

## STATE OF SOUTH DAKOTA CLASS SPECIFICATION

**Class Title: Land Surveyor**

**Class Code: 90641**

**Pay Grade: GJ**

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### **A. Purpose:**

Land Surveyors are responsible for legal land surveys in the Department of Transportation. They determine boundaries of department properties and rights of way; provide certification and accurate recording and registration of surveys with appropriate local government agencies; establish, maintain, and provide record keeping of surveys; coordinate work with property owners and local governments; implement the science of measurement from the inception of construction projects through their completion and the disposal of excess state-owned property to ensure consistent and meticulous efforts are made to retain original land measures.

### **B. Distinguishing Feature:**

Land Surveyors oversee and verify the legality of surveying practices and documentation, and establish land ties and project controls throughout the state.

### **C. Functions:**

*(These are examples only; any one position may not include all of the listed examples nor do the listed examples include all functions which may be found in positions of this class.)*

1. Oversees and performs land surveys for the Department of Transportation to ensure that the boundaries of properties and rights of way, and changes made to existing boundaries correspond as nearly to the original land ties as possible.
  - a. Interprets federal, state, and local laws applicable to surveying projects; conducts research of previous plans, historical survey notes and plats, plats and deeds, and corner records to collect and compile as much information as possible about original land ties, ownership, and other attachments to the land in question.
  - b. Sets controls for surveying construction projects by tying project points set by survey crews back to the established points of the state plane coordinate system to verify the beginning point, a point at each one-half mile, and an ending point of each project to ensure a consistent coordinate system for all project surveys.
  - c. Searches out corner markers previously set and reestablishes those that are not found by expanding the search area to include other corners from which to measure and reset the missing corner; and ties property corners to project control.
  - d. Establishes a central registry land surveys and coordinating files of information on land ties.
  - e. Owns responsibility for correctness of property and right of way corners by marking them with a South Dakota Department of Transportation (SDDOT) nameplate.
  - f. Creates Microstation drawing files and coordinating files of information about land ties.
2. Administers the Land Surveying functions and processes to ensure an accessible record keeping system that will provide current information and create an archive for future research, consistency and integrity in implementation of surveying procedures and effective expenditures of allotted funds.
  - a. Manages the centralized data and file systems regarding land ties and project controls.
  - b. Readies excess state-owned property for sale or abandonment by remeasuring land

- and preparing and recording plats.
- c. Prepares corner certificates and reviews and signs those prepared by others.
- d. Provides technical assistance to Region and Area engineering managers.
- e. Coordinates photogrammetry survey contract.
- f. Evaluates and recommends acquisition of survey equipment and related computer design software.
- g. Maintains the Department's Survey Manual.
- h. Updates the Right-of-Way chapter of the Road Design Manual.
- i. Implements and uses Right-of-Way information within Geographical Information Systems (GIS).

3. Performs other work as assigned.

#### **D. Reporting Relationships:**

Reports to a Region Engineer or an Engineering Manager II. Provides technical direction on land surveying issues.

#### **E. Challenges and Problems:**

Challenged to know federal, state, and local government laws governing the practice of land surveying and laws regarding the ownership of land; to make judgments and decisions based upon preponderance of evidence; to understand the application of statutes; and to document and defend all decisions made. This is challenging because even with the laws and guidelines in place, the science of measurement is neither purely legal nor purely scientific so the surveyor must continually seek evidence which leads to a higher probability of proving something with confidence. Further challenged to confirm the integrity of the Department of Transportation's Land Surveying procedures by coordinating problem-solving efforts with surveyors in the private sector who have occasion to work on adjacent lands.

Problems include organizing, prioritizing, assigning, and scheduling work; the need for extensive research which is time-consuming; retracing 100-year old surveys and reaffirming land ties as closely as possible; finding section corners in large and remote areas that are common in this state; verifying the correctness of relocation of lost corners; and keeping current on the specialized technology and laws of the profession.

#### **F. Decision-making Authority:**

Decisions include determining methods and procedures for establishing or reestablishing survey control; work priorities, assignments, and schedules; review and approval of survey calculations; verification and final approval of reestablished land corners, of tools and methods to use for projects, and of corner records; and approval of purchases of equipment and supplies.

Decisions referred include project priorities.

#### **G. Contact with Others:**

Daily contact with surveyors to review work assignments and discuss projects; with engineers to clarify project requirements; with landowners to explain project objectives, and to collect information about the land in question; frequent contact with local governments regarding surveying procedures and to resolve surveying conflicts; and with other land surveyors to share information on private land abutting state land, and to resolve surveying conflicts.

## **H. Working Conditions:**

Works long days, typically in the summer facing extreme weather conditions; walks long distances over many kinds of terrain; animals, reptiles, and insects are a factor; carries heavy packs of equipment; and for the most part works alone, often in remote areas.

## **I. Knowledge, Skills, and Abilities:**

Knowledge of:

- the laws governing the practice of land surveying and the laws governing the ownership of real property;
- the principles, theories, and practices of highway or road engineering;
- mathematics, especially the application of geometry and trigonometry, and physics;
- effective practices, methods, techniques, and equipment of land surveying;
- Geographic Information System (GIS);
- personnel and fiscal management.

Ability to:

- understand the foundational elements of mathematics that would lead to choosing one method over another for a particular task;
- make judgments and decisions based upon preponderance of evidence;
- interpret statutes, and document and defend decisions made;
- interpret legal descriptions of land into tangible positions on the ground;
- plan, organize, coordinate, prioritize, assign, and evaluate the work of others;
- develop and provide customized training for field staff to ensure compliance with administrative rules;
- maintain a variety of technical records and adapt records systems to computerization;
- make accurate, meticulous, and precise survey computations;
- establish and maintain effective working relationships with other land surveyors, city officials, engineers, and the public;
- communicate information effectively and precisely;
- observe details at close range, i.e., within a few feet of the observer; and at a distance.

## **J. Licenses and Certificates:**

Must be licensed as a Land Surveyor according to the guidelines of the South Dakota Board of Technical Professions.