

Minimum Qualifications:

Education and Experience: Education equivalent to graduation from an accredited college or university with a bachelor's degree in civil engineering and experience equivalent to five years of full-time professional civil engineering work that may include student assistant or college seasonal civil engineering work with the State of Tennessee. OR Possession of a master's degree in civil engineering from an accredited college or university and experience equivalent to four years of full-time professional civil engineering work.

Substitution of Professional Registration for Education: Registration as a professional engineer with the State of Tennessee in either the civil engineering or structural engineering disciplines may substitute for the required bachelor's degree.

Substitution of Experience for Education: Experience equivalent to five years of full-time professional civil engineering work with the State of Tennessee as a Transportation Project Specialist, Transportation Project Specialist Supervisor 1, Transportation Project Specialist Senior, Transportation Project Specialist Supervisor 2; or a Structural Specialist 2, Structural Specialist 3, Structural Specialist Supervisor 1, Structural Specialist Supervisor 2.

Other Requirements:

Necessary Special Qualifications: A valid motor vehicle operator license may be required. Examination Method: Education and Experience, 100%, for Preferred Service positions.

Job Overview:

Summary: Under general supervision, is responsible for professional civil engineering work of considerable difficulty to solve complex civil engineering problems within a specific area.

Distinguishing Features: An employee in this class: Acts as the regional or statewide specialist in providing technical guidance during the construction or maintenance of roadways, and/or transportation structures, reporting directly to a Transportation Project Supervisor 2 or Civil Engineering Manager. Employees in this class solve or determine the underlying causes to the most difficult engineering problems, such as bridge collapse, foundation failure, sinkholes, flooding, and right-of-way lawsuits. Acts as the regional or statewide specialist in providing technical guidance in the planning for the construction or maintenance of roadways, reporting directly to either a Civil Engineering Manager or a Transportation Manager.

Work Activities:

Assisting and Caring for Others: Respond appropriately during medical, roadside, work site and other emergencies as required.

Provide Consultation and Advice to Others: Answers technical questions for subordinates, peers, consultants, or contractors to clarify project information, engineering solutions, department, state, and federal laws, rules, regulations, guidelines, processes, and procedures. Provides technical guidance to external or internal business partners to resolve problems with environmental, geotechnical and/or engineering concerns. Notifies supervisory personnel of possible violations of department, state, and federal laws, rules, regulations, guidelines, policies, and procedures.

Identifying Objects, Actions, and Events: Identifies highway component issues for construction, maintenance, repair, safety, environmental, quality assurance and operational needs. Identifies errors, omissions, and potential conflicts on applications, contract documents, reports, and/or plans. Reads construction plans, contracts, standard drawings, guidelines, and schematics to identify quantities, materials, location, placement, features, specifications, and details to guide assigned work. Identifies work priorities to ensure the most important work is completed first based on work experience, supervisor guidance, and department, state, and federal laws, rules, regulations, and guidelines.

Inspecting Equipment, Structures, or Materials: Inspects geotechnical events, including sink hole, rock falls, or landslides, to gather information to determine appropriate action resolution. Inspects roadway features according to local, state, and federal guidelines and ensures all standards are met. Conducts random inspections of sites, equipment, and materials to determine that the job meets all specifications. Conducts field inspection to determine accuracy of documented property features.

Training and Teaching Others: Creates and conducts agency specific and specialized training for agency employees and external business partners to comply with department, state, and federal laws, rules, regulations, guidelines, processes, and procedures, facilitate change, and improve efficiency. Trains and mentors assigned subordinates, peers and external business partners in the basic workflow and processes related to tasks.

Estimating the Quantifiable Characteristics of Products, Events, or Information: Calculates roadway material quantities using set parameters and estimates cost, time, materials and other bid factors for a project. Estimates work hours, staffing and scheduling requirements to complete a project.

Judging the Qualities of Things, Services, or People: Analyzes preliminary ROW and construction plans for accuracy. Reviews proposals, documents, applications, reports and plans for completeness and accuracy and recommends changes or improvements. Assesses survey information collected in a district survey office to ensure that information is complete and accurate. Completes consultant performance evaluations. Assesses the performance of assigned subordinates for the performance evaluation process.

Analyzing Data or Information: Analyzes project sites, processes, policies, and procedures to develop recommendations for changes in operations which affect the environment, safety, economy, efficiency and quality of agency operations and services. Analyzes relevant information to determine the appropriate engineering and environmental approach to resolve an issue, problem, or task. Analyzes preliminary, Right of Way and construction plans for accuracy. Analyzes contractor and producer claims to determine appropriate resolution. Analyzes traffic volumes and crash rates to identify safety and

operational improvement strategies. Analyzes test results against roadway information, determine trends and provide recommendations for asset improvement.

Making Decisions and Solving Problems: Recommends viable solutions to civil engineering problems. Determines that plans and specifications are accurate and complete. Analyzes available routes and recommends optimal route for super load permit movements. Selects the most qualified consultant to perform services. Analyzes and approves consultant proposals and man-day estimates. Analyzes the roadway plans and environmental information to determine how to best avoid, minimize, and mitigate environmental impacts. Evaluates environmental and utility issues during project development and the construction phase to determine the most efficient solution. Corrects inaccuracies and modifies plans based on recommendations from other engineers and outside entities. Analyzes and approves mix design submittals for use on projects. Evaluates site plans for commercial developments to determine recommendations for geometric improvements and driveway designs for entrance permitting. Selects areas to be depicted on plans and maps.

Thinking Creatively: Implements creative engineering solutions to unique problems. Develops spreadsheets, presentations, forms, form letters, memos, database queries, position advertisements, logs, and other systems as required to facilitate accurate data gathering, tracking, training, efficiency and dissemination. Develops process improvement suggestions to streamline workflow and improve process cycle times and accuracy. Leads and participates in brainstorming sessions to develop process streamlining initiatives and improve business practices.

Documenting/Recording Information: Writes reports to document field inspections, laboratory test, and other necessary items to ensure accurate information is used in decision making. Documents and stores appropriate information in electronic databases and/or physical form as required ensuring accurate information is recorded. Documents the performance of assigned subordinates continually to ensure accurate and unbiased performance evaluations. Documents information provided during meetings and training when serving as the sole agency representative to ensure accurate information is disseminated to others.

Interpreting the Meaning of Information for Others: Interprets a variety of engineering and environmental rules, regulations, policies, procedures, and documentation for internal and external business partners to facilitate understanding, enhance communications, and ensure compliance. Explains project specific procedures and regulations to subordinates, the general public, persons in other departments or divisions, or outside organizations and representatives as required. Interprets plans specifications to property owner to facilitate understanding.

Communicating with Persons Outside the Organization: Provides testimony in court as a representative of the department. Presenting technical information to small and large groups to disseminate information. Discusses the project details, rules, regulations, and laws with land owners, utility representatives, government officials, business representatives, and other individuals. Conducts and/or attends meetings with external business partners to gather project information and status updates and to disseminate information. Contacts general public, producers, consultants, contractors, and other

outside agencies to obtain/provide required information, correct errors, and/or for clarification purposes. Communicates with local bridge owners to inform them of inspection activity, provide inspection updates/reports and provide recommendation for action. Communicates effectively with external business partners through reports, emails, letters and other written communication. Communicates verbally with external business partners.

Resolving Conflicts and Negotiating with Others: Investigates conflicts between business partners and agency employees according to department, state, and federal laws, rules, regulations, guidelines, processes, and procedures to develop an action plan for resolving the issue. Resolves interpersonal conflicts between internal and/or external business partners to ensure a respectful and productive work environment. Maintains a respectful and productive work environment within the assigned work unit to minimize disputes and facilitate performance. Negotiates with internal and external business partners to develop a consistent deployment of policy, procedure, processes, and specifications.

Coaching and Developing Others: Educates internal and external business partners on department, state, and federal laws, rules, regulations, guidelines, processes, and procedures in order to facilitate accurate and timely submission of documentation. Mentors assigned subordinates by providing feedback and information on organizational culture, policies and procedures, workflow and chain of command, task prioritization, proper documentation, use of systems and available functionality, to encourage effective and efficient performance of assigned tasks. Mentors less experienced coworkers to facilitate development and job performance. Discusses performance with subordinates to identify and correct deficiencies and to reinforce strengths.

Getting Information: Research plans, policies, specifications, procedures, guidelines, rules, regulations, and laws related to transportation using physical and electronic sources to assist with conflict resolution, problem solving, and decision making. Collects information from staff regarding status updates, project schedules, and inspections to effectively make decisions, communicate to upper management, and prioritize work. Collects samples provided by field staff and suppliers for testing purposes to determine compliance with specifications, source approval, and other informational needs. Contacts the general public, subordinates, persons in other departments or divisions, representatives, and outside organizations, including producers and suppliers, for the purpose of furnishing or obtaining information. Utilizes maps, computer software, plans and other documents to collect and compile project information. Attends meetings, conferences and conference calls to gather information on new or existing policies, procedures, and project updates, best practices, technologies and other changes.

Operating Vehicles, Mechanized Devices, or Equipment: Operates motorized boats within safety and department guidelines to conduct bridge inspection. Operates pick-up truck, SUV, van and other on road delivery and transport vehicles.

Interacting with Computers: Manages and maintains complex database by providing user support, updating user security, troubleshooting issues, and developing reports and functions. Operates traffic monitoring software utilized by the Transportation Management Center. Uses CADD and modeling software to analyze data and complete engineering related tasks. Uses appropriate database tracking

software specific to the state and agency. Operates computerized equipment to conduct materials testing. Uses office productivity software including but not limited to word processing programs, spreadsheet programs, presentation software, web-based email programs, instant-messaging programs, and search engines. Operates navigational GPS to obtain location data. Utilizes digital camera and other data recording equipment to record information and transfer files to centralized storage locations.

Establishing and Maintaining Interpersonal Relationships: Acts as a liaison with internal and external business partners and other organizational representatives to ensure accurate and timely processing of information and deliverables. Networks with internal and external business partners to ensure open communication and to facilitate a coordinated work effort. Maintains professional working relationships with peers, assigned subordinates, and upper management to ensure smooth and effective team operations.

Competencies (KSA's):

Competencies: Functional/Technical Competencies, Technical Learning, Directing Others, Drive for Results, Presentation Skills, Written Communication, Composure Integrity, and Trust.

Skills: Critical thinking Intermediate application of formulas used in algebra, geometry, calculus, statistics, and graphing Effective oral communication to individuals and groups Effective written communication through letters, reports, memos, and technical documents Reading comprehension of technical reports, laws, rules, policies and procedures Intermediate application of scientific rules and methods Coordination of processes and people Instructing individuals and/or groups on technical processes and procedures Intermediate skill of negotiation Skill of complex problem solving Operation and control of testing equipment Skill in the application and use of office, databases, drafting, modeling, and analyzing software Quality control analysis through conducting tests and inspections Troubleshooting Judgment and decision making Systems evaluation Management of material resources Time management Active learning Active listening Learning strategies Monitoring performance of internal and external staff

Abilities: Deductive Reasoning Inductive Reasoning Mathematical Reasoning Memorization Oral Comprehension Oral Expression Problem Sensitivity Selective Attention Spatial Orientation Time Sharing Written Comprehension Written Expression Control Precision Reaction Time Response Orientation Stamina

Tools and Equipment Used:

Personal Computer, Telephone, Printer, Material Sampling and Testing Equipment, Survey Equipment, Various Hand Tools, Vehicles, Boats, Navigational GPS, and Digital Camera.