

County of Humboldt Job Specification
ASSISTANT MATERIALS TESTING ENGINEER
Classification 0342



DEFINITION

Under general direction, performs a variety of professional engineering field and office work related to the County's Materials Testing Laboratory; conducts laboratory and field tests on construction and engineering materials, ensuring compliance with relevant standards, specifications, and statutory requirements; assists in the provision of accurate, timely, and reliable technical data to inform engineering decisions and project designs activities; performs related duties as assigned.

SUPERVISION RECEIVED AND EXERCISED

Receives general direction from assigned supervisory or management personnel. Exercises no direct supervision over staff.

CLASS CHARACTERISTICS

This is a journey-level engineering classification specializing in the testing and analysis of construction materials for the design, repair, and maintenance of County roads, structures, and construction projects. Positions at this level receive only occasional instruction or assistance as new or unusual situations arise and are fully aware of the operating procedures and policies of the work unit. This class is distinguished from the Associate Civil Engineer, in that the latter requires registration as a Professional Engineer consistent with regulatory requirements and exercises independent discretion and judgment in matters related to work procedures and methods.

EXAMPLES OF TYPICAL JOB FUNCTIONS (Illustrative Only)

Management reserves the right to add, modify, change, or rescind the work assignment of different positions.

Some duties, knowledge, skills, and abilities may be performed in a learning capacity for entry-level (I Level) positions.

- Carries out routine and specialized testing of soils, aggregates, concrete, asphalt, bituminous materials and other construction materials in accordance with recognized standards.
- Collects material samples from construction sites, quarries, and operational assets, following prescribed sampling methodologies.
- Prepares samples for laboratory testing using appropriate handling, storage, and preparation techniques.
- Operates, calibrates, and maintains laboratory and field-testing equipment, ensuring accurate performance and compliance with quality management systems.
- Records, processes, and interprets test results using approved data management systems and reporting formats.
- Adheres to all relevant statutory obligations, health and safety regulations, and laboratory accreditation requirements.

- Implements quality assurance procedures, including internal audits, equipment verifications, and participation in proficiency testing.
- Liaises with contractors, project managers, and engineers to coordinate sampling schedules and ensure compliance with specifications.
- Maintains laboratory records, equipment logs, and calibration registers.
- Contributes to stock control of consumables and ensure laboratory cleanliness and organization.
- Participates in training and professional development to maintain and enhance technical competencies.
- Supports the development and implementation of improved testing methods, workflows, and operational efficiencies.
- Conducts a variety of preliminary materials investigations for design activities; performs geological subsurface investigations and analyzes samples.
- May direct and review the work of technical engineering staff; assists with training technical support staff; may provide input into selection, evaluation and disciplinary matters and other personnel decisions.
- Assists in budget preparation for the assigned projects or programs; monitors annual expenditures; assists in bid procedures.
- Performs quality control testing of construction materials during construction; conducts various tests and analyses such as nuclear density compaction control and sieve analysis, stability tests, specific gravity and voids analysis.
- Specifies asphalt and concrete mixes, inspects plants and controls materials sent to project sites; performs resistance value tests.
- Calculates and recommends fee schedules for laboratory tests.
- Meets and confers with contractors, engineers, developers, architects, a variety of outside agencies, and the public in acquiring information and coordinating engineering matters; provides information regarding County development requirements.
- Attends meetings, conferences, workshops, and training sessions and reviews publications and audio-visual materials to become and remain current on principles, practices, and new developments in assigned work areas.
- Drafts a variety of written communications, including analytical reports, correspondence, and revisions to plans, policies, and procedures.
- Drafts memos, resolutions, and project information for the Board of Supervisors.
- Provides technical direction and training to other engineering and technical staff.
- Performs other related duties as assigned.

The requirements listed below are representative of the knowledge and ability required. Reasonable accommodations may be made to enable qualified individuals with disabilities to perform the essential functions.

QUALIFICATIONS

Knowledge of:

- Principles and practices of leadership.
- Principles of providing functional direction and training.

- Applicable federal, state, and local laws, codes, and ordinances relevant to the area(s) of responsibility.
- Civil engineering principles, techniques, policies, and procedures.
- Principles and practices of materials testing engineering, including geology and soil mechanics.
- Methods, materials, and techniques used in the construction of public works projects, including water and wastewater systems, storm water, and street design.
- Basic principles, practices, procedures, and standards related to County public works, engineering infrastructure development and maintenance, and surveying.
- General design, layout, and construction practices for public improvements such as streets, storm drains, grading, and landscaping.
- Modern office practices and technology, including personal computer hardware and software application related to the work, such as computer-aided drafting (CAD) concepts and applications, and Geographic Information Systems (GIS) programs.
- Principles of advanced mathematics and their application to engineering work.
- Practices of researching engineering and design issues, evaluating alternatives, making sound recommendations, and preparing and presenting effective staff reports.
- Safety principles and practices pertaining to the work.
- Grant writing procedures.
- Techniques for providing a high level of customer service by effectively dealing with the public, vendors, contractors, and County staff.
- The structure and content of the English language, including the meaning and spelling of words, rules of composition, and grammar.
- Modern equipment and communication tools used for business functions and program, project, and task coordination, including computers and software programs relevant to work performed.

Ability to:

- Plan, organize, and coordinate the work of assigned staff.
- Effectively provide staff leadership and work direction.
- Apply engineering principles and techniques to evaluate and solve simple to difficult civil engineering problems.
- Prepare, understand, and interpret engineering construction plans, specifications, and other contract documents.
- Conduct comprehensive engineering studies and prepare reports with recommendations.
- Assist in, develop, and administer contracts for professional services and construction in a public agency setting.
- Design engineering projects.
- Read and understand technical drawings and specifications.
- Perform mathematical and engineering computations with precision.
- 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.
- Make engineering design computations and check, design, and prepare engineering plans and studies.
- Understand, interpret, and apply all pertinent laws, codes, regulations, policies and procedures, and standards relevant to work performed.

- Effectively represent the department and the County in meetings with governmental agencies; community groups; various business, professional, and regulatory organizations; and in meetings with individuals.
- Effectively use computer systems, software applications relevant to work performed, and modern business equipment to perform a variety of work tasks.
- Communicate clearly and concisely, both orally and in writing, using appropriate English grammar and syntax.
- Establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.

Minimum Qualifications:

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

Equivalent to a bachelor's degree from an accredited college or university with major coursework in civil engineering or a related field

and

Two (2) years of experience performing increasingly responsible professional engineering work which consisted of the testing and analysis of construction materials.

Licenses and Certifications:

- Must possess a valid US driver's license upon date of application. Must obtain California driver's license following hire date per California DMV regulations.

PHYSICAL DEMANDS

- Mobility to work in a standard office setting and use standard office equipment, including a computer; to operate a motor vehicle and visit various County sites; primarily a sedentary office classification although standing in work areas and walking between work areas may be required; occasionally bend, stoop, kneel, reach, push, and pull drawers open and closed to retrieve and file information; ability to lift, carry, push, and pull materials and objects up to 50 pounds, or heavier weights, in all cases with the use of proper equipment and/or assistance from other staff.
- Vision to read printed materials and a computer screen.
- Hearing and speech to communicate in person and over the telephone.
- Finger dexterity is needed to access, enter, and retrieve data using a computer keyboard or calculator and to operate standard office equipment.

When assigned to field inspection:

- Mobility to work in changing site conditions; to sit, stand, and walk on level, uneven, or slippery surfaces; to reach, twist, turn, kneel, and bend; and to operate a motor vehicle and visit various County sites.
- Strength and stamina to perform light to medium physical work; lift, carry, push, and pull materials and objects averaging a weight of 50 pounds, or heavier weights, in all cases with the use of proper equipment and/or assistance from other staff.
- Vision to inspect site conditions and work in progress.
- Fieldwork requiring frequent walking in operational areas to identify problems or hazards, with exposure to hazardous materials in some site locations.

ENVIRONMENTAL CONDITIONS

- Office environment with moderate noise levels, controlled temperature conditions, and no direct exposure to hazardous physical substances.
- Also includes field work with exposure to loud noise levels, cold and hot temperatures, inclement weather conditions, road hazards, vibration, chemicals, 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.

ADDITIONAL REQUIREMENTS

Some departments may require pre-employment screening measures before an offer of employment can be made (i.e. background screening, physical examination, etc.).