

JUNIOR CIVIL ENGINEER

DISTINGUISHING FEATURES OF THE CLASS:

This is an entry level position in the professional civil engineering series that culminates in titles requiring licensure as a Professional Engineer. Incumbents perform a wide variety of tasks, creatively applying established engineering methods and theories, in areas including highway design, drainage system design, simple bridge design, surveying, computations of quantities and right of way easements. The work is typically performed as part of a larger project under the direction of an Assistant Civil Engineer who is acting as project manager. While the incumbent may be asked to suggest alternatives or solutions to problems as part of the overall learning process, authority for such decisions rests with the project manager. The position differs from Senior Engineering Aide in that it is expected to be able to apply engineering knowledge and experience to investigate, analyze and suggest sound alternatives as opposed to carrying out routine technical assistance work in areas such as surveying, computations and inspections. Depending on assignment, incumbents may supervise a small group of employees or may assign and review work of subordinates on certain projects.

TYPICAL WORK ACTIVITIES:

Typical work activities for incumbents in this title include those listed below in addition to those typical work activities performed by lower level titles in the series. They are indicative of the level and types of activities performed by incumbents in this title. It is not meant to be all inclusive and does not preclude a supervisor from assigning activities not listed which could reasonably be expected to be performed by an employee in this title.

1. Under the direction of a higher level engineer, assists in overall project development and management by performing assigned tasks in such areas as preparing preliminary status reports, preparing designs and cost estimates, obtaining state and federal permits, coordinating work with contractors and municipalities, inspecting work for conformance with specs and accepted standards, and reviewing requests for payment;
2. Uses and supervises the use of instruments in making observations, gathering and recording engineering data;
3. May act as survey party chief, directing collection of data for computation of quantities relative to contractors' pay estimates and traffic control surveys;
4. Uploads collected field data for use in computer-aided design and drafting;
5. Performs computer-aided design and drafting of construction plans, profiles, typical sections, structural details and construction notes under the guidance of an engineer; revises drawings as necessary to complete final drawings;
6. Instructs lower level employees in the use of computer-aided design software;
7. Supervises and inspects construction and maintenance work on highways and bridges;
8. Inspects construction materials to see that they conform to specifications;
9. Prepares progress reports, keeps records of work done and changes in plans and specifications;
10. Performs and checks design computations, estimates and plans of other engineers;
11. Under the guidance of an engineer, performs project management and consultant management duties;
12. Reviews work permit applications, inspects related field locations and submits findings to higher ranking engineer for consideration;
13. Periodically inspects previously authorized permit work to ensure conformance with permit conditions and maintains permit files and related records;
14. Investigates traffic conditions and reports information and recommendations to higher ranking engineer;
15. May oversee the work of engineering technicians or survey party members and assist with their training;
16. Prepares various project related correspondence, reports and other documentation.

JUNIOR CIVIL ENGINEER: (Cont'd)

FULL PERFORMANCE KNOWLEDGE, SKILLS, ABILITIES AND PERSONAL CHARACTERISTICS:

Good knowledge of the principles of engineering, physics, and mathematics as related to civil engineering;
Working knowledge of practices, theories, and procedures of civil engineering, including surveying and related computations;
Good knowledge of construction materials, methods, standards, and tests; working knowledge of applicable codes, laws, rules, regulations, and procedures governing civil engineering design and construction;
Working knowledge of the planning, design, construction, and maintenance of highways and related structures;
Ability to learn two and three dimensional computer-aided drafting and design software;
Ability to train and supervise subordinate staff;
Ability to prepare finished plans, designs, specifications, and narrative reports;
Ability to establish cooperative relationships with subordinates, co-workers contractors and their staff, and other officials;
Ability to select from a variety of engineering alternatives, the most effective and cost efficient methods;
Ability to design construction proposals; ability to gather, analyze and evaluate information from a variety of sources and prepare recommendations and proposals;
Ability to perform complex mathematical and engineering calculations;
Ability to communicate both orally and in writing;
Personal characteristics necessary to perform the duties of the position;
Physical condition commensurate with the demands of the position.

MINIMUM QUALIFICATIONS:

- EITHER: (A) Graduation from an ABET-Accredited college or university with a Bachelor's degree in Civil Engineering;
- OR: (B) Graduation from an ABET-Accredited college or university with an Associate's degree in Civil Engineering Technology or a closely related field and three (3) years of full-time work experience comprised of at least three (3) of the following (5) areas: engineering estimating, engineering surveying, highway design, highway inspection or highway construction engineering;
- OR: (C) Possession of an Engineer in Training Certificate;
- OR: (D) An equivalent combination of training and experience as indicated in (A) and (B) above.

SPECIAL REQUIREMENT:

A department head may require the possession of a valid driver's license at time of appointment and to maintain position.

EG0206

ADOPTED: 04/10/84

REVISED: 07/15/88 04/02/90 07/01/91 11/07/94 01/27/95 01/28/98
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