

POSITION DUTY STATEMENT

DOT PM-0924 (REV 08/2024)

CLASSIFICATION TITLE Associate Materials & Research Eng	OFFICE/BRANCH/SECTION D8/Construction/Southern Regional Lab	
WORKING TITLE MREA - Lab and Field Specialist	POSITION NUMBER 908-500-3381-002	REVISION DATE 11/18/2024

As a valued member of the Caltrans leadership team, you make it possible for the Department to provide a safe and reliable transportation network that serves all people and respects the environment.

GENERAL STATEMENT:

Under the direction of the Senior Transportation Engineer, Supervisor, and the lead of a Transportation Engineer Civil (TE Civil), the incumbent will perform calibrations, testing and analysis on soils, aggregates, asphalt concrete, binder, steel, concrete samples and Concrete Masonry Units (CMU) at the Southern Regional Laboratory (SRL) and in the field. The incumbent will be assigned work based on Divisional and/or Departmental needs and could be assigned to any office within District 8 which includes San Bernardino and Riverside Counties. The MREA performs testing on a variety of materials associated with the construction of roadways and concrete structures as part of the overall Caltrans transportation system. The MREA works closely with the Senior Transportation Engineer to provide clear, effective and timely technical information to clients based on laboratory testing results. The MREA prepares daily reports on quality assurance testing for various sources of materials and is responsible for reporting these results as appropriate. The MREA coordinates the work of lab personnel to obtain test results on sampled materials in a timely fashion. The MREA is instrumental in obtaining and maintaining AASHTO lab accreditation and ensures compliance with required Quality Management Systems. The MREA will be required to be certified in California Test (CT) and American Concrete Institute (ACI) test methods for the AASHTO Accreditation Program.

CORE COMPETENCIES:

As an Associate Materials & Research Eng, the incumbent is expected to become proficient in the following competencies as described below in order to successfully perform the essential functions of the job, while adhering to and promoting the Department's Mission, Vision, Values, Strategic Imperatives and Goals. Effective development of the identified Core Competencies fosters the advancement of the following Leadership Competencies: Change Commitment, Risk Appetite, Self-Development/Growth, Conflict Management, Relationship Building, Organizational Awareness, Communication, Strategic Perspective, and Results Driven.

- **Flexibility and Managing Uncertainty** : Adjusts thinking and behavior in order to adapt to changes in the job and work environment. (Safety First, Advance Equity and Livability in all Communities - Innovation, Pride)
- **Decision Making**: Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Safety First, Strengthen Stewardship and Drive Efficiency - Innovation, Integrity)
- **Continuous Professional Development**: Seeks to obtain knowledge and improve performance while supporting others in doing the same. (Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - Innovation, Integrity, Pride)
- **Problem-solving and Decision-making** : Identifies problems and uses logical analysis to find information, understand causes, and evaluate and select or recommend best possible courses of action. (Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - Engagement, Innovation, Integrity)
- **Teamwork/Partnership**: Develops, maintains, and strengthens partnerships with others inside or outside of the organization through effective communication and collaboration. (Cultivate Excellence, Strengthen Stewardship and Drive Efficiency, Advance Equity and Livability in all Communities - Equity, Innovation)
- **Organizational Awareness**: Contributes to the organization by understanding and aligning actions with the organization's strategic plan, including the mission, vision, goals, core functions, and values. (Safety First, Enhance and Connect the Multimodal Transportation Network, Lead Climate Action - Equity, Pride)
- **Communication**: Expresses oneself clearly in all forms of communication. Gives feedback and is receptive to feedback received. Knows that listening is essential. Keeps others in the Division and other functional units informed as appropriate. (Strengthen Stewardship and Drive Efficiency, Advance Equity and Livability in all Communities - Engagement, Equity, Innovation)
- **Analytical Skills**: Approaches problems using a logical, systematic, and sequential approach. Weighs priorities and recognizes underlying issues. (Strengthen Stewardship and Drive Efficiency - Innovation, Integrity, Pride)
- **Thoroughness**: Ensures that work and information is complete and accurate. Ensures that assignment goals, objectives, and completion dates are met. Documents and reports on work progress. (Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - Integrity)

TYPICAL DUTIES:

Percentage	Job Description
Essential (E)/Marginal (M) ¹	

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30%	E	Perform laboratory testing of Soils, Aggregates, Asphalt Concrete, Bitumen Binder (conventional and modified), Portland Cement Concrete, CMU, Steel and base materials. These tests include all California Test Methods (CTM), AASHTO, and other test methods (ACI, UBC, ASTM, etc.) necessary to perform mix design verifications and acceptance for asphalt concrete pavement, Portland cement concrete pavement, base materials, and geotechnical analysis of soil. Receive concrete cylinders, Reinforcing Steel and Concrete Masonry Units (CMU) from field staff. Perform all necessary testing for these materials in accordance with ASTM, AASHTO and CTM. Prepare and ship samples to HQ as needed. Perform field duties of collecting roadway profiles with the Inertial Profiler and pavement studies with the Falling Weight Deflectometer if needed. Coordinates lab work to ensure timely testing of these materials. Assists in the performance of testing to ensure conformance with contract plans and specifications. This work includes data collection and reduction, making mathematical calculations, record keeping, test preparation, set up and operation of test equipment, and performing testing.
30%	E	Generates various technical reports, including testing reports which are sent to resident engineers or other stakeholders. Technical writing related to the evaluation of materials include the preparation of correspondence related to the materials tested. Assists in making special studies and preparing technical reports. Provides technical assistance within expertise to other units. Coordinates the maintenance, purchasing, and calibration of laboratory equipment. Acts as a mentor to new and existing technicians to maintain a teamwork atmosphere. As the leadworker, will assign, schedule, and review the work of testing technicians in the Labs.
20%	E	Calibrate testing equipment used at the materials laboratory in accordance with either the equipment manufacturer's calibration procedures or the procedures dictated by the test method. Makes sure that proper arrangements are made for others to calibrate equipment that cannot be calibrated in-house. Maintains records of all equipment calibrations in accordance with the Quality Assurance Program. Monitors inventory of laboratory testing equipment in compliance with Quality Assurance Program Guidelines and California Test Method requirements.
10%	E	Responsible for coordinating the laboratory testing needed to maintain laboratory AASHTO accreditation and is the lead tester of CT and AASHTO test methods. Responsible for and coordinates testing for various AASHTO Proficiency Sample Programs. Maintains required ACI certifications of self and staff.
10%	M	Other duties appropriate for the classification as assigned by the Senior transportation Engineer (Supervisor) for Concrete, Aggregate and Soil Unit.

¹ESSENTIAL FUNCTIONS are the core duties of the position that cannot be reassigned.

MARGINAL FUNCTIONS are the minor tasks of the position that can be assigned to others.

SUPERVISION OR GUIDANCE EXERCISED OVER OTHERS

MREA has no supervisory responsibilities, but in backup capacity to Senior Transportation Engineer, the MREA acts as a leadworker over technicians, student assistance and others as required.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

Must have knowledge of California Test Methods and AASHTO test methods, materials, tools, and equipment used in inspecting and testing a wide variety of construction and other materials; physical environmental impact assessment evaluations and mitigation processes, physical properties and uses of engineering construction materials, fabrication of construction materials. Must be able to utilize mathematics to make calculations using percentages or ratios and plot data to evaluate test results. Must have the ability to interpret plans and specifications, analyze and check all necessary test reports on materials incorporated in the work for conformity to applicable specifications.

Must have the ability to communicate effectively both orally and in writing, and must recognize the importance of working as a team; test the quality and suitability of engineering construction and other materials; do research work on engineering construction and other materials; evaluate physical and environmental impact assessments and take effective action; prepare reports and dictate correspondence. Must have the ability to establish effective communication channels with his/her supervisor, Caltrans Headquarters, District personnel and the public. Must have command of basic computer applications such as Microsoft Outlook, Microsoft Excel, FileMaker Pro, Microsoft Word and Caltrans custom-made applications.

Incumbent must have the ability to establish and maintain good and professional working relationships with other Department units, industry and the contractor on Department projects. Incumbent must be familiar and able to follow the Department policies and procedures.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

The MREA is directly responsible for the results of the tests performed, the calculations and reports prepared, and the

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acceptance or rejection of the materials tested. Wrong decisions have the potential of jeopardizing the integrity of structures, which in turn could affect safety, contract claims, and contract schedule. Release of confidential material could result in legal actions and loss of integrity of the office and Department.

In addition, the MREA is responsible for personal and team safety as outlined in the laboratory safety manual and the safe practices and standards of the tests being conducted and the equipment involved. Failure to act in accordance with these standards could result in personal injury, injury to others or destruction of state property.

PUBLIC AND INTERNAL CONTACTS

Maintain close communications with supervisor and other inspection offices. Has daily and frequent contact with fellow branch office, district and HQ TransLab personnel regarding test results and inspection reports. As a representative of the Department and the State of California, the incumbent is expected to maintain fair, impartial and effective relationship with clients, and conduct himself or herself in a professional and courteous manner at all times.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

Physical activities vary and may be for a lengthy period of time. May be required to sit (1) using a keyboard and video display terminal, and (2) entering and auditing data. While working in the laboratory, may be required to stand for extended periods of time to perform materials testing in and around test equipment. Requires manual dexterity to operate testing equipment and handle materials. Incumbent will be required to be tested and fitted to wear a respirator while working in the laboratory (capping compound). May be required to lift, push, and move test materials and/or equipment that require lifting up to 50 lbs. Incumbent should be able to handle concrete cylinders weighing 35 lbs multiple times. It is anticipated that more than thirty cylinders will be processed in a single shift. Multiple lifting of Blocks and Reinforcing Steel Members on a daily basis is anticipated. May be required to travel to Districts to train laboratory personnel on specific test methods. When working in Districts, may be required to stand for long periods of time; pull, push, bend, stoop and squat to examine testing equipment; maintain mental awareness and physical agility when working in the proximity of laboratory machinery. May be required to perform field duties of collecting roadway profiles with the Inertial Profiler and pavement studies with the Falling Weight Deflectometer. Incumbent must be able to travel using a car; vehicles will vary from passenger cars to 3/4-ton pickup trucks. Incumbent will be required to develop and maintain cooperative working relationship and respond appropriately to difficult situations. Incumbent behaves in a fair and ethical manner toward others and demonstrates a sense of responsibility and commitment to public service. The incumbent values cultural diversity and other individual differences in the workforce and considers and responds appropriately to the needs, feelings, and capabilities of different people in different situations.

WORK ENVIRONMENT

Most of the incumbent's workday will be in the laboratory, where there is exposure to extreme heat, chemicals, odors, dust and noise from laboratory testing equipment. For some part of each day, incumbent will work in a climate-controlled office. Both environments are under artificial lighting. May occasionally be required to travel and work outdoors, and may be exposed to dirt, noise, uneven surfaces, and/or extreme heat or cold. Working hours will be set sometime between 6:00 a.m. and 6:00 p.m. May be required to work nights, weekends and split shifts. Vacations may be restricted during peak times.

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I have read, understand and can perform the duties listed above. (If you believe you may require reasonable accommodation, please discuss this with your hiring supervisor. If you are unsure whether you require reasonable accommodation, inform the hiring supervisor who will discuss your concerns with the Reasonable Accommodation Coordinator.)

I agree that by providing my electronic signature for this form, I agree to conduct business transactions by electronic means and that my electronic signature is the legal binding equivalent to my handwritten signature. I hereby agree that my electronic signature represents my execution or authentication of this form, and my intent to be bound by it.

EMPLOYEE (Print)

EMPLOYEE (Signature)

DATE

I have discussed the duties with, and provided a copy of this duty statement to the employee named above.

SUPERVISOR (Print)

SUPERVISOR (Signature)

DATE

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