STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

POSITION DUTY STATEMENT

DOT PM-0924 (REV 01/2025)

PROPOSED

CLASSIFICATION TITLE	OFFICE/BRANCH/SECTION	
Structural Design Technician I	DES/SES/OEMWW/Mechanical Branch	
WORKING TITLE	POSITION NUMBER	REVISION DATE
Detailer	559-220-3038-xxx	10/02/2026

As a valued member of the Caltrans team, you make it possible to improve lives and communities through transportation.

GENERAL STATEMENT:

This is the entry journey level in the series. This position exists with the Office of Electrical, Mechanical Water & Wastewater Engineering (OEMWW). Under the supervision of the Branch Chief, the incumbent prepares complete sets of contract drawings for difficult and complex electrical, mechanical and water & wastewater structures. The incumbent acts in a lead capacity in the preparation of plans and/or quantity estimates for a wide variety of transportation structures.

CORE COMPETENCIES:

As a Structural Design Technician I, 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. (Employee Excellence - Integrity)
- **Dealing with Ambiguity (Risk):** Can comfortably handle risk and uncertainty, as well as make decisions to act without having the total picture. (Employee Excellence - Innovation)
- **Reliability:** Ability to demonstrate dependability in meeting commitments, and providing a consistent work product. Takes responsibility for individual actions in order to meet deadline demands. (Employee Excellence - 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. (Employee Excellence - Innovation)
- **Teamwork/Partnership:** Develops, maintains, and strengthens partnerships with others inside or outside of the organization through effective communication and collaboration. (Employee Excellence - Collaboration)
- **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. (Equity - Integrity)
- **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. (Employee Excellence - Collaboration)
- **Planning and Results Oriented:** Organizes and executes work to meet organizational goals and objectives while meeting quality standards, following organizational processes, and demonstrating continuous commitment. (Employee Excellence - People First, 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. (Employee Excellence - Integrity, Pride)

TYPICAL DUTIES:

Percentage	Essential (E)/Marginal (M)[1]	Job Description
45%	E	Prepares 3D and 2D drawings and BIM models for the mechanical, electrical, water and wastewater plans from engineers' design notes and sketches. Uses state-of-the-art - technology, i.e., Computer-Aided-Drafting/Design (CADD) and related complex computer programs to develop details and to determine layout and geometric design and to electronically submit plans to Office Engineer. Coordinates and collaborates with multidisciplinary engineers regarding contract drawings. Prepares drafting checklist and prepares standard details for the branch to confirm the consistency and quality of the contract drawings.
10%	E	Calculates and checks for preliminary and final quantity estimates for the development of equipment, structures and costs. Reviews completed drawings for accuracy and completeness of details.

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10%	E	Makes preliminary layouts of various equipment and structures with details using state-of-the-art technology (i.e., CADD) and related computer programs. Prepares and maintains standard details database for electrical, mechanical, and water & wastewater for designers.
10%	E	Assists in the review of plans, specifications and quantities prepared by other engineers and detailers, including consultant designs, to ensure the product meets established quality standards for design and detailing. Prepares and uses checklists, Memos to Designers, Design Aids, and other reference material in completing the checking process.
10%	E	Ensures correct horizontal and vertical alignment and dimensions for the layout of difficult and complex equipment and structures.
10%	E	Assists with as-builts corrections, using state-of-the-art technology (i.e.,CADD) based on data supplied by the Structure Construction representative and/or the Project Engineer. Maintains as-builts database to ensure as-builts are completed.
5%	M	Prepares and checks contract plans from charts and design aids. Assists in construction inspections and checks completed work for compliance with contract documents. Assists team in other work as needed.

[1]ESSENTIAL 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

This position does not supervise other employees; however, this position may act as a lead worker over 1 to 10 engineers and technicians.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

Knowledge of:
• Details, methods, layouts, scale and organization of details used in preparation of mechanical design, details, construction drawings and as-builts for a variety of structures of above-average difficulty.
• Engineering mathematics, quantity estimates for a variety of structures of above-average difficulty.
• Various software, including Revit, SolidWorks, MicroStation, and other related programs used to develop layouts, detailed drawings, geometric designs, and 3D models, and parametric models.
• Lead person responsibilities on less difficult projects in the preparation of plans.

Ability to:
• Communicate both orally and in writing.
• Follow oral and written directions. • Interpret complex sketches, drawings and plans encountered in the work.
• Assist in performing geometric design of complex difficulty for various structures.
• Prepare and check quantity estimates for a variety of structures of above-average difficulty.
• Use state-of-the-art technology, e.g., CADD and related computer programs.
• Assist in training of Drafting Aids and Structural Design Technician I’s and II's.
• Analyze situations accurately and adopt an effective course of action.

Analytical Requirements:
• Use of trigonometric calculations and interpretation of the survey notes and computer alignment output in preparing General Plans, site data and locating specific abutments and bents.
• Must be thoroughly informed in regard to information available from standards.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

The incumbent exercises judgment in the selection of views and standard plans and details used in the preparation of a complete set of plans, which could result in incomplete information in the contract plans and estimates. Incomplete information in the contract plans and estimates could result in unnecessary rework, increased cost and time to produce corrected plans, and possible delay of the project.

PUBLIC AND INTERNAL CONTACTS

Employee maintains communications, generally through the Project Engineer, with various personnel working on the project to which he/she is assigned, including other Department personnel, engineering consultant and industry representatives to transmit or obtain relevant engineering information. These contacts will be verbal or written, as needed to perform one’s assignments.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

Employee may be required to sit for long periods of time while using a computer. They may also be required to lift/ move/carry large or cumbersome plans (maximum of 50 pounds). They may be required to lift/move/carry various types of portable equipment, which may weigh up to 50 pounds, around the work site or when out in the field.

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WORK ENVIRONMENT

Employee will work in a climate-controlled office under artificial lighting. Employees may also be required to travel to job sites and may be exposed to dirt, noise, uneven surfaces and/or extreme heat or cold.

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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