
MEMORANDUM

TO: RANDY HILL
FROM: JON LUTZ
SUBJECT: MAD CREEK LEVEE CERTIFICATION
DATE: JULY 18, 2011

Introduction

As part of the national flood insurance program administered through FEMA, certification of the Mad Creek Levee is required.

Background information

1. Flood insurance rate maps for the City of Muscatine are in the process of being updated. The City of Muscatine entered into an agreement with FEMA (PAL agreement) in August 2009 where the levee will be considered to be provisionally accredited until August 2011 to allow for study and certification by a qualified engineering firm. Following that deadline, FEMA initiates a review and remapping process which requires approximately 18 months. If the required study and certification is not performed and submitted prior to the 18 month period, FEMA will remap and administer the flood insurance program as if the levee does not exist.
2. Due to upcoming Mad Creek Phase 2 design and inspection by the USACE, it is appropriate to perform the levee certification upon project completion versus while under construction.
3. The USACE proposed to perform the certification for \$80,000.00. The City of Muscatine solicited for cost proposals from 2 other local prequalification firms. Stanley Consultants declined to submit a cost proposal. Klingner & Associates from Burlington, Iowa submitted a proposal for \$21,500.00. I have reviewed the proposal and recommend using Klingner & Associates. Klingner & Associates have recently produced certification documents for the Muscatine Island Levee Certification.
4. The Certification will be performed concurrent with Mad Creek Phase 2 Levee Construction which is scheduled to begin this fall and be completed by fall 2012 which meets the deadline period. City of Muscatine staff have met with FEMA representatives and affected local industry (HNI Corporation) and confirmed this approach.
5. Proposal fees for certification will be paid from the levee levy.

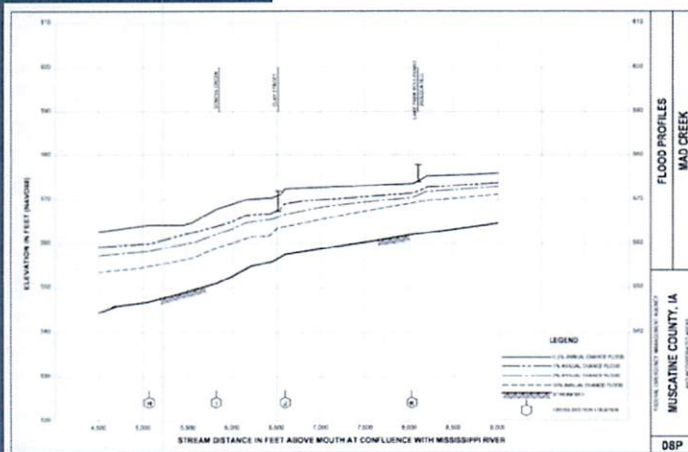
Recommendation:

We recommend the City of Muscatine enter into a contract with Klingner & Associates, P.C. to perform the necessary work for the Mad Creek Levee Certification as outlined in their June, 2011 proposal agreement.

Supporting Information:

1. Klingner & Associates P.C. proposal.

Presented to City of Muscatine Iowa

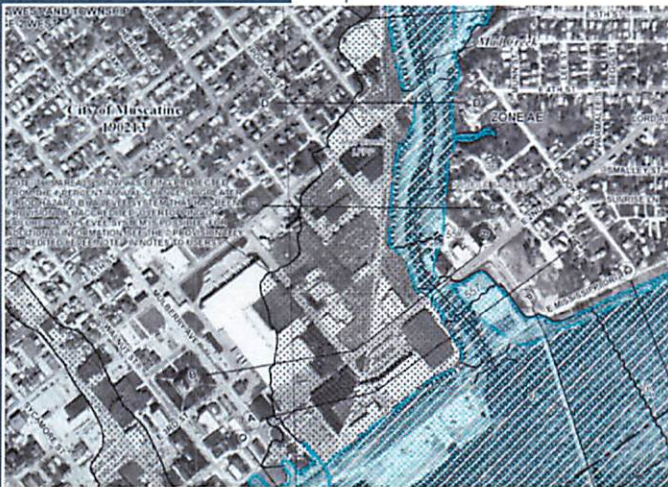


FINAL
DETAILED PROJECT REPORT
WITH ENVIRONMENTAL ASSESSMENT
SECTION 205 FLOOD DAMAGE REDUCTION STUDY
MAD CREEK
MUSCATINE, MUSCATINE COUNTY, IOWA



NOVEMBER 2002

MAD CREEK MUSCATINE, IOWA SECTION 205 LOCAL FLOOD PROTECTION



Proposal for FEMA PAL Services For Mad Creek LFPP

June 2011

Contact:
James W. Powell, P.E.
616 N. 24th Street
Quincy, Illinois
217.223.3670
jwp@klingsner.com

KLINGNER
& ASSOCIATES, P. C.
Engineers • Architects • Surveyors

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Firm Introduction

Klingner & Associates was founded in 1905 by Webster P. Bushnell as a private consulting engineering firm specializing in drainage and flood control. Charles C. McCann joined Bushnell, and in 1920 established a partnership providing expanded engineering and surveying services. William H. Klingner affiliated with the firm in 1936, forming McCann and Klingner Consulting Engineers. Upon McCann's retirement in 1949, the firm became W.H. Klingner & Associates, operating as a sole proprietorship. The firm was incorporated as a professional corporation in 1985 as Klingner and Associates, P.C. In 2004 Klingner and Associates, P.C. merged with Smith Engineering Associates, Inc. and Metzger Johnson of Burlington Iowa and Galesburg Illinois, and on January 1, 2005 acquired Hannibal Testing Laboratories, Inc., of Hannibal, Missouri.

The operating divisions of Klingner & Associates, P.C. now include the following:

- Klingner & Associates, P.C. – Quincy & Galesburg Illinois, Hannibal Missouri, and Burlington Iowa (formerly Smith Engineering Associates, Inc.)
- Metzger Johnson Architects, Inc. – Burlington Iowa and Galesburg Illinois
- Geotechnics, Inc. – Burlington Iowa, Hannibal Missouri, and Quincy and Galesburg Illinois

The firm's scope of services has continuously increased and covers the complete field of private, commercial, industrial and public works engineering and architecture. We have an outstanding record of providing top quality services to our clients. The growth and reputation of the firm are the direct outcome of individual efforts and close cooperation by all of our associates. Our future success depends upon the continuation of these efforts and adherence to the highest professional standards and ideals.

Qualifications / Project Approach

Klingner & Associates, P.C. has a long history of providing Water Resources services. The firm was originally founded with drainage and flood control specialties. We have personnel certified in Engineering and/or Surveying in the states of Illinois, Iowa, Missouri, Indiana, Wisconsin, and Minnesota. We take great pride in the diversity of projects we have undertaken as well as our high specialized and diverse staff.

Currently, we are working on over fifteen (15) FEMA PAL projects, and have submitted five (5) to FEMA, while receiving the first acceptance and approval of a PAL in FEMA Region 5.

Klingner is very familiar with the Muscatine area as we are currently working on the Muscatine Island PAL. Klingner is also aware of the Mad Creek levee project and will seamlessly incorporate the data and calculations performed by USACE into the PAL. We are aware of the scheduling issues, and are working with FEMA on several cases just like this (past the official PAL deadline).

Klingner will make every effort to utilize existing information. Our familiarity with the project allows us to minimize certification efforts for many tasks required in the PAL. We are familiar with the levee system, ongoing project, and the following studies:

1. Detailed project report with Environmental Assessment Section 205 Flood Damage Reduction Study. Rock Island District, U.S. Army Corps of Engineers, November 2002.
2. General Design Memorandum for Muscatine, Iowa (Mad Creek) Local Flood Protection. Rock Island District, U.S. Army Corps of Engineers, 28 May 1956.
3. Detailed Project Report for Flood Control at Muscatine, Iowa under Provisions of Section 205 of the 1948 Flood Control Act, as amended. U.S. Army Corps of Engineers, Rock Island, 9 September 1970.
4. Mad Creek Muscatine Iowa Local Flood Protection, Supplement No. 1 to the Detailed Project Report. U.S. Army Engineer District, Rock Island, Corps of Engineers, 23 February 1981.
5. Mad Creek, City of Muscatine, Muscatine County, Iowa Flood Mitigation Preliminary Investigation, U.S. Department of Agriculture, Natural Resources Conservation Service, August 1996.
6. Title 10 Zoning, Chapter 4 FP Flood Plain District, City of Muscatine, March 3, 1988.
7. City of Muscatine Revised Flood Control Manual, City of Muscatine, July 2001.

Klingner & Associates, P.C. has the largest professional Architectural/Engineering/Geotechnical/Surveying staff in the tri-state area. Our four offices in Quincy and Galesburg, IL, Hannibal, MO, and Burlington, IA employ a total of 95 employees. Being a multi-disciplined firm means we have the capability to provide all of the services necessary to complete projects without the use of subconsultants. We believe this provides our clients with a clearly identified contact and responsibility for getting the work completed.

Qualifications / Project Approach Continued

The proposed project approach for the Mad Creek LFPP Provisionally Accredited Levee (PAL) will be in accordance with FEMA 44 CFR 65.10. A tabbed submittal will provide required certifications and documentation to satisfy FEMA Region 7 requirements for accredited flood protection systems. The tabbed format includes seven (7) sections to be completed by the Engineer (Klingner & Associates). Upon FEMA approval of the certification materials, FEMA will remove the PAL designation from effective Flood Insurance Rate Maps. Summarized below are the sections to be completed as part of this project:

- ✓ Cover Page: this is the cover page that provides general information (date, levee owner, etc.)
- ✓ Certification of Design and O&M: the overall certification, verifying adequate design (As-Built) and operation and maintenance systems (see attached Plan checklist Table 44 CFR 65.10(b) (1) (ii) Tab) are in place.
- ✓ Section 1 – Freeboard: verification that the levee system provides at least three feet freeboard above the base flood. This will be accomplished utilizing existing data (provided by the USACE upon completion of the levee project). The top elevation will be compared with USACE 2003 Flow Frequency base flood elevations for the Mississippi River and the Mad Creek profiles developed in the USACE project report. The USACE Flow Frequency study data and the 2002 Flood Damage Reduction Study represent the best / most current available data and is acceptable to FEMA.
- ✓ Section 1iii – Coastal Levees: this section will be noted “Non Applicable” by the Engineer.
- ✓ Section 1iv – Minimum Coastal Freeboard: this section will be noted “Non Applicable” by the Engineer.
- ✓ Section 2 – Closures: this section requires the Engineer to analyze all closure structures for all openings through the levee system.
- ✓ Section 3 – Embankment Protection: the Engineer will demonstrate no appreciable erosion of the levee embankment will occur during the base flood (as noted in the Embankment protection tab).
- ✓ Section 4 – Embankment and Foundation Stability: the Engineer will provide analysis of seepage through and under the levee.

Qualifications / Project Approach Continued

- ✓ Section 5 – Settlement: Engineer will assess the potential for future losses of freeboard as a result of levee settlement.
- ✓ Section 6 – Interior Drainage: Engineer will review existing interior drainage analysis and perform updated hydraulic and hydrologic calculations to adequately map inundation from interior flood waters for the base flood.
- ✓ Section 7 – Other Design Criteria: It is not anticipated additional special analyses to be required and Engineer will note “Non Applicable” for this section.

In addition to the above “tabbed approach”, an initial data collection / analysis will be performed. This effort will include the collection of all applicable data that will be utilized in this study. A partial list is provided below:

- Last 10 years of USACE annual flood protection inspection reports
- As-Built Plans of flood protection works
- O&M Manuals for levee, pump stations, interior drainage, etc.
- Original USACE reclamation or rehabilitation plans and studies
- USACE technical notes or other information (soil borings, geotechnical studies, etc)
- USACE old letters of certification
- District Information (elevation data, stormwater structure information, geotechnical data, local knowledge of system performance during recent flood events – 2008 flood)
- Pump Station plans, specs, recent flow tests
- Emergency Action Procedures

Another major work effort is Section 6, Interior Drainage. For the Engineer to certify, all interior drainage must be verified and updated. This effort will require the use of hydrologic and hydraulic models to accurately predict the amount and elevation of interior drainage water. The analysis will include collection of data including pumping capacity, culvert dimensions, ponding areas, ditch / canal dimensions, and gravity drainage structure information. Additionally, detailed topographic data will be required to accurately map the base flood inundation. Again, Klingner & Associates, P.C. has been a pioneer in using detailed topographic information developed as part of the Scientific Assessment Strategy Team (SAST), resulting in a more detailed & accurate map of the base flood inundation. Additionally, if data is available from the District, it will also be utilized in the mapping. The proposed project approach will not submit a Letter of Map Revision (LOMR) to FEMA. However, the resulting inundation map could eventually be used in a future LOMR submittal to FEMA.

Project Cost Estimate

Mad Creek LFPP		
A.	Data Collection & Analysis	\$1,500
B.	Certification of Design and O&M Plan Review	\$1,000
C.	Freeboard Review	\$2,500
D.	Closures & Embankment Protection	\$1,500
E.	Settlement	\$1,000
F.	Interior Drainage	\$12,500
G.	QA/QC / Site Visits	\$1,500
Total		*\$21,500

* This budget assumes no additional testing or surveying will be required for accreditation. Additional field services will be negotiated at our standard fee schedules.

Example Projects

Klingner & Associates is currently working on or has submitted PAL documentation on the following projects:

1. Sny Island Levee & Drainage District
2. South Quincy Drainage & Levee District
3. Fabius River Drainage District
4. McGee Creek Levee & Drainage District
5. Coal Creek Drainage & Levee District
6. South Beardstown Drainage & Levee District
7. Valley Drainage & Levee District
8. Beardstown Sanitary District
9. Lost Creek Drainage & Levee District
10. Spring Lake Levee & Drainage District
11. Des Moines—Mississippi Levee District No. 1
12. Iowa Flint Creek Drainage District No. 8
13. Iowa Flint Creek Drainage District No. 7
14. Iowa Flint Creek Drainage District No. 3
15. Burlington Iowa LFPP
16. Muscatine Island Levee District
17. Milan Illinois LFPP

4. Project Team Resumes



Bryan C. Bross, P.E., R.G. **Project Manager / Hydraulic Engineer**

Senior Geological Engineer for Klingner & Associates, P.C.
Branch Office Manager, Burlington Iowa Office
Director

Performed analysis and prepared application for maximum setback zone ordinance for the City of Pleasant Hill Public Water Supply, Pleasant Hill, Illinois. Performed extensive computer simulated hydraulic analysis using Cybernet on regional water supply systems of Clayton-Camp Point Water Commission, Hickory-Kerton Water Co-op, and Dallas City Rural Water District. Performed detailed computer simulated hydraulic analysis using HEC-2 on Mississippi River between L&Ds #21 & #22 in order to obtain permit from Illinois Department of Transportation to raise levees in the Sny Island Levee & Drainage District.

Performed the feasibility study, permit acquisition, design, contractor negotiation, project coordination, and construction observation of the Skunk River Erosion Protection Project at the Green Bay Levee & Drainage District No. 2 near Wever, Iowa. The project consisted of 2600 lineal feet of riprap to protect the flank levee along the Skunk River from encroachment by river bank erosion.

Assisted with an analysis of seepage potential for a storm water detention basin near a cemetery at East Lake Center site development in Quincy, IL. Geologic and/or geotechnical characterization included field identification of soil/rock types and quality for determination of final construction parameters on-site. Field identification was performed from hallow stem augers, split-spoons, rock cores, continuous split-spoon augers, reverse rotary, air rotary, and conventional mud rotary drilling equipment. Geotechnical calculations and/or hydrogeologic analysis was performed as appropriate.

Education

B.S. in Geological Engineering, (1993)
Magna Cum Laude, University of Missouri-
Rolla

Professional Registration

Licensed Professional Engineer:

Illinois, 062-052892, (1999)
Missouri, EN 030244, (1999)
Iowa, 17084, (2004)

Registered Geologist:

Missouri Certificate Number 0981, (1997)
Illinois 196-000535, (1998)

Iowa Certified Groundwater professional
#2016 (2004)



Michael D. Klingner, P.E. **Principal in Charge**

Project Manager and President of Klingner & Associates, P.C.

Mr. Klingner has over thirty years' experience in the engineering and construction fields, and has been Project Manager for numerous multi-million dollar projects with various funding entities, such as the current Quincy Area Hydropower Project.

Principal-in-Charge for Drainage Districts, Corps of Engineers, and floodplain management projects. Projects include South Quincy Drainage & Levee District interior drainage and Mississippi River Seepage Pumping Improvements, East Liverpool Pump Station, Illinois river mile 128.5 thru 132. Sny Island Drainage and Levee District FEMA Application to revise 100 year Interior Flood Elevation, in accordance with 65.10, Title 44, Emergency Management Assistance. Certification included free board analysis of 54 miles of levee, closure structures, embankment protection, foundation stability analysis, seepage analysis, and interior drainage. Project Manager for Cedar Creek Linear Parkway. Non-structural flood management project for conservation easements along three miles of waterway, tributary to Mississippi River. Multi-participant project including Great River Economic Foundation, City of Quincy, Quincy Park District, and Illinois Department of Natural Resources. Principal-in-Charge for Henderson County 100 year levee certification for Henderson County Drainage District 1 & 2, FEMA Application, and Corps of Engineers levee elevation & 100 year Interior Drainage Elevation Study, including Mississippi River Seepage. Project Manager for Two Rivers Regional Council Inland Water Terminal and Foreign Trade Zone Study for Adams, Brown, Cass, Pike, Schuyler and Scott Counties along the Illinois and Mississippi Rivers. Principal-in-charge 100 year levee certification project for Marion & Lewis County (Fabius River Drainage District), Missouri, including flood control levee improvements and interior drainage analysis.

Project Manager for State of Illinois Capital Development Board Emergency Fast Track Construction for FEMA and Illinois Emergency Management Agency provisional living quarters due to Flood of 1993 in Kinderhook, New Canton, and Hardin, Illinois. Winner of 1994 CDB Madigan Award Special Merit for Teamwork under Emergency Conditions.

Education

Master of Science in Environmental Engineering
(Construction Management Option) 1984,
University of Wisconsin-Madison

Bachelor of Science in Civil Engineering (Soils/
Structural Option) 1977, University of Missouri-
Columbia

Registrations

Engineer

Missouri #EN 20602 (1982)
Illinois #062-040550 (1982)
Indiana #PE10100335 (2001)
Michigan #6102049406 (2002)

Professional Affiliations

- Past President and current National Director of ACEC-Illinois
- Member, Science Advisory Committee to the Illinois River Coordinating Council, Illinois River
- Member & Past President (1989-90), Western Chapter IL Society of Professional Engineers
- Member (currently Vice Chairman), Upper Mississippi Illinois & Missouri Rivers Association (UMIMRA) since 1984
- Member & Past Chairman – Illinois Representative for American Consulting Engineers Council Liaison Committee with the Mississippi Valley Division, Corps of Engineers
- Member, Society of American Military Engineers
- Member & Past Chairman – Great River Economic Development Foundation



James W. Powel, P.E. **Hydraulic Engineer**

EXPERIENCE

Water Resources engineer with Klingner and Associates, P.C. from 2001 – June 2002, and since 2007. Water Resources Department Head since 2009.

Prior Engineering experience includes stormwater feasibility studies, levee encroachment analysis, bridge hydraulic reports, flood control studies, water supply analysis, hydraulic analysis of municipal and rural water systems, rural water system facilities planning, and wastewater facilities planning. Also work with the Sny Island Drainage District, in which interior drainage was analyzed as part of FEMA's flood insurance rate map revisions. Hydrologic and hydraulic models were used, along with frequency analysis to determine the 100-year floodplain for the 120,000 acre drainage district. Interior drainage studies were also performed for the Fabius River Drainage District, involving the use of hydrologic and flood routing models. Floodplain mapping and flow profiles were also developed for Cedar Creek Linear Park, Quincy, IL, using current hydraulic and hydrologic flow and mapping software.

Project experience also includes study and design of flood protection levees / floodwalls in Marseilles, IL, design and quality control of uniform levee improvements, Fabius River Drainage District, MO, levee improvement feasibility, Des Moines County Drainage District #8, IA, Mid-America Intermodal Port Authority design of barge dock and levee crossing, Quincy, IL, and hydraulic and hydrologic studies of hydropower feasibility, Quincy, IL.

Education

Bachelor of Science in Agricultural Engineering, University of Illinois at Urbana-Champaign, 1998

Master of Science in Civil Engineering, University of Illinois at Urbana-Champaign, 2001

Registrations

Licensed Professional Engineer:
Illinois #062-057593 (June 2004)
Missouri #2005014632 (December 2005)

Certified Floodplain Manager—IL 07-00342 (2007)



Mark C. Bross, P.E.
Hydraulic Engineer

Civil Engineer for Klingner & Associates, P.C. Staff Engineer directly involved with hydraulic studies and design of water distribution systems, and modeling of stream and river hydraulics. Experience includes design, project management, and coordination with regulatory and funding agencies.

Experience in Drainage engineering-Sny Island levee and Drainage District - Hydraulic modeling of the Mississippi River from just north of Hannibal, Missouri to just south of Clarksville, Missouri, including Locks and Dams No 22 and 24 for permitting of diversion levee improvement in the District, 1997. Henderson County Levee and Drainage District No. 2 - Interior drainage analysis for certifying the Mississippi River mainstem levee for 100-year flood protection and modifying FEMA Flood Insurance Rate Maps in the district, 1998. Fabius River Levee and Drainage District - Interior drainage analysis for certifying the Mississippi River Mainstem levee for 100-year flood protection and modifying FEMA Flood Insurance Rate Maps in the district, 1999. Illinois Department of Transportation - Hydraulic modeling for 10 bridge replacements for District 4 (IDOT). Missouri Department of Transportation - hydraulic modeling for several bridge replacements for District 2.

Education

Bachelor of Science in Civil Engineering -
1996, University of Missouri at Rolla, Rolla
Missouri

Registrations

Professional Engineer:
Illinois #062-054706 (2001)
Missouri #2001004562 (2001)

Professional Societies:

American Concrete Institute
American Society of Civil Engineers
Missouri Rural Water Association



**Robert J. Harman, P.L.S.
Professional Land Surveyor**

EXPERIENCE

Member of the Survey Department for Klingner and Associates, P.C. Experienced in boundary surveys, topographic surveys, construction staking, and construction inspection and testing.

Survey experience includes construction layout and control staking for the Correctional Facility at Mt. Sterling, Illinois; Dot Foods survey involving horizontal and vertical controls, topographic and property surveys; construction staking and layout for sewer lines at Mt. Sterling, Illinois; construction staking and layout for water lines for the Capital Development Board project at Siloam Springs State Park; topographic surveys for sewage systems in Milton and Loraine, West Point, Illinois; Corps of Engineers surveys for the South Quincy Levee and Drainage District; Corps of Engineers interceptor sewer surveys at Hannibal, Missouri; Corps of Engineers LaMoine River Levee surveys - Reach 1 and 2; Corps of Engineers surveys at Chautauqua Lake on the Illinois River; and Corps of Engineers survey involving cross sections of levees and streambeds, and horizontal control traverse. Involved with survey work for drainage ditches and levees for Henderson County Drainage District, McGee Creek Drainage District, Marion County Drainage District, and Gregory Drainage and Levee District. Also, involved with ground control surveying for aerial photography for Surdex.

Involved in boundary surveys for the Schuyler County Soil and Water Conservation District for permanent easements in the conservation reserve enhancement program designed to restrict cropping and development in environmentally sensitive areas of the Illinois River watershed.

Education

Western Illinois University, Macomb, Illinois, August 1977 thru May 1979, Majoring in Parks and Recreation.

Registrations

Professional Land Surveyor - Illinois
#035-003101 (1994)

Professional Training

Continuing Education Program:
Completed AutoCAD training course with Engineering Data Systems, Dubuque, Iowa, 1991.



Alan D. Lukens, P.E., S.E. **Structural Engineering**

Director of Structural Engineering Services since 2000, Structural Engineer, and Project Engineer for Klingner & Associates, P.C. since 1988. Mr. Lukens has 24 years of comprehensive experience in structural design.

Structural engineer involved with drainage projects including: Pumping Station for Des Moines County Drainage District, Iowa; Pumping Station for Henderson Co. Drainage District, Illinois; Pumping Station for Louisa-Des Moines #4 Drainage District; Pumping Station for South Quincy drainage District sheet piling spillway for Triangle Lake, Quincy; Slope stability analysis and inspection of levees for Corps of Engineers under PL 84/99; dams and spillway for erosion control at Siloam Springs State Park.

Project Engineer for inspection of Mayer Pond Dam, Adams County, Illinois.

Project Manager for levee inspection, evaluation and reports on approximately 40 levees along the Mackinaw, LaMoine and Illinois Rivers, IL; Mississippi River; Des Moines River, IA; North and South Fabius Rivers, MO; and Salt Creek in IL.

He has also provided structural design for numerous architectural and engineering projects which include Farm & Home Retail/Warehouse Facility, West Central Illinois Area on Aging New Senior Citizen Facility, St. Peter School Kindergarten/Jr. High Addition, Hannibal Clinic MRI Facility, City of Quincy City Hall Plaza, City of Quincy Washington Theatre, Mt. Sterling YMCA, Hy Vee Harrison Grocery Facility, Kohl Wholesale Warehouse, Mississippi Belle Distributing Koch's Lane Bldg., Park Downtown Quincy Parking Structure, Quincy Notre Dame High School Addition, United Community Credit Union Renovation, Knox College Fitness Center, Galesburg CUSD #205, Monmouth College, Southeastern CUSD #337, Pikeland CUSD #10, and St. John Anglican Church Educational Building.

Education

Master of Science in Agricultural and Structural Engineering (co-major) 1987, Iowa State University, Ames, Iowa.

Bachelor of Science in Agricultural Engineering 1985, Iowa State University, Ames, Iowa.

Registrations

Professional Engineer
Iowa #PE-13201 (1995)
Illinois #062-047328 (1992)
Missouri #E-2001020814 (2001)
Michigan #6201049062 (2002)

Structural Engineer
Illinois #081-005167 (1994)

Professional Societies

Illinois Society of Professional Engineers

National Society of Professional Engineers

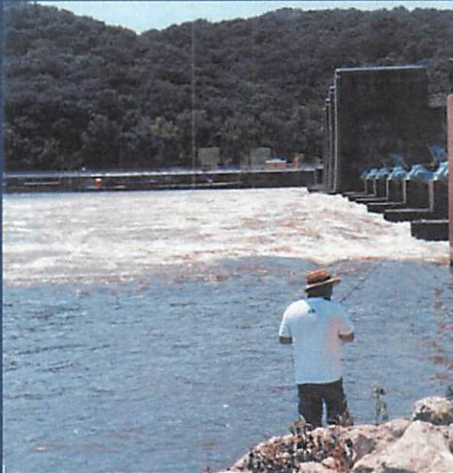
References

- Sny Island Levee & Drainage District
Mr. Mike Reed, Superintendent
P. O. Box 169
490 N Main
New Canton, IL 62356
217.426.2521
- Fabius River Drainage District
Mr. Roger Sutter, president
8203 County Road 346
Taylor, MO 63471
217.430.2003 (cell)
- Big Island River Conservancy District
Ms. Christina Kost
58th Avenue
Milan, IL 61264
309.787.2448

Availability to Address District

Klingner & Associates will be available to attend any designated meeting in Muscatine to discuss the project.

Summary



Klingner & Klingner & Associates, P.C. should be considered for the selection for Water Resources Services because our firm provides their clients with:

- The water resource regional leadership of our firm, resulting in numerous cost-effective flood control, environmental and multi-participant mitigation projects.
- Over 100 years of firm experience in hydrologic and hydrology analysis for drainage and flood control issues.
- Our firm's close working relationship with the U.S. Army Corps of Engineers, State DNR and FEMA.

Klingner & Associates, P.C. is a founding member of the Upper Mississippi Flood Control Association (now UMIMRA), representing river interests to over 200 entities in Illinois, Missouri, and Iowa.

Our firm has a proven reputation for developing and maintaining systems for over 30 drainage districts in Illinois, Missouri and Iowa, as well as for municipal and industrial clients with flood protection needs.

The firm, with sub consultant Mead & Hunt, prepared a preliminary permit and pre-feasibility study and report for Mississippi River Hydropower Facilities at three Lock and Dam locations on the Mississippi River.

Environmental projects have included wetland development, wetland restoration, and stream bank erosion stabilization.

