



## Job Specification

**Position Title:** SENIOR TECHNICIAN SURVEYS  
**Job Code:** OPSEU - Senior Technician Survey, 12906  
**Job ID:** 37701

### Purpose of Position:

Under the direction of a Senior Party Chief or supervisory staffing, perform and assess engineering or project control surveys and other data collection for the planning, design, construction and operation of transportation facilities, and legal surveys for the acquisition and disposal of property.

### Duties/Responsibilities:

Under the administrative supervision of the Senior Surveyor:

1. Performing and checking engineering, legal, project control surveys and other data collections using a variety of survey methodologies and equipment (e.g. terrain modeling using Total Station and data collector, point positioning and attribute data collection for Geographic Information System (GIS) using Global Positioning System (GPS) equipment) by recording distances and horizontal, vertical, angular measurements and 3-dimensional positioning by using standard survey methodologies and to specified tolerances as governed by ministry and industry standards and forwarding the results to the Senior Party Chief for further processing.
2. Performing and checking mathematical computations (calculating angles and distances to re-establish or set new boundary corners, level note reductions, traverse closures) utilizing calculators and/or computer programs to complete the various steps within the surveys and assess the accuracy of field measurements and existing surveys and forward to Senior Party Chief for further processing.
3. Complying with all occupational health and safety acts, regulations and guidelines.
4. Traveling extensively within the Region and operating ministry vehicles to transport survey crew and equipment.
5. Performing physically demanding outdoor work under various weather conditions such as carrying heavy survey equipment and supplies while walking long distances on difficult terrain, clearing survey lines, searching and digging for survey evidence and planting survey monuments.
6. Taking charge of the crew during temporary absence of the Senior Party Chief, directing crew members in field operations, assisting the Party Chief in providing training to new employees.
7. Performing minor maintenance of field equipment.

### Knowledge:

1. thorough knowledge of the use of conventional and automated survey equipment (e.g. global positioning receivers, data collectors, Total Station, digital levels) and data collection techniques and procedures for performing various types of surveys (legal, engineering, project control, attribute data collection for GIS) necessary for the planning, design, management and maintenance of highways.
2. basic knowledge of survey related mathematics, including geometry, trigonometry and survey software to perform calculations to set survey traverse points, monumentation and verify field closures and computer hardware (e.g. data collectors, laptop computers, printers) and application software (e.g. data collection, coordinate geometry, to assist the Senior Party Chief in downloading, processing and editing the field data necessary for the planning, design, management and maintenance of highways.
3. knowledge of surveying terminology and standards (e.g. feature codes, symbology for field notes) to interpret survey requests and plans and to make field notes to ensure all the necessary data is captured for the preparation of pre-engineering plans and documentation.
4. basic knowledge of legal survey practices and procedures and a general awareness of the applicable

statues and regulations to collect sufficient field measurements and set appropriate monumentation to assist the Senior Party Chief in performing legal surveys and preparing the field notes and reports.

5. knowledge of traffic control procedures, safety procedures and equipment to work safely in hazardous situations (e.g. immediately adjacent to high speed traffic, wearing of fall arrest harnesses in the vicinity of rock cuts, wearing of life jackets near waterways, cutting trees with chainsaws) to ensure compliance with the Occupational Health and Safety Act and all pertinent regulations, directives and guidelines.

6. basic knowledge of the use of aerial photography in interpreting and comparing features on the photo to the features on the ground in order to assist the Senior Party Chief by retracing legal boundaries using topographic features, laying out new road alignments and revision lines, and placing ground targets for aerial mapping control.

7. basic knowledge of project control surveying (e.g. horizontal and vertical datums, map projections and accuracy standards) in order to help perform and assess the quality of control surveys.

8. knowledge of the use of standard office procedures and software to complete administrative duties (e.g. time sheets, expense accounts and e-mail).

#### **Staffing and Licensing Requirements:**

Valid Ontario Class "G" Drivers Licence and an acceptable driving record

#### **Skills:**

1. interpretative skills to understand existing survey plans and documentation and assesses physical evidence in order to assist the Senior Party Chief to locate survey evidence (e.g. monuments, bush line, old fence lines, building ties) and to set out survey points.

2. evaluative skills to assist the Senior Party Chief to determine the most appropriate survey methodology (e.g. hand measure with tape or electronically measure across the highway) considering conditions such as traffic volume and terrain to collect data efficiently and safely.

3. Job requires analytical skills to assist the Senior Party Chief for making and reviewing mathematical computations of existing and new survey data (e.g. adjusting elevations between bench marks, traverse closures) to be used for final plan preparation.

4. analytical skills for automated surveying to review computer input/output (e.g. closure reports) to determine completeness and accuracy of the field data and to determine which error messages should be reported to the Senior Party Chief.

5. writing skills to make field notes and assist the Party Chief in preparing survey reports.

6. analytical and interpretive skills to assist the Senior Party Chief in the use of aerial photographs to assist in performing various types of surveys (e.g. location of sites and access to sites, retracing legal boundaries using topographic features).

7. Job requires interpersonal and interpretative skills to respond courteously to questions and concerns and to determine what information maybe communicated to property owners and the general public while conducting field surveys.

8. communication skills to work effectively and safely on a survey crew at all times, especially when working in hazardous situations (e.g. immediately adjacent to high volume of traffic where the noise level is high).

9. the ability to maintain and perform minor repairs to survey equipment (e.g. chainsaws, rock drills, steel measuring tapes) to ensure it is operational and safe.

10. adaptive skills to adjust to new technological changes, new application software and new business processes.

#### **Freedom of Action:**

1. Working to legislative requirements (legal surveys) and standards as outlined in legislation, regulations, ministry manuals and developed guidelines.

2. recommending to the Senior Party Chief the most efficient method of surveying or acquiring information given the terrain, road type and traffic conditions and selecting the order in which data is recorded or measured during the day.

3. referral of unexpected problems discovered during field investigations to the Senior Party Chief.

