MERCED IRRIGATION DISTRICT
ENGINEERING TECHNICIAN
FLSA Status – Non Exempt

DEFINITION:
Under general supervision of a Professional Engineer or his/her designee, perform non-professional engineering tasks in support of research, planning, design and construction of irrigation and drainage systems; conduct field inspections and prepare reconnaissance reports, prepare typical District agreements, perform manual drafting, and operate AutoCAD system, perform topographic and mapping surveys, drafting and mapping tasks; and perform other duties as required.

ESSENTIAL FUNCTIONS OF THE POSITION:
- Prepare construction agreements, crossing agreements, joint use agreements and other agreements necessary for engineering department activities
- Perform design functions associated with existing and proposed MID facilities, such as equipment and material selection, flow estimation, pipeline sizing and channel sizing.
- 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.
- Create, edit, update and verify information in the District's various databases, CAD programs and GIS.
- Using the District's various databases, CAD programs, GIS and other records perform various complex data analysis functions, including generation of tabular, graphical and mapping data and the printing/plotting of said data.
- Research rights-of-way, deeds, easements and other documents related to District facilities.
- Filing, drafting and reproduction of engineering records including drawings, agreements, deeds and other legal records.
- Perform water measurements in the field, including flow, level and velocity measurements.
- Field inspection of construction activity.
- Map irrigation facilities.
- Maintain project filing system.
- Record deeds at County Clerk's Office.
- 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.
- Perform construction staking.
- Calculate grades and sections for canals, pipelines, roadways, structures and other infrastructure.
- Calculate angles, distances, areas and volumes from survey data.
- Produce construction material and earthwork quantity estimates.
- 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.
- Draft profiles, topographic surveys, construction drawings, and various types of maps, graphics, and charts.
- Update as-built and deed information on District maps.
- Review design drawings submitted by outside consultants.
- Verify actual field locations and dimensions of irrigation facilities, such as manholes, check structures and delivery gates.
- Evaluate parcels for stormwater discharge to District system.

- Maintain surveying and GPS equipment in proper calibration by standard procedures.
- 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:
A typical way of obtaining the knowledge, skills and abilities outlined in this job description would be graduation from high school, preferably an AA Degree in related field. Some college level engineering and drafting course work highly desirable.

Experience:
One (1) to three (3) years' experience executing comparable duties and responsibilities similar to those identified in this job description.

Ability to:
- Identify Section, Township and Range information on a map.
- Run Microsoft Windows ® programs on personal computers including, but not limited to, Works, Word, Excel, Access, etc.
- Review and prepare, either "manually", using AutoCAD or other electronic programs, simple engineering plans, drawings, maps, site plans, and sketches.
- Calculate angles and distances for engineering surveys.
- Calculate areas and volumes from field topography data.
- Read and interpret maps and public works engineering/construction drawings.
- Regularly use a telephone, cellular phone and radio for communications.
- Attend District-directed course work related to daily activities.
- Communicate clearly in writing and verbally.

Knowledge of:
- Public Lands Legal Description System (Section, Township, Range) is a plus.
- Nature of District rights-of-way (easement, fee, prescriptive etc.) is a plus.
- Microsoft Windows ® based desktop computers and software.
- Agreements (construction agreements, joint use agreements, crossing agreements, etc.).
- AutoCAD as it relates to two-dimensional drawings and ability and desire to obtain proficiency.
- Basic algebra and trigonometry so as to enable individual to use algebraic expressions and trigonometric equations to solve basic engineering problems.
- Materials, methods, and tools involved in construction of irrigation facilities.
- GPS equipment or ability to learn.
- Geographic Information System Software (i.e., ESRI)

Necessary Special Requirements:
A valid California Class C Driver License and the ability to maintain insurability under the District's vehicle insurance program.

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.

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

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:

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 a Professional Engineer.