BRITISH COLUMBIA

Ministry of Forests and Range and Ministry Responsible for Housing

Northern Interior Forest Region

MEMORANDUM

File: 21740-02/ECE

SEP 0 1 2006

To: Regional Management Team
Northern Interior Forest Region

Re: Errata – Detailed ECE Procedures July 1, 2006

The purpose of this memo is to advise you of an omission of an attachment regarding supervision and certification costs from the original Detailed ECE Procedures (July 1, 2006) document. In addition clarification was required around the regional cost tables for the survey, design and certification of bridges. Please make the following changes to the Detailed ECE Procedures (July 1, 2006) document.

Action (Remove/Insert)	Section-Subject Table of Contents	Page(s)
REMOVE	Table of Contents	iii
INSERT		iii
REMOVE	Regional Cost Tables	31
INSERT		31
INSERT	Attachment	62-64

Copies will be distributed to forest industry association representatives from this office. Please distribute this document to all district staff involved in the review of appraisals. The information attached is effective July 1, 2006.

If you have any questions contact the Revenue Manager at (250) 565-6100.

W.J. (Bill) Warner, R.P.F.
Regional Executive Director
Northern Interior Forest Region

LIST OF FIGURES

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REGIONAL COSTS TABLES FOR THE SURVEY, DESIGN AND CERTIFICATION OF BRIDGES TEMPORARY AND PERMANENT ONLY

Where a site specific detailed site plan is required or prepared.

Table 6-1-A. Survey, Site Plan and Design Cost for New Installations.

Survey, Site Plan and Design Cost Estimate[*] *New Permanent or New Temporary Bridges*[+] *2001 Cost Base*	
≤ 24 m	**> 24 m**
$ 7,000	Submit detailed estimate

[*] Includes all site specific professional and non-professional costs for survey, production of a site plan and general arrangement, and detailed design drawings for the bridge components (including detailed steel design).

[+] Assumes the proponent is not using superstructure drawings previously developed for another site or for repeated use (i.e. standard drawings).

Table 6-1-B. Survey, Site Plan and Design Cost for Previously Installed Structures.

Survey, Site Plan and Design Cost Estimate[**] *Previously Installed or Previously Designed Superstructures*[+] *2001 Cost Base*
$ 2,500

[**] Includes all site specific professional and non-professional costs for survey, production of a site plan and general arrangement.

[+] Assumes the proponent is already in possession of engineered drawings for a steel superstructure. Includes when a new superstructure is being fabricated from standard drawings or when an existing superstructure is being reinstalled at its original design loading or less.

Table 6-1-C. Construction Certification Cost Estimates for all Bridges.

Construction Certification Cost Estimate[*] *2001 Cost Base*		
Bridge Length	**≤ 24 m**	**> 24 m**
Temporary	$ 1,000	$ 3,000
Permanent	$ 3,000	Submit Detailed Estimate

[*] Assumes maximum site visits and the production of an FS 138 Certification of Construction of Bridges or a similar document, prepared by a Professional Engineer.

ATTACHMENT

Supervision and certification cost estimates approved for use in engineered cost estimates - Northern Interior Forest Region

Supervision of Construction

The IAM, Section 4.3.3, provides for inclusion of costs related to supervision of complex structures construction by a Professional Engineer. Structures which qualify for consideration as complex are listed in Table 1 below.

The general supervision of simple structures is not an allowable cost estimate in an ECE, regardless of whether the supervision is by a professional or non-professional. The list in Table 2 includes structures which are considered to be simple, therefore not eligible for supervision cost estimate in ECEs and appraisals.

This is not to imply that supervision of simple structures is not required. The distinctions between simple and complex structures are made solely to determine eligibility for inclusion of costs for supervision within ECEs and appraisals.

The items listed in Tables 1 and 2 are not an exhaustive list. If an interpretation of what is considered complex is required, please contact the Regional Timber Pricing Coordinator.

Table 1. List of Structures Considered Complex for the Purposes of Inclusion of Costs of Supervision by Professional Engineers in ECEs and appraisals.

• Composite concrete bridges (the deck is a structural component of the girders).
• Multiple span bridges: simple span and continuous.
• Major culverts (>1800mm in diameter or with flows >6m^3/sec). Density testing of the compacted structural backfill must be completed using standardized testing methods. The results of these tests, including testing methodology, must be retained and available for certification. The extent of structural backfill and the specifications (including minimum density requirements) must be shown on the design drawings.
• Non-composite bridges with spans greater than 24 metres (bearing to bearing) and/or an abutment height (above ground) greater than 5.4 metres.
• Bridges comprised of pre-stressed and post-tensioned concrete beams and girders.
• Any structure that incorporates a bolted or welded field splice in the girders.
• Any structure placed on piles, or not identified in the Simple Structures listed below.
• Any structure not identified as a Simple Structure (in these procedures).
• Complex road structures are limited to road sections that require a Qualified Registered Professional for a design. This would be limited to retaining walls, earth retention systems, soil reinforcement systems, or special construction methods for areas where a Terrain Stability Field Assessment is required. Gravel or rock berm walls do not fall under the definition of a retaining wall or elaborate construction; these are usually a slope stabalizing solution.

Table 2. List of Structures which are considered Simple, and therefore ineligible for inclusion of supervision costs in ECEs and appraisals.

• Tabular structures, including culverts ≤1800mm in diameter or <6m^3/sec design flow
• Single span non-composite structures up to and including 24 metres in length (bearing to bearing) for both wood and concrete decks
• Non pre-stressed concrete slab bridges
• Abutment systems constructed of any of the following: ➢ Lock block walls up to two courses high under the pile cap or girders ➢ Log cribs up to 5.4 metres high ➢ Bin wall structures up to four courses in height ➢ Pre-cast pad and pipe footings ➢ Log, mud sills or concrete sleepers

Definition of Supervision and Certification Cost Estimates:

Supervision

The IAM allows a cost estimate for a Professional Engineer for the supervision of complex structures and the certification of bridges only.

Supervision of a structure includes the general supervision of the construction for those structures or components that are identified as complex in Table 1. Visits by a Professional Engineer for certification are to verify those critical aspects of the construction are in general conformance to the design. This would include inspection of subsurface components such as footings, structural fill, bridge components, bridge elevation and alignment, and construction of the bridge.

The supervision of complex structures is not constrained to a maximum number of days, but will be based on the project size, project components and complexity. The number of days allowed for supervision will be for only those portions of the project that requires supervision by a Professional Engineer as opposed to general project supervision. If requested by district or regional staff, the proponent must provide documentation to justify the number of days estimated for supervision or certification.

Bridge Certification:

Certification of bridges at the time of fabrication is an eligible ECE item. For bridges which are designed for re-use, this cost estimate would be included on the first installation, as part of the bridge purchase cost, and not included on re-use.

Certification of installed bridges by a Professional Engineer is restricted by the IAM to a maximum of three field trips unless otherwise approved by the Regional Timber Pricing Coordinator. Request for additional field trips should be made through the District Engineering Officer who will forward the request to the Regional Timber Pricing Coordinator. The length and number of trips should coincide with the project phases that must be viewed by a Professional Engineer to certify the bridge to the design. The

certification cost estimate may include additional office time for the completion of the report or as-built drawings as dictated by the project.

Bridge Definitions

For the purposes of defining complex versus simple structures, the following bridge definitions are provided for clarification. They are meant to distinguish between structures or individual components for the purposes of these procedures only.

Abutment Height: Measurement taken as the difference in elevation from the existing ground line to the soffit elevation (underside of girders).

Non-composite Bridge: Bridge constructed with steel girders with either timber or concrete decks. In the case of a concrete deck, the deck can be bolted, clipped or pocket grouted to the girders. The deck on a non-composite bridge does not act as a load-sharing member; the vehicle loading is completely supported by the girders.

Composite Bridge: Constructed of steel or concrete girders with steel or concrete decks. Visually, they look much like a non-composite bridge, except that the girders are usually smaller. In a composite bridge, the deck is continuous with individual panels welded or grouted to each other. In addition, the deck is intimately connected to the girders. Only Professional Engineers are permitted to design composite bridges.

Concrete Slab Girder Bridge: Constructed using reinforced concrete stringers or girders. They are solid and rectangular in cross section and are usually constructed as pre-stressed members. Due to problems with cracking and weight, they are usually limited to short spans of 12 metres or less.

Pre-stressed Concrete Box Girders: Rectangular in cross-section with a hollow rectangular shape in the center. These girders are pre-stressed in a shop and are lighter than concrete slabs because of the cross-section. These girders can be up to 18 metres in length.

Pre-stressed Concrete I-girders: Pre-stressed concrete girders in the same shape as steel I-beams. A bridge constructed with pre-stressed I-girders is always considered composite. They are used for larger spans and long-term structures.

Box Girders: Bridge girders either made of steel or concrete. These are used for very large spans; they are not normally used in the forest industry.

Pre-stressed versus Post-tensioned: For pre-stressed components, the reinforcing steel is put under tension before the concrete is poured. After the concrete is cured, the tension on the steel is released and the concrete is under compression.
For post-tensioned components, the concrete is poured around the cables, which are then tensioned, after the concrete has set. Bridges or deck panels of this type require re-tensioning during the lifespan of the bridge.