

# STATE OF MONTANA

## JOB DESCRIPTION

*Montana state government is an equal opportunity employer. The State shall, upon request, provide reasonable accommodations to otherwise qualified individuals with disabilities.*

**Job Title:** District Hydraulic Engineer      **Position Number:** 34007, 34015, 34005, 34001, 34004  
**Location:** Helena

**Department:** Transportation      **Division and Bureau:** Engineering / Highways

**Section and Unit:** Hydraulics

**Job Overview:** This position is a Hydraulics Engineer and is responsible for managing Hydraulic Engineering services for one of five Districts within Montana. The position serves as the District's authority in hydraulic engineering analysis, design, and engineering expertise and is accountable for the quality, efficiency, and cost effectiveness of design procedures and results delivered on District construction projects.

The incumbent is responsible for managing and delivering a variety of hydraulic engineering and design projects, providing engineering expertise and training to District personnel and other agency staff, and performing a variety of other duties as assigned.

The position reports to the Hydraulics Operations Engineer (#34009) and does not directly supervise other agency personnel.

### **Essential Functions (Major Duties or Responsibilities):**

This position provides advanced professional engineering analysis, expertise, and final design services for all hydraulic and drainage aspects of the Department. Specifically, the District Hydraulic Engineer:

- formulates professional engineering investigations and develops designs based on engineer alternative approaches to complex hydraulic problems;
- prepares technical and risk assessments, establishes guidelines, procedures, and parameters for various projects and activities; plans and oversees a variety of engineering projects;
- provides advanced technical assistance to a variety of individuals and agencies involved with ongoing road construction projects;
- organizes and writes comprehensive reports to present findings and recommendations; prepares design plan and details, special provisions, and cost estimates;

- reviews and approves consultant design analyses, reports, and plans;
- attends and conducts reviews to coordinate and develop solutions to hydraulic problems.

### **HYDRAULICS ENGINEERING ANALYSIS AND DESIGN – 60%**

This position coordinates and delivers a variety of hydraulic engineering and design projects, including responsibility for preliminary engineering analysis, mathematical model development (e.g., analysis of river systems, hydrologic analysis models, etc.), consultant design review and approval, technical and risk assessments, cost estimates, and final designs. The position develops unique hydraulic engineering solutions to construction, bridge design and scour, road design, environmental, geotechnical, materials, and other issues.

### **ENGINEERING CONSULTATION AND TRAINING – 35%**

Provides advanced training, guidance, and engineering expertise to other professional engineers, District and field project personnel, and consultants on specialized applications of hydraulic engineering. This includes serving as a technical authority and resource on hydraulic designs within the District or specialized application (e.g., scour, bridge replacement, etc.), resolving engineering problems throughout construction and maintenance projects, and providing quality assurances of phased and final work. Provides training and engineering expertise to other engineers and consultants on new theories, technologies, and standards in hydraulic engineering; conducts specialized research; and serves as a engineering expert in assessing and justifying engineering aspects of damage claims and litigation involving hydraulic issues.

### **OTHER DUTIES - 5%**

This position performs a variety of other duties as assigned by the Hydraulics Operations Engineer in support of the Department mission and Bureau objectives. This includes exchanging information with consultants, agency staff, and the public in public hearings, phase reviews, plan-in-hand reviews, District design coordination meetings, and other events; providing training, education, and professional expertise and assistance; coordinating special projects; participating in ongoing training and educational programs; and performing a variety of other duties as directed.

### **Supervision**

The incumbent oversees the work of engineering consultants and contractors involved in program-related activities by providing direction and guidance regarding work methods and priorities, professional expertise and assistance, quality assurances, contract compliance, and claims approval functions. Directs and oversees the work of design technicians and rotational engineers assigned to the Hydraulics Section regarding specialized program functions, operations, and procedures. This position does not directly supervise other agency personnel.

The number of employees supervised is: 0

The position number for each supervised employee is: n/a

### **Physical and Environmental Demands:**

Predominantly the work is performed in an office environment or occasionally in the field and may require:

- Lifting heavy objects (manhole caps, analytical equipment, etc.) up to 50 lbs.
- Ability to walk over uneven terrain or in water
- Remaining seated for extended periods of time, with occasional walking; standing; bending
- Minor travel (200 miles/month)
- Operating a personal computer
- Communicate in writing, in person, and over the phone
- Exposure to extreme weather
- Exposure to loud noises
- Exposure to confined spaces
- Exposure to high-speed traffic

### **Knowledge, Skills and Abilities (Behaviors):**

Requires extensive knowledge of the theories, concepts, and principles of civil engineering, hydrology, hydraulics, fluvial geomorphology, river mechanics, and urban storm water and drainage systems. The position also requires thorough knowledge of the methods and practices of road and bridge construction and related policies, methods, procedures, specifications, and standards and regulations; environmental and geotechnical aspects of construction projects; contract administration; advanced research methods and techniques; and applicable state, federal, local/county, AASHTO, and FHWA requirements and standards.

Requires skill in project management; analyzing and evaluating engineering designs; and specialized analytical methods and techniques. The position also requires skill in the use of standard and specialized software applications, computer modeling techniques, analyzing and interpreting statistical information, and written and verbal communications, especially technical communications required for development of engineering reports, specifications, and other technical information.

Requires the ability to investigate, analyze, and form professional objective solutions to complex hydraulic engineering issues, water law, local and regional government objectives, Department construction and maintenance requirements, and other interests; plan, organize, and direct engineering activities; exercise sound engineering judgement when developing and implementing

solutions to engineering problems, especially those involving natural phenomena (e.g., hydrology, fluvial geomorphology, etc.); and present and defend new or unprecedented ideas, procedures, and technologies. The position also requires the ability to negotiate and/or mediate disputes arising from contract, adjustments, flood plain permitting, city/county agreements, landowner disputes, etc.

**Minimum Qualifications (Education and Experience):**

The required knowledge, skills, and abilities are typically acquired through a combination of education and experience equivalent to a bachelor’s degree in civil engineering plus four (4) years of civil engineering experience, including at least two (2) years of experience in hydraulic engineering.

As a technical authority in hydraulic engineering for the District, the position is required to pursue a variety of continuing education and research opportunities.

Certifications, licensure, or other credentials include: Registration as a Professional Engineer (PE) is required.

**Special Requirements:**

*List any other special required information for this position*

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|--|--|
| <input type="checkbox"/> Fingerprint check | <input checked="" type="checkbox"/> Valid driver’s license |
| <input type="checkbox"/> Background check  | <input type="checkbox"/> Other; Describe                   |
| Union Code                                 | Safety Responsibilities                                    |

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

**Signatures**

My signature below indicates the statements in the job description are accurate and complete.

Revision Date: 02/2018

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<b>Immediate Supervisor</b>	<b>Title</b>	<b>Date</b>
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<b>Administrative Review</b>	<b>Title</b>	<b>Date</b>
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My signature below indicates that I have read this job description.

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<b>Employee</b>	<b>Title</b>	<b>Date</b>
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**Human Resources Review**

**Job Code Title:**

**Job Code Number:**

**Pay Band:**

My signature below indicates that Human Resources has reviewed this job description for completeness and has made the following determinations:

FLSA Exempt

FLSA Non-Exempt

Telework Available

Telework Not Available

Classification Complete

Organizational Chart attached

**Human Resources:**

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**Signature**

**Title**

**Date**