ENGINEERING TECHNICIAN 3 3111

GENERAL DESCRIPTION OF CLASS

The ENGINEERING TECHNICIAN 3 performs a variety of technical engineering duties in the field such as serving as survey crew leader, performing drafting/design work on preliminary plans in the office and serving as chief inspector on major construction projects. Work assignments will vary on a seasonal basis.

DISTINGUISHING FEATURES

This is the third level in a three-level series. It is distinguished from the lower level class by the responsibility for serving as survey crew leader on field survey assignments determining the scope of the project and coordinating the work of crew members and by the responsibility for serving as chief inspector coordinating all assigned phases of work between project manager's office and the contractor on larger and more expensive construction projects.

DUTIES AND RESPONSIBILITIES

Allocation of positions to this class will depend on the total work performed which may include one or a combination of the duties or tasks listed below.

1. **Field Survey and Drafting.** Typical tasks: works outdoors as survey crew leader on surveying assignments with primary responsibility for determining scope of project and coordinating work of crew members; receives notes or other instructions from engineer; ensures that required equipment is available and researches previous surveys to obtain background information; directs crew members in obtaining and recording field survey data (geometric and trignometric) for the planning and design of highway construction projects; ensures the safety of crew members by enforcing safety regulations; ensures proper operation, care, and maintenance of survey vehicle and standard or electronic survey equipment such as transit, theodolite (to measure horizontal and vertical angles), and levels; operates survey equipment for establishing survey control points and preliminary roadway alignments, locating property corners and recording physical topography; uses survey data and applicable highway design standards to prepare preliminary designs which include horizontal and vertical alignments of roads, culverts, and storm sewers; calculates earthwork volumes and determine surveying cost estimates for proposed construction projects.

2. **Construction Inspection.** Typical tasks: serves as chief inspector responsible for coordinating all assigned phases of work between project manager's office and the contractor on major roadway projects over $500,000; inspects bridges under construction by checking bridge footing excavations and fills for correct alignment using transit and correct elevations using level; checks horizontal alignment of bridge sections and vertical alignments of all footings, beam seats, sections, walls, and deck; refers construction not in compliance with plans and specifications to project manager.

3. **Miscellaneous.** Typical tasks: researches titles of ownership records for State-owned properties under the direction of a supervisor; prepares reports and maps of findings and makes recommendations for settling title disputes; uses aerial photos to identify alterations within navigable waterways affecting State ownership; reviews environmental permit applications to determine if proposed project affects State-owned lands; issues easements for activities involving the use of State-owned lands; performs a variety of technical engineering duties in the office such as calculating survey notes and other data

necessary for preparation of maps and detail drawings; analyzes plans and specifications for construction projects and prepares earthwork and excavation quantity and cost estimates, preliminary roadway plan design, and technical reports; compiles data and prepares weekly status reports of work accomplished; trains lower level engineering technicians, trainees, or aides in survey and construction inspection work procedures; drives vehicle to and from worksites.

RELATIONSHIPS WITH OTHERS

Employees in this class are in regular contact, in-person or by telephone, with the public to obtain permission for the survey party to cross or work on private property, with regional or main office staff to give and receive information, with contractors' or suppliers' employees to obtain information or determine compliance with plans and specifications, and with other governmental employees to obtain survey related information.

SUPERVISION RECEIVED

Employees in this classification work under the general supervision of an engineering supervisor who reviews work performance for conformance to engineering plans and specifications and technical manuals. Assignments are received from a leadworker or engineering supervisor in the form of general outlines, design sketches, or broad statement of results expected. Employees at this level function with independence in performing technical duties. Employees in this class are responsible for organizing data, determining additional information required, establishing work methods, and integrating work of unit with that performed in other work units. While technical guidelines and manuals exist, they are consulted infrequently, normally when performing unfamiliar or infrequent tasks.

KNOWLEDGE, SKILLS, AND ABILITIES (KSA)

Extensive knowledge of surveying methods and equipment required to function as a party chief on location or construction projects.
Extensive knowledge of the safety precautions and procedures required to perform the work.
General knowledge of the various computer programs used to analyze engineering data or draft engineering plans and their application to field or office procedures.
General knowledge of the drafting, design, or construction inspection requirements of engineering plans and specifications, professional standards, and State guidelines.
General knowledge of the standard or computer-aided drafting requirements for preparing engineering plans and specifications.

Skill in the operation of standard or electronic surveying equipment such as transit and level and the application of surveying methods to location or construction projects.
Skill in the use of various computer programs to make engineering calculations, analyze engineering data, and draft engineering plans.
Skill in reading, understanding, and interpreting engineering plans and specifications.
Skill in communicating effectively with contractors, other governmental employees, the public, and State employees outside the immediate work unit.

Ability to work cooperatively with members of a crew.
Ability to obtain a valid Oregon driver's license.
Ability to work extended or irregular hours.
Ability to work safely in close proximity to highway traffic and to enforce safety procedures to protect the public and employees from injury.
Ability to work outdoors in a variety of weather conditions.

Some positions in this classification require the following:

General knowledge of hydraulic and hydrographic principles.
Basic knowledge of irrigation practices and methods.

Skill in operation and maintenance of hydrogeologic measurement equipment.

NOTE: The KNOWLEDGE and SKILLS are required for initial consideration. ABILITIES may be required for initial consideration, at any time during the selection process, or during a trial service period as a final stage of the selection process. Some duties performed by positions in this class may require different KSA's. No attempt is made to describe every KSA required for **all** positions in this class. Additional KSA requirements will be explained on the recruiting announcement.

Adopted 1/90

Revised

Examples of work are typical of duties assigned to this class. No attempt is made to describe every duty performed by all positions in this class.