

**MERCED IRRIGATION DISTRICT  
GIS SPECIALIST (WATER RESOURCES)**

FLSA Status – Non Exempt

**DEFINITION:**

Under general direction, perform duties in support of GIS administration, data management, research, planning, design and construction of irrigation, drainage and other District facilities; perform topographic and mapping surveys, perform detailed design, drafting and mapping tasks; conduct field inspections and prepare reconnaissance reports, prepare typical District agreements and perform other duties as required.

**ESSENTIAL FUNCTIONS OF THE POSITION:**

- Develop and maintain the District's Irrigation District GIS and other database systems.
- Perform various complex data analysis functions, including generation of tabular, graphical and mapping data and the publishing and printing of said data. Assist management in analyzing various District functions.
- Provide technical input and oversight for the creation, maintenance and integration of data collection and management processes necessary to perform the District's business.
- Develop GIS and other database applications.
- Interact effectively with management staff to determine, recommend and implement appropriate and cost-effective levels of technology.
- Plan and perform topographic and mapping surveys using District survey equipment, including total stations, data collectors, theodolite automatic level and stadia, GPS data collectors and other conventional surveying equipment.
- Update as-built plans.
- Report and document information using a standard indexed surveyor's field book when applicable.
- Maintain surveying and GPS equipment in proper calibration by standard procedures.
- Perform design functions, under the direction of a licensed Professional Engineer, associated with existing and proposed MID facilities, such as equipment and material selection, flow calculations, pipeline sizing and channel sizing.
- Develop construction drawings and coordinate project information (studies, sketches, computations, other complex data) with field crews and contractors.
- Assist in review of design packages from developers or consultants and generates verbal and written comments for incorporation into design to insure compliance with District requirements.
- Perform field inspection of construction activity to verify compliance with District standards and specifications
- Perform water measurements in the field, including flow, level and velocity measurements.
- Research rights-of-way, deeds, easements and other documents related to District facilities.
- File engineering records including drawings, agreements, deeds and other legal records.
- Prepare standard contracts/agreements.
- Perform office and field research.
- Maintain or support various electronic equipment such as the local weather station data, and automated gates.
- Serve as party chief or rodman.
- Set temporary and permanent benchmarks.
- Set grade by calculating required elevations and cuts or fills, as well as the location of finished tops and toes of slopes, grade breaks and transitional slopes.

## GIS SPECIALIST (WATER RESOURCES)

- Calculate grades and sections for canals, pipelines, roadways, structures and other infrastructure.
- Calculate angles, distances, areas and volumes from survey data.
- Conduct office and field research to locate monuments for the purpose of describing MID right-of-way and other boundaries.
- Obtain GPS coordinates and dimensions of irrigation facilities and incorporate into CAD, GIS or other databases.
- Conduct dam monitoring surveys for vertical and horizontal displacement and produce results in a graphical and tabular format for analysis.
- Perform construction staking and set grades per conventional standards.
- Assist with calibrating water measurement sensors, automatic gates and other control components.
- Evaluate parcels for storm water discharge to District system.
- Prepare miscellaneous legal documents involved with easements, rights-of-way and property grants associated with any encroachment on existing MID facilities or associated with the construction of new MID facilities.
- Answer questions related to MID operations from MID constituents and the public.
- Investigate water conveyance and delivery issues by interviewing operators, growers and measuring water levels, flows, and delivery and control structures.
- Provide engineering technical support to other District departments.
- Perform other duties as requested, directed or assigned.

### **QUALIFICATIONS:**

Any combination of experience and education that would prepare the candidate for the duties and responsibilities of the position is acceptable.

### **Education:**

- High School graduation or equivalent.
- College level course work in engineering and drafting highly desirable.

### **Experience:**

- Five (5) years of experience executing comparable duties and responsibilities similar to those identified in this job description.

### **Ability To:**

- Understand and effectively implement GIS concepts and models
- Understand and implement changing data management protocols
- Communicate on a technical level with software developers, and District IT Department
- Review and prepare, manually or using AutoCAD or other electronic programs, engineering plans, drawings, maps, site plans and sketches.
- Work with raster and vector drawings.
- Read and interpret maps and public works engineering/construction drawings.
- Use coordinate control maps for staking purposes.
- Work cooperatively with fellow employees and the public as required.
- Communicate clearly and concisely, orally and in writing with District Management, supervisors, co-workers, and the public.
- Run Microsoft Windows® programs on personal computers including “Works”, “Word”, “Excel”, “Access”, etc
- Attend District-directed course work related to daily activities.

## GIS SPECIALIST (WATER RESOURCES)

- Perform simple mechanical repairs.
- Frequently walk in uneven terrain, in an outdoor environment, in varied weather conditions in order to perform required tasks.
- Must have the ability to work independently and operate with minimal supervision, prioritize a widely fluctuating workload; and work well under pressure and meet continuous deadlines with a high degree of accuracy.
- Make judgmental decisions concerning hardware and software needs; analyze and resolve complex data inconsistencies; and properly interpret situations and make decisions in accordingly.
- Perform various construction staking
- Work closely with all MID staff and management, constituents, consultants, contractors, other governmental agency representatives and the general public.
- Independently solve problems and make recommendations to the Deputy General Manager to best serve the District.
- Provide prompt and proper response to public concerns and complaints.
- Handle confidential information appropriately and professionally.
- Apply common sense based on best engineering practices in resolving nonstandard situations, and field adjustments.

### **Knowledge of:**

- Current version of ESRI software and AutoCAD.
- Database design and management
- Basic SQL, Visual Basic and Python programming languages.
- Various survey and GPS equipment functions and capabilities.
- Basic land surveying and Mapping principles
- Knowledge of simple hydraulic calculations to determine the capacities of open and closed irrigation distribution systems.
- Public Lands Legal Description System (Section, Township, Range).
- Nature of District rights-of-way (easement, fee, prescriptive etc.).
- Microsoft Windows® based desktop computers and software.
- Agreements (construction agreements, joint use agreements, crossing agreements, etc.)
- Materials, methods, and the tools involved in construction of irrigation facilities
- Civil Engineering practices related to District water conveyance infrastructure to water conveyance design.
- Significant understanding of hydrography and SCADA functions of the Engineering Department including stream flow measurements, grower delivery flow rates verification and associated data management and analysis.

### **Necessary Special Requirements:**

- A valid California Class C Driver License and the ability to maintain insurability under the District's vehicle insurance program.
- Abide by all District policies, guidelines and rules.

### **ENVIRONMENTAL FACTORS:**

- Exposure to the sun: 10% or less work time spent outside a building and exposed to the sun.
- Irregular or extended work hours: Occasionally required to change working hours or work overtime.
- Work performed in an office environment

## GIS SPECIALIST (WATER RESOURCES)

The mental and physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions:

### **ESSENTIAL MENTAL ABILITIES:**

- Exercise independent judgment.
- Self directing and organized.
- Reason objectively.
- Assess, project and plan work activities on a daily and weekly basis.
- Interpret state/ federal/agency regulations.
- Document concisely, accurately and timely.
- Handle a variety of duties which may be interrupted or changed by immediate circumstances.

### **TYPICAL PHYSICAL DEMANDS:**

- Communicate orally and in writing with District management, co-workers, outside auditors, customers, and the public in face-to-face and one-on-one settings.
- Transport, set-up and removal of promotional equipment and materials at various public functions.
- Use of office equipment such as computer, copiers, scanners, and fax machines.
- Capable of negotiating stairways and uneven ground from time to time.

Sitting: Remains in a seated position for up to eight (8) hours per day

Hands/Arms: Operates computer for up to eight (8) hours per day

Lifting: Raises and lowers boxes and supplies up to twenty-five (25) pounds.

Stooping: Bends body downward and forward by bending at the knees or waist

Talking: Expresses ideas and shares information by means of spoken work in person and by telephone.

Hearing: Hears well enough to receive communications in person and by telephone.

Vision: Reads written and video messages for up to eight (8) hours per day. Operate vehicles and office equipment.

### **SUPERVISION:**

The position receives general supervision from the Deputy General Manager, Water Resources.

**I have reviewed this Job Description with my Supervisor and agree with its contents.**

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Employee Signature/Date

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Supervisor Signature/Date

**The specific statements shown in each section of this job description are not intended to be all-inclusive. They represent typical elements and criteria necessary to successfully perform the job.**