes found by assessment of survival and free-growing status are also made annually.

Second, as the new stands reach "pole size", generally between 20 and 40 years, they are re-inventoried; site index is measured based on the growth of the new crop; and volume and basal area are obtained as measures of stocking. Since 1977, cruise data has been entered into the inventory data base, for 79,000 ha of second growth that have been re-inventoried.

1.3 Not Satisfactory Restocked (NSR) Inventory

Areas logged or otherwise rendered unstocked, e.g., fire kill, are recorded in the inventory annually. For planning and control purposes, all NSR areas are categorized and summarized to show areas prescribed for site preparation, planting or natural regeneration, and the target date for achievement.

NSR areas are re-classified as second-growth when they meet or exceed inventory requirements.

1.4 Growth and Yield

Weyerhaeuser has a long history of establishing and measuring permanent sample plots to evaluate long-term growth trends. Nine hundred and fifty five plots have been established in TFL 39. The earliest plots were established in 1932 and many have been measured since the 1960s and 1970s.

Over half of the plots are in hemlock stands and substantial numbers are also in Douglas-fir, Sitka spruce, redcedar and balsam. Approximately 60% of the plots are in natural stands or controls. The other 40% are mainly located in thinning and fertilization treatments. The current emphasis is on establishing plots to measure the impacts of variable retention on forest growth.

The core set of plots for re-measurement is reviewed periodically to ensure that funds are spent effectively in gathering further applicable growth and yield data.

2.0 OPERABILITY

Operability mapping was completed for Blocks 1 to 5 and 7 in 1993 for MP #7. During the 1980's the accessible timber (classification from the 1964 inventory) in Block 6 was classified as loggable by conventional or non-conventional logging systems.

Revisions to the operability mapping for Blocks 1 to 5 and 7 and new mapping for Block 6 were completed in 1999. A copy of the terms of reference for this work is in attachment 1 of this appendix.

The productive forest was classified for physical operability and broad logging method (conventional and non-conventional). Refer to Table 2.1 for a summary. The operability and logging method classes are defined in Attachment 1.

Table 2.1 Productive Forest Area by Block, Physical Operability and Logging Method (ha)

	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Block 7	Total
Conventional	72,009	139,112	14,618	33,184	7,068	163,423	14,900	444,313
Non-conventional	17,176	19,766	23	5,419	5,986	25,019	13,436	85,825
Physically inoperable	4,349	6,985	127	374	1,739	1,135	1,388	16,096
Total	93,534	165,864	14,768	38,976	14,793	189,576	29,723	547,234

Footnote – Inventory dated December 31, 1995.

The mature forest (> 130 years) was also classified for economic operability. Refer to Table 2.2 for a summary of mature volumes in the timber harvesting land base by Block, logging method and economic class.

Table 2.2 Mature Volumes in the Timber Harvesting Land Base by Block, Logging Method and Economic Class (000 m³)

	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Block 7	Total
Conventional economic	3,846	31,293	1,028	3,890	951	30,453	3,664	75,125
Non-conventional economic	3,943	6,924	10	2,738	2,475	2,602	2,503	21,195
Conventional marginal	215	1,079	108	137	21	3,231	346	5,136
Non-conventional marginal	358	457	0	161	153	973	665	2,767
Total	8,362	39,753	1,146	6,926	3,599	38,258	7,177	104,223

Footnote – Inventory dated December 31, 1995.

3.0 TERRAIN

All of TFL 39 has being mapped either by Es mapping or 5-class mapping. The following table summarizes current (mid 2000) mapping classification and year of mapping by Block.

Table 3.1 Summary of Terrain Inventories in TFL 39

Block	Timberlands Operation	Terrain Classification Type	Mapper and Year	Net-downs applied in MP #8 analysis
1	Stillwater	Es	Madrone (1993)	Es1 @ 90% Es2 @ 20%
2	North Island	Es, V-class and VI-class	Es: Ryder (1993) V-Class: Maynard (1995-1996) VI-Class: Dunkley & Rollerson	Es: Es1 @ 85% Es2 @ 15% V-Class V @ 90% IV @ 20% VI-Class VI @ 100% V @ 90% IV @ 20%
3	Port McNeill	Es	Ryder (1993)	Es1 @ 85% Es2 @ 15%
4	Port McNeill	Es	Ryder (1993)	Es1 @ 85% Es2 @ 15%
5	Stillwater	Es	Madrone (1993)	Es1 @ 90% Es2 @ 20%
6	Queen Charlotte	VI-Class	Dunkley and Rollerson	VI @ 100% V @ 90% IV @ 20%
7	Port McNeill	V-Class	Ryder (1995)	V @ 80% IV @ 5%

Avalanche run-out zones were mapped in Blocks 1, 2, 4, 5 and 7 in the 1980s and early 1990s and are stored as a separate layer of spatial information. Run-out zones, generally at the toe of avalanche runs, are managed to protect surrounding areas from avalanches.

4.0 RECREATION AND VISUAL LANDSCAPE

Recreation attribute, recreation opportunity spectrum and visual landscape inventories were updated during MP #7. Dates and standards for inventories by TFL 39 Block are listed in Table 4.1. Recreation analyses (by Block) have also been completed and reviewed by MoF staff.

TABLE 4.1 Summary of Recreation and Visual Landscape Inventories

Inventory	Standard	Completed	Reviewed
REC – Block 1*	MoF 1991	March/95	Commissioned by MoF
REC – Block 2	MoF Version 2.0 (1996)	Nov 9/98	C. Cornfield, Nov 5/98 & Jan 28/99 (CRFD); D. Herchmer, Jan 4/00 (Region)
REC – Block 3	MoF Version 2.0 (1996)	Nov 9/98	C. Brady, Nov 4/98 & June 3/99 (PMFD); D. Herchmer, Jan 4/00 (Region)
REC – Block 4	MoF Version 2.0 (1996)	Nov 9/98	C. Brady, Nov 4/98 & June 3/99 (PMFD); D. Herchmer, Jan 4/00 (Region)
REC – Block 5	MoF Version 2.0 (1996)	Dec 5/98	C. Cornfield, Dec 3/98 & Jan 5/99 (CRFD); D. Herchmer, Jan 4/00 (Region)
REC – Block 6	MoF Version 2.0 (1996)	Oct/97	B. Eccles, Dec 1/97 (QCFD)
REC – Block 7	MoF Version 2.0 (1996)	Jan 22/99	C. Grant, Apr 19/99 (MCFD) D. Herchmer, Feb 11/99 & Jan 4/00 (Region)
ROS – Block 1*	MoF 1991	March/95	Commissioned by MoF
ROS – Block 2	MoF Version 2.0 (1996)	Nov 9/98	C. Cornfield, Nov 5/98 & Jan 28/99 (CRFD); D. Herchmer, Jan 4/00 (Region)
ROS – Block 3	MoF Version 2.0 (1996)	Nov 9/98	C. Brady, Nov 4/98 & June 3/99 (PMFD); D. Herchmer, Jan 4/00 (Region)
ROS – Block 4	MoF Version 2.0 (1996)	Nov 9/98	C. Brady, Nov 4/98 & June 3/99 (PMFD); D. Herchmer, Jan 4/00 (Region)
ROS – Block 5	MoF Version 2.0 (1996)	Dec 5/98	C. Cornfield, Dec 3/98 & Jan 28/99 (CRFD); D. Herchmer, Jan 4/00 (Region)
ROS – Block 6	MoF Version 2.0 (1996)	Oct/97	B. Eccles, Dec 1/97 (QCFD)
ROS – Block 7	MoF Version 2.0 (1996)	Jan 22/99	D. Herchmer, Feb 11/99 (Region); D. Herchmer, Jan 4/00 (Region)
VIS – Block 1	MoF, 1991	March/93	B. Rebatad, early, 1993 (SCFD); Revised and reviewed by SCFD in 1998/99
VIS – Block 2	MoF, May/97	Sept 1/98	C. Cornfield, Aug 18/98, Nov 5/98 & Jan 28/99 (CRFD); K. Lee, Jan 25/99 (Region)
VIS – Block 3	MoF, May/97	Sept 1/98	C. Brady, Nov 4/98 & June 3/99 (PMFD); K. Lee, Jan 25/99 (Region)
VIS – Block 4	MoF, May/97	Sept 1/98	C. Brady, Nov 4/98 & June 3/99 (PMFD); K. Lee, Jan 25/99 (Region)
VIS – Block 5	MoF, May/97	Dec 5/98	C. Cornfield, Dec 3/98 & Jan 28/99 (CRFD); K. Lee, Jan 25/99 (Region)
VIS – Block 6	MoF, Version 2.0	Oct/97	B. Eccles, Dec 1/97 (QCFD)
VIS – Block 7	MoF, May/97	Jan 22/99	C. Grant, Apr 19/99 (MCFD) K. Lee, Jan 25/99 (Region)
RAMS – Block 1	Vancouver Forest Region Guidelines, received, Jan/99	July/99	Heather Gorrell, Aug 30/99 (SCFD); D. Herchmer, Sept 7/99 (Region); K. Lee, Aug 6/99 (Region)
RAMS – Block 2		June/99	C. Cornfield, Dec /2000 (CRFD); D. Herchmer, Sept 7/99 (Region); K. Lee, Aug 6/99 (Region)
RAMS – Block 3		June/99	C. Brady, Oct 1/99 (PNFD); D. Herchmer, Sept 7/99 (Region); K. Lee, Aug 6/99 (Region)
RAMS – Block 4		June/99	C. Brady, Oct 1/99 (PNFD); D. Herchmer, Sept 7/99 (Region); K. Lee, Aug 6/99 (Region)
RAMS – Block 5		June/99	C. Cornfield, Dec 24/99 (CRFD) D. Herchmer, Sept 7/99 (Region) K. Lee, Aug 6/99 (Region)
RAMS – Block 6		April/99	B. Eccles, April/99 (QCFD) ; D. Herchmer, Sept 7/99 (Region)
RAMS – Block 7		July/99	D. Herchmer, Sept 7/99 (Region); K. Lee, Aug 6/99 (Region)

* Block 1 Recreation Features and Recreation Opportunities Spectrum inventories are currently being updated to MoF Version 3.0 (1998) standard; expected to be available by mid-2001.

Table abbreviations:

- REC recreation inventory
- ROS recreation opportunity spectrum inventory
- VISvisual landscape inventory
- RAMS recreation analysis report
- MoF Ministry of Forests
- SCFD Sunshine Coast Forest District
- CRFD Campbell River Forest District
- PMFD Port McNeill Forest District
- QCFD Queen Charlotte Forest District
- MCFD Mid Coast Forest District
- Region Vancouver Forest Region
- D. Herchmer – Regional Recreation Forest Specialist
- K. Lee – Regional Landscape Forester

In the MP #8 analysis, net-downs for recreation values were based on the recreation feature class and recreation significance in the recreation inventory. The exception was Block 1 – refer to the comments below.

Recreation Feature Class	Netdown Factor	Comments
0	Er1—100%	
1 (Recreation significance A or B)	Er2—50%	
1	Karst—7%	Includes the recreation feature karst plateau (K03). Applied in Blocks 2 and 4.

Extensive areas of karst occur in Blocks 2 and 4. Entrances for discovered caves are generally classified with a recreation feature Class “0”. The 7% allowance provides for additional discoveries and is based on data collected by the Campbell River District (MoF).

Stillwater Timberlands and Sunshine Coast District staff reviewed the recreation net-downs for Block 1. They agreed that net-downs for recreation should only be applied to six recreation polygons as generally recreation values were protected by management constraints for other resources (net-downs and rate of harvest constraints). In addition, Stillwater timberlands plan to review and update the Block 1 recreation inventory in 2000.

As of March 2001, Visual Quality Objectives have been established only in Block 1 of TFL 39. In the other Blocks, the visual landscape inventory polygons are currently classified according to Recommended Visual Quality classes.

5.0 WILDLIFE

Ungulate (deer and elk) winter ranges were defined in Blocks 2 and 4 in the 1980s. They have been reviewed and refined over the years and were grandparented in 1998. Further review and refinement with local MoELP staff is expected prior to October 15, 2003.

Goat winter range and grizzly habitat inventories for Blocks 1 and 5 were updated in 1999 by MoELP and Weyerhaeuser staff. In a second stage of the review, net-downs were assigned specifically to each polygon. Further review of the goat winter range polygons is planned for 2000.

The MP #7 commitment to assess the mature timber near Rainy Day Lake in Block 1 for suitability as deer winter range was completed. Two deer winter ranges were defined, one to the northwest of Rainy Day lake and the other northeast of Lois Lake.

The grizzly bear habitat inventory in Block 7 was reviewed and updated in 1999. Habitat polygons were mapped using recently completed Terrestrial Ecosystem Mapping for most of Block 7 and a procedure developed by the MoELP (Victoria). The approach was confirmed in a joint Weyerhaeuser MoELP field visit.

6.0 RIPARIAN

Each operation maintains an inventory of stream classifications and occurrence of fish. This inventory is updated as operational assessments occur.

For the MP #8 analysis it was not possible to directly use this information as at this time, not all the information is digital and the available digital data is often not compatible with the NAD 83 TRIM stream data used in the analysis. Hence the indirect approach, described in the Information Package (section 8.1.2) was used.

7.0 CULTURAL HERITAGE RESOURCES

Archaeological overview assessments have been completed for Block 6 (Queen Charlotte Islands) and for Block 7 (part of the Central Coast Archaeological Overview Assessment).

A portion of the FRBC Multi-Year Funding has been allocated for Archaeological Inventory Studies in Block 6. Field work was completed in parts of the Juskatla Inlet, Masset Inlet and Kumdis Island areas in 1999. More work is planned for 2000.

In 1999, Weyerhaeuser provided funding for combining inventories in a digital format, for planning purposes. Further work is required to produce a useable

product. Weyerhaeuser is cooperating with Queen Charlotte Islands Forest District initiatives in this regard.

8.0 TERRESTRIAL ECOSYSTEM MAPPING (TEM)

The program to map ecosystems (site series) for all Weyerhaeuser BC Coastal tenures commenced in 1995. It is expected that TEM mapping for nearly all of TFL 39 will be complete in 2002.

Funding is provided by Forest Renewal BC. Mapping is at a 1:20,000 scale on the TRIM (NAD 83) base. The provincial Resource Inventory Committee (RIC) mapping and database standards are followed.

As of April, 2000, final digital products had been produced for the following areas in TFL 39:

Table 8.1 Summary of TEM Areas Completed in 2000.

Block 1	Lois Lake West
Block 2	White River, Adam-Eve, Tsitika River, Salmon River
Block 5	Phillips River – Block 5
Block 6	Louise Island, Haans, Chadsey, Upper Yakoun, Yakoun-Tlell, Peel-Security, Mamin-Blackwater and Dinan-McClinton
Block 7	Most of block 7

In addition the field work has been completed in Block 4 and most of the balance of Block 1.

Attachment 1

Terms of Reference for a Review and Update of Operability Mapping in TFL 39

1.0 PURPOSE

The purpose of this project is to review and update operability mapping in TFL 39. The mapping of physical operability, broad classes of logging method (conventional and non-conventional) and economic operability is used:

As part of the process for defining the available land base for the Timber Supply Analysis and Twenty-Year Plan, both of which provide information for the determination of the Allowable Annual Cut (AAC).

To provide a basis for monitoring “harvesting of the forest profile.”

To facilitate landscape unit planning (definition of reserve areas) and the preparation of five-year development plans.

2.0 OBJECTIVES

2.1 Physical Operability

The framework for classification of physical operability and broad logging method is the Terms of Reference for Operability Assessment of TFL 39, Blocks 1 -5, and 7 (1992). Refer to Appendix I.

In Blocks 1 - 5 and 7, the line work for inoperable areas and for the broad classes of conventional and non-conventional logging methods will be reviewed and updated.

In Block 6 the physical operability classification will be changed to be consistent with that for the other Blocks. The mapping of broad classes of conventional and non-conventional logging methods will be reviewed and updated.

The physical operability classes applied to productive forest land are as follows:

Physically Inoperable—Timber on productive land that is so steep and/or rocky that it cannot be safely felled or yarded or a significant proportion of the volume could not be recovered.

Physically Operable—Timber on productive land that can be safely felled and yarded and can be recovered. The operable area is further classed as:

- **Conventional:** Timber on productive physically operable land that is loggable by conventional methods; i.e., grapple, high-lead, hoe-chuck, skidder, etc. or,
 - **Non-conventional:** Timber on productive physically operable land that is loggable only by non-conventional means. These include helicopter, balloon or long-line cable systems
-

2.2 Economic Operability

The economic operability classification is applied to mature forest areas that are productive and physically operable. It is a separate layer of map information from the physical operability classification.

Economic operability changes with changing markets, technologies and regulations. A classification based on detailed fieldwork is likely out of date by the time the information is plotted on maps. A more efficient approach for the strategic analysis of Management Plans (MPs) is to classify for economic operability according to forest inventory attributes. Such an approach was used for Management Plan (MP) #7 and is recommended again for this review. Economic classes will include economic, marginal and uneconomic. Areas classified as uneconomic will be removed from the net timber harvesting land base for the base option in the MP #8 Timber Supply Analysis.

3.0 DESCRIPTION OF THE CURRENT TFL 39 OPERABILITY CLASSIFICATION

3.1 Physical Operability

The Terms of Reference for the 1992/1993 operability assessment for TFL 39 provides a good description of the current classification. (Appendix I.) The following provides a brief summary.

3.11 Blocks 1-5, and 7

A reassessment of physical operability and broad harvest methods was completed in 1993 for use in Management Plan (MP) #7. It includes the classifications of physically operable, physically inoperable and conventional and non-conventional harvest systems as defined in Section 2.1 above.

3.12 Block 6

The accessibility classification evaluated in the early 1960's was used to represent physical inoperability for Block 6 in MP #7. This classification was based on a combination of physical features of the terrain and economic features of the timber such as value, cost and isolation. Subsequent evaluations have resulted in some "inaccessible" being reclassified to accessible as development has proceeded and initial classifications were proved wrong.

During the 1980's the accessible timber was classified as loggable by conventional or non-conventional logging systems.

3.2 Economic Operability

A classification of economic operability was developed in 1993 for use in the analysis for MP #7. It was based on the inventory and logging method characteristics shown in Table 3.12 and was applied to all Blocks in TFL 39.

Table 3.12 Inventory and Logging Method Criteria for Classification of Economic Operability. Volumes are m³/ha⁽¹⁾

Stand Type	Harvest Method			
	Conventional		Non-conventional	
	Uneconomic	Marginal	Uneconomic	Marginal
Fir, Fir-hem Fir-cedar	<271	271-380	<434	434-542
Hemlock Hem-balsam	<325	325-434	<488	488-597
Hem-bal-cyp				
<=40% X,Y,Z	<325	325-434	<434	434-542
>40% X,Y,Z	<434	434-542	<542	542-651
Cedar				
<=40% X,Y,Z	<271	271-380	<380	380-488
>40% X,Y,Z	<380	380-488	<542	542-651

⁽¹⁾ Breakage and Waste 2 are included; volumes are as shown on MB forest cover maps.

Some changes were made to the classification after a review by MB and MoF field personnel of the mapped results of this inventory procedure.

4.0 PROJECT ORGANIZATION

4.1 Divisions

Divisional Engineers will be accountable for the overall project in each Division. A field or area engineer, with good familiarity with timber and terrain of a given operation or geographic area, should be assigned to carry out the project in that operation/area.

4.2 Forest Data and Analysis

J.M. Chung, Contract Supervisor for the Forest Data & Analysis (FD&A) Section, will be responsible for:

Distributing work maps to the Divisions.

Specifying standards for map changes to ensure accurate and efficient entry into the GIS database.

Overseeing data entry including quality control.

Creating the resultant economic operability coverage.

Distributing the resulting maps and reports for review.

4.3 Overall Coordination

Peter Kofoed will be responsible for:

Preparing the Terms of Reference for MoF approval.

Monitoring progress relative to the schedule.

Providing quality control for the final products.

5.0 PROCEDURES

5.1 Review of Objectives and Procedures

The first step will be to ensure that all staff assigned to this project are familiar with the objectives, standards and schedule.

5.2 Physical Operability

5.21 Distribution of Work Maps to Divisions

Standard 1:20 000 forest cover maps with existing physical operability and harvest systems classification lines will be provided to each Division for use as work maps. The Contract Supervisor of the FD&A Section will also provide specifications for marking the changes and for notating the operability designations.

5.22 Divisional Input

5.221 Block 6

The physical operability mapping for Block 6 will be revised to make it compatible with the classification used in the rest of TFL 39. This will involve:

The use of local knowledge and stereoscopic examination of aerial photographs to determine physical operability lines.

A limited number of helicopter flights may be made to check the photo interpreted physical operability calls.

All stands originating from previous logging - immature coniferous, deciduous and NSR - will be deemed to be physically operable. All such types derived from non-harvesting disturbances will be assessed for physical operability in the same manner as mature coniferous.

As with the other Blocks, the classification of conventional and non-conventional logging systems for physically operable stands will be reviewed.

The main basis for this review will be to reference recent operational planning experience; to compare experience and plans with the current mapped classification of logging methods.

A critical element in this classification is to identify the reasonable limit of road construction. In some areas the Forest Practices Code has changed the extent of road access, particularly, because of increased concern regarding sensitive soils and riparian values.

No mapping distinction will be made between helicopter, balloon and long-line yarding.

5.222 Blocks 1-5, and 7

Divisional personnel will review and update the current classification. This will be largely based on recent harvest experience and will include comparisons of how the map classification has compared with harvest areas and logging methods used. The notes in Section 5.221 on reviewing the classification of conventional and non-conventional areas also apply here.

5.23 Preliminary Review with Districts

The Divisions will review the general results of the assessment with the Districts. The intent is to determine if there are areas of major concern and resolve them as early as possible in the process. Senior Divisional Staff and the Division Manager should also review the results and indicate acceptance before proceeding to the next stage.

5.24 Enter Changes into the MB GIS Database

After the first review by the Districts, the work maps will be returned to the Contract Supervisor of the FD&A Section who will organize the addition of this data to the database.

5.25 Final Review and Acceptance of the Results

On completion of the data entry, maps and reports will be produced by the FD&A Section for review both by MB Divisions and other Woodlands staff and by the Districts. The Forest Planner will review the results with Division Engineers for consistency between Divisions. Required changes will be made to the database and confirmed through the presentation on maps.

5.3 Economic Operability

5.31 Inventory Attributes

The inventory attributes used to define economic operability for MP #7 will be used again in this review. They are described in Table 5.31.

The inventory attributes include species and percentage of low grades for cedar and cypress stands, significant determinants of timber value. They also include volume per hectare and harvest method which have a significant effect on harvesting costs.

Table 5.31 Inventory and Logging Method Criteria for Classification of Economic Operability. Volumes are m³/ha⁽¹⁾

Stand Type	Harvest Method			
	Conventional		Non-conventional	
	Uneconomic	Marginal	Uneconomic	Marginal
Fir, Fir-hem Fir-cedar	<271	271-380	<434	434-542
Hemlock Hem-balsam	<325	325-434	<488	488-597
Hem-bal-cyp				
<=40% X,Y,Z	<325	325-434	<434	434-542
>40% X,Y,Z	<434	434-542	<542	542-651
Cedar				
<=40% X,Y,Z	<271	271-380	<380	380-488
>40% X,Y,Z	<380	380-488	<542	542-651

⁽¹⁾ Breakage and Waste 2 are included; volumes are as shown on MB Forest Cover Maps

The TFL 39 mature inventory is being recompiled. When this is completed the above inventory and logging method attributes will be applied to derive the resultant economic operability coverage.

5.32 Review of Economic Operability

Maps and reports of the resultant economic operability coverage will be produced and distributed by the FD&A Section for review by MB Divisions and other Woodlands staff and by the Districts. Required changes will be made to the database and confirmed through the presentation on maps.

6.0 SCHEDULE

Review terms of Reference with Divisions	April 30, 1998
Physical Operability Review	
Distribute Work maps to Divisions	May 15, 1998
Complete Divisional Input	August 31, 1998
Preliminary review of Results with Districts	September 30, 1998
Enter Data into the MB GIS Database	November 30, 1998
Final Review and Approval of the Results	February 28, 1999
Economic Operability Review	
Produce Maps and reports Using Inventory and Logging Method Attributes.	December 31, 1998
Review of Results by Divisions and Districts	February 28, 1999
Approval of the Economic Operability Classification	March 31, 1999

APPENDIX I

Terms of Reference for Operability Assessment TFL 39 (May 1, 1992)

A copy will be provided on request.