

SPECIFICATION FOR SURVEYING

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SPECIFICATION FOR SURVEYING

120. 1 SCOPE

This Specification covers the Contractor survey requirements for roadway construction.

120. 2 PROJECT CONTROL AND DESIGN

2.1 Project Control

The Contract Administrator will establish project survey control and provide the Contractor with the necessary information to use the survey control.

The Contract Administrator will provide a minimum of four (4) primary survey control points not exceeding a spacing of 3.2km.

2.2 Survey and Design Information

The Contractor shall use the survey and design information provided by the Department to lay out all work. The details of the survey and design information available to the Contractor will be specified in the Special Provisions.

120. 3 PRE-CONSTRUCTION REQUIREMENTS

3.1 Survey Monuments and Survey Control

The Contractor shall locate and field flag all survey monuments and survey control points within the project limits to prevent their damage. The Contractor shall also produce a survey monument inventory and identify potential conflicts with construction.

The Contractor will be responsible for densifying survey control to meet the Contractor's operational needs. The Contractor shall notify the Contract Administrator as soon as possible if the Contractor detects issues with the survey control.

3.2 Baseline Stakes and Kilometre Marker

The Contractor shall establish baseline stakes on each side of the roadway every **40m**. The stationing on the baseline stakes shall match the stationing of the detailed design, where applicable.

The Contractor shall also establish **and maintain** a marker at each kilometre of the project that matches the stationing in the detailed design.

3.3 **Paint Line**

The Contractor shall capture all existing paint lines within the paving limits, including but not limited to; intersections, auxiliary lanes, gore areas, passing lane restrictions for paint line re-application.

Paint line marking plans for new construction or areas requiring modifications will be provided to the Contractor by the Department.

120. 4 SURVEY LAYOUT

4.1 Layout of Grade Stakes

The Contractor shall layout grade stakes for centerline, edge of surface, shoulder and if necessary, toe of grade slope, ditch and toe of back slope, at the following intervals:

- 40m along tangents.
- 20m along curves.
- Start and end of tapers and auxiliary lanes.
- In tight radius applications (2m, 4m or 10m intervals may be required).

Grade stakes may not be required where machine control can be demonstrated to meet accuracy requirements.

4.2 Layout of Centerline

The Contractor shall layout centerline nail line to guide the paving operation on all bituminous Lifts (except top Lift) at the following intervals:

- 40m along tangents.
- 20m along curves.
- At beginning of curves (BC), end of curves (EC).
- At tangent to spirals (TS), spiral to tangents (ST).
- At any horizontal deflections in the road line.

4.3 Layout of Superelevation

The Contractor shall layout superelevation stakes on both sides of the roadway to guide the paving operation on all bituminous Lifts (except top Lift) at the following intervals:

- At every whole numbered percent grade (e.g., 0%, +1%, -1%, +2%, -2%, +3%, -3%, etc.),
- At maximum/minimum percent grades (e.g., +5.4%, -5.4%, etc.).

4.4 Layout of Curb & Gutter

The Contractor shall layout horizontal and vertical reference for curb and gutter at the following intervals:

- 20m along tangents.
- 10m along curves.
- In tight radius applications (1m, 2m or 5m intervals may be required).
- At Beginning of Curves (BC), End of Curves (EC).
- At Tangent to Spirals (TS), Spiral to Tangents (ST).
- At any horizontal or vertical deflections in the road line.

4.5 Layout for Line Marking

The Contractor shall pre-mark the paint line design on the road surface within 48 hours of **seasonal shutdown** or completion of top lift. Pavement pre-marking symbols provided by the Department shall be applied at the following intervals:

- **20m** along tangents.
- 20m along curves.

- Start and end of tapers and auxiliary lanes.
- In tight radius applications (2m, 4m or 10m intervals may be required).

120. 5 REPLACEMENT OF SURVEY STAKES

If survey stakes are destroyed prior to their intended use during construction, the Contractor shall be responsible for immediately re-establishing the survey stakes.

120. 6 **REMOVAL OF SURVEY STAKES**

Immediately after the final acceptance of the Project, survey stakes utilized during construction shall be removed and disposed of at an approved disposal site provided by the Contractor.

120. 7 GRADE ELEVATION CHECK SHEETS

Grade elevation check sheets are documents that record staking operations during construction surveying. The purpose is to establish a reference document for the survey of the constructed Work.

Grade elevations are collected and recorded on the grade elevation check sheet at locations and frequency set out in this Specification. The sheet shall record the station, Lift, offset, elevation and cut or fill marking (if applicable) and any other necessary notes of each surveyed point.

A copy of the grade elevation check sheets shall be provided to the Contract Administrator within two (2) business days.

The Contract Administrator may verify any grade elevation checks at any time.

120. 8 CERTIFICATION OF GRADE ELEVATION

Certification of Grade Elevation document is required for each prepared existing surface (i.e. pulverized surface, milled surface or surface prep, etc.) and Layer of material. Once construction has been completed to grade for the prepared surface or material Layer, the Contractor will prepare a Certification of Grade Elevation document indicating that the Work constructed meets the requirements of the Detailed Design Drawings for that prepared surface or Layer.

The Certification of Grade Elevation document can be prepared for any portion of prepared surface or Layer completed that meets the grade requirements of the Detailed Design Drawings.

The Certification of Grade Elevation document is given to the Contract Administrator prior to the placement of any materials on the completed surface or Layer to which the Certification of Grade Elevation applies. The Certification of Grade Elevation document must be accompanied by the corresponding grade check sheets.

The Contract Administrator may verify any Certification of Grade Elevation at any time.

120. 9 BASIS OF PAYMENT

No separate payment will be made to the Contractor for any activities related to surveying outlined in this Specification as these services will be considered incidental to the Contract.