



Illinois Department of Transportation

Memorandum

To: DEPUTY SECRETARIES, DIRECTORS AND BUREAU CHIEFS
From: Becky Koehler
Bureau Chief of Personnel Management
Subject: Technical Vacancy
Date: February 9, 2018

Attached are the Position Summary Sheet and Position Description for the vacant technical position listed below. Please post this vacancy announcement February 13, 2018 in the designated areas.

The deadline for applicants to submit their applications for consideration is **4:30 p.m. on Tuesday, February 27, 2018**. Applications will not be accepted after that time and date.

NOTE: A copy of each applicant's ACTIVE Illinois Professional Engineer License must accompany application for this position. Please be advised that if a high volume of applications are received, the applications may be screened to establish a smaller pool of applicants for interview. The screening will be based on the information contained in the application.

If you have any questions, please contact the Bureau of Personnel Management at 217/782-5594.

CE V

Hydraulics Group Engineer
Bureau of Bridges & Structures
Office of Program Development
Springfield

Attachments
42526

Technical Applications [PM1080 rev 6/1/17](#)****must be received** by the Bureau of Personnel Management, Room 113, 2300 South Dirksen Parkway, Springfield, IL 62764 (Fax# 217/557-3134) or emailed to DOT.CO.BPM.EmploymentApplications@Illinois.gov by **Tuesday, February 27, 2018**, 4:30 p.m. Please include address, daytime phone and position for which applying if not already listed on application. Applicants will be notified in writing to schedule interviews.

NOTE: A copy of each applicant's ACTIVE Illinois Professional Engineer License must accompany application for this position. Please be advised that if a high volume of applications are received, the applications may be screened to establish a smaller pool of applicants for interview. The screening will be based on the information contained in the application.



Illinois Department of Transportation

An Equal Opportunity Employer

Position Summary Sheet

Classification:	Civil Engineer V	Salary:	\$6,315 - \$8,263*
Position Title:	Hydraulics Group Engineer	Union Position:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Position Number:	PW115-23-65-905-10-01	IPR#:	42526

Office/Central Bureau/District/Work Address:

Office of Program Development/Bureau of Bridges and Structures/2300 S Dirksen Parkway, Springfield, IL

Description Of Duties:

This position is responsible for the hydrologic and hydraulic analysis required for the design of large and complex drainage systems involving bridges, culverts, detention basins, pumping stations, and storm sewers.

Special Qualifications:

Required:

- Current Illinois Professional Engineer license
- Valid driver's license
- Statewide travel

Desired:

- Nine years of experience in civil engineering of which at least five years should be in the specific area of hydraulics and hydrology, three years of which should have been supervising engineering functions
- Strong oral and written communication skills
- Ability to supervise, train and motivate personnel

Shift/Remarks:

8:00 am – 4:30 pm / Monday - Friday

*Individual salary offers are computed based on an applicant's current position and experience level in comparison to the posted title as well as internal equity of staff in the organizational unit.

**Technical Application PM1080 (revised 6/1/17) is required. No previous version of the PM1080 will be accepted.

**ILLINOIS DEPARTMENT OF TRANSPORTATION
POSITION DESCRIPTION**

DATE:	November 7, 2017	POSITION:	Hydraulics Group Engineer
APPROVED BY:	Carl Puzey	OFFICE:	Program Development/ Bureau of Bridges and Structures
CODE:	PW115-23-65-905-10-01	REPORTS TO:	Hydraulics Unit Chief

Position Purpose

This position is accountable for the hydrologic and hydraulic analysis required for the design of large and complex drainage systems involving bridges, culverts, detention basins, pumping stations and storm sewers.

Dimensions

Annual Projects:	120
Contract Value:	\$40,000,000 to \$60,000,000

Nature and Scope

This position reports to the Hydraulics Unit Chief. Reporting to this position are the Senior Hydraulics Engineer, the Hydraulics Engineer, the Associate Hydraulics Engineer, the Assistant Hydraulics Engineer and the Hydraulics Engineer Trainee.

This position operates within an environment of management and investigation of hydraulics projects and personnel, performing complex hydrologic and hydraulic computations, exercising sound engineering judgment, and displaying knowledge of hydraulic engineering complexity. The incumbent ensures drainage policies and procedures are kept up-to-date and reflect current federal and state laws and regulations, sound design practices, public safety and economic considerations. In addition, the incumbent operates within an environment of special projects undertaken by the Hydraulic Unit. Examples may include the development and updating of a drainage manual to provide consistent hydraulic design policies for the Department. The incumbent is an instructor in training classes for the Bureau of Local Roads and Streets and the Specific Task training programs.

Typical problems faced by the incumbent are widely varied in scope and require a thorough knowledge of drainage policy and law. S/He must develop, maintain, and utilize a high level of technical hydrologic expertise. The incumbent is required to investigate and provide solutions for drainage problems that the districts are unable to resolve. This requires knowledge concerning litigation and the investigation of complaints related to actual or alleged hydrological damage to private property. S/He is required to investigate, analyze, and develop emergency resolutions to preserve the structural integrity of a bridge from the forces of ice, debris, or scour. Another problem is the necessity to evaluate, interpret, and implement new legislation in a timely manner. The greatest challenge faced by the incumbent includes the thorough investigation of special projects to ensure the final product provides acceptable solutions. These projects require that detailed analysis of complex problems be performed quickly as program deadlines must be met while developing and maintaining up-to-date drainage policies and procedures.

This position is personally responsible for the completion of special projects, the coordination and review of the development of a drainage manual which requires the monitoring of differing solutions to hydraulics problems and the preparation of recommended policies, the coordination of revisions and additions, and distribution of the manual. The incumbent evaluates and approves hydraulic reports prepared by consultants to assure hydraulic adequacy, utilization of the most economical design, conformance to policy, and compliance with permit requirements of the

Department of Natural Resources' Office of Water Resources, Corps of Engineers, and the U.S. Coast Guard. The incumbent analyzes flow distribution between multiple structures, flow over the roadway, and orifice flow for complex structures. S/He oversees special design details, unique notes, complex scour computations, and evaluates field investigations as necessary to ensure structure stability. The incumbent evaluates hydrographs, stage-storage curves, rating curves, and storage routing analysis for the design of detention basins and pumping stations. S/He evaluates and approves pump cycling and usable storage calculations and analyzes head losses through the system.

This position accomplishes responsibilities through the following:

Senior Hydraulics Engineer who prepares and reviews Hydraulic Reports, determines flow distribution, conducts field investigations, evaluates pump stations, evaluates hydraulic computer programs and serves as an instructor in hydraulic analysis and computer applications.

Hydraulics Engineer who develops complex hydraulic projects and provides the hydrologic and hydraulic analysis, and prepares and reviews Hydraulic Reports for highway stream crossings.

Associate Hydraulics Engineer who performs routine hydrologic and hydraulic analysis and prepares and reviews Hydraulic Reports required for the design of bridges and culverts over stream crossings.

Assistant Hydraulics Engineer who performs simple hydrologic and hydraulic analysis and prepares and reviews Hydraulic Reports required for the design of bridges and culverts.

Hydraulics Engineer Trainee who assists with simple hydrologic and hydraulic analysis and prepares and reviews Hydraulic Reports required for the design of bridges and culverts.

The incumbent functions with minimal supervision and guidance and is given broad latitude in pursuing objectives. The incumbent is guided by AASHTO specifications and applicable departmental policies and state drainage laws.

External contacts are with the Federal Highway Administration, U.S. Geological Survey, the Soil Conservation Service, the Army Corps of Engineers, and the Department of Natural Resources' Office of Water Resources, and consultants. Internal contacts include the districts and other bureaus when resolving drainage problems. Statewide travel is required.

The effectiveness of this position can be measured by the incumbent's ability to provide timely solutions to complex problems and the proper administration, supervision and management of the various and diverse functions assigned.

Principal Accountabilities

1. Ensures the development of policies and procedures which will yield practical, economical and environmentally acceptable designs meeting the departmental goals and objectives.
2. Ensures the accurate and timely completion of, and approves Hydraulic Reports for bridge and culvert drainage structures and conducts special studies to provide sound information for resolving hydraulic problems.
3. Coordinates the development of a drainage manual to provide consistent drainage policies based on sound engineering principles.

4. Analyzes hydrologic and hydraulic problems and the computer-aided hydraulic design systems and instructs district personnel and consultants in proper hydraulic analysis and computer applications.
5. Motivates, evaluates, and develops staff to maintain a high level of employee morale and work performance.
6. Performs duties in compliance with departmental safety rules. Performs all duties in a manner conducive to the fair and equitable treatment of all employees.
7. Performs other duties as assigned.