

STATE OF MINNESOTA
BOARD OF WATER AND SOIL RESOURCES

POSITION DESCRIPTION: Part A

Classification Title Engineering Specialist	Working Title (if different) Engineering Technician	Position Control Number
Bargaining Unit MGEC	Section Technical Services	Office/District Mankato
Employee's Name (Print)		Supervisor's Name (Print) Terry Ragan
Reports To {Classification Title(s)} Principal Engineer		Prepared By Terry Ragan, Water Resources Engineer

Employee's Signature	Date	Supervisor's Signature	Date
<i>(Position description accurately reflects current job)</i>			

POSITION PURPOSE

The position exists to perform conservation engineering technician work for investigation, design, and construction supervision of conservation practices for soil erosion control, water quality protection and fish and wildlife habitat restoration with an emphasis on restoration of drained and degraded wetlands and shallow lakes.

The incumbent serves as an engineering technician providing project management and technical assistance to a wide range of civil and agricultural engineering projects across a specified geographical region, all under the direction of a professional engineer or lead senior/principal engineering technician, as assigned.

The position purpose includes development and coordination of effective engineering technician assistance, in partnership with Soil and Water Conservation Districts (SWCDs), other local, state, and federal governmental units, and project partners.

REPORTABILITY

Reports Directly to: Project Engineer
Reports Indirectly to: Other Section Engineers and Senior/Principal Engineering Technicians
Supervises: No supervisory responsibilities

DIMENSIONS

Budget: None
Clientele: *Primary:* SWCDs, project partners and participating landowners.
Secondary: Other BWSR staff, other state/federal agencies, and conservation organizations.

POSITION DESCRIPTION: Part B

PRINCIPAL RESPONSIBILITIES, TASKS AND PERFORMANCE INDICATIONS

1. **Perform and/or assist with performing investigations of assigned projects, research of available project information, and development of project concept plans.**

Priority: A	Percent of Time: 20%	Discretion: A
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Tasks:

- a) Perform and/or assist with site investigations as appropriate for assigned project scope.
- b) Perform research of available information including files, records, maps, aerial photographs, property boundaries, watershed boundaries, soils information, drainage system information, etc.
- c) Use a tile probe, Back Saver soil sampler, or soil boring equipment, and/or direct subsurface tile investigations and soil sampling via test excavations.
- d) Perform and/or assist with data collection using Global Positioning System (GPS), total station or other applicable survey equipment.
- e) Operate all-terrain vehicles (ATVs) to assist with data collection efforts.
- f) Ensure that detailed and accurate field notes and photos are kept, and help develop and maintain comprehensive, well organized project files.
- g) Maintain survey and other field equipment needed for technical investigations.
- h) Prepare or assist with preparing concept plans and associated correspondence to help determine program compliance, determine project feasibility, and define project opportunities and constraints.

2. **Prepare and/or assist with preparing accurate, clear, comprehensive, and well organized feasibility studies, preliminary designs, and design reports to address the engineering needs of assigned projects.**

Priority: A	Percent of Time: 15%	Discretion: B
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Tasks:

- a) Reduce, plot, and interpret field data to prepare accurate and well laid out site maps.
- b) Conduct basic engineering calculations, evaluations and studies for feasibility determinations and preliminary designs.
- c) Operate personal computers and designated software for basic hydrologic and hydraulic analyses, quantity calculations, cost estimates, CAD design/drawings and report development. Includes word processors, spreadsheets, various engineering programs, and GIS systems.
- d) Prepare and/or assist development of preliminary engineering plans and reports that are appropriate for the project scope and include relevant background data, drawings, photos, analysis, discussions and recommendations.
- e) Maintain good communications with clientele when managing assigned projects. Includes identifying project needs ensuring that all identified project constraints are clearly understood and addressed.
- f) Assist project engineer with identifying and communicating project alternatives, conducting necessary project meetings and attending necessary public meetings/hearings.
- g) Maintain current, accurate and orderly project files.
- h) Regularly communicates with supervising engineer to check in and relay status of assigned projects.

3. Prepare and/or assist with the preparation of accurate, clear, comprehensive, and well organized final designs, construction plans, specifications, and associated project construction documents to address the engineering needs of assigned projects.

Priority: A	Percent of Time: 20%	Discretion: B
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Tasks:

- a) Develop and/or assist with developing project designs that conform to accepted engineering standards and agency/program policies. When necessary, arrange for and/or attend meetings, conference calls, or other types of communications with section staff, agency staff, other governmental agencies, partners, landowners, etc. to achieve necessary design information, input, review, and approvals.
- b) Use sound engineering principles and methods of analysis in preparing final project designs, plans, specifications, cost estimates, bid schedules and other applicable construction documents.
- c) Both manual and computer-aided-design methods, including AutoCAD and other software, are utilized, as appropriate.
- d) Construction plans, specifications and bid documents are to be complete, accurate, easily read, checked for spelling and grammar, and well organized.
- e) Coordinate regularly with other project team members and supervising engineer when developing final project design and construction documents. Ensure necessary reviews and approvals are completed and completion schedules met.

4. Provide necessary inspection, supervision and management of assigned projects construction ensuring effective and efficient implementation.

Priority: A	Percent of Time: 40%	Discretion: A
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Tasks:

- a) Assist clientele and landowners in selecting and hiring qualified construction contractors.
- b) When necessary, arrange for and/or attend pre-bid and/or pre-construction and other related meetings to prepare for construction. Meeting summaries, reports, and other written correspondence are prepared in a neat, professional manner and appropriately disseminated.
- c) Work with project engineer and clientele to ensure necessary and appropriate construction staking and layout are completed, as necessary.
- d) Perform and/or ensure necessary and appropriate construction supervision and inspection of projects is provided and that work is performed in accordance with project plans/specifications.
- e) Provide timely, technically sound and cost-effective construction supervision and oversight across geographic work area often while simultaneous project construction work is occurring.
- f) Identifying construction problems in a timely manner and work with project engineer to provide leadership in negotiating a prompt and reasonable resolution to these problems.
- g) In consultation with the project engineer, appropriately address and manage necessary design or specification modifications and negotiate and prepare necessary change orders and other contract modifications.
- h) Perform timely final review of assigned completed projects. Includes accurately measuring and/or reviewing quantities, completing records, reports, and preparing as-builts for project close-out and final certification.
- i) Assist field offices in review of project invoices and payment requests, ensuring they are accurate and in accordance with program policies, procedures, and technical approval authority.

5. Provide assistance and technical support to Section and other agency staff to help maintain agency/unit operations and perform other related duties as assigned.

Priority: B	Percent of Time: 5%	Discretion: B
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Tasks:

- a) Assist in the development, documentation, and integration of standardized operational procedures for surveying, CADD and other related operations.
- b) Assist in developing and providing technical materials, assistance, and training to BWSR staff and clientele.
- c) Help maintain engineering support operations and provide recommendations to keep them current.
- d) Assist with sorting, scanning, data entry, and archiving of engineering project files.
- e) Assist with addressing data/information requests from partners and others.

6. Performs work in a safe and responsible manner and is accountable for acting in accordance with established safety procedures protecting themselves from injury and associated work equipment from damage.

Priority: A	Percent of Time: *	Discretion: A
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* No separate percentage of time is shown for this responsibility since safety must be part of all tasks performed.

Tasks:

- a) Acts and performs work in a safe and responsible manner.
- b) Is accountable for safety performance in accordance with established safety procedures.
- c) Attends all required safety meetings and training.
- d) Uses and follows available safety resource and information.
- e) Uses Personal Protective Equipment (PPE) and follows all policies regarding PPE.
- f) Practices Hazard, Injury and Incident Prevention and Reporting.

Summary of Responsibility Priority, Percent of Time and Discretion

Responsibility	Priority	Percent of Time	Discretion
1.	A	40%	B
2.	A	10%	B
3.	A	30%	B
4.	A	15%	A
5.	B	5%	B
6.	A	*	A

* No separate percentage of time is shown for this responsibility since safety must be part of all tasks performed.

Definitions:

Priority A: Results are essential and must be accomplished.

Priority B: Results are important and should be accomplished, but not at the expense of A priorities.

Discretion Level A: Employee investigates situation, makes decisions, and takes appropriate actions and reports by exception through normal communication and review processes.

Discretion Level B: Employee investigates situation, makes decisions or recommendations and confers with supervisor before, or immediately after, action is taken, depending on time sensitivity of action.

POSITION DESCRIPTION: Part C

RELATIONSHIPS

The incumbent serves as an engineering technician working under the direction and supervision of a licensed Engineer. The incumbent is responsible to help plan, design, implement, and manage a variety of statewide conservation projects with the primary focus being wetland restorations on private land completed in partnership with local units of government.

The incumbent provides leadership, technical support and advice, and direction to many local government units and other state and federal agency staff as part of project management responsibilities.

The incumbent must have the ability to interact and maintain good working relationships with agency staff, its clientele and with construction contractors. The incumbent must regularly coordinate with his/her Engineering Supervisor and other project team members to ensure effective and efficient technical assistance is provided for investigation, design and construction of assigned projects. The position requires the use of independent judgment and acceptance of responsibility in performing difficult technical tasks, both in the office and in the field. The position requires management and oversight of simultaneous projects across a broad geographic region. Their supervisor directs and reviews the incumbent's work for procedural and technical accuracy, as appropriate.

KNOWLEDGE, SKILLS AND ABILITIES

This position requires knowledge as a civil or agricultural engineering technician involved in the development and implementation of construction projects.

This position requires general training and experience in site investigation, design, layout and construction of soil and water conservation practices. Knowledge of current civil engineering design methods and standards is desired to independently perform technical engineering design work under the supervision of a licensed engineer. Also required is the ability to perform mathematical and geometric calculations; interpret and reduce survey data; interpret maps and aerial photographs; develop construction plans, specifications, and cost estimates; perform construction staking; oversee construction work; conduct as-built surveys, and prepare as-built drawings.

The position requires at least one year- of training and/or experience using a Computer Aided Design for Civil Engineering software program. Training and/or experience using AutoCAD Civil 3D software is desirable. Training and/or experience using computer software and hardware for hydrology and hydraulic analysis is also desirable.

The incumbent must have the ability to perform design, topographic and layout surveys, surface and , subsurface investigations and construction oversight, on rough terrain, steep slopes, and in adverse weather conditions. The incumbent is expected to work in wet and humid conditions and be able to lift and/or move heavy objects and equipment. The incumbent must have adequate vision levels to successfully perform expected duties including the ability to see close, far, colors, peripherally, to adjust/focus and to have depth perception. The incumbent must also be able to operate all field equipment including pickup trucks, all-terrain vehicles (ATVs/UTV's), survey equipment, and both mechanical and manually operated equipment for performing geotechnical investigations. Extensive travel across a broad geographic area will be required.

The incumbent must be able to communicate with clarity and authority, have a good understanding of general technical and program subject matter, and be able to translate that information to affected parties possessing varying amounts of knowledge and expertise.

The incumbent must also be able to communicate in a professional environment that requires good oral and written communication ability. This includes being able to effectively communicate with their supervisor, section staff, agency staff, and all external partners and clientele. Communication occurs orally and in

writing through various formats, formal and informal meetings, scheduled contacts, public meetings, e-mail, and formal written correspondence.

The incumbent must be able to interact positively with landowners, agency clientele, and other individuals involved in completing work assignments. He/she must also be able to supervise and inspect projects and verify compliance with construction plans and specifications and prepare field reports. Incumbent must also have the ability to be assertive with clientele and contractors, as appropriate, to assure program compliance and construction quality.

The incumbent must be able to provide positive leadership to staff, local government, state, and federal partners and conservation program's clientele to meet project goals and objectives. The incumbent must also be able to professionally represent BWSR at public and private meetings, convey information accurately, simulate feedback and discussion, and confirm decisions made.

PROBLEM SOLVING

The incumbent must be able to evaluate technical problems and develop recommendations or solutions in cooperation with the project engineer and in accordance with applicable policies and procedures. The incumbent will be challenged to develop solutions that are practical, cost effective and enduring. This will require risk assessment and development of recommendations or solutions that balance resource protection, cost and clientele acceptance. The incumbent will be responsible to report all major problems to their supervising engineer and to suggest possible solutions to these problems. Timely and clear communication, including pertinent questions and information sharing, are expected to be critical for effective problem solving. Working with involved landowners, clientele, and other interested parties can require effective listening, constructive solutions and compromise.

The incumbent will also be challenged to help provide and coordinate assistance to resolve problems encountered during project development and implementation. This will involve development of strong working relationships, with team members having different areas of expertise, as well as a good working knowledge of applicable BWSR program policies, procedures, roles and responsibilities.

FREEDOM TO ACT

Within established policy guidelines, this position has considerable independence and freedom to act in areas related fulfillment of job responsibilities. Decisions can be made so far as they do not run contrary to established policy guidelines, in which case he/she shall defer judgment until direction is received from his/her Supervisor.