

**DESCRIPTION:** Under general supervision, operates conventional and electronic survey instruments to set ground control for photogrammetric surveys; locates and ties-in section corners; establishes existing highway centerlines or dam sites; collects data for profiles and cross-sections for roadway or hydraulic purposes; performs topography, utilities, railway, culverts and bridge surveys, and/or checks, loads, and computes geodetic field survey notes and data; performs related work as assigned.

**DISTINGUISHING CHARACTERISTICS:** (A position is assigned to this class based on the scope and level of work performed as outlined below.)

This is an entry and full performance journey-level classification used by State agencies engaged in various geodetic surveys of land, water, or other locations. The kind and level of work assigned to positions of this class is similar, and different primarily only in the project needs, equipment used, and internal database systems and recordkeeping policies, of the employing agency. Positions will be assigned more complex surveying tasks and will use complex measuring instruments beyond basic devices expected of a lower-level Survey Assistant class. Work will cover the full range of assignments, with closer guidance provided only with the most complex or unusual surveying to be conducted. Positions will report to either survey work leaders or supervisors who in turn oversee/guide or directly supervise the field activities of a crew of workers. Incumbents are not expected to have on-going, regular responsibility for leading or supervisory any members of a crew.

Incumbents at entry to these positions are expected to have a general understanding of algebra, geometry, and trigonometry calculation formulae and of standard terminology, techniques, and practices, as used in field surveying work, and to receive instruction and gain proficient skill in the operation of precision survey equipment such as automatic levels, transits, theodolites, geodimeters, Global Position System (GPS) instruments, and other electronic distance measuring instruments and data collecting/recording software applications and devices.

**EXAMPLES OF WORK:** (A position may not be assigned all the duties listed, nor do the listed examples include all the duties that may be assigned.)

Moves and uses conventional and electronic survey instruments and peripheral equipment to locate and tie-in section corners to the geodetic traverse using the project coordinate system by taking angle, distance and elevation measurements; establishes existing highway centerlines; determines profiles and cross-sections for roadway, hydraulic or other purposes, topography, utility, dam sites and drainage areas, culvert and bridge, or roadway surveys.

Moves across difficult terrain or water, and operates complex, high precision instruments used in geodetic surveys such as: Levels, Theodolite-2, Theodolite-3, Electronic Total Station, GPS receivers, Electronic Distance Measuring (EDM) devices and personal desktop and laptop computers.

Downloads GPS data; manipulates and analyzes data segments to establish latitude and longitude and to determine coordinates.

Sets ground control for photogrammetric surveys by locating and placing calculated survey points accurately on the ground.

Contacts landowners seeking permission to access private property for data collection purposes.

## M56700 – GEODETIC SURVEY TECHNICIAN (continued)

Conducts reconnaissance for traverse network of ground control by establishing lines of sight; reduces field notes for vertical and horizontal closures of traverse network.

Checks and edits geodetic field survey notes for accuracy, including checking angle books, laser sheets, elevation runs, total station sheets for benchmark locations, and utility surveys.

Maintains survey instruments, including level or theodolite adjustments and calibration checks; corrects operational malfunctions of survey instruments and other equipment.

Determines the existing centerline on projects for agency central program or field managers.

Prepares final coordinate adjustment geometrics, tie sheets, and property corner sheets.

Researches government information for horizontal and vertical control.

Codes and edits traverse data for the various employing agency databases such as "NEBRASKA TRAVERSE" program; determines coordinate values; and converts horizontal and vertical datums using such databases as CORPSCON and VERTCON 2 programs.

Computes longitude and latitude from quad maps for tower sites, airport sites, etc.

Schedules survey observations to coincide with strong satellite constellation.

Recommends purchase of survey equipment based on work needs; completes requisition forms, vehicle logs, time sheets, and other administrative records.

Compiles GPS computations; uses TRIMNET PLUS program to correct GPS observations; and determines accuracy of data for official use in all survey-related projects.

Checks and edits field data to ensure the survey meets specification criteria; calculates computations to determine property closures.

Trains co-workers in such tasks as setting sights for angles, operating level rods and setting prisms, and in the use of surveying hardware and software applications; directs the activities of a survey crew in the absence of the crew leader or supervisor.

**KNOWLEDGE, SKILLS, AND ABILITIES REQUIRED:** (These are needed to perform the work assigned.)

Knowledge of: basic surveying techniques; NEBRASKA TRAVERSE program; the State Plane Coordinate System; trigonometry and geometry principles; geodetic, preliminary, and right-of-way surveying techniques, policies and procedures; computer program applications; GPS operations and procedures in the employing agency.

Skill in: measuring and computing angles, distances, and elevations; operating basic survey measuring devices (e.g., rods, chains, tapes, plumb bobs); operating complex, high precision survey instruments (e.g., transits, theodolites, geodimeters, electronic distance measurers, automatic levels); communicating technical instructions to co-workers and others; using computer hardware and software applications related to surveying and technical engineering actions.

## M56700 – GEODETIC SURVEY TECHNICIAN (continued)

Ability to: communicating in person, and by telephone, radios, electronic or written correspondence with co-workers and others; operate survey instruments including GPS receivers, electronic data collectors, and hand-held calculators; research information for horizontal and vertical controls; interpret quadrangle maps; operate and train co-workers and others in the use of survey equipment including conventional and electronic instruments and computers hardware and software applications; download, process, and generate coordinates from GPS data; guide co-workers and others in the absence of the crew leader or supervisor.

**MINIMUM QUALIFICATIONS:** (Applicants will be screened for possession of these qualifications. Applicants who need accommodation in the selection process should request this in advance.)

Post high school coursework, training, or experience in civil surveying or in global position system practices.

### **SPECIAL NOTES:**

Positions in this class may require moving and handling heavy equipment and material up to 80 pounds in rough terrains, drainage areas, or heavy traffic locations; working lengthy or extended workdays; and/or working in increment weather conditions (e.g., heat, cold).

Most positions will require incumbents to possess a valid driver's license. Some overnight or statewide travel may be required.

State agencies are responsible to evaluate each of their positions to determine their individual overtime eligibility status as required by the Fair Labor Standards Act (FLSA).