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SENIOR ENGINEERING TECHNICIAN

DEFINITION

Under general supervision, performs a variety of complex paraprofessional engineering field and office duties in support of professional engineering staff, involving design of public works facilities, construction inspection, construction surveys, traffic studies, and drafting; researches engineering topics and prepares basic engineering calculations; provides technical advice to the public; performs project coordination; maintains plan files and engineering records; prepares reports; and performs related work as required.

SUPERVISION RECEIVED AND EXERCISED

Receives general supervision from assigned supervisory or management personnel. Exercises no direct supervision over staff. May exercise functional and technical direction over and provide training to lower-level staff.

CLASS CHARACTERISTICS

This is the advanced journey-level class in the engineering technical support series with responsibilities spanning the entire spectrum of paraprofessional engineering functions, including coordination responsibilities for projects and support programs. Incumbents apply advanced paraprofessional engineering knowledge and skills to complete assignments in engineering, mapping, surveying, inspections of construction projects, conducting surveys, and preparation of specifications, plans, and estimates. The work requires public contact, the frequent use of tact and judgment, good knowledge of departmental operations, and the ability to coordinate independent projects and programs. This class is distinguished from the professional engineering series in that the latter requires a professional degree and performs professional engineering work with independent judgment.

EXAMPLES OF ESSENTIAL FUNCTIONS (Illustrative Only)

Management reserves the rights to add, modify, change, or rescind the work assignments of different positions and to make reasonable accommodations where appropriate so that qualified employees can perform the essential functions of the job.

- Provides technical and functional direction to assigned staff; reviews and controls quality of work; participates in performing complex permit processing duties.
- Trains employees in work principles, practices, methods, policies, procedures, and applicable Federal, State, and local laws, rules, and regulations.
- Assists in the implementation of goals, objectives, policies, procedures, and work standards including recommending improvements.
- Coordinates independent projects from conception to completion, including coordinating with Federal, State, and local agencies, project engineers, developers, contractors, and private citizens, scheduling meetings, compiling project information, and maintaining accurate files.

- Prepares and/or interprets specifications, plans, estimates, and reports pertaining to the construction, maintenance, and operation of a variety of engineering, land development, utility, and other capital improvement projects, including conducting a variety of surveys for creation of sidewalks, utility lines, and topography maps, collecting all pertinent information to create useful maps, issuing work orders required for construction activities to public clients, and evaluating building plans for compliance with public works standards.
- Performs construction surveys for City designed projects; collects and compiles survey data for City engineering projects; prepares legal descriptions for easements and right-of-ways; reviews and evaluates legal descriptions submitted to the City; advises City staff on surveying matters.
- Analyze, calculates, and revises cost estimates and participates in the development of contract documents for capital improvement projects; prepares agreements and bond documents; issues improvement permits; documents inspections and adjustments to the original design; maintains records and files.
- Performs design and drafting duties in connection with streets, storm drains, and other projects.
- Performs field, office, and computer-aided studies and prepares periodic and special reports based on findings from research, studies, and surveys; and makes recommendations on findings.
- Receives, tags, and logs, and reviews submitted engineering plans, maps, and related documents for plan check; checks calculations used in designs and estimates; tracks status of plan checks and original documents; advises parties of revisions; contacts inspectors following plan approval to initiate construction observation.
- Performs complex construction inspections of public and private projects to ensure compliance with contractual agreements, plans, and specifications, including preparing and recommending progress payments and change orders, evaluating possible public improvements as needed, ensuring work performed adheres to City standards, determining and noting major and minor defects, and evaluating appropriate actions in order to remedy defects as needed; performs materials tests and/or obtains samples for later testing.
- Examines grading plans and soils reports and conducts inspections for compliance with recommendations of the engineer and applicable City standards and codes.
- Maintains engineering files, including plans, studies, inspections, surveys, maps, and other data related to engineering projects; prepares, updates, reproduces, and distributes maps, drawings, blueprints, and other information recorded in GIS.
- Receives and responds to information requests from the public, consultants, engineering firms, developers, title companies, inspectors, and staff for base maps, parcel maps and improvement plan information, encroachment permits, benchmarks, copies of maps and other geographical data, soils reports, as-builts, and street improvements; retrieves plans, reports, permits, and files as necessary to comply with requests; responds to complaints from the public and resolves conflicts between owners, contractors, developers, utility companies, and others.
- Maintains and updates department website, records, tracking lists, permit records, and files of engineering plans, including grading, encroachments, improvements, storm drain, landscaping, and final maps.
- Prepares a variety of legal documents, including construction project contract documents.
- Assists supervisory and management staff with projects as required.
- Performs other duties as assigned.

QUALIFICATIONS

Knowledge of:

- Basic principles of supervision and training.
- Civil engineering principles, practices, and methods applicable to office and fieldwork involving the design, construction, and maintenance of projects.

- Engineering plan types, review practices, and permit filing and approval procedures.
- Principles and practices of technical civil engineering drafting and surveying support.
- Drafting and surveying equipment, computers, principles, problems, techniques, and practices.
- Applicable Federal, State, and local laws, codes, and regulations.
- Technical engineering mathematics.
- Technical report writing practices and procedures.
- Record keeping principles and procedures.
- Modern office practices, methods and computer equipment.
- Computer applications related to the work.
- English usage, grammar, spelling, vocabulary, and punctuation.
- Techniques for dealing effectively with the public, vendors, contractors, and City staff, in person and over the telephone.
- Techniques for providing a high level of customer service to public and City staff, in person and over the telephone.

Ability to:

- Plan, schedule, assign, and oversee activities of staff; train staff in work procedures.
- Prepare of a variety of plans, specifications, maps, graphic materials, cost estimates, and technical engineering reports.
- Modify of engineering drawings, topographic maps, improvement plans, and illustrative graphics using Computer-Assisted Drafting (CAD) software.
- Perform responsible technical engineering support work with accuracy and speed.
- Read and interpret engineering plans, technical drawings, specifications, and subdivision maps.
- Perform standard engineering design under professional engineering supervision.
- Make mathematical calculations and accurate engineering computations and drawings.
- Make and record accurate field engineering observations.
- Use engineering, drafting and surveying instruments and equipment.
- Prepare clear and concise reports, correspondence, policies, procedures, and other written materials.
- Apply technical research methodologies and write technical reports.
- Organize and prioritize a variety of projects and multiple tasks in an effective and timely manner; organize own work, set priorities, and meet critical time deadlines.
- Operate modern office equipment including computer equipment and specialized software applications programs.
- Comprehend and use English effectively including producing all forms of communication in a clear, concise, and understandable manner to intended audiences.
- Use tact, initiative, prudence, and independent judgment within general policy, procedural, and legal guidelines.
- Establish, maintain, and foster positive and harmonious working relationships with those contacted in the course of work.

Education and Experience:

Any combination of training and experience, which would provide the required knowledge, skills, and abilities is qualifying. A typical way to obtain the required qualifications would be:

Equivalent to completion of the twelfth (12th) grade supplemented by college-level coursework in civil engineering, drafting, surveying, mathematics, or related field and four (4) years of paraprofessional civil engineering experience.

Licenses and Certifications:

- Possession of a valid driver's license with satisfactory driving record.

PHYSICAL DEMANDS

Must possess mobility to work in a standard office setting and use standard office equipment, including a computer; to operate a motor vehicle; and to visit and inspect various City development sites; vision to read printed materials and a computer screen; and hearing and speech to communicate in person, before groups, and over the telephone. This is primarily a sedentary office classification, although the job involves field inspection work requiring frequent walking at inspection sites to monitor performance and to identify problems or hazards; standing in work areas and walking between work areas may be required. Finger dexterity is needed to access, enter, and retrieve data using a computer keyboard or calculator and to operate standard office equipment. Positions in this classification occasionally bend, stoop, kneel, reach, push, and pull drawers open and closed to retrieve and file information. Employees must possess the ability to lift, carry, push, and pull materials and objects weighing up to 40 pounds.

ENVIRONMENTAL ELEMENTS

Employees work in an office environment with moderate noise levels and controlled temperature conditions; but may occasionally be exposed to loud noise levels, cold and hot temperatures, inclement weather conditions, road hazards, vibration, mechanical and/or electrical hazards, and hazardous physical substances and fumes. Employees may interact with upset staff and/or public and private representatives in interpreting and enforcing departmental policies and procedures.