

# Self-Screening Registration Criteria

## **P01: Design Flood Hydrology / Open Channel Hydraulics**

### **Mandatory Knowledge Requirements**

The Ministry of Forests and Range will only contract with qualified registered professionals to provide professional services for design flood hydrology and open channel hydraulics for Forest Service road bridges and major culverts. Professionals providing this service must:

1. be members in good standing with the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC), or another professional association in BC with a right to practice in this area of work;
2. have appropriate education, training and experience within the discipline of engineering that are congruent with the design flood estimation services required by the ministry;
3. have considerable recognized specialization in design flood hydrology determination, fluvial geomorphology, and river engineering, scour and scour protection, open channel hydraulics, flood routing, methods for stream flow training, and debris potential assessment and estimation;
4. be familiar with the basic concepts associated with forest road and bridge layout, design and construction;
5. have a working knowledge of related riparian and aquatic environmental issues (such as stream classification and fish passage requirements) and associated construction mitigation techniques;
6. be thoroughly familiar with stream crossing requirements and procedures of the Department of Fisheries and Oceans Canada and the British Columbia Ministry of Environment, and knowledgeable about Federal legislation such as the Fisheries Act and the Navigable Waters Protection Act, and about Provincial legislation such as the Forest Practices Code of British Columbia Act, Forest and Range Practices Act, and Water Act, and associated regulations under those acts, including the Water Regulation, Forest Road Regulation, and the Forest Planning and Practices Regulation, among other legislation relevant to specific forest road bridge projects;
7. have a comprehensive working knowledge and understanding of the principles and best management practices provided in the following government publications:
  - Forest Practices Code of BC Fish-stream Crossing Guidebook (March 2002)
  - Forest Practices Code of BC Forest Road Engineering Guidebook (June 2002)
8. in the case of projects that come under the control and administration of BC Timber Sales (BCTS), obtain BCTS Environmental Management System (EMS) Level 3 training prior to commencing work on any BCTS Worksite.

## **Mandatory Experience Requirements**

All professionals providing services for design of flood hydrology / open channel hydraulics require a minimum of 5 years of demonstrated professional engineering experience. At least 2 years of this experience must be in design flood estimation services for bridges and major culverts in forestry or related resource industries in British Columbia.

Registered professionals must have specific work experience in the following bridge design activities:

1. field investigation and design recommendations for estimation of design flood discharges and corresponding water levels
2. field investigation and theoretical analysis to estimate design flood flows and debris potential for bridge and major culvert projects
3. hydraulic analysis for design flood opening requirements and design flood levels
4. scour analysis and scour protection including revetment and riprap design
5. river engineering, analysis of stream hydraulics problems
6. design of stream flow training works, bank protection works, erosion protection and flood control systems, flood routing and hydraulic constraints for bridges and large culverts
7. low flood flow estimation.