



## CIVIL ENGINEERING SPECIALIST 3

3138

### GENERAL DESCRIPTION OF CLASS

The CIVIL ENGINEERING SPECIALIST 3 does complex and difficult construction project administration and engineering or surveying work not requiring engineering or land surveying registration. Employees oversee engineering or surveying work in design, cost estimating, surveys, and related project plans and specifications development. Field assignments include construction contract administration, regional material quality assurance, surveying, and local agency program liaison work. They do investigations in various specialties, develop and analyze data, and plan research studies. They lead and mentor lower level staff and give expertise that requires substantial related experience.

At this level, employees make substantive decisions on work elements for which there are no established practices in a specialized area. Employees review the work of contractors' personnel, local agency staff, or consultants to verify that federal and agency standards are met. They assist an engineer, surveyor or manager in construction, surveying or engineering program management by overseeing major or complex projects. Employees in this class may be designated to fill in for a manager or supervisor.

### DISTINGUISHING FEATURES

This class is the third level of a three level series. Work assignments require coordination of several parts, each requiring independent analysis and solution. When other groups or personnel outside the work unit complete phases or details, the employee reviews, analyzes and integrates their work. Often changes or deviations must be made during progress of an assignment to incorporate additional factors or to adjust findings and conclusions that could not be predicted accurately in the original plans.

Oversight of complex construction projects, surveys, inspections, investigations, studies or planning projects for which established procedures often do not exist, by regular involvement in issues of significant potential impact, and by involvement in controversial or complex agency policy and decision making, distinguish it from the lower levels. It is further distinguished by the broader engineering or surveying program responsibility.

The nature of assignment and level of responsibility distinguish this class series from the Engineering Technician class series. *Nature of Assignment:* For the Engineering Technician class series the work involves primarily the application of established practices. Employees at the highest level do minor modification and analysis for a portion of the time. The Civil Engineering Specialist has broader assignments, requiring greater skill and engineering or surveying judgment. *Level of Responsibility:* Employees in the Engineering Technician class series use available, specific and detailed, established procedures. Employees typically do not independently plan and execute projects. The Civil Engineering Specialist has the freedom to plan and execute assignments and independently coordinates the project or assigned specialty program with other individuals and groups.

The Civil Engineering Specialist class series does engineering or surveying work not requiring professional registration as an Engineer or Land Surveyor. It is distinguished from the Professional Engineer or Professional Land Surveyor series by the absence of final responsibility for design, design analysis, surveys, and prediction of the character and safety of structures which is signified by applying a professional engineer's or professional land surveyor's seal to final designs or documents; providing direction, supervision and control on technical matters of policy and design; and exercising professional judgment in engineering or surveying matters embodied in the plans, design, specifications, studies, research, or other documents involved in the work.

Some training positions within the Professional Engineer or Professional Land Surveyor series do similar work to this class series when the assignments are designed primarily to give practical experience to

prepare the academically trained employees for the full range of professional work and responsibility; or there is a direct line of promotion to full professional positions in the agency.

## **DUTIES AND RESPONSIBILITIES**

The duties listed are characteristic of the type and level of work associated with this class. Individual positions may do all or some combination of the duties listed as well as other related duties.

### **1. Project Administration**

Lead construction crew personnel doing inspection, surveying, design, quality or quantity compliance, project documentation, and related work. Negotiate issues with contractors and make decisions on complex construction project issues on multiple, simultaneous projects. Monitor contractor operations and employees' activities for safety. Review and recommend changes to plans and specifications.

Administer federally funded local government project activities from planning the scope, schedule and budget through construction. Monitor projects to ensure compliance with state and federal rules, regulations, policies and procedures, and to ensure obligation of program funding. Provide specialized engineering or surveying to local government agencies, and consultant engineering or survey staffs regarding their engineering, land surveying and administration of transportation projects having state and federal funding.

### **2. Project Development**

Lead environmental engineering specialists in the study, analysis and recommendations included in project construction plans. Lead a team that prepares right-of-way maps, plans, plats, and descriptions for a Professional Land Surveyor used for the purchase of property for agency projects. Develop engineering or surveying cost estimates and construction schedules. Develop official construction price used to bid comparison for construction projects. Assist local jurisdictions with development and design of federal and state funded transportation facility projects. Approve preliminary plans and specifications for local government grant projects.

### **3. Traffic and Transportation Engineering Investigation**

Lead traffic-engineering specialists in the investigation, study and recommendation for placement of traffic control devices. Evaluate traffic and transportation situations and recommend placement of traffic controls for which established procedures often do not exist, or that have significant potential impact on the transportation facilities.

### **4. Materials**

Manage a quality assurance program for a region including overseeing testing of all field-tested materials to verify contract compliance and uniformity in construction and testing activities. Solve problems related to constructing asphalt surfacing or design using knowledge of design, materials and construction practices. Administer field construction inspector and testing technician training and certification programs and monitor performance of certified technicians.

### **5. Survey**

Oversee and lead survey work for the development, design, maintenance and monumentation of transportation facilities. Train and advise lower level personnel in the practice of surveying, right of way research, and right of way retracement. Prepare surveys to professional standards.

**RELATIONSHIPS WITH OTHERS**

Employees in this class have regular in-person, telephone, or written contact with contractors, city, county, state and federal personnel to answer questions and explain departmental policy and regulations and with other engineering or surveying personnel to exchange design, survey, planning, and scheduling information or to resolve technically complex problems. There is periodic in-person or telephone contact with the public or contractors' representatives that may be adversarial in nature.

**SUPERVISION RECEIVED**

The Civil Engineering Specialist 3 works with minimum supervision, conferring with a supervisor, land surveyor, or engineer on unusual situations. Work in the technical specialty area is generally accepted as authoritative. Employees apply broad guidelines and work independently to complete work consistent with agency practices, procedures, goals and policies. They plan projects and allocate resources to effectively and efficiently complete them. Work is reviewed through periodic discussions to review goals and work plans. Final work products are reviewed for conformance to standards and for consistency with agency practices.

**GENERAL INFORMATION**

Positions in this class are located throughout the State and require the willingness to work under the conditions associated with the environment of the job. Some positions in the class may require the ability to climb, kneel, stoop, or walk over rough terrain when on a field inspection. Some positions are exposed to adverse environmental conditions and heavy traffic.

**KNOWLEDGE AND SKILLS (KS)****Extensive knowledge of:**

Principles, practices, and methodologies of civil engineering or land surveying applicable to the area of assignment such as research, planning, design, survey, construction, design and construction development, and traffic.
Engineering or surveying mathematics associated with the engineering or surveying specialty.
State and federal engineering or surveying guidelines, manuals, and procedures.
Methods and processes of developing construction plans and specifications.
Computer engineering or surveying software programs typical to the area of assignment.
Equipment and materials applicable to the area of assignment.

**General knowledge of:**

Principles and methods of leading, training, reviewing and mentoring the work of others.
Methods and techniques of technical report writing.
Presentation techniques for explaining technical information to general audiences.
Principles, processes and practices of project management.

**Skill to:**

Apply engineering or surveying principles and practices to discipline of assignment.
Compute advanced engineering or surveying calculations to verify proper design or solve engineering or surveying problems.
Prepare clear and concise written reports of a technical subject matter.
Analyze and solve unusual problems related to area assigned.
Communicate complex technical data in a way understandable to a variety of people.
Operate complex survey equipment.
Effectively represent the department to the public and outside contractors.
Direct and evaluate the work of other engineering or surveying personnel.
Identify the scope and complexity of a project and effectively and efficiently assign segments of that project.
Use engineering or surveying computer software to analyze data.
Train, coach and mentor lower level personnel.
Read, understand and apply specific instructions found in technical manuals, specifications, contract plans and other guidelines applicable to the job assignment.
Collect and analyze data and information and make recommendations based on principles and practices in the field of civil or traffic engineering, land surveying or transportation system planning.
Communicate orally and in writing with a variety of people; answer questions; and explain technical information, regulations and decisions in an understandable manner.
Coordinate activities of assigned specialty with other departmental programs and staff.
Establish and maintain effective working relationships with internal staff, the public, contractors, and personnel from other agencies.
Use tact and diplomacy to gain cooperation of others.
Assign and review the work of others to decide accuracy and adequacy of identified conditions, criteria, recommendations and supporting materials.
Manage multiple projects of various sizes and complexity.
Apply project management principles and standards.

**Some positions require:**

**Extensive knowledge of:**

Principles and methods of construction contract administration.
Practices and equipment used to construct transportation facilities.
Material testing procedures.
Physical characteristics and properties of construction materials.
Field surveying principles and practices, and the legal considerations of property and boundary surveys.

**Skill to:**

Develop engineering or surveying plans and specifications using computer design software.
Design and complete studies to identify and recommend solutions to engineering or surveying problems related to construction contract administration, land surveys, construction materials, and related specialties.

**NOTE:** The KNOWLEDGE and SKILLS are required for initial consideration. Some duties performed by positions in this class may require different KS's. No attempt is made to describe every KS required for **all** positions in this class. Additional KS requirements will be explained on the recruiting announcement.

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Revised

STATE OF OREGON  
 Dept. of Administrative Services  
 Human Resource Services Division