

3.2 Road Survey & Design Professional Responsibilities & Considerations

Road survey and design includes applying the appropriate level of survey to achieve the required accuracy of field measurements, and preparing a geometric road design (including plans, profiles, cross-sections and mass graphs) based on the survey measurements, data and assessments, to tie the location of the road to the land base. Practices include:

- carrying out a location survey;
- incorporating professional assessments from the road site plan, including any strategies or objectives that are necessary;
- marking locations of cross drain culverts;
- locating roads outside of riparian management areas;
- consideration of sediment transport and deposition;
- locating roads appropriate distances from licensed waterworks in community watersheds; and
- providing for suitable clearing widths to address topographic and operational needs; and
- preparing a road plan that serves as or includes the road site plan under an FSP.

The CM is responsible for:

- choosing the survey methods and instrumentation in accordance with the information contained in this Manual, based upon the accuracy and type of data required to facilitate the planning and design of the
- determining where a geometric road design is required;
- modifying the design and construction standard or adopting additional measures to protect workers during construction, users and resource and habitat features.

To achieve the foregoing, the CM:

- where the design is prepared using a computer application, must review the design to ensure that it is reasonable, correct, suitable for the ground conditions and constructible;
- may rely upon the geometric road design procedures contained in this manual; and
- may use specialist input to revise locations, to incorporate special design measures, to specify special construction techniques, or to develop specific measures that are to be employed during or following construction to protect the environment or address worker or user safety. Examples include:
 - evaluating potential safety issues that are beyond the expertise of the CM, such as landslides, rockfalls, avalanches, karst features, danger trees;
 - assessing terrain related concerns for road construction such as slope stability hazards, gullies, fans, floodplains, erosion or avalanches;
 - identifying fish habitat and sensitivity;

- identifying and addressing other forest and non-forest resources (e.g. archaeological sites);
- structural elements such as retaining walls;
- fords or fish stream culverts;
- bridges, including approach alignments;
- engineered fills or cut slope treatments;
- construction techniques such as overlanding or full bench excavation and endhaul;
- engineered rock cuts;
- measures to protect fan or floodplain stability;
- specialized erosion protection; and
- measures to protect resource and wildlife habitat features.