

JOB DESCRIPTION
Civil Engineer I (Flex)
Civil Engineer II
Code Number: 22009, 22027

GENERAL PURPOSE

Under direction, performs complex professional engineering work in the research, planning, design and construction of water and sewer capital improvement, maintenance and construction projects; coordinates and guides the work of lower-level professional and technical staff; and performs related duties as assigned.

DISTINGUISHING CHARACTERISTICS

Incumbents of this class complete engineering assignments requiring the use of judgment and initiative in developing solutions to problems, interpreting policies and determining work assignments. Incumbents are responsible for planning future system needs and developing, implementing and monitoring major construction and/or developer projects, from inception to completion of design and construction. Incumbents may oversee, coordinate and review the work of professional and technical personnel.

Civil Engineer I is the first level in the series requiring registration as a Professional Engineer. This class is alternately staffed with Civil Engineer II, and incumbents may advance to the higher level after gaining experience and demonstrating proficiency which meet the qualifications of the higher level.

Civil Engineer II is the advanced skill level in the Civil Engineer series. Incumbents in this class complete complex engineering assignments requiring the use of judgment and initiative in developing solutions to problems, interpreting policies and determining work assignments. Positions at this level are distinguished from those in the lower level classification of Civil Engineer I by the experience in performing professional engineering duties, complexity of assignments requiring extensive and specialized technical knowledge by the responsibility for managing the more complex engineering projects.

ESSENTIAL DUTIES AND RESPONSIBILITIES

The duties listed below are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to the class. This classification is used in multiple departments throughout the District and specific assignments of positions vary.

Prepares, or causes to be prepared by consulting engineers, plans and specifications for the construction of a variety of water and wastewater facilities, including pipelines, pumping stations, lift stations, filtration plants, water tanks, drainage facilities and roadways; researches and identifies project design requirements; conducts computer modeling of the system and facilities to determine design requirements and parameters; analyzes and determines hydraulic requirements and facilities using District-adopted guidelines and standards for existing and proposed projects; performs complex engineering calculations encompassing hydraulics, surveying, electrical, mechanical and structural calculations in compliance with the Project Engineering Manual.

Serves as project engineer/manager for complex facilities expansion and/or refurbishment projects designed in-house or by engineering consultants that require knowledge, understanding, and accommodation of various relationships; drafts specifications for construction of District facilities; establishes project scope of work including progress schedules and cost estimates and serves as a liaison between the District, contractors, consultants and other utilities or agencies; monitors design project progress.

Monitors construction work in progress, including field investigations, to ensure compliance with approved plans, specifications and standards; compiles and maintains records of approved projects; reviews, researches, and recommends changes to design standards based on reported deficiencies.

Maintains, updates and analyzes planning information and tools such as land use, population, demographics; plans, organizes, researches, analyzes and reports on growth related impacts on water, wastewater and recycled water facilities; reviews, develops or revises various elements of EMWD's Master Plans (water, sewer, and recycled), regional, and/or special-focus plans, financial and technical reports, environmental documents and cost analyses for water, sewer, and reclaimed water facilities; develops and maintains service demand projections; develops and monitors project schedules and budgets.

Performs major facilities studies; develops and/or uses land use/demographic database and hydraulic simulation models/tools to evaluate alternative facilities and recommends capital improvement projects; compiles, reviews and develops responsive, pertinent reports and projections of statistical data as it relates to District functions.

Researches, coordinates and reviews proposed right-of-way alignments and the vacation of existing rights-of-way; prepares documentation for easement acquisitions and coordinates with the District's Right-of-Way Agent; reviews and implements permit requirements in the design of facilities.

Researches subregional development data and/or as-built files and meets with developers, consultants, and owners to discuss development processes, including but not limited to, due diligence of existing facilities, preparation or review of facilities plan of service and associated sewer tributary analysis and water hydraulic analysis, fire flow analysis, status pressure calculations, developer agreements, interim serviceability and coordination with CIP projects, and viability evaluation/demand calculation of recycled water use.

Coordinates engineering design projects with other departments and agencies; reviews and analyzes construction projects planned by other agencies for potential impact on District operations; confers with personnel from other departments and agencies regarding current and proposed construction projects; identifies and resolves problems in compatibility between other agency systems and the Districts system.

Meets with EMWD Operations, Engineering, and Maintenance staff regarding coordination of CIP projects and developer projects, including but not limited to, temporary/permanent lift stations, water booster stations, water storage tanks/reservoirs, water/sewer transmission facilities, and regional water reclamation facilities.

Coordinates with consultants, other agencies, and developers to communicate District policies and requirements for project initiations and development.

Provides unscheduled technical support in answering design questions for walk-in customers, phone calls, emails, and other District departments and staff.

Prepares a variety of technical communications such as engineering studies, cost estimates, correspondence, requests for proposals, Board letters, records, files, and reports.

Assigns routine research, design and drafting tasks to technical subordinates; reviews submittals/shop drawings; assists in the solution of difficult problems; reviews plans for adherence to District standards; answers contractors' requests for information.

Participates in creating/revising District standards and guidelines for the design and construction and maintenance of District facilities.

Provides recommendations to improve, add, revise, or otherwise implement solutions to existing or proposed facilities.

Reviews, researches, and recommends changes to design standards based on reported deficiencies.

Prepares standard and non-standard Developer Facility Agreements, evaluates potential frontage reimbursements/frontage to be paid, and reviews prevailing wage bids for EMWD oversizing contributions for additional facility capacity.

Manages and coordinates corrosion protection of District facilities through corrosion engineering consultant.

Reviews and responds to a variety of engineering reports, design plans, and specifications for consultants and contractors and responds to questions.

Conducts "start-up" and performance tests for pumping systems, electrical systems and instrumentation systems.

Contributes to the seismic retrofit of existing District facilities.

Uses computers, software programs and technical databases for various planning projects and studies; manages and updates data for hydraulic modeling; coordinates GIS data collection and distribution with respect to planning facilities.

Defines scope of work and schedules for future CIP projects.

Identifies potential funding sources.

Seals plans and specifications.

Performs related duties as assigned.

DESIRED MINIMUM QUALIFICATIONS

Knowledge of:

Theory, principles and practices of civil engineering design, and construction; principles of physics and mathematics applicable to civil engineering; California Public Works Contract Code; hydraulic calculations; GIS applications; hydraulic system analysis; principles, modern techniques and equipment used in design,

construction and maintenance of various public works projects, including land surveying; strength of material, properties and uses of construction materials; legal guidelines for public works engineering; public relations; principles of civil engineering and hydraulics; objectives, principles, procedures, standards, practices and information sources of public works facilities planning; implementation of zoning and other municipal ordinances; methods used in developing information for Master Plan modifications; application of land use (development patterns and processes); physical design, economic, environmental, and/or social concepts to the planning process; community trends and market analyses techniques; math concepts, including statistical analysis techniques relevant to the planning process; terminology, symbols, methods, techniques, and instruments used in planning; applicable local, state, and federal laws and regulations; local government organization; principles and techniques of project management and supervision, including goals and objectives development and work planning and organization; computer applications pertaining to the work.

Ability to:

Review, prepare or direct the preparation of complex engineering plans, specifications and legal contracts; prepare and evaluate engineering studies of large projects; perform accurate engineering calculations and cost estimates; handle unusual design requests; explain design criteria, policies, ordinances, and procedures to consultants; understand and apply those aspects of federal, state, and local laws, regulations, policies, procedures and standards pertaining to the planning process; research, analyze and summarize planning data; perform increasingly responsible and varied assignments under decreasing degrees of direction; actively handle multiple tasks and manage time-sensitive and politically sensitive projects; perform difficult technical research and analyze complex engineering and mathematical problems, evaluating alternatives and recommending or adopting effective courses of action; coordinate with multiple departments;; read and comprehend design drawings, annotations, and calculations; utilize a personal computer for conducting hydraulic modeling analysis, spreadsheet analysis and other applications; motivate and evaluate assigned project staff and provide for their training and professional development; communicate effectively, orally and in writing; prepare clear, concise and accurate reports, drawings, maps, notes, correspondence and other written materials; establish and maintain effective working relationships with those contacted in the course of the work; follow and apply written and oral work instructions; make sound independent judgments within established guidelines.

Training and Experience:

A typical way of obtaining the knowledge, skills and abilities outlined above is graduation from an accredited college or university with a bachelor's degree in civil engineering or other engineering discipline acceptable to the District.

A Civil Engineer I may be considered for advancement to Civil Engineer II after three years of professional level civil engineering experience gained under California Registration as a Professional Engineer (P.E.).

Licenses; Certificates; Special Requirements:

A valid license as a Professional Engineer in Civil Engineering issued by the State of California.

Some positions may require a valid California driver's license and the ability to maintain insurability under the District's Vehicle Insurance Policy.

PHYSICAL AND MENTAL DEMANDS

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this class. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Physical Demands

While performing the duties of this job, the employee is regularly required to stand and sit; talk and hear, both in person and by telephone; use hands to finger, handle, feel objects or controls; and reach with hands and arms.

Specific vision abilities required by this job include close vision, distance vision, depth perception, color vision and the ability to adjust focus.

Mental Demands

While performing the duties of this class, the incumbent is regularly required to use written and oral communication skills; read and interpret data, information and documents; analyze and solve complex problems; use math/mathematical skills; perform highly detailed work under changing, intensive deadlines, on multiple, concurrent tasks; work with interruptions; and interact with officials, outside engineers, contractors and the public.

WORK ENVIRONMENT

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this class. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

The employee usually works under typical office conditions where the noise level in the work environment is moderately quiet. Employees are occasionally required to work outside, exposed to climatic conditions, where the noise level may be loud.

FLSA DETERMINATION: Meets professional exemption from overtime

FLEX REQUIREMENTS

Civil Engineer I (Flex)

Civil Engineer II

LENGTH OF TIME REQUIRED

A Civil Engineer I may advance or “flex” to the Civil Engineer II class after **3 years** of professional level civil engineering experience gained under California Registration as a Professional Engineer (P.E.). A Master’s degree in Civil Engineering is desirable.

PERFORMANCE RATING

The incumbents must receive an overall performance rating of “good” or better on their most recent annual performance evaluation in order to flex to the higher class.

COMMENTS

The Civil Engineer I must also demonstrate proficiency to perform the full range of duties as described in the Civil Engineer II job description, which includes having a thorough knowledge of project management, the ability to apply the theories, principles, and practices of the civil engineering discipline to specific design assignments, and the ability to work under limited supervision.