

## **JUNIOR ENGINEER**

### **DEFINITION**

To perform a wide variety of routine field and office civil engineering work which includes the preparation of plans, specifications and cost estimates for County public works projects; to review less complex engineering plans, specifications and land use proposals prepared by others; and to perform related duties and responsibilities as required.

### **SUPERVISION RECEIVED AND EXERCISED**

Receives immediate supervision from higher-level professional civil engineers.

### **EXAMPLES OF ESSENTIAL FUNCTIONS**

Performs routine office and field engineering work related to the design, construction and maintenance of County roads, bridges, sanitation facilities and drainage systems, water systems and other public works projects.

Prepares and/or assists in preparing engineering calculations, specifications, estimates and contracts for public works projects.

Prepares project designs, drawings, maps, charts and diagrams using computer-assisted and manual techniques.

Directs, reviews and/or participates in the work of field survey parties.

May assist in gathering and analyzing data related to site drainage concerns.

May assist in determining project feasibility by analyzing structures, roads, highways and other project sites for economic, environmental, engineering, legal and other considerations.

Obtains permits for assigned projects.

Assists in inspecting projects under construction for compliance with regulations, plans and specifications.

Conducts and/or reviews routine field and laboratory tests of construction materials; prepares related records and reports.

Inspects damaged structures and estimates repair costs.

Assists in reviewing plans and specifications prepared by other agencies and private land developers for compliance with existing County regulations, codes and standards, and for adequacy of drainage and road improvements.

Reviews land development improvement plans for compliance with County codes, policies and standards.

Receives and responds to routine inquiries, requests for assistance, concerns and complaints from contractors, developers, property owners, other agencies, and other groups and individuals regarding division policies, programs and projects.

Represents the division at technical meetings and public gatherings as required.

Performs general administrative/clerical work as required, including preparing reports and correspondence, maintaining records, entering and retrieving computer data, attending meetings, copying and filing documents, etc.

### **EMPLOYMENT STANDARDS**

#### **Knowledge of:**

Pertinent federal, state and local laws, regulations, codes and ordinances.

County and department policies and procedures.

Theories, principles and practices of civil engineering, construction and land surveying as applied to public works projects.

Techniques and equipment used in surveying, engineering and construction work.

Strength, properties and use of engineering construction materials and methods of testing such materials.

Construction inspection methods and equipment.

Engineering mathematics.

Report and business letter preparation techniques.

Modern office practices and technology, including the use of computers for word processing, computer-assisted drafting and design, spreadsheet preparation and database management.

English usage, spelling, grammar and punctuation.

Safe work practices.

Public/community relations techniques.

#### **Ability to:**

Understand, interpret and apply pertinent federal, state and local laws, rules, regulations, codes and ordinances, and County policies and procedures.

Understand and follow complex oral and written instructions.

Prepare basic civil engineering designs using computer-assisted and manual techniques.

Prepare accurate project drawings, maps, cost estimates and specifications.

Operate precision survey instruments.

Inspect construction projects and enforce compliance with all regulations, plans and specifications.

Perform routine tests and analyses on construction material samples.

Read, understand and interpret complex technical and legal documents, technical drawings and plans, maps and other data.

Review engineering plans and specifications prepared by others.

Establish priorities and work under stress to meet deadlines.

Prepare clear and concise technical and administrative reports.

Establish and maintain project files and records; prepare neat and accurate field notes.

Perform mathematical computations quickly and with accuracy.

Effectively use computers for word processing, database management, spreadsheet preparation and specialized engineering functions.

Interpret division projects and programs to the public.

Communicate clearly and concisely, both orally and in writing.

Establish and maintain effective working relationships with those contacted in the course of work.

Meet the physical requirements necessary to safely and effectively perform assigned duties.

### **TYPICAL WORKING CONDITIONS**

Work is performed in an office and field environment. Incumbent drives on surface streets and may be exposed to traffic hazards, construction hazards, air contaminants, adverse weather conditions, temperature and noise extremes, wetness, fumes, dusts, working at heights. Worker is subject to unusual fatigue from irregular working hours.

**TYPICAL PHYSICAL REQUIREMENTS**

Requires the mobility to work in an office and field environment. Requires the ability to sit at desk for long periods of time and intermittently walk, stand, climb, balance, bend, crouch, and reach while performing office duties and/or field inspections; traverse uneven terrain; lift and/or move light to moderately heavy weights; perform simple grasping and fine manipulation. Must be able to maintain effective audio-visual discrimination and perception needed for making observations, communicating with others, reading and writing, and operating office and specialized field equipment. Must be able to use a telephone to communicate verbally and a keyboard to communicate through written means, to review information and enter/retrieve data, to see and read characters on a computer screen.

**MINIMUM QUALIFICATIONS**

**Experience:**

None required.

**Education:**

High school or GED equivalency is required. Graduation from an accredited college or university with a Bachelor's degree in civil engineering or a closely related field.

**Or**

**Experience:**

Four years of engineering-related work experience preferably with public works projects.

**Education:**

High school or GED equivalency is required. Possession of a Certificate as an Engineer-in-Training.

**Additional Requirements:**

Possession of a valid California driver's license. Under certain circumstances, the Personnel Director may accept a valid driver's license from another state if applicant acknowledges his/her intent to acquire a California driver's license within three months by signing an acknowledgement form.

**This class specification lists the major duties and requirements of the job and is not all-inclusive. Incumbents may be expected to perform job-related duties other than those contained in this document.**