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|---------------------------|--|----------------|-------------------------------|
| Title:<br><b>Engineer</b> | Effective Date:<br>October 7, 2022       | Grade:<br>XIII | Job Category:<br>Professional |
| Prior Title:<br>Engineer  | Prior Effective Date:<br>August 24, 2022 | Grade:<br>XIII | Page:<br>1 of 3               |

### ***CHARACTERISTICS OF WORK***

Under immediate supervision, this position is responsible for assisting in various engineering related tasks as required.

### ***EXAMPLES OF WORK***

The following examples are intended only as illustrations of various types of work performed. No attempt is made to be exhaustive. Related, similar, or other logical duties are performed as assigned. The Department may require employees to perform functions beyond those contained in job descriptions. The Department may modify job descriptions based on Department needs. The Arkansas Department of Transportation is an "at will" employer.

- Perform engineering duties in planning, design, or the construction and maintenance of Arkansas' roadways and bridges.
- Receive specialized training from designated training personnel.
- Apply engineering techniques, procedures, and criteria within rules, regulations, specifications, and operating procedures of the Department.

### ***ADDITIONAL EXAMPLES OF WORK APPLICABLE TO STRUCTURES ENGINEERS***

- Evaluate survey, soil and hydraulic data, and design bridge types as directed for inclusion in the project plans.
- Produce layouts, structural details and related technical drawings using computer-aided design and drafting (CADD).
- Assemble design drawings, specifications and bid quantities, and make cost estimates for completed bridge projects.
- Analyze existing bridge structures for load capacity as part of the Department's continuing bridge inspection and rating program.
- Collaborate with structural detailers in plan preparation of projects which they have designed.

### ***ADDITIONAL EXAMPLES OF WORK APPLICABLE TO HYDRAULIC DESIGN ENGINEERS***

- Conduct hydrologic and hydraulic investigations and analyses for bridges and other hydraulic structures.
- Investigate highway related drainage problems.
- Coordinate hydrology and hydraulic design with other federal, state, and local agencies.
- Prepare detailed analytical reports in connection with hydrologic and hydraulic studies.

### ***ADDITIONAL EXAMPLES OF WORK APPLICABLE TO MAINTENANCE ENGINEERS***

- Develop thorough knowledge of all phases of highway maintenance and the Maintenance Management Program.
- Maintain mutually beneficial relationships with District personnel and Area Maintenance Supervisors in order to assist in solving maintenance problems.
- Analyze and recommend solutions to maintenance problems.

### ***ADDITIONAL EXAMPLES OF WORK APPLICABLE TO MATERIALS ENGINEERS***

- Conduct quality assurance tests of materials used on Department projects.
- Recommend acceptance of test results of materials.
- Assist in the monitoring of materials problems and functions for construction and maintenance activities.

### ***ADDITIONAL EXAMPLES OF WORK APPLICABLE TO TRANSPORTATION PLANNING AND POLICY ENGINEERS***

- Evaluate travel patterns and produce various traffic models.
- Analyze and recommend solutions to address transportation mobility and safety needs.
- Perform transportation planning activities and conduct planning studies.
- Assess transportation system performance.

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***ADDITIONAL EXAMPLES OF WORK APPLICABLE TO PROGRAM MANAGEMENT ENGINEERS***

- Assist in the coordination of local and state project activities.
- Prepare bid proposals, contract documents, etc.
- Assist with various local federal-aid programs.

***ADDITIONAL EXAMPLES OF WORK APPLICABLE TO SYSTEM INFORMATION AND RESEARCH ENGINEERS***

- Asset Management
  - Perform pavement data analysis on data collected using nondestructive equipment, including but not limited to: the Falling Weight Deflectometer, Skid Truck, and Pavement Performance Data Collection Vehicle.
  - Conduct network level analysis using various pavement data types and evaluate project level pavement data to recommend appropriate rehabilitation strategies.
  - Assist in project identification and prioritization for the State Transportation Improvement Program.
  - Provide pavement condition data to the Administration and other Divisions.
  - Ensure that QC/QA practices are implemented and followed at all levels in the data collection, analysis, and reporting processes.
- Research
  - Serve as Project Coordinator for contract research projects, including all project management activities (review reports, claims for reimbursement, changes in contracted work plans and requests for budget changes).
  - Serve as Principal Investigator for in-house research projects, including conducting research and project management activities.
  - Translate research findings into understandable and usable language and provide assistance in implementing research results.
  - Coordinate work between the various Divisions and Districts of the Department and research contractors.
- Traffic Information System
  - Conduct analysis of traffic patterns, project future traffic demand for project design, and conduct traffic weight analysis for load spectra inputs.

***ADDITIONAL EXAMPLES OF WORK APPLICABLE TO ROADWAY AND STATE AID DESIGN ENGINEERS***

- Conceive, design and evaluate various highway features and recommend alternates for inclusions in project plans.
- Establish horizontal and vertical alignment and right of way requirements for inclusion in plans.
- Compile data and write reports and specifications in conjunction with design plans.
- Compute project cost estimates and assemble estimated quantities for project plans.

***ADDITIONAL EXAMPLES OF WORK APPLICABLE TO SURVEYS ENGINEERS***

- Assist with the planning and execution of highway surveys; compile and analyze data.
- Assist with the review and submission of completed survey data to appropriate Divisions within the Department.
- Evaluate, test, and document advanced geospatial technologies for implementation.
- Provide training to survey crews and consultants in the use of Department data collection and CADD programs.
- Assist in the development and operation of the Department’s statewide control network.

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***ADDITIONAL EXAMPLES OF WORK APPLICABLE TO RESIDENT ENGINEER OFFICES***

- Assure the effective and complete adherence of approved plans and specifications to result in correct construction of projects.
- Assist in the coordination of Inspectors to assure adherence to specifications.
- Maintain records using SiteManager software to ensure proper estimate payments.
- Analyze plans and recommend needed changes.
- Maintain mutually beneficial relationships with contractor and public to facilitate cooperation and coordination of the project.
- Perform survey work as required.

***MINIMUM REQUIREMENTS***

Education and experience:

Graduation from an EAC of ABET approved engineering curriculum or equivalent as judged by the Arkansas Board of Registration for Professional Engineers and Land Surveyors. *Civil engineering* degrees are strongly preferred in most engineering positions in the Department; however, degrees from other engineering disciplines, including but not limited to electrical, systems, computer, geomatics, and surveys, may occasionally be considered when vacancies exist in specific areas.

Working conditions:

Office or outdoor environment depending on location.

***APPLICABLE TO RESIDENT ENGINEER OFFICES***

Frequently drive a Department vehicle to various locations within the District.

Licenses, registrations and certifications:

Possession of a current *Arkansas* license to practice professional engineering or graduation from an EAC of ABET approved engineering curriculum or equivalent as judged by the Arkansas Board of Registration for Professional Engineers and Land Surveyors. Engineering Intern certification preferred. If not in possession when hired, must obtain certification as an Engineering Intern within one year of hire. Failure to obtain the required certification within the one-year period may result in a demotion to a non-engineering position if available or immediate termination. Valid driver’s license required for some positions.

***APPLICABLE TO RESIDENT ENGINEER OFFICES***

Must obtain certification in Soils and Concrete Field Testing by the Technician Program at the Center for Training Transportation Professionals, or equivalent certification within one year of hire. Failure to obtain the certification within the allotted time period may result in demotion or immediate termination. Valid driver’s license.

(“EAC of ABET” means Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.)