

3.8 Survey & Design Outputs - Road Plans

The output of survey and design is the road plan, which may include:

- a list of documents that make up the road plan;
- a map showing the road location with key control points;
- project specific road design and construction standards or reference to an appropriate design and construction standard;
- any special conditions on use of certain road sections; for example, seasonal or weather limitations beyond normal operating conditions;
- assumed or documented ground conditions;
- cross-sections displaying road width, cut and fill slopes and surfacing depth;
- plan and profile views displaying:
 - vertical and horizontal alignment
 - location of field reference points (for example, private property boundaries)
 - location, type and size of drainage structures
 - locations of special design sections (for example, retaining structures)
 - locations and dimensions of turnouts
 - locations of landings, pits, quarries and spoil sites
 - sites of specific concern for construction; for example, potentially unstable terrain, fish streams, karst features
 - locations of nonconventional construction sections such as endhaul sections
 - clearing width
- excavation and embankment volumes;
- probable material type (soil, rock, organic overburden etc);
- mass haul diagrams;
- surfacing requirements, where applicable;
- locations of signs, fences and roadside barriers;
- specialist assessments, recommendations or designs (e.g. TSAs, crossing designs and engineered structures);
- identification of required field reviews (e.g. confirmation of assumed ground conditions, reviews to ensure conformance to specialist assessments, recommendations or designs);
- notification requirements required by others such as regulatory agencies or other parties;
- descriptions of any field surveys to be done before or during construction;
- communication of assumed ground conditions and protocol if unexpected ground conditions are encountered;

- provisions for worker safety as required by applicable Occupational Health Safety Regulations or as required to mitigate other potential hazards;
- instructions for specific construction procedures required to implement any aspects of the design; for example, traffic control measures and timing of the works;
- written procedures or references to SOPs that are intended to be followed during construction;
- locations of sensitive features and instructions for any special procedures around sensitive features, including construction methods, scheduling constraints and timing windows;
- instructions for creating access specifically for maintaining structures after construction is completed; and
- instructions for future maintenance.

Design details for special design sections may be incorporated into the general design or may be provided as separate documents. In either case, each Member must sign (and seal as appropriate) the work that he/she is responsible for as required by the by-laws of his/her association.

Note that the road plan serves as the road site plan for BCTS roads built under FRPA.

The plotting data, plan profile information in Appendix 3, page 171 of the Forest Road Engineering Guidebook (PDF, 7.8MB) lists the basic information from a field survey and road design. Depending on the level of survey and road design requirements, the information may vary somewhat. For example, with a geometric design, mass haul diagrams would be present. The road plan **must** be reviewed and accepted by the Coordinating Member, usually the BCTS/District engineering technician. The intent is to ensure that a quality assurance review for acceptance, by a qualified ministry staff person, is carried out as a mandatory procedure. The intent is to avoid receipt of deliverables on the sole basis of it being signed and sealed by a registered professional, to avoid the practice of "blind" reliance.

Field Reviews

Field reviews means field reviews conducted at the project site [and / or at fabrication location(s)] of the implementation or construction of the engineering work by a Professional Engineer or his or her subordinate acting under his or her direct supervision, that the Professional Engineer in his or her professional discretion considers necessary to ascertain whether the implementation or construction of the work substantially complies in all material respects with the engineering concepts or intent reflected in the engineering documents prepared for the work.