

2.0 FIELD SURVEY REQUIREMENTS

2.1 GENERAL

Adequate field survey information must be recorded, including topographic information, to ensure that the design of the various services are complete and that the Consultant's drawings meet the Drafting Standards set by the City.

2.2 MINIMUM SURVEY REQUIREMENTS

The following shall be the minimum survey requirements for the preparation of the various drawings associated with the design of City services:

1. Establish control points and/or base line layout. Tie survey to HPN Monuments and all legal pins on and adjacent to the site. Refer legal pins to legal plans.
2. Locate all topographic features per Drafting Standard.
3. Locate all driveways, noting width, material and type of ditch crossing (i.e. bridge, culvert, etc.). Record elevations at 3.0 m intervals from edge of road pavement to 9.0 m past property line.
4. Locate all trees, hedges, walls and other obstructions within 3.0 m of the road right-of-way, indicating size and type of the feature.
5. Locate all sewers and manholes, noting material, size, invert elevations and sump elevations, including benching and flow direction.
6. Locate drains and inspection chambers on adjacent lots, complete with invert elevations.
7. Record pavement crown and edge (or gutter) elevations at 10.0 m intervals and at all breaks in contour. Record complete road cross-section to 3.0 m past property line at a minimum 50.0 m intervals. Cross-section elevations are to be recorded at road crown, pavement edges, gutter, gravel shoulder edge, ditches, and at any other changes in grade and should indicate surface material.
8. Surveys at road intersections should extend 50.0 m along each leg of the intersection.
9. Note use of adjacent lots (i.e. vacant, SFR, gas station, etc.)
10. Record inverts of ditches, which drain to the right-of-way at 10.0 m intervals to 30.0 m past property line and at all grade breaks.
11. Survey ditch inverts at 10.0 m intervals and at all grade breaks to existing permanent storm sewer or major conveyance.
12. Record the slab or lowest structural feature elevation of all buildings.
13. Underground services which cannot be adequately located from above and which may affect design must be exposed, and their location and elevation recorded.
14. Note a description of the benchmark type, location and elevation used.

2.3 UNCOVERING OF EXISTING UNDERGROUND UTILITIES

Any work related to uncovering of the existing underground utilities for the purposes of confirming the existing location, grades and elevation shall be done by the Developer at cost to the Developer or the Consultant.

City survey crews shall be present to record elevations and locations of exposed utilities. The Consultant shall arrange for permission and inspections by relevant private utility companies as required.

The Developer or Consultant shall notify the City of Richmond's Engineering Inspection Department 48 hrs prior to any excavation being undertaken. Restoration is to be completed as per the Roadway Restoration Regulation Bylaw.

2.4 SURVEY CONTROL

The City of Richmond has adopted the Greater Vancouver Regional District's (GVRD) High Precision Network of Monuments (HPN Monuments). Any survey related work in the City shall be based upon the HPN Monuments. Elevations and coordinates on the intermediate ISA U.T.M. marker tablets do not conform to HPN Monument values. Intermediate ISA U.T.M. monuments may be referenced as secondary control benchmarks but all data must be tied to a minimum of 2 HPN Monuments. GVRD HPN Monument information is available upon request at the front counter, 1st floor of City Hall and can also be accessed on the Provincial Government website: <http://aardvark.gov.bc.ca/apps/mascotw/>

Consultants shall obtain relevant legal cadastral plans from the Land Title Office.

2.5 "AS-CONSTRUCTED" SURVEY

"As-Constructed" information is required at the completion of construction, which will accurately reflect the works as they have been constructed and must be signed & sealed by a professional engineer.

The survey shall record the following where applicable to the new construction:

- Location and elevations of road structures, including crown, gutter, termination points, catch basins and backs of walks
- Locations and elevations of manhole lids, inverts of sewer pipes, watermain pipes, cleanouts, inspection chambers and culverts;
- Location of water service connections, storm and sanitary connections, roadway lighting and electrical conduits, traffic signals and street trees.
- Material of sewer pipes and watermain pipes

Locations shall be referenced to baseline chainage. Any deviations from design shall be recorded on the "as-constructed" drawings.