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All Licensees and Forest Consultants  
Coast Forest Region

Dear Sir or Madam:

Given the recent implementation of bank height costing for tabular roads, please find enclosed additional guidance on end haul process for the *Detailed Engineering Estimates for Coast Stumpage Appraisal* (DEE) document sent dated February 2001. Please note that all clauses contained within the Coast Appraisal Manual (CAM) and DEE, with the exception of the attached *End Haul Cost Estimation with Bank Height* document, still apply. Where conflicts occur between the DEE and the *End Haul Cost Estimation with Bank Height* the *End Haul Cost Estimation with Bank Height* shall supercede the DEE.

This process comes into effect for appraisal data submissions whose cutting authority effective date is September 1, 2007, or later.

If you have any inquiries, please contact the appraisal officers at the Coast Forest Region office at (250) 751-7001.

Yours truly,

Jim Gowriluk, RPF  
Regional Executive Director  
Coast Forest Region

Attached: *End Haul Cost Estimation with Bank Height* document

pc: District Managers, Coast Forest Region  
George Silvestrini, Senior Timber Pricing Forester, Revenue Branch



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# End Haul Cost Estimation with Bank Height

**End Haul** occurs when excavated material excess to that road section is placed in a truck and removed at least 10 metres during road construction. The minimum section length of road to qualify for end haul is 20 metres. These materials are categorized as one or more of the following:

- a. unsuitable for road construction needs and are considered waste material and are hauled to a spoil site,
- b. suitable for road construction and are hauled to;
  - i. another road section and used in road construction,
  - ii. a storage site and used in road construction in the future, or
  - iii. a spoil site.

**NOTE** Road construction includes activities like constructing fills, road widening, alignment and grade work, ballast and surfacing, fords, culverts inlet and outlet erosion control, other erosion control works, rip rap projects and any other use associated with road construction.

## How to Cost Estimate End Haul Road Sections

Only Cost Estimate Methodology formulas are to be used in calculation of end haul, the use of Construction Estimate Forms (using machine hours), as per Table 1 “Detailed Engineering Estimates for Coast Stumpage Appraisal – February 2001” for end haul is no longer acceptable.

## Qualification for End Haul Cost Estimate Methods

Qualifications, cost formulas and calculations remain as described in the “Detailed Engineering Estimates for Coast Stumpage Appraisals – February 2001”.

To qualify for the end haul cost estimate method the following is required and must be attached in the appraisal data submission:

1. Rationale as to the requirement for end haul provided either by a:
  - a. Terrain Stability Professional specifying the requirement for end haul construction methods to be used for the road section in a Terrain Stability Assessment; or
  - b. Qualified Forest Professional who submits an appraisal data submission must provide a rationale for the requirement to end haul the road section. The following are some examples where excavated material may not be sidecasted and end haul is required (there may be other examples as this list is not exhaustive).
    - ⇒ Bridge Approaches      ⇒ Wildlife Habitat      ⇒ Visuals
    - ⇒ Through Cuts            ⇒ Site Degradation      ⇒ Streams
    - ⇒ Private Property
2. Geometric designs (plans, profiles, cross-sections and volume estimates by rock, rock hardness and OM) must be attached to ECAS to provide verification of volume that is being used in the cost estimate calculation.

# End Haul Cost Estimation with Bank Height

## Partial End Haul Road Sections

- A section of road that requires partial end haul as prescribed are cost estimated as two separate project types using the same method of breaking a road section into two cost estimates as has been done in the past.
- When entering the two separate project types into an appraisal data submission the first portion of the road section that requires partial end haul must be cost estimated as end haul and the second portion of the road section is to be cost estimated using Bank Height.
- End haul cost estimate portion is entered in the End Haul (ECAS39) screen. Ensure that PEH code has been recorded on the End Haul (ECAS39) screen. A reminder that the 'Partial %' column is not functional and needs to be left at 100.
- Bank Height Tabular Road cost estimate portion is entered in the Tabular (ECAS37) screen.

### Example

A partial end haul section is designed with 75% end haul and 25% sidecast. The section length is 80 metres (for example 1+000 – 1+080). The gross volume from the geometric design of the entire section is 800 m<sup>3</sup>. This means that 600 m<sup>3</sup> is to be end hauled and 200 m<sup>3</sup> is to be sidecast, or used in construction.

For the purpose of the appraisal cost estimate, this 80 metre section is divided into 2 sections (or projects) by the end haul/sidecast volume percents. The first section is considered 100% end haul construction and the second section is considered 100% bank height construction.

#### First section:

- the station range is 1+000 – 1+060
- the section length is 60 metres (75% x 80m = 60m)
- the end haul volume is the net volume of 600 m<sup>3</sup> ( which is 75% of the gross volume calculated in the geometric design for the entire end haul section being 800 m<sup>3</sup>).
- if surfacing is required then this 60 metre section maybe eligible for a surfacing cost allowance. The surfacing depth is determined from the ballast depth table.

#### Second section:

- the station range is 1+060 – 1+080
- the section length is 20 metres (25% x 80m = 20m)
- the bank height category is the average inside rock face height for the entire 80 metre section

# End Haul Cost Estimation with Bank Height

## Bank Height Road Section Receiving Material

- If an ‘Other Material (OM)’ bank height road section is receiving material directly from an End Haul section then the receiving Bank Height road section shall be cost estimated as OMLB. If the end haul material is used to surface a rock BH section no BH category change occurs for the rock category section.
- If an OM Bank Height road section is receiving material from a storage location where end haul was previously deposited then that Bank Height section shall be cost estimated as OMPR.
- If end haul material is placed on a rock Bank Height section (TOE or greater), no Bank Height category change occurs.