- Aesthetics

Sketches should be made of the various alternatives investigated and included in the report.

Both the vertical and horizontal clearances should be checked to ensure that adequate clearances are provided. Inadequate vertical clearance will necessitate a change in either profile grade or superstructure depth while inadequate horizontal clearance may necessitate a change in span length.

The geotechnical aspects of the site should be considered since the foundation type and associated cost may influence the type of bridge selected. An initial (stage one) subsurface exploration and testing program will be performed in parallel as described in Part 1, Section 312, Subsurface Investigations, and will be used to determine foundation type and costs.

Traffic requirements must be investigated including any detours or phasing requirements. These requirements will be addressed in the discussion detailed in Part 1, Section 320, Construction Staging.

313.01 BRIDGES OVER WATERWAYS

For waterway crossings, coordination with the project drainage requirements will be necessary. The designer should obtain the Initial Drainage Report and thoroughly review the contents before starting the analysis of alternatives. For navigable crossings, the channel width, vertical clearance, pier protection and navigational aids should be investigated and discussed.

313.02 WIDENINGS/REHABILITATION

On projects involving widenings, in addition to the requirements for new bridges, the following items should be investigated:

- The existing structure should be checked for structural adequacy.
- The condition of the existing deck joints.
- The condition of the existing bearings.
- The condition of existing diaphragms on steel girder bridges.
- The existing foundations.
- The existing waterway opening, vertical and horizontal clearances.
- The need for adding approach slabs.
- The adequacy of existing bridge rail.

When the above items have been investigated, preliminary design can proceed by studying alternatives. Possible alternatives include: widening to one side, widening symmetrically on both sides or replacing the bridge with a new structure. Approximate costs based on preliminary quantities and unit costs associated with each solution will be required.

313.03 BRIDGE SELECTION REPORT

The preparation of the Bridge Selection Report is the final activity in the preliminary design phase. This activity involves incorporating the contents of the Initial Drainage Study, and the Geotechnical Report to produce a final Bridge Selection Report and develop the preliminary plans for the selected alternative. The preliminary plans consist of the General Plan and General Notes and Quantities Sheets. The preliminary plans are not considered complete until the drainage report and geotechnical foundation recommendation is received and incorporated in the plans.

After fully considering the above factors to determine the proper structure type, the engineer will discuss the architectural features with the appropriate Municipality Departments. For large or controversial projects, approval by the Executive Council or higher authority will be required. These may be individual or joint discussions as dictated by the size, location, complexity, and sociological, economical, ecological and environmental demands of the project.

Through these discussions a structure with architectural features that are compatible with structural, safety and site requirements can be developed.

The completed Bridge Selection Report shall include a general plan of the bridge. This reduced plan reflects the bridge geometrics, architectural theme, the bridge substructure and the type of foundations. A complete discussion of the cost