



INDEPENDENT EXTERNAL PEER REVIEW PANEL for the WESTCHESTER COUNTY STREAMS BYRAM RIVER BASIN CONNECTICUT AND NEW YORK FLOOD RISK MANAGEMENT FEASIBILITY STUDY

The U.S. Army Corps of Engineers submits the following information per requirements in the Water Resources Reform and Development Act of 2014, Section 1044(c)(4)(B).

Entity Conducting the Review	
Outside Eligible Organization:	Battelle 505 King Avenue Columbia, OH 43201
Dates of Review	
Review Initiation:	16 Jul 2018
Type I IEPF Final Report Submittal:	2 Oct 2018
Reviewer Names and Qualifications	
LEWIS HORNUNG	Civil Works Planner/Economist
<p>Mr. Hornung is a planning expert with DR Reed & Associates in Jupiter, Florida, specializing in the planning, economics, design phase, and operation of integrated water resources and public works projects. He earned his B.S. in civil engineering from the University of Houston. His 40-year career includes 19 years with USACE, seven with the South Florida Water Management District (SFWMD), and 14 with architectural/engineering firms. Mr. Hornung has worked on dozens of USACE Civil Works projects since 1977 and is very familiar with applying the Principles and Guidelines (P&G). He has taken part in previous IEPF panels for Battelle as an economist/Civil Works planning expert. Mr. Hornung has direct experience in USACE plan formulation processes, procedures, and standards. He spent more than 12 years in the Planning Divisions of the Galveston and Jacksonville Districts. He then moved to Project Management where he continued to lead planning projects, including the Kissimmee River Restoration Feasibility Study and the Comprehensive Everglades Restoration Plan Feasibility Study. In both cases, he managed the projects during the planning phase through Congressional authorization. He applied the USACE six-step planning process, governed by Engineer Regulation (ER) 1105-2-100 (Planning Guidance Notebook), for dredged material management plans, reconnaissance studies, feasibility studies, limited re-evaluation reports, general reevaluation reports, major rehabilitation reports, and continuing authority studies. He has experience evaluating whether adequate information was available and appropriate technical analyses were completed to support selection of a tentatively selected plan (TSP) within the context of the risk-informed decision-making process for these studies. Mr. Hornung's experience includes structural and non-structural flood risk management projects; water quality; inland, deep-, and shallow-draft navigation; and water supply studies. Relevant studies include the C-111 GRR, Jacksonville District; the C-51 West GRR; the Lake Okeechobee Watershed Feasibility Study; the Herbert Hoover Dike Major Rehabilitation Report; the</p>	

Alexandria to the Gulf of Mexico Flood Control Feasibility Study, New Orleans District; and the North West El Paso Flood Risk Management Feasibility Study, Albuquerque District. Mr. Hornung also has more than 30 years of experience conducting traditional National Economic Development (NED) benefits analyses associated with flood risk management and inland navigation projects. This experience includes applying the Hydrologic Engineering Centers Flood Damage Analysis (HEC-FDA) model for the Alexandria to the Gulf Flood Risk Management Feasibility Study, the C-111 GRR (flood risk management), the Houma Navigation Canal Feasibility Report, and the Redwood City Navigation Improvement Feasibility Study. Mr. Hornung has applied the HEC-FDA model using HEC River Analysis System (HEC-RAS) model results on many projects, including Alexandria to the Gulf (2012), Pajaro River (2016), and West El Paso (2017). In addition, Mr. Hornung served on the IEPR Panel to evaluate the NED analysis that was performed using the HEC-RAS and HEC-FDA models for the West Sacramento Flood Risk Management GRR by the Sacramento District, the Middle Mississippi River Study by the Albuquerque District. His extensive experience conducting NED evaluations reflects his capability in evaluating traditional NED plan benefits associated with hurricane and coastal storm risk management projects. Mr. Hornung has more than ten years of experience working with HEC-FDA modeling software for many USACE studies. His involvement in the Alexandria to the Gulf of Mexico Feasibility Study for the New Orleans District illustrates his experience with HEC-FDA. As a consultant to the New Orleans District, he used HEC-RAS to simulate the complex system of primary and secondary flood control canals in the town of Alexandria and downstream areas, and then applied an innovative application for automating data input to HEC-FDA, which was used to calculate flood damages for the without-and-with-project alternatives. The application was so successful that he later managed a contract with HEC to modify the application for broader use.

PAUL BOVITZ

Environmental Law Compliance

Mr. Bovitz is an environmental scientist and project manager based in Hillsborough, New Jersey. He has more than 30 years of technical experience in ecological assessment and natural resources management in public, private, and academic sectors, engaging in both theoretical and applied aspects of ecological research and encompassing a variety of geographic regions and aquatic environments. He has a bachelor's degree in wildlife biology and earned an M.S. in ecology from Rutgers University in 1992. Mr. Bovitz has over 20 years of experience evaluating and conducting NEPA impact assessments, first working for USACE New York District as project manager on the Meadowlands Mills Environmental Impact Statement on behalf of the Regulatory Branch from 1998 through 2002. As principal investigator he has managed a variety of projects and programs with varied environmental impacts including environmental assessments under NEPA, including several Department of Defense sites, and U.S. Environmental Protection Agency (EPA) National Priority List sites nationwide; water quality and storm water studies; wetlands delineation, assessment, mitigation and permitting; and essential fish habitat investigation. Working largely in the New York/New Jersey area, Mr. Bovitz gained extensive expertise on endangered species issues ranging from Atlantic sturgeon to bog turtle and swamp pink issues. As part of his Environmental Impact Statement (EIS) and Environmental Assessment (EA) experience, he has dealt extensively with cultural resources and historic structures issues. As a wildlife biologist he has also dealt with Habitat Evaluation Procedures (HEP) and other habitat evaluation models both in terrestrial and aquatic situations. Mr. Bovitz is very familiar with both state and Federal regulations in the New York area pertinent to water resources projects. He has worked extensively with the New York State Department of Environmental Conservation, the New Jersey Department of Environmental Protection, regional stakeholders such as the Port Authority of New York and New Jersey and regional transportation agencies, and municipal governments. Mr. Bovitz has also acted as project manager on community relations plans for the New York District for Jamaica Bay ecological restoration and the Former Raritan Arsenal investigation and clean-up. Mr. Bovitz has demonstrated expertise in reclamation and habitat restoration in contaminated aquatic areas in a variety of projects

throughout the United States. He has led restoration efforts for contaminated wetlands at several sites in New Jersey and made recommendations regarding sites in several Midwestern states (Indiana, Michigan, and Wisconsin) and in New York and Massachusetts. For example, on the Hatco Facility (Fords, New Jersey), Ecological Risk Assessment and Restoration project, he directed the design and implementation of a 4.5-acre wetland restoration project adjacent to an active chemical manufacturing facility associated with the removal of over 20,000 cubic yards of polychlorinated biphenyl (PCB)-contaminated sediments. The project involved removal of historical fill, stabilization of stream channels, replanting of over 1,200 trees and 2,000 shrubs, and removal of invasive species. He has also been involved in ecological assessments and site characterization studies in Wisconsin, Michigan, Utah, and Colorado with EPA Environmental Response Teams. Mr. Bovitz has a strong knowledge of law and policy associated with hazardous, toxic, and radioactive waste (HTRW) issues including the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). He is a Licensed Site Remediation Professional (LSRP) in New Jersey and has extensive experience as a USACE and EPA contractor in investigation and remediation of CERCLA sites. He is also a certified Professional Wetland Scientist (PWS), a Certified Energy Manager (CEM), and is a LEED® Accredited Professional (LEED AP). He is a member of the New Jersey Governor's Science Advisory Board, Ecological Sciences Committee, and served on the New Jersey Department of Environmental Protection, Comparative Ecological Risk Analysis Panel. Relevant Midwest experience includes his participation in the Ecological Assessment of Kalamazoo River, Enbridge Oil Spill, Marshall, Michigan, U.S. Environmental Protection Agency Region 5, (EPA Representative); and his participation as an IEPR panel member focused on identifying ecological and HTRW issues for the Wood River Flood Control Project, USACE, St. Louis District. He has served on other IEPRs that included various degrees of ecological restoration components as well. Mr. Bovitz is an active member of several groups including the Society of American Military Engineers, a New Jersey chapter of the Society of Environmental Toxicology and Chemistry, and attends Association of Environmental and Engineering Geologist meetings. In 2014, he chaired a session on urban ecological restoration for the Conference on Ecological and Ecosystem Restoration meeting in New Orleans.

BILL REMINGTON

Civil Engineering

Mr. Remington is a senior engineering consultant with Kleinschmidt Associates and specializes in civil, structural, hydraulic, transportation, and environmental engineering, as well as construction contract administration and project management. He earned an A.A.S. degree from the State University of New York-Delhi, a B.S. and M.S. in civil engineering from Clarkson University in Potsdam, New York, and an M.B.A. from Thomas College in Waterville, Maine. Mr. Remington is a registered professional engineer in Georgia, South Carolina, Virginia, Maryland, Delaware, Maine, and Pennsylvania, with recently retired licenses in New York, Vermont, and New Hampshire. He is Kleinschmidt's Senior Project Manager and Quality Control Reviewer for civil, site, water resource, structural, and hydroelectric/dam safety related projects. Mr. Remington has substantial experience with site improvements, stormwater, water/wastewater treatment systems, municipal utilities and roads, industrial facilities, airports, railroads, transportation, hydroelectric, dams, planning, site remediation, site development, flood protection, and water resources projects. He has experience in construction management as well as design/build project management. He is also the Corporate Safety Officer for Kleinschmidt Associates, setting up and maintaining the safety program and procedures. Mr. Remington has over 25 years of experience in municipal services, including being Superintendent of Public Works for Warren County in upstate New York. He was responsible for all Department of Public Works operations, which included divisions of highways & bridges (Highway Manager), buildings and grounds, equipment maintenance, parks and recreation (Director), railroad, airport (Airport Manager), engineering, water/wastewater, county capital projects, New York State and federal capital projects, solid waste and recycling, and civil defense and natural disaster (Director of Civil Defense and Natural Disaster). Administration

included planning, personnel, union issues, safety, facilities, equipment, construction projects, environmental, budgets, grants, permitting, and legal matters. He served as Chairman of the Adirondack/Glens Falls Transportation Council Technical Advisory Committee (MPO), Executive Board Member of the New York State County Highway Superintendents Association, and member of the New York State and Warren County Traffic Safety Boards, the County Planning Board, and numerous other associated affiliations. In other municipal and government experience, he has been the on-call consulting engineer for numerous towns and counties in Maryland, Delaware, and Virginia. This on-call service included design, project management, planning reviews, maintenance/operations recommendations, studies, and environmental permitting. He has also been the Project Manager and Engineer-in-Charge of NASA projects in Wallops Island, Virginia. Mr. Remington has industrial experience in the paper industry; in capital project management, emergency repairs, and environmental compliance. He was worked on several construction management teams to plan, construct, start up, and implement operational and maintenance training. He is a member of the American Society of Civil Engineers (past president of Maryland Eastern Shore Chapter), and has substantial training in OSHA Safety, project management, quality control, contract documents, construction supervisory, and in the Cornell Local Roads Program.

REX POWELL

Structural Engineering

Mr. Powell is a Senior Discipline Specialist (Waterway Structures) and Project Manager for Bergmann Associates, Buffalo, New York. A registered professional engineer in New York State, he has 37 years of experience in civil/structural engineering, with an emphasis on design and analysis of structures as well as mechanical, geotechnical, and hydraulics design. He earned his A.S. in Engineering Science from State University of New York-Delhi in 1979 and his B.S. from Rensselaer Polytechnic Institute in 1981. He has been responsible for the design of all structural aspects of hydropower plants and dams, and structural designs for industrial plants and transportation projects. He is experienced in the design of concrete gravity dams and structures, including prestressed and post-tensioned elements, structural steel, timber, and masonry design. He has been the Independent Consultant on several Federal Energy Regulatory Commission (FERC) Part 12 dam safety inspections. Some of Mr. Powell's most recent work has included repair and rehabilitation of existing locks and dams and other concrete and steel hydraulic structures. Mr. Powell has worked on a number of large public works projects requiring design, analysis, and construction expertise for various local, state, and Federal agencies, including the New York State Canal Corporation (post-Irene improvements, Erie Canal), St. Lawrence Seaway Management Corporation (Welland Canal installation and reconstruction projects, St. Catharines, Ontario, Canada), St. Lawrence Seaway Development Corporation (U.S. Department of Transportation, Massena, New York) and USACE. He has designed, analyzed, and constructed hydraulic steel structures, including spillway, power, and closure gates, using USACE guidelines. He is familiar with the requirements of USACE Engineer Manual (EM) 1110-2-1913 and has reviewed stability of levees. For more than 30 years, Mr. Powell has been involved in dam designs for flood risk management. As Technical Design Manager for the Devils Lake (North Dakota) City Embankments project, he was responsible for reinforced concrete and steel design of a four-unit and an eight-unit pump station and ancillary equipment; an inverted T-wall inlet headwall; outlet works; abandonment/closure of existing outlet works; and cantilever sheet pile walls for embankment toe excavation. He is familiar with the concept of relocation for flood protection. He also has designed a number of T- and L-walls and is familiar with I-wall design and construction. In addition, Mr. Powell has designed or rehabilitated a variety of closure structures such as rolling gates, stoplogs, miter gates, flap gates, and slide gates. Mr. Powell is familiar with USACE policies and design standards. He has participated in several safety assurance reviews (SARs) for USACE projects, including the Herbert Hoover Dike improvements (Lake Okeechobee, Florida) SAR and the Canton Dam (Canton, Oklahoma) SAR. He also has performed engineering peer reviews of large dam projects for USACE, evaluating structural aspects to correct dam safety issues and to satisfy dam safety requirements. Mr. Powell's professional affiliations

include the Society of American Military Engineers, the Association of State Dam Safety Officials, and the American Institute of Steel Construction.

BRIAN BLEDSOE

Hydrology and Hydraulic Engineering

Brian Bledsoe is Georgia Athletic Association Distinguished Professor in the College of Engineering at the University of Georgia. Dr. Bledsoe has 30 years of experience as a civil and environmental engineer, hydrologist, and environmental scientist in the private and public sectors. He holds degrees from Georgia Tech, North Carolina State University, and Colorado State University. Before entering the professorate, he worked as a consulting engineer and surveyor, and for the State of North Carolina as a watershed restoration specialist and nonpoint source program coordinator. Dr. Bledsoe's research is focused on the interface of engineering, hydrology, and ecology with an emphasis on river hydraulics, flood hazards, stormwater, infrastructure, water quality, and restoration of river and wetland ecosystems. He is experienced in all aspects of hydrologic and hydraulic engineering and has published numerous peer-reviewed papers on sediment transport analysis, channel stability analysis, and statistical hydrology. Dr. Bledsoe is well versed in the application of many USACE models: HEC-RAS (1-D, 2-D, and hydraulic design modules), HEC-GeoRAS, HEC-HMS, HEC-GeoHMS, HEC-FDA, and SAM. He is familiar with floodplain mapping and flood management projects, and risk and uncertainty analysis. He has developed practical guidance for design hydrology at stream crossings and analytical channel design for stability under land use change for the National Cooperative Highway Research, as well as tools for predicting and mitigating channel instability resulting from hydromodification for several municipalities and the State of California Water Board. Dr. Bledsoe has served as an expert peer reviewer for several flood mitigation and ecosystem restoration projects: Southwest Coastal Louisiana Feasibility Study; Orestimba Creek-West Stanislaus County, California, Feasibility Study; Louisiana Coastal Area Barataria Basin Barrier Shoreline Restoration Project; Biscayne Bay Coastal Wetlands Project; and Louisiana Coastal Area Amite River Diversion Canal Modification Project Feasibility Study & SEIS. He currently leads the urban flooding research group for the National Science Foundation's Urban Water Innovation Network. He received a National Science Foundation CAREER Award in 2006, served as a Fulbright Scholar in Chile with a focus on hydraulic and river engineering research in 2008, is past president of the American Ecological Engineering Society, and was elected a Fellow of the American Society of Civil Engineers in 2017. Dr. Bledsoe is a registered Professional Civil Engineer in Colorado and North Carolina and has authored more than 60 publications related to river mechanics, hydraulics and hydrology, channel stability, stream and watershed restoration, and water quality.