

# NEVADA IRRIGATION DISTRICT

## ENGINEERING TECHNICIAN I ENGINEERING TECHNICIAN II Range B03/B23 – BOD 12/12/12

*Class specifications are intended to present a descriptive list of the range of duties performed by employees in the class. Specifications are **not** intended to reflect all duties performed within the job.*

### DEFINITION

To perform a variety of field and office technical duties in support of Engineering Department functions including surveying, drafting, and mapping.

### DISTINGUISHING CHARACTERISTICS

Engineering Technician I: This is the entry level class in the Engineering Technician series. Positions in this class typically have little or no directly related work experience. The Engineering Technician I class is distinguished from the II level by the performance of less than the full range of duties assigned to the II level. Incumbents work under immediate supervision while learning job tasks, progressing to general supervision as procedures and processes of assigned area of responsibility are learned.

Engineering Technician II: This is the journey level class in the Engineering Technician series and is distinguished from the I level by the assignment of the full range of duties. Employees at this level receive only occasional instruction or assistance as new, unusual or unique situations arise and are fully aware of the operating procedures and policies within the work unit. Positions in this class are flexibly staffed and are normally filled by advancement from the I level.

This class is distinguished from the Senior Engineering Technician in that the latter performs the most difficult and responsible types of duties assigned to classes within this series and provides technical and functional supervision over assigned staff.

### SUPERVISION RECEIVED AND EXERCISED

#### Engineering Technician I

Receives immediate supervision from an assigned supervisor; may receive technical and functional supervision from a Senior Engineering Technician.

#### Engineering Technician II

Receives general supervision from an assigned supervisor; may receive technical and functional supervision from a Senior Engineering Technician.

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Engineering Technician I/II

## ESSENTIAL FUNCTION STATEMENTS

*Essential and other important responsibilities and duties may include, but are not limited to, the following:*

### Essential Functions:

1. Perform field work including surveying and staking of in-house projects using a variety of technical survey equipment; reduce field survey notes and computer traverses, grades, closures, distances and areas for office use; operate and maintain survey instruments and equipment.
2. File and retrieve engineering and related plans, maps, exhibits and various documents; update files and maintain document reference and retrieval systems.
3. Provide internal and external customers with information, such as legal descriptions of parcels, address verification, property ownership, assessor's parcel numbers, zoning designations, easements, public right-of-way, and property jurisdiction.
4. Calculate, analyze and evaluate various field and engineering data related to survey, geographic, mechanical, hydraulic and structural design.
5. Develop design drawings for simple to moderately complex construction projects, exhibits, right-of-way plats and diagrams.
6. Complete plans and details of simple to moderate complexity for canals, pipelines, water control and measurement structures, access roads, drainage systems and similar types of projects.
7. Create, maintain and utilize GIS (Geographic Information System) for office, field and project purposes; receive and analyze customer GIS needs and determine best method of meeting those needs and the appropriate application of GIS.
8. Update and maintain GIS per as-built drawings of projects; identify and resolve errors in GIS and other engineering related databases.
9. Participate in planning and determining the appropriate control and procedures to complete varied survey tasks; assist survey field crews on assigned surveys.
10. Coordinate with outside vendors and contractors for the publication, distribution and management of documentation.
11. Research and acquire maps, legal descriptions, and deeds necessary to accomplish survey; participate in the reconnaissance of projects to determine best method of survey.

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### Engineering Technician I/II

#### Essential Functions: *(Continued)*

12. Assist with the design and redesign of construction projects, as necessary, to meet unforeseen problems in the field.
13. Calculate a wide variety of survey data; participate in the preparation of computer generated maps and reports based on survey data.
14. Coordinate efforts with other departments as directed.
15. Build and maintain positive working relationships with co-workers, other District employees and the public using principles of good customer service.
16. Perform related duties as assigned.

## QUALIFICATIONS

### Engineering Technician I

#### Knowledge of:

Basic drafting and surveying techniques, terminology, methods, and practices.  
Basic mathematical principles including algebra, geometry and trigonometry.  
Basic document control techniques.  
Applicable equipment and instruments used in drafting and surveying.  
Basic design and construction theory and engineering design standards.  
Modern office equipment including use of applicable computer applications.  
Principles and practices of effective customer service.

#### Ability to:

Perform a variety of field and office engineering work including surveying, drafting and mapping.  
Learn to reduce, interpret and apply field notes in performing drafting work.  
Learn to use CAD (Computer Aided Drafting), GIS (Geographic Information Systems), GPS (Global Positioning System) and other tools, methods and techniques to complete drafting, surveying and graphic work assignments.  
Learn the application of map scale representation related to engineering design and construction.  
Learn to conduct comprehensive survey studies and develop appropriate recommendations.  
Learn to compile and analyze technical information and prepare technical documents and reports related to area of assignment.  
Perform mathematical calculations with speed and accuracy.  
Use and care for surveying, drafting, mechanical, and computer instruments and equipment.  
Perform technical research related to maps, deeds and property rights.  
Learn to read and understand construction plans and specifications.

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### Engineering Technician I/II

#### Ability to: *(Continued)*

Operate and use modern office equipment including a computer and applicable software.

Maintain accurate records.

Establish and maintain effective working relationships with those contacted in the course of work.

Communicate clearly and concisely, both orally and in writing.

#### Responsibility to:

Obey safe work practices, procedures, and regulations including wearing protective equipment and safety devices.

Operate equipment in a careful and safe manner.

Acknowledge the use of safeguards by other employees.

Report any removal, displacement, damage, destruction, or tampering of safety devices, safeguards, notices or warnings.

Report any safety risks or hazards to your supervisor or other management personnel.

Report to your supervisor or other management personnel any work assignment that you feel would require you to perform the work in an unsafe manner.

### **EXPERIENCE AND EDUCATION GUIDELINES**

*Any combination of experience and education that would likely provide the required knowledge and abilities is qualifying. A typical way to obtain the knowledge and abilities would be:*

#### Experience:

One year of technical engineering experience is desirable.

#### Education:

Equivalent to completion of an Associate's degree, with course work in mathematics, drafting, CAD, GPS, GIS, database management or a related field.

#### License and Certificate:

Possession of a valid California driver's license.

### Engineering Technician II

In addition to the qualifications for the Engineering Technician I:

#### Knowledge of:

Principles and practices of algebra, geometry and trigonometry as applied to the computation of angles, areas, distances and traverses.

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### Engineering Technician I/II

#### Knowledge of: *(Continued)*

Policies and regulations related to construction, extension, and maintenance of a variety of public works and utility systems and facilities.

Principles and practices of technical report writing and data presentation.

Survey and audit techniques and practices related to area of assignment.

Applicable equipment and instruments used in area of assignment.

Engineering maps and records.

Construction materials and methods.

#### Ability to:

Independently perform technical engineering duties related to area of assignment.

Use CAD (Computer Aided Drafting), GIS (Geographic Information Systems), and GPS (Global Positioning System) and other computer applications related to technical engineering work.

Reduce, interpret and apply field notes in performing drafting work.

Compile and analyze technical information; problem-solve complicated engineering issues and identify alternatives and make related recommendations.

Perform engineering and mathematical calculations with speed and accuracy.

Perform database management tasks related to area of assignment.

Analyze spatial and tabular data using GIS software to produce maps and exhibits.

### **EXPERIENCE AND EDUCATION GUIDELINES**

*Any combination of experience and education that would likely provide the required knowledge and abilities is qualifying. A typical way to obtain the knowledge and abilities would be:*

#### Experience:

Two years of responsible experience similar to Engineering Technician I with the Nevada Irrigation District.

#### Education:

Equivalent to completion of an Associate's degree, with course work in mathematics, drafting, CAD, GPS, GIS, database management or a related field.

#### License and Certificate:

Possession of a valid California driver's license.

## NEVADA IRRIGATION DISTRICT

Engineering Technician I/II

### WORKING CONDITIONS

#### Environmental Conditions:

Work is generally performed in a temperature controlled office environment subject to typical office noise, with some work done outdoors with exposure to traffic, outdoor weather conditions including extreme heat and cold and to wet, and humid conditions.

#### Physical Conditions:

Essential functions may require maintaining mental condition necessary to sit while studying or preparing reports; bend, squat, climb, kneel and twist when performing installation/repair of equipment; perform simple and power grasping, pushing, pulling, and fine manipulation; and lift or carry weight of 25 pounds or less.

#### Mental Conditions:

Essential functions may require maintaining mental condition necessary to know and understand operations, and observe safety rules; intermittently analyze problem equipment; identify and locate equipment; interpret work orders; remember equipment location; explain jobs to others; handle conflict.