



Final Programmatic Environmental Assessment

Pre-Disaster Mitigation Floodwall Projects

Cities of Marseilles, Ottawa, and Peru, LaSalle County, Illinois

Village of DePue, Bureau County, Illinois

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Photo attributes:

Top left: City of Ottawa

Top right: City of Peru

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List of Acronyms and Abbreviations

°C	Degrees Celsius
ACHP	Advisory Council on Historic Preservation
AD	Anno Domini
AIRFA	American Indian Religious Freedom Act
APE	Area of Potential Effect
ARPA	Archaeological Resources Protection Act of 1979
BFE	Base Flood Elevation
BLM	Bureau of Land Management
BMP	Best Management Practice
BP	Before Present
CAA	Clean Air Act
CEQ	Council on Environmental Quality
C.F.R.	Code of Federal Regulations
CLOMR	Conditional Letter of Map Revision
CRS	Community Rating System
CWA	Clean Water Act
CWS	Community Water Supplies
dB	decibels
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map

FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
HARGIS	Historic and Architectural Resources Geographic Information System
IDES	Illinois Department of Employment Security
IDNR	Illinois Department of Natural Resources
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
IHPA	Illinois Historic Preservation Agency
IIAS	Inventory of Illinois Archaeological Sites
ILCS	Illinois Compiled Statute
IPaC	Information for Planning and Consultation
IPCB	Illinois Pollution Control Board
ISGS	Illinois State Geographical Survey
LOMR	Letter of Map Revision
MFR	Memorandum for Record
MHI	Median Household Income
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAS	National Audubon Society
NCA	Noise Control Act
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHL	National Historic Landmark
NHPA	National Historic Preservation Act

NIH	National Institutes of Health
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OSHA	Occupational Safety and Health Act
OTHS	Ottawa Township High School
OWR	Office of Water Resources
PCC	Portland Cement Concrete
PDM	Pre-Disaster Mitigation
PEA	Programmatic Environmental Assessment
Pub. L.	Public Law
RCRA	Resource Conservation and Recovery Act
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Officer
SOI	Secretary of the Interior
THPO	Tribal Historic Preservation Officer
UIE	University of Illinois Extension
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

WOUS	Waters of the United States
WWTP	Wastewater Treatment Plant

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1 BACKGROUND

1.1 PROJECT AUTHORITY

The Pre-Disaster Mitigation (PDM) Grant Program, authorized by Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law [Pub. L.] 93-288 (1974), as amended, 42 U.S. Code [U.S.C.] § 5133), is designed to assist States, U.S. Territories, federally-recognized tribes, and local communities in implementing a sustained pre-disaster natural hazard mitigation program. The goal is to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding in future disasters. The PDM program awards planning and project grants and provides opportunities for raising public awareness about reducing future losses before disaster strikes. PDM grants are funded annually by Congressional appropriations and are awarded on a nationally competitive basis. The Cities of Marseilles, Ottawa, and Peru (LaSalle County, IL) and the Village of DePue (Bureau County, IL) proposed projects selected for further review under the PDM program during the 2016 cycle. This Programmatic Environmental Assessment (PEA) has been prepared to analyze the potential environmental consequences associated with the four projects under consideration for funding under the Federal Emergency Management Agency's (FEMA) PDM program.

In accordance with the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321-4347 (2000); the Council on Environmental Quality (CEQ) implementing regulations (40 Code of Federal Regulations [C.F.R.] 30 §§ 1500–1508); FEMA regulations for NEPA compliance (44 C.F.R. Part 10); FEMA Directive 108-1, *Environmental Planning and Historic Preservation Responsibilities and Program Requirements* (Aug. 22, 2016); and Department of Homeland Security Instruction Manual 023-01-001-01, *Implementation of the National Environmental Policy Act*, (rev. 01) (Nov. 6, 2014), FEMA must fully understand and consider the environmental consequences of actions proposed for Federal funding. The purpose of this PEA is to assess the nature and extent of environmental impacts, meet FEMA's responsibilities under NEPA and determine whether to prepare a Finding of No Significant Impact (FONSI) or a Notice of Intent to prepare an Environmental Impact Statement for the proposed project.

1.2 PROJECT LOCATION AND EXISTING FACILITIES

The Action Area encompasses a roughly 45 mile stretch of the Illinois River, with project subareas in Marseilles, Ottawa, Peru, and DePue (Figure A-1). This PEA analyzes the construction of four permanent flood mitigation measures along the Illinois River.

1.2.1 Marseilles

The City of Marseilles, LaSalle County, IL, proposes to construct a floodwall atop an existing berm at the city's wastewater treatment plant (WWTP). The Marseilles WWTP is on the west side of the city, north of Bell's Island, on the north shore of the Illinois River at 2 Spicer Lane (41.328911, -88.723478) (Figure A-2). The Marseilles WWTP services the entire city of 5,094 people (U.S. Census Bureau,

2016). It was originally constructed in 1939, with major renovations in 1974 and 2010 (City of Marseilles, 2016).

1.2.2 Ottawa

The City of Ottawa, LaSalle County, IL, proposes to raise and extend an existing floodwall at the Ottawa Township High School (OTHS). The school is on the northeast corner of the confluence between the Fox and Illinois Rivers at 211 East Main Street (41.345106, -88.838297) (Figure A-3). The campus is approximately 30 acres, with approximately 1,440 students and 90 full-time staff at OTHS. OTHS was originally built in 1915 and has been expanded and renovated on multiple occasions (City of Ottawa, 2016). The existing levee system, floodwall, and gates were constructed during the 1980s and 1990s (City of Ottawa, 2016).

1.2.3 Peru

The City of Peru, LaSalle County, IL, proposes to construct a floodwall on an existing earthen berm surrounding the city's east WWTP. The Peru east WWTP is on the bank of the Illinois River south of Water Street and west of River Dock Road (41.325926, -89.115699) (Figure A-4). Peru has 9,952 residents, and the east WWTP services nearly 80 percent of the population (City of Peru, 2016; U.S. Census Bureau, 2016). The Peru east WWTP was built in 1939 (City of Peru, 2016).

1.2.4 DePue

The Village of DePue, Bureau County, IL, proposes to raise an existing levee at the village's WWTP. The DePue WWTP is on the west side of the village, on the northwest shore of Lake DePue, adjacent to the Illinois River, just off of West 2nd Street (41.321912, -89.315304) (Figure A-5). The DePue WWTP services the entire village of 1,838 people (Village of DePue, 2016; U.S. Census Bureau, 2016). It was originally constructed in 1965, with major renovations in 1981 and 1991 (Village of DePue, 2016).

1.3 PURPOSE AND NEED

The objective of the FEMA PDM Grant Program is to reduce overall risk to the population and structures from future hazard events (FEMA, 2016). The purpose of these projects (Preferred Alternative presented in this PEA) is to reduce the likelihood and intensity of damages to the infrastructure of Marseilles, Peru, Ottawa, and DePue from flooding by the Illinois River. The need for the project is to protect and minimize damage to central infrastructure (WWTPs and OTHS) due to flooding events.

Municipal WWTPs are central infrastructure providing treatment of predominately household and industrial wastewater generated by the communities served. Should one of the WWTPs be flooded, pathogens and pollutants may be introduced into the environment and into the Illinois River.

Schools are central infrastructure within communities, providing learning institutions and employment. Many schools are often used for municipal needs such as voting and recreation, and are fundamental locations during times of crisis. Ensuring the safety of students, school staff, and school buildings is a critical function.

The Illinois River has a history of flooding events. Between September 12-14, 2008, 51 consecutive hours of rainfall in northeastern Illinois caused extensive flooding from the Illinois River. This resulted in the evacuation of thousands of Illinois residents, road closings throughout northeastern Illinois, and two drowning deaths. Sixteen counties in Illinois were declared Federal disaster areas. (USGS, 2012)

Between April 15-18, 2013, 5 to 10 inches of rainfall along and west of the Illinois River caused a record level of flooding, with the river cresting 1.5 feet above the previous high-water mark (National Weather Service, Undated; City of Ottawa, Undated). Forty-seven counties in Illinois were declared Federal disaster areas, including LaSalle and Bureau Counties (FEMA, 2013a).¹

Specific flooding information and need for projects in each of the subareas is described below.

1.3.1 Marseilles

The Marseilles WWTP is protected by an existing berm. This berm is 480.8 feet, 1 foot above the Base Flood Elevation (BFE), also known as the 100-year flood elevation, of 479.5 feet, and below the 500-year flood elevation of 481.5 feet. The 2008 flooding of the Illinois River reached 480.77 feet at the Marseilles WWTP, and in 2013, the river reached 481.15 feet. During both events, water began topping the berm, and the city's sandbagging efforts prevented flooding. Sandbags were placed atop the berm, raising its height approximately 12 inches during both the 2008 and 2013 flooding events. Without sandbagging efforts, the 2013 event would have resulted in 4 feet of water inundating 70 percent of the Marseilles WWTP. To restore the facility to use after such damage would cost an estimated \$3,015,500. (City of Marseilles, 2016)

1.3.2 Ottawa

OTHS is protected by an existing levee system, floodwall, and gates. The OTHS floodwall follows the Fox River from Division Street south nearing the confluence of the Fox and Illinois Rivers. The BFE of the Fox River is 473.7 feet, and the existing floodwall ranges from 474.5 to 478 feet. The levee breaks at East Main Street, which is a bridge across the Fox River. The floodwall north of East Main Street has a section of approximately 1,000 feet that requires a sandbag closure system. During the 2008 flooding event, OTHS classes were cancelled as the Fox River nearly breached the existing levee. Homes in the area were flooded, and the nearby Central Intermediate School became inundated with floodwater, resulting in the school's designation as substantially damaged and unusable. During the 2013 flooding event, OTHS was closed as a precaution. In 2008, the Fox River crested at 472.21

¹ All references are listed in Section 7 of this assessment. For documents published by the same author within the same year, a letter following the citation year will signify the publication referenced.

feet, and in 2013 the Fox River crested at 473.65 feet. Precautions taken by the City of Ottawa resulted in less damage in 2013 than experienced in 2008. The OTHS campus and property are valued at \$60 million. The estimated value of the OTHS facility at or below the elevation of 472.5 feet is \$35 million. (City of Ottawa, 2016)

1.3.3 Peru

The Peru east WWTP is protected by an existing earthen berm. The berm is 463.5 feet, 0.7 feet lower than the BFE of 464.2 feet. In 2008, the Illinois River crested at 462.98 feet at the Peru east WWTP, and in 2013 it reached 463.99 feet. During the 2008 and 2013 flooding events, the Illinois River nearly topped the berm. The City of Peru placed sandbags around the facility to protect it from serious damage. The cost to replace the Peru east WWTP is estimated at \$25 million. (City of Peru, 2016)

1.3.4 DePue

The DePue WWTP has been protected by an existing levee since its original construction. The existing levee height ranges from 460.5 to 461.5 feet. The 2011 FEMA flood insurance rate map (FIRM) places the BFE at 462 feet and the 500-year flood elevation at 464.9 feet. This levee is too low to protect the WWTP from the BFE. Both the BFE and 500-year floods would inundate and cause severe damage to the DePue WWTP. In 2008, water levels at the DePue WWTP reached 460.36 feet, and in 2013 water levels reached 461.67 feet. During both flood events, employees and residents prevented flooding by sandbagging. Had the DePue WWTP been damaged, it would have taken 6 months and a minimum of \$2.5 million to restore plant operations. (Village of DePue, 2016)

In summary, the need for these projects is based on past flood events, the potential for future events, and the need to safeguard communities and central infrastructure (WWTPs and OTHS) from future flood events.

2 ALTERNATIVE ANALYSIS

NEPA requires that Federal agencies consider the potential environmental consequences of a proposed project, including an analysis of alternatives that meet the purpose and need of the project. Federal agencies are not required to consider every potential alternative, but must consider a full range of reasonable alternatives. The following two Alternatives are being considered for further evaluation in this PEA followed by alternatives considered and eliminated from further consideration.

2.1 ALTERNATIVE 1 – NO ACTION

The No Action Alternative is required to be included in this PEA in accordance with the CEQ NEPA implementing regulations. The No Action Alternative is defined by CEQ as maintaining the status quo (baseline conditions) without Federal agency involvement (CEQ, 1981). The No Action Alternative is used to evaluate the effects of not performing the pre-disaster mitigation activities and provides a benchmark against which other alternatives may be evaluated.

Without a FEMA partnership with project proponents, PDM or other Hazard Mitigation Assistance grant funding would not be issued and the projects would not move forward. There would be no added flood protection and the likelihood and intensity of damage from future flooding events to the four subareas on the Illinois River would not be lessened.

It is possible, although unlikely, that the project proponents may obtain funding through a non-Federal source. In the event that this occurs, project proponents may not necessarily have to consider some Federal laws and Executive Orders (EO) that would be necessary with a Federal funding partner.

2.1.1 Marseilles

Currently, the berm surrounding the Marseilles WWTP is 1 foot above the BFE of 479.5 feet, and below the 500-year flood elevation of 481.5 feet. In the event that the berm were overtopped, raw, untreated sewage could flow directly into the Illinois River and its surrounding environment. Residents of the City of Marseilles could experience sewer and basement back-ups as the gravity-fed system would cause sewage to continue to flow to the plant. During severe flooding, emergency officials and community members conduct sandbag efforts at the Marseilles WWTP to reduce impacts. Sandbagging is neither a long-term nor a permanent solution. Furthermore, sandbagging during a flood event commits emergency personnel and equipment, creating vulnerabilities elsewhere in the City of Marseilles.

2.1.2 Ottawa

Currently, the levee along the Fox River protects OTHS and the surrounding neighborhood during flood events up to 472.5 feet, 1 foot below the BFE is 473.5 feet. Should the Fox River flood to a level

exceeding the levee, the school and residences in adjacent neighborhoods would be damaged. During severe flooding, sandbagging is required at the floodwall north of East Main Street for an approximately 1,000 foot section. Sandbagging is neither a long-term nor a permanent solution. Furthermore, sandbagging during a flood event commits emergency personnel and equipment, creating vulnerabilities elsewhere in the City of Ottawa.

2.1.3 Peru

Currently, the earthen berm protecting Peru's east WWTP is 463.5 feet, 0.7 feet below the BFE of 464.2 feet. In the event that the berm were overtopped, the plant would be damaged interfering with its ability to treat the community's wastewater and putting the community at risk. During severe flooding, emergency officials and community members conduct sandbag efforts at the Peru east WWTP to reduce impacts. Sandbagging is neither a long-term nor a permanent solution. Furthermore, sandbagging during a flood event commits emergency personnel and equipment, creating vulnerabilities elsewhere in the City of Peru.

2.1.4 DePue

Currently, the floodwall protecting the DePue WWTP ranges in height from 460.5 to 461.5 feet, below the 500-year flood level of 464.90 feet. In the event that the floodwall was overtopped, the plant would be damaged interfering with its ability to treat the community's wastewater and putting the community at risk. During severe flooding, emergency officials and community members conduct sandbag efforts at the DePue WWTP to reduce impacts. Sandbagging is neither a long-term nor a permanent solution. Furthermore, sandbagging during a flood event commits emergency personnel and equipment, creating vulnerabilities elsewhere in the Village of DePue.

2.2 ALTERNATIVE 2 – ILLINOIS RIVER FLOODWALL PROJECTS (PREFERRED ALTERNATIVE)

Alternative 2 includes the four floodwall proposed projects along the Illinois River for each of the subareas. Alternative 2 was submitted by the communities to FEMA's PDM grant program and was identified for further review. If awarded, the PDM grant would provide 75 percent of eligible costs, with the communities responsible for the remaining 25 percent.

2.2.1 Marseilles

The proposed project would construct a floodwall around the Marseilles WWTP to prevent the facility from flooding by the Illinois River (see Appendix C, Preliminary Plans). The floodwall would be built atop the existing berm and would increase its protection above the 500-year flood mark (481.5 feet). The sheet pile floodwall would be approximately 1,210 feet long, which would require 150 feet of earthen construction at the WWTP's northwest corner. The floodwall would continue to the west, south, east, and north sides of the plant, with 40 feet for an access gate system at the north side of

the Marseilles WWTP. The berm would be raised 5 feet to reach 485 feet, would be 10 feet wide across the top, and would provide a slope of 4:1.

The floodwall would be sheet pile constructed with PZ 27 hot-rolled steel with a thickness of 3/8 inches and ribs 12 inches thick. The sheet pile would be driven into the top of the underlying shale between 11 feet and 17.5 feet beneath the existing berm. The sheet pile would be 485 feet high, topped with a cap channel and steel beam welded to the top of the sheet piling. The beam would be the base for a 3 foot tall chain link fence, to be topped with 1 foot high, 3 strand barbed wire.

A stormwater pumping station would also be constructed to assist in removing stormwater runoff within the treatment facility and to pump final effluent out of the facility when river levels no longer allow effluent to be discharged by gravity (above 473.52 feet). The pumping station would be equipped with 2 submersible pumps with a total pumping capacity of 7,200 gallons per minute (gpm) (3,600 gpm each). The pumps would automatically pump stormwater trapped by the levee system when the Illinois River exceeds 473.53 feet.

A section of the existing entrance road to the Marseilles WWTP would be raised to accommodate a gate closure system. This section is approximately 170 feet long. It would be tapered from the existing grade at the north end, up to a high mid-point, and then back to the existing grade on the south end. The maximum amount it would be raised over the existing pavement is roughly 3 feet, reaching an elevation of 482 feet. The gate closure system would provide an additional barrier if water should reach elevations of 482 feet to 485 feet, and would be stored when not in use. (City of Marseilles, 2017b)

Construction would include precautions to minimize vegetation disturbance. However, minor disturbance would be unavoidable. Vegetative grading, shaping, and restoration would occur for all areas disrupted by construction activities. For seeding and planting, only native species would be used.

2.2.2 Ottawa

The proposed project would raise and extend the existing levee at OTHS in order to recertify the levee system in accordance with 44 C.F.R. § 65.10. Upon completion, the levee system and floodwall would meet the BFE plus a minimum of 3 feet of freeboard (see Appendix C, Preliminary Plans). The floodwall along the Fox River would be elevated to 477.5 feet and extended to the fullest practical extent. At the point of confluence of the Illinois and Fox Rivers, the BFE is 473.5 feet, and the levee at that point would be raised to 477.5 feet. The majority of the levee system would be elevated between 0.5 and 5 feet. (City of Ottawa, 2016)

Two access ramps would be constructed on the eastern portion of the OTHS campus. One ramp would be immediately south of the termination of York Street, graded as required to meet the existing roadway, and a 14 inch cast iron water main would be installed as a culvert. A 16 foot long, 6 foot high chain link gate would be installed at the entrance to the ramp. The existing fence would be removed and reinstalled. The second ramp would lead into the existing mitigation area. Earthen V

ditches would be excavated to allow for 3 inches of topdressing and to provide drainage on the east side of OTHS. Excavated soil material would form the new berm south of the baseball field. On the southwest side of OTHS, the existing catch basin would be replaced in the same location.

The major points of levee construction would occur on the west side from the confluence of the Illinois and Fox Rivers north along the Fox River. All cracks in existing concrete would be grouted above adjacent earth fill prior to construction. Existing concrete caps would be removed. Dowels would be inserted into drilled holes in the existing concrete, with the new concrete wall extension cast in place, reaching an elevation of 477.5 feet. An aluminum stop log gate including 2 concrete supports measuring approximately 3 feet long, 2 feet wide, and 10.7 feet high with slot for aluminum stop logs would also be installed.

Construction would include earth excavation, embankment, storm sewers, concrete drainage structures, concrete pads, five 5 foot diameter manholes, inlets, retaining wall, various pavement items, and other miscellaneous items of construction. For major portions of the construction site, isolated tree removal and protection of remaining trees against damage would occur. A total of 14 trees are expected to be removed. Excavation and embankment will be completed at the job site to achieve the proposed site contours. Placement, maintenance, removal, and proper clean-up of temporary erosion control, such as a perimeter erosion control barrier, temporary ditch checks, inlet and pipe protection would occur. Following construction, the disturbed areas would be seeded to reduce erosion.

For the retaining wall work, final grading and landscaping would be conducted. Placement of permanent erosion control, such as a riprap ditch, an erosion control blanket, and seeding would be implemented. The total area of the construction site is estimated to be 2.1 acres, of which 1.3 acres will be disturbed by excavation, grading, and other construction activities.

Construction would include precautions to minimize vegetation disturbance; however, 14 trees are slated for removal. Other disturbance would be minor. Vegetative grading, shaping, and restoration would occur for all areas disrupted by construction activities. Only native species would be used for seeding and planting.

2.2.3 Peru

The proposed project would construct a floodwall atop the existing earthen berm (see Appendix C, Preliminary Plans). The existing berm is 463.5 feet high, and the proposed floodwall would provide an additional 4 feet of protection, to reach a height of 467.5 feet.

The 1,450 feet long floodwall would be built using two different sized tongue and groove pre-cast concrete blocks: 8 feet long, 2 feet wide, and 4 feet or 2 feet high. Two feet of the floodwall would be embedded into the berm and 4 feet would be above the berm's surface. Gaps created by the placement of blocks on curved areas would be filled completely with mortar and finished flush to the river-facing side of the floodwall. Mastic would be used on the inside and outside edges of all pre-

cast blocks. A foundation consisting of a 6 inch thick concrete slab would be placed on 42 inches of aggregate, 3 feet in width to improve stability.

To create a watertight system, a removable connecting support system of fiberglass stop logs would be placed across the entrance to the Peru east WWTP. Concrete walls would be cast in place at each side of the entrance, using the same base as the pre-cast blocks. Forms would be placed directly against the pre-cast blocks, at a minimum height of 6 feet, with interior reinforcement. A blackout would accommodate embedded side slide rails for installation of the fiberglass stop logs. A 20.75 foot long, 6 foot wide, 8 inch thick pavement patch with a bottom-guide for the fiberglass logs would be installed along the gap; an anchor post (12.5 inches deep, 12 inches wide, and 13 inches long) for a removable reinforcement anchor would be at the 4 foot mark.

Rubber wall sealant would be applied to the river-facing side of both pre-cast and cast-in-place concrete from the base of the wall (pre-backfill) to the top. Drying time would be allowed per manufacturer's recommendation prior to backfill. The rubber wall would be an aluminized ultraviolet and weather resistant polymer coating capable of withstanding above-ground conditions including direct sunlight, freezing, and moisture. The rubber wall sealant would be sprayable grade and applied by spray method.

Approximately 163 square yards of existing asphalt pavement would be removed.

To serve as a staging area, the abandoned treatment lagoon would be filled. Existing berm material removed during construction would be placed in the lagoon, then topped with 6 inches of vegetation-sustaining topsoil. Approximately 4,300 cubic yards of fill would be placed in the lagoon.

The natural gas, 500 kilowatt electrical generator would be installed in the northeast corner of the WWTP site on proposed fill at a 3:1 slope, at a height of 467.5 feet. The Portland cement concrete (PCC) generator pad would be 24 feet by 15 feet. Natural gas lines would be run at the landside foot of the levee. The generator would only be used when necessary, during power outages to the WWTP.

Areas disturbed during construction would be graded, covered with a minimum of 6 inches of vegetation sustaining soil, and seeded. The earthen berm, sloping areas, filled lagoon, and other disturbed areas would be reseeded using an erosion control blanket and fertilized using nitrogen, phosphorus, and potassium fertilizers. A sediment and erosion control plan to minimize the transport of sediment by vehicles would be in place, and adjacent properties would be protected from sediment disposition by using erosion control practices such as vegetative buffer strips or sediment barriers.

2.2.4 DePue

The proposed project would raise the existing 1,300 foot long levee around the DePue WWTP by constructing a 6 foot concrete floodwall (see Appendix C, Preliminary Plans). Soil would be placed and graded to level the top of the existing levee to an elevation of 461.9 feet prior to the placement

of the concrete blocks. This soil placement would extend for the length of the levee and along its 10 foot width. The floodwall would be built using 6 feet long, 2 feet wide, and 2 feet high pre-cast concrete blocks with tongue and groove type edges to prevent against sliding and would be placed on a bed of mastic with the joints grouted with a cementitious material. The blocks would be stacked 3 high to increase the elevation of the levee from 461.9 feet to 465.9 feet, above the 500-year flood level of 464.9 feet. The lowest block would be embedded into the earthen levee by 2 feet to resist sliding during flood events. A foundation consisting of a 6 inch thick concrete slab would be placed on 42 inches of aggregate, 3 feet in width to improve stability. Additionally, a thin waterproof coating would be sprayed onto the exterior of the concrete block wall.

Under this alternative, approximately 350 feet of the existing roadway entering the DePue WWTP would be elevated. The roadway would be 12 feet wide. The floodwall would not be designed with points of entry or egress that would require temporary sealing during a flood event. Therefore, the roadway would be elevated for vehicles to drive over the floodwall to enter/exit the DePue WWTP.

The 1,300 foot chain link fence surrounding the facility would be replaced.

To mitigate the impact of work occurring in the floodplain, the Village of DePue would construct 2 compensatory storage areas totaling approximately 22,600 cubic yards north of the WWTP on village-owned property and would place a non-construction covenant on the property adjacent to the storage areas. The storage areas are nearly adjacent to each other with a small strip of land between. These areas are currently minimally vegetated.

- Section 1 is approximately 1.4 acres and would need to be excavated a depth of 4 feet, from approximately 459 feet, to obtain a final elevation of 453 feet. Section 1 could provide approximately 20,300 cubic yards of storage loss mitigation.
- Section 2 is approximately 0.7 acres and would need to be excavated a depth of 1 foot, from approximately 461 feet, to obtain a final elevation of 460 feet. Section 2 could provide approximately 2,300 cubic yards of storage loss mitigation.

Excess soil materials from excavation that are not used in embankment construction would be disposed of off-site by the Contractor.

Construction would include precautions to minimize vegetation disturbance. However, minor disturbance would be unavoidable. Vegetative grading, shaping, and restoration would occur for all areas disrupted by construction activities. Approximately 5,000 square yards of topsoil, seeding, and fertilizer would be placed on all disturbed areas. For seeding and planting, only native species would be used.

2.3 ALTERNATIVES CONSIDERED AND ELIMINATED FROM FURTHER CONSIDERATION

Each of the potential subgrantees identified an additional alternative that would potentially meet the purpose and need of the project to protect the facilities from future flood damages.

2.3.1 Marseilles

The City of Marseilles considered raising the existing levee with an earthen embankment. This method would cause fill to extend 20 feet into the Illinois River. This alternative could have impacts on the Illinois River: impeding flow, causing siltation, degrading habitat, and creating erosion issues. Therefore, this alternative was eliminated from consideration.

2.3.2 Ottawa

The City of Ottawa considered relocating OTHS out of the floodplain. The city estimated that this alternative would cost \$130,000,000 and would not be financially feasible for the City of Ottawa to undertake. The city also considered floodproofing or elevating OTHS, but determined that these techniques were both impractical and extremely expensive.

2.3.3 Peru

The City of Peru considered raising the height and width of the existing earthen berm surrounding the WWTP. This alternative is unfeasible as widening the existing berm would encroach upon the floodway. There would not be enough room to elevate the berm with a manageable slope back to existing ground.

2.3.4 DePue

The Village of DePue considered relocating the WWTP to a higher elevation, raising the existing earthen levee using additional fill, and constructing a cast-in-place concrete floodwall. These alternatives were eliminated due to costs exceeding those of the Preferred Alternative.

3 AFFECTED ENVIRONMENT AND CONSEQUENCES

3.1 PHYSICAL ENVIRONMENT

3.1.1 Geology, Seismicity, and Soils

3.1.1.1 Affected Environment

The Action Area is in LaSalle and Bureau Counties along the Illinois and Fox Rivers. This area is in the Bloomington Ridged Plain of the Till Plains Section of the Central Lowlands Province. Over 90 percent of the State falls within the Central Lowlands Province, characterized by rolling hills, thin glacial drift, and narrow valleys. The Bloomington Ridged Plain physiographic region is characterized by "low, broad morainic² ridges, flat to gently rolling ground moraine, and thick glacial drift" (Bureau County Regional Planning Commission, 2014). Underneath the glacial deposits in the Action Area are bedrock formations in the Ordovician geologic unit (Ansell Group) and Pennsylvanian geologic unit (Carbondale Formation, Mattoon Formation, and Shelburn-Patoka Formations undivided). These formations consist largely of shale, sandstone, and limestone.

The Major Land Resource Areas in which the Action Area resides are the Central Mississippi Valley Wooden Slopes, Northern Part and the Illinois and Iowa Deep Loess and Drift, Eastern Part. The dominant soil orders are Alfisols, Entisols, Inceptisols, and Mollisols. The soils in the area have a mesic³ soil temperature regime, an aquic⁴ or udic⁵ soil moisture regime, and dominantly mixed mineralogy. The soils range from very shallow to very deep, vary from poorly drained to excessively drained, and are loamy, silty, or clayey (NRCS, 2006).

Illinois experiences, on average, one earthquake per year, typically in the southern portion of the State (ISGS, 1995). While portions of southern Illinois are at risk of experiencing significant earthquakes due to the region's proximity to the New Madrid and Wabash Valley Seismic Zones,⁶ northern Illinois, including the Action Area, lies outside of the area that is most susceptible to damaging earthquake activity (Central United States Earthquake Consortium, 2017). In general, northern Illinois is at low risk from seismic activity; earthquakes have been infrequent and non-damaging throughout the northern part of the State (Fermi National Accelerator Laboratory,

² Moraine describes different varieties of "unstratified and unsorted deposits of sediment that form through the direct action of, or contact with, glacier ice" (USGS, 2013).

³ A mesic soil temperature regime has a mean annual temperature at a depth of 50 centimeters between 8 and 15 degrees Celsius (°C), with the summer and winter temperature difference greater than 5 °C (University of Nebraska, 2017a)

⁴ An aquic soil moisture regime is "saturated with water long enough to cause oxygen depletion" (University of Nebraska, 2017b).

⁵ An udic soil moisture regime is found in areas with a climate that is humid or subhumid (University of Nebraska, 2017b).

⁶ Seismic Zone: "Areas where many smaller faults are clustered together to produce seismic activity" (Central United States Earthquake Consortium, 2017).

Undated). There are no active fault lines in central LaSalle or Bureau Counties (Fermi National Accelerator Laboratory, Undated). The most recent earthquake in either LaSalle or Bureau County occurred in 2004, when a magnitude 4.2 earthquake occurred north of Ottawa, IL (USGS, 2004a); this earthquake was felt throughout the Midwest, including portions of Indiana, Iowa, Michigan, Missouri, and Wisconsin (North Central Illinois Council of Governments, 2015). Since 1881, six other significant earthquakes have been recorded in the region measuring between magnitude 3.0 and magnitude 5.1 (USGS, 2004b).

The 2014 USGS National Seismic Hazard Maps display earthquake ground motions for various probability levels across the United States and are applied in seismic provisions of building codes, insurance rate structures, risk assessments, and other public policy (USGS, 2014). LaSalle and Bureau Counties are mapped with low, two-percent probability (6-10 percent of the acceleration due to gravity) of exceedance in 50 years of peak ground acceleration (USGS, 2014).

According to the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey, the Action Area consists primarily of Drummer silty clay loam, 0-2 percent slopes; Moundprairie silty clay loam, undrained, 0-2 percent slopes, frequently flooded; Flanagan silt loam, 0-2 percent slopes; and Birkbeck silt loam, 2-5 percent slopes (NRCS, 2016).

The Farmland Protection Policy Act (FPPA), Pub. L. 97-98, Sec. 1539-1549 (codified at 7 U.S.C. § 4201 et seq.), which states that Federal agencies must "minimize the extent to which Federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses," was considered in this PEA. While the Web Soil Survey identifies the existence of prime farmland in certain parts of the Action Area, this prime farmland would not be converted to non-farmland uses.

3.1.1.2 Environmental Consequences

3.1.1.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action and floodwall construction activities would not be undertaken; no improvements would be made. There would be no direct impact to geology or seismicity, as current conditions would not change. Flood-related erosion would occur from high water levels during severe storms or flash floods (FEMA, 2017a). Implementation of the No Action Alternative would not reduce the risks and associated impacts of flooding, including soil erosion. Infrastructure would continue to be at risk during flood events.

3.1.1.2.2 Alternative 2 – Illinois River Floodwall Projects

Under Alternative 2, activities associated with the construction of the four floodwalls and associated stormwater management structures (a pumping station, pipes, and culverts) along the Illinois River would include excavation, embankment, grading, raising roadway elevation, embedding concrete blocks 2 feet into an earthen levee, and the driving of steel sheet pile to a maximum depth of 17.5 feet beneath an existing berm. The glacial drift in the Action Area is typically 25 to 200 feet thick with bedrock underneath; therefore, these construction activities would not involve soil disturbance at depths that would impact bedrock (Bureau County Regional Planning Commission, 2014).

Given the distance of the Action Area from the New Madrid and Wabash Valley Seismic Zones, it is unlikely that the Action Area would experience significant damage resulting from an earthquake in either of those areas. As noted in Section 3.1.1.1, Affected Environment (Geology, Seismicity, and Soils), earthquakes during the last 135 years in close proximity to the Action Area have ranged between magnitudes 3.0 and 5.1; moderate damage to structures could result from a magnitude 5.0 earthquake (California Geological Survey, 2002). The *Earthquake Annex to the Illinois Emergency Operations Plan* does not include LaSalle or Bureau County in the list of counties that is likely to experience significant damage from an earthquake event (IEMA, 2011).

While the Web Soil Survey identifies the existence of prime farmland in certain parts of LaSalle and Bureau Counties, prime farmland would not be converted to non-farmland uses. Therefore, implementation of Alternative 2 would be in compliance with the FPPA.

In order to minimize impacts to soils at each project site, Best Management Practices (BMPs) such as erosion control blankets, temporary ditch checks, riprap ditches, inlet and pipe protection, vegetative buffer strips, sediment barriers, and temporary seeding would be implemented. Therefore, any potential temporary impact to soils from implementation of Alternative 2 would be less than significant.

Since each project would disturb more than 1 acre, a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit from the Illinois Environmental Protection Agency (IEPA) would be required.

Inadvertent releases of chemicals, oils, grease, and solvents from heavy equipment into soils could occur during construction. BMPs would be implemented to minimize the potential for contaminants to be released into the soil. A Spill Prevention Control and Countermeasure Plan for each project site could also be required.

Any adverse impacts to geology, seismicity, and soils associated with the construction of the floodwalls and stormwater management structures would be short-term and minimized by the measures described above. No long-term impacts to geology, seismicity, and soils are expected as a result of implementing Alternative 2.

3.1.2 Water Resources

3.1.2.1 Affected Environment

The Clean Water Act (CWA), 33 U.S.C. § 1251 et seq. (1972), regulates water quality (Section 401), authorizes the NPDES program (Section 402), and requires permits for any dredge or fill activities into navigable Waters of the United States (WOUS) (Section 404). The IEPA provides water quality certification pursuant to Section 401 of the CWA. The NPDES program regulates point sources that discharge pollutants into WOUS. Illinois became authorized to administer the NPDES program in October 1977. The IEPA administers the Illinois NPDES program for general permitting and Federal facilities. The United States Army Corps of Engineers (USACE) regulates discharge of fill materials

into WOUS, including wetlands, as established by Section 404 of the CWA. Under the Rivers, Lakes and Streams Act, 615 Illinois Compiled Statute [ILCS] 5, the Illinois Department of Natural Resources Office of Water Resources (IDNR-OWR) is responsible for issuing permits for construction within floodways.

The Action Area includes the Upper Illinois River and Lower Fox River watersheds (IEPA, 2004; EPA, 2010b).

The City of Marseilles' WWTP is located along the Illinois River, with an existing berm along the north bank of the river. The Action Area is located approximately 40 feet from the bank of the Illinois River on the southern side of the facility. The facility is buffered by a forested area to the east, farmland to the west, and residential homes to the north. Surface flow from the project site drains into the Illinois River. Treated effluent from the Marseilles WWTP discharges via a gravity-run system into the Illinois River. (City of Marseilles, 2016)

OTHS is located at the northeastern confluence of the Fox and Illinois Rivers, with existing flood protection (levee system, floodwall, and gates) along both shorelines. The Fox River lies along the western property boundary of the high school, which is otherwise surrounded by local roads and residential neighborhoods. Surface flow from the project site drains into the Fox and Illinois Rivers. The limits of disturbance vary from approximately 25 to 250 feet from the bank of the Fox River. (City of Ottawa, 2016)

The City of Peru's east WWTP is located near the Illinois River. An existing berm provides flood protection from the Illinois River along the southern property boundary. The subarea is located approximately 100 feet from the bank of the Illinois River. The facility lies adjacent to railroad tracks along the southern border and industrial development surrounds the site to the west and east. The site is bordered by a paved road and railroad tracks to the north. Surface flow from the project site drains into the Illinois River. Treated effluent from the Peru east WWTP discharges into the Illinois River. (City of Peru, 2016)

The Village of DePue's WWTP is located along the northwestern shore of Lake DePue, which is adjacent to the Illinois River. An existing levee provides flood protection for the facility from the Illinois River. The subarea is located approximately 500 feet from Lake DePue and 5,300 feet from the bank of the Illinois River, south of the facility. A stream channel and an additional waterbody are located offsite to the west of the facility. The facility is surrounded by forested and undeveloped areas, with residential homes nearby to the northeast. Surface flow from the project site would enter Lake DePue, which drains into the Illinois River. Treated effluent from the DePue WWTP is pumped into Lake DePue. (Village of DePue, 2016)

3.1.2.1.1 Watersheds

Watersheds, or drainage areas, consist of surface water and all underlying groundwater, and encompass an area of land that drains streams and rainfall to a common outlet (e.g., reservoir, bay).

The two watersheds included in the Action Area, Illinois River and Fox River, are discussed below, and are depicted in Figure A-6.

- The Illinois River Watershed extends northeast to southwest across the northern half of the State, where it terminates at the Mississippi River along the western State boundary. This basin encompasses nearly 29,000 square miles. A majority of the watershed is in Illinois, with portions extending into Wisconsin and Indiana. The Illinois River is a major tributary of the Mississippi River. The Illinois River travels through a narrow valley in the watershed's upper portion, then through the lakes and backwaters of the watershed's lower portion. The lower portion of the Illinois River is heavily managed with numerous levees for flood control. (Demissie, Singh, Knapp, Saco, & Lian, 2007)
- The Fox River Watershed, in northeastern Illinois, encompasses approximately 1,720 square miles. It includes the Fox River and all tributaries that extend from the Illinois border to the confluence of the Fox and Illinois Rivers. This watershed is approximately 3 percent of the total area of the State. Over 450,000 people (approximately 11 percent of the State's population) reside within the Fox River Watershed. This river system provides essential wildlife habitat, serves as a recreational resource, and is a source for public water supplies. (Fox River Study Group, 2016)

3.1.2.1.2 Surface Water

The Illinois River is the second longest river in Illinois, with the Mississippi River being the longest (IDNR, 2016d). Originating at the confluence of the Kankakee and Des Plains Rivers, the Illinois River flows approximately 270 miles southwest through the State before joining the Mississippi River. River depth is regulated by several dams operated by the USACE, including the Starved Rock Lock and Dam located between Ottawa and Peru, IL (IDNR, 2016c). The construction of dams, levees, and locks have modified the hydrologic functions of the Illinois River, thereby modifying the natural flood patterns that support the natural processes of the river (IDNR, 2016d). From the northeastern Illinois border, the Fox River flows approximately 115 miles before it joins the Illinois River near Ottawa (Fox River Study Group, 2016). These surface waters support a variety of uses including drinking water supply, aquatic habitat, fisheries, and recreational activities (IEPA, 2003).

Lake DePue is a backwater lake located within the Illinois River Valley in Bureau County near the Village of DePue (Figure A-1). The lake is approximately 300 acres and supports many uses, including recreational activities, hunting, fishing, and aquatic and migratory bird habitat. (IDNR, 2016b; IEPA, 2016c; FEMA, 2017b)

At OTHS, the Fox River varies in width from 200 feet at the Main Street Bridge to 360 feet across the extent of the subarea. At its closest, the levee at OTHS is roughly 25 feet from the bank of the Fox River (near the Fox River Bridge).

Threats to surface water can come from non-point sources, such as runoff from agricultural activities, livestock facilities, construction sites, turf management, urban areas, paved surfaces, and forestry.

Major sources of non-point source pollution in Illinois are agriculture, urban runoff, and erosion and siltation from habitat modification. Agricultural runoff can cause excess sediment, nutrients, salinity, pesticides, and pathogens to enter rivers and lakes. Urban runoff can carry toxins and pathogens directly into local surface waterbodies without passing through a sanitary sewer. Additionally, these types of hydrologic modifications could disturb the natural stream channel and the riparian corridor, causing effects such as higher levels of total suspended solids and increased drainage to surrounding properties. Nutrients and sediment are the most common non-point source pollutants in Illinois. (IEPA, 2016e)

3.1.2.1.3 Groundwater

The IEPA relies on three primary aquifer classes (sand and gravel, shallow bedrock, and deep bedrock) to assess groundwater resources in the State (IEPA, 2016c). The principal aquifers⁷ within the Upper Illinois River and Lower Fox River watersheds consist of carbonate-rock⁸ and sandstone aquifers,⁹ and unconsolidated sand and gravel aquifers of alluvial and glacial origin.¹⁰ Principal sand and gravel aquifers are located throughout the Illinois watershed. Shallow bedrock is located in the upper and lower portions of the Illinois watershed. Deep bedrock aquifers are found throughout the Illinois watershed (IEPA, 2016c); community water supplies (CWS) wells are concentrated in the northern half (University of Illinois, 2015). The Fox watershed has CWS wells located within all three aquifer types (University of Illinois, 2015). Statewide, the most serious threats to groundwater quality include agricultural activities, storage and treatment activities, disposal activities, facility treatment, recreation, and other sources (IEPA, 2016c).

Sole source aquifers supply at least half of the drinking water to the area served (EPA, 2016d). The Mahomet Aquifer system is the only designated sole source aquifer in Illinois and is in the Middle Illinois Watershed, downstream of the Action Area. It is a source of drinking water for more than half of the population in east central Illinois (EPA, 2016a).

Generally, the water quality of aquifers in east central Illinois are suitable for drinking and daily water needs. Groundwater availability is most prevalent in Illinois' major river valleys, including the Illinois River, and northern third of the State where one or more principal aquifers reside (University of Illinois, 2015). Groundwater is the primary source for public drinking water to approximately 30 percent of the State's population, including residents within Marseilles, Ottawa, Peru, and DePue

⁷ Principal aquifer: An aquifer with a potential yield of 100,000 gallons per day per square mile that also has an area of 50 miles or more (IEPA, 2016c).

⁸ Carbonate-rock aquifers typically consist of limestone with highly variable water-yielding properties (some yield almost no water and others are highly productive aquifers) (Olcott, 1995).

⁹ Sandstone aquifers form from the conversion of sand grains into rock caused by the weight of overlying soil/rock. The sand grains are rearranged and tightly packed, thereby reducing or eliminating the volume of pore space, which results in low-permeability rocks such as shale or siltstone. These aquifer types are highly productive in many places and provide large volumes of water. (Olcott, 1995)

¹⁰ Sand and gravel aquifers of alluvial (sand, silt, or gravel materials left by river waters) and glacial origin are highly productive aquifers in the northern part of the country, consisting of mostly sand and gravel deposits formed by melting glaciers (USGS, 2016).

(IEPA, 2016c; IEPA, 2016b). According to the *Illinois Integrated Water Quality Report and Section 303(d) List, 2016 (Clean Water Act Sections 303(d), 305(b) and 314; Water Resource Assessment Information and Listing of Impaired Waters; Volume II: Groundwater)*, the CWS monitoring wells in Peru and DePue were determined to be Not Supporting (“Poor”) and Not Supporting (“Fair”), respectively, due to elevated levels of chloride (IEPA, 2016c). Chloride increases metals found in drinking water due to reactions with metal pipes, and increases the rate of corrosion in both metal and lead pipes (WHO, 2003). Although no health-based guidelines are given for the amount of chloride in drinking water, concentrations of 250 parts per million (ppm) have a detectable taste (WHO, 2003).

3.1.2.1.4 Wild and Scenic Rivers

The Illinois River and the Fox River are not listed as a National Wild and Scenic River (National Wild and Scenic Rivers System, 2016).

3.1.2.1.5 Impaired Waterbodies

Several elements, including temperature, dissolved oxygen, suspended sediment, nutrients, metals, oils, observations of aquatic wildlife communities, and sampling of fish tissue, are used to evaluate water quality. Under Section 303(d) of the CWA, States are required to assess water quality and report a listing of impaired waters,¹¹ the causes of impairment, and probable sources. (EPA, 2015)

Various sources affect the water quality within the Upper Illinois River and Lower Fox River watersheds. The Illinois and Fox Rivers are listed as impaired waterbodies, including the reaches within the Action Area. The reach along the Illinois River within the Action Area supports aquatic life. However, it does not support the designated use of fish consumption and primary contact. Causes of impairment to this segment of the Illinois River include elevated levels of mercury, polychlorinated biphenyls (PCBs), and fecal coliform, primarily a result of atmospheric deposition and unknown sources. The reach along the Fox River within the Action Area does not fully support any designated uses for aquatic life, fish consumption, or primary contact. Impairment to the Fox River is caused by multiple sources. Lake DePue does not support aquatic life, fish consumption, or aesthetic quality, as a result of multiple sources. (IEPA, 2016a; EPA, 2010a)

3.1.2.2 Environmental Consequences

3.1.2.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken, and no improvements would be made. There would be the risk of direct impacts resulting from a flooding event at the Marseilles WWTP, Peru east WWTP, or Peru WWTP to water resources, including surface water or groundwater, as current conditions would not change. Flood events impacting WWTPs due to inadequate flood protection could result in raw sewage

¹¹ Impaired waters: "waterways that do not meet State water quality standards. Under the CWA, Section 303(d), States, territories, and authorized tribes are required to develop prioritized lists of impaired waters." (EPA, 2015)

flowing directly into surface waters, which would degrade water quality and aquatic habitat and could potentially ultimately impact groundwater, a primary source for public drinking water for the residents of Marseilles, Ottawa, Peru, and DePue. In the case of OTHS, there would be no direct impacts to water resources from a potential flooding event. Implementation of the No Action Alternative would not reduce the risk of flooding. Infrastructure would continue to be at risk during flood events.

3.1.2.2.2 Alternative 2 – Illinois River Floodwall Projects

Under Alternative 2, construction activities would not occur within the Illinois and Fox Rivers or Lake DePue. The Preferred Alternative would not affect the Mahomet aquifer, including drinking water supply quality, use, or downstream aquifer usage. Minor excavation activities would take place at DePue and OTHS, but would occur above the groundwater table; therefore, groundwater would not be encountered during construction activities. In addition, no groundwater withdrawal or discharge activities are proposed. Additionally, there would be no impacts to navigable waters in the area; therefore, Section 10 of the Rivers and Harbors Act of 1899 would not apply.

The stretch of the Illinois River within the Action Area is already impacted by instream structures (e.g. navigation locks, dams) and existing floodwalls/levees. The location of WWTPs in such close proximity to the banks of the Illinois River raises concern for the potential discharge of effluent into local waterways in the event of a significant flood event. In addition, an individual Section 401 water quality certification must be issued by the IEPA for each subarea prior to the start of construction.

Temporary localized impacts to water resources could occur during construction related to grading activities and removal of vegetation, which can cause increased erosion. Stormwater runoff from the project sites could transport pollutants to the Illinois and Fox Rivers and Lake DePue if BMPs are not properly implemented. Stormwater runoff could also deteriorate the water quality of standing water, including any standing water accumulating in the compensatory storage areas at the DePue WWTP. In order to minimize impacts to WOUS, BMPs will be implemented that meet the IEPA permitting specifications for stormwater discharge regulated under Section 402 of the CWA. This includes designing the site with specific construction measures to reduce or eliminate potential runoff impacts. Alternative 2 would comply with NPDES requirements that address both construction activities and long-term prevention of sediment and suspended solids from entering the Illinois River, Fox River, and Lake DePue. Therefore, the temporary impact to water quality from Alternative 2 would be less than significant. Any adverse effects to water resources and water quality associated with the construction of the flood protection wall and levee systems would be short-term and be minimized by the measures described above. No long-term effects to water resources and water quality are expected as a result of Alternative 2.

3.1.3 Floodplain Management (Executive Order 11988)

3.1.3.1 Affected Environment

Executive Order (EO) 11988, *Floodplain Management*, requires Federal agencies to act to avoid long- and short-term adverse impacts from occupancy and modification of floodplains. FEMA's regulations for complying with EO 11988 are promulgated in 44 C.F.R. § 9. Through FEMA's flood hazard mapping program, FEMA identifies flood hazards and risks associated with the 100-year flood or land with a 1 percent chance of flooding in any given year (FEMA, 2013b). In compliance with FEMA policy implementing EO 11988, the Action Area was reviewed for potential impacts associated with occupancy or modification to a floodplain.

The Action Area is shown on FIRMs number 17011C0425C (effective 2/4/2011), 17099C0575F (effective 7/18/2011), 17099C0530F (effective 7/18/2011), and 17099C0478F (effective 7/18/2011), as modified by Letter of Map Revision (LOMR) 16-05-0561P (effective 6/13/2016). Figures A-7 to Figure A-10 show the flood risk for each respective subarea.

Each community has floodplain management or zoning ordinances that restrict development within the floodplain. FEMA provides floodplain management information, including mapping of 100-year floodplain limits, through the National Flood Insurance Program (NFIP), which is a voluntary program. Currently, all four communities participate in the NFIP (FEMA, 2015b). As an incentive, NFIP communities may voluntarily participate in the NFIP Community Rating System (CRS), a program that rewards communities by reducing flood insurance premiums in exchange for doing more than the minimum NFIP requirements for floodplain management. The City of Ottawa is the only community of the four participating in the CRS. (FEMA, 2015a)

The Marseilles WWTP is in the Illinois River Floodplain and regulatory floodway, as shown on FIRM number 17099C0575F, effective 7/18/2011 (Figure A-7). The FIRM indicates that the Marseilles WWTP is in Special Flood Hazard Area (SFHA) Zone AE¹² and in the floodway of the Illinois River. Alternative 2 would remove the WWTP site from the floodplain and reduce the potential for flooding at the WWTP.

OTHS is in a SFHA flood hazard zone AE and is within the floodway of both the Illinois River and Fox Rivers, as shown on FIRM number 17099C0530F, effective 7/18/2011 (Figure A-8). Implementation of Alternative 2 would remove the OTHS campus from the floodplain and reduce the potential for flooding at the school.

The Peru east WWTP is in the Illinois River floodplain as shown on FIRM number 17099C0478F, effective 7/18/2011, as modified by LOMR 16-05-0561P, effective 6/13/2016 (Figure A-9). The FIRM indicates that the Peru east WWTP is in SFHA Zone AE. The LOMR clarified that the floodway ends at the railroad tracks south of the facility and the Peru east WWTP is not in the floodway.

¹² Zone AE is an area subject to inundation by the 1 percent annual chance flood event (i.e., the 100-year flood or flood having a 1 percent chance of being equaled or exceeded in any given year).

The DePue WWTP is in the Illinois River Floodplain, as shown on FIRM number 17011C0425C, effective 2/4/2011 (Figure A-5). The FIRM indicates that the DePue WWTP is in SFHA Zone AE and the regulatory floodway. Implementation of Alternative 2 would remove the WWTP site from the floodplain and reduce the potential for flooding at the WWTP.

FEMA applies an Eight-Step Decision-Making Process to ensure that its actions comply with EO 11988. The objectives of EO 11988 are integrated into NEPA implementation where possible (44 C.F.R. § 9.2). Appendix B documents that the Eight-Step Decision-Making Process has been applied through implementation of the NEPA process for these projects.

3.1.3.2 Environmental Consequences

Each of the proposed projects attempted to identify an alternative that would potentially meet the purpose and need of the project, but would avoid the floodplain, as required by 44 C.F.R. § 9. However, because the facilities to be protected are already located within the floodplain, no alternative exists that would avoid the floodplain completely.

3.1.3.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action and floodwall construction activities would not be undertaken. There would be no direct impact to the floodplain, as current conditions would not change. However, the risk of flooding would continue. Communities would continue current flood response activities, including employing sandbagging methods during times of flood. If a flood were to breach or overtop the existing levees, the damage to existing infrastructure would be substantial. In Ottawa, OTHS would suffer substantial damage and the existing building is unlikely to be returned to service. For Marseilles, Peru, and DePue, there is the potential for raw, untreated effluent to enter into local waterways and floodplains due to close proximity of the WWTPs to the banks of the Illinois River and the inadequacy of the existing levees. If the WWTPs stop functioning, sewage-contaminated floodwaters could back up into basements throughout the city, posing a public health risk.

3.1.3.2.2 Alternative 2 – Illinois River Floodwall Projects

Under Alternative 2, construction activities would occur within the 100-year floodplain of the Illinois and Fox Rivers. The three WWTPs and OTHS would be protected from a 500-year flood. The 3 feet of freeboard above the BFE required for levee certification per 44 C.F.R. § 65.10 would be provided.

As parts of the Action Area are in the floodway of the Illinois and Fox Rivers, a hydrologic and hydraulic analysis was performed in accordance with 44 C.F.R. § 60.3. This analysis determined that the activities in Alternative 2 would not result in any increase of flood levels during the base flood discharge at Peru, Ottawa, and DePue (Atkins Global, 2017).

3.1.3.2.2.1 Marseilles

The initial hydrologic and hydraulic analysis shows the proposed encroachment of the floodway at Marseilles would result in a 0.01 foot increase in flood levels at river stations 246.46 and 246.23

(upstream of the proposed floodwall) during the base flood discharge (Atkins Global, 2017). The Marseilles WWTP is the only subarea that would experience a BFE increase from implementation of Alternative 2. The City of Marseilles would need to submit a request for state and local floodplain permit which could trigger the need for a Conditional Letter of Map Revision (CLOMR) if required by state or local floodplain requirements.

Coordination with the Illinois Department of Natural Resources Office of Water Resources (IDNR-OWR) has been performed to obtain the necessary floodway permits for the Marseilles WWTP. Floodway projects also generally require local authorization. Construction is also required to comply with all other Federal, State, and local laws and regulations.

3.1.3.2.2.2 *Ottawa*

The levee improvements at OTHS require Section 408 Permission (33 U.S.C. § 408) from the USACE. A hydrologic and hydraulic modeling analysis on the levee improvement project was conducted by Klingner & Associates, P.C. on behalf of the Ottawa Township, in coordination with the USACE. In a memorandum dated April 25, 2015, the USACE confirmed that the hydraulic modeling was complete for the proposed levee alterations. The USACE also stated that the improvements to the levee system would produce "minimal changes in water surface profiles over a range of conditions" and no new areas would "experience additional damage/consequences."

Coordination with the IDNR-OWR has been performed to obtain the necessary floodway permits for OTHS. Floodway projects also generally require local authorization. Construction is also required to comply with all other Federal, State, and local laws and regulations.

3.1.3.2.2.3 *Peru*

The initial hydrologic and hydraulic analysis shows there would be no increase in flood levels at the Peru east WWTP (Atkins Global, 2017).

Local building permits are required for floodplain construction in Peru. Floodway projects also generally require local authorization. Construction is also required to comply with all other Federal, State, and local laws and regulations.

3.1.3.2.2.4 *DePue*

Based on advice from IDNR about likely permit conditions, the DePue project includes excavation of a storage basin to mitigate flood storage loss (Village of DePue, 2017a). Two compensatory storage areas – totaling approximately 22,600 cubic yards – would be constructed north of the WWTP on village-owned property to mitigate the impact of work in the floodplain. The compensatory storage areas would provide the required volume of storage taken up by construction in the floodplain (Village of DePue, 2016). The village would place a non-construction covenant on property adjacent to the storage area. This land is currently covered with minimal vegetation, so excavation would not have adverse impacts on the natural and beneficial functions of the floodplain, and the increase in flood storage would mitigate any downstream impacts of the flood wall, as indicated by the hydraulic and hydrologic analysis (Atkins Global, 2017).

DePue would need to obtain a floodway permit from the IDNR-OWR prior to the start of construction. Floodway projects also generally require local authorization. Construction is also required to comply with all other Federal, State, and local laws and regulations.

3.1.3.2.2.5 Alternative 2 Summary

In summary, the stretch of the Illinois River within the Action Area is currently impacted by instream structures (e.g., navigation locks and dams) and existing floodwalls/levees, including those currently in place at the subareas. The existing levee prevents the annual floods typical of unmodified rivers and the area behind the levee does not provide riparian habitat. Protecting the Marseilles, DePue, and Peru east WWTPs from floods higher than the current levee heights would reduce the risk of pathogens and pollutants being introduced into the environment and into the Illinois River. Damage to OTHS would result in school closures of varying amounts of time, loss of learning time, dislocated staff and costly repairs. Alternative 2 would protect central infrastructure (WWTPs and OTHS) and protect the natural and beneficial functions of the floodplain. Impacts on the floodplain when considering the four subareas together are negligible. Initial H&H modeling shows that there are no effects to the floodplain anticipated downstream.

To minimize impacts to floodplains, BMPs would be implemented to reduce or eliminate potential run-off impacts. Alternative 2 would comply with NPDES requirements that address both construction activities and long-term prevention of sediment and suspended solids from entering nearby WOUS. The temporary result from construction activities to implement Alternative 2 would be less than significant. No long-term impact to floodplains are expected resulting from Alternative 2. No adverse effects are anticipated for DePue, Ottawa, or Peru. Marseilles would have a less than significant impact due to the slight rise projected in the Illinois River. The importance of providing flood protections outweighs the adverse effects. Therefore, Alternative 2 is practicable (44 C.F.R. § 9.9(e)(5)).

3.1.4 Air Quality

3.1.4.1 Affected Environment

The Clean Air Act (CAA), 42 U.S.C. § 7401 et seq., requires that States adopt ambient air quality standards in order to protect the public from potentially harmful amounts of pollutants (EPA, 2016c). The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six air pollutants: sulfur dioxide (SO₂), particulate matter with a diameter less than or equal to 10 micrometers (PM₁₀) and less than or equal to 2.5 micrometers (PM_{2.5}), carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and lead (EPA, 2016b). The EPA has designated specific areas as NAAQS attainment or non-attainment areas. Non-attainment areas are any areas that do not meet (or that contribute to ambient air quality in a nearby area that does not meet) the quality standard for a pollutant.

Bureau County is currently in attainment for all pollutants, while LaSalle County is considered within maintenance attainment status for PM₁₀ and in attainment for all other pollutants (EPA, 2017c).

3.1.4.2 Environmental Consequences

3.1.4.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action and floodwall construction activities would not be undertaken and no improvements would be made. There would be no direct impact to air quality, as current conditions would not change.

3.1.4.2.2 Alternative 2 – Illinois River Floodwall Projects

Under Alternative 2, it is anticipated that construction activities would result in a temporary increase in air emissions in the Action Area. The primary source of air pollutants during construction would be attributed to the operation and movement of heavy equipment, machinery, and vehicles, which would generate exhaust emissions and fugitive dust. BMPs such as periodic watering, covering open-body trucks, and establishing a speed limit could mitigate fugitive dust. Any adverse impacts to air quality associated with the construction of the floodwalls would be short-term and minimized by the measures described above. No long-term impacts to air quality are expected as a result of the implementation of Alternative 2.

3.2 BIOLOGICAL RESOURCES

Biological resources are native or naturalized plants and animals and their habitats. Protected and sensitive biological resources include federally listed (endangered or threatened), proposed, and candidate species designated under the Endangered Species Act (ESA), 16 U.S.C. § 1532. Critical habitat is protected under the ESA, and other State or Federal designations protect sensitive ecological areas. These habitats may include wetlands, plant communities that are unusual or of limited distribution, or important seasonal use areas for wildlife, such as bird migration routes.

3.2.1 Terrestrial and Aquatic Environment

3.2.1.1 Affected Environment

The Illinois River is 332 miles long, and the Fox River at Ottawa is a major tributary (IDNR, 2011). The Illinois River is divided by locks and dams into separate navigation reaches, and river banks are interspersed with lakes and backwaters (IDNR, 2011). The Illinois River fishery includes recreational species such as crappie (*Pomoxis* spp.), bass (*Morone* spp.), bluegill (*Lepomis macrochirus*), catfish (*Ictalurus* spp.), carp (*Cyprinus carpio*), and bullheads (*Ameiurus* spp.) (IDNR, 2016a). Wildlife areas near to the Action Area are the Marseilles State Fish and Wildlife Area, LaSalle State Fish and Wildlife Area, Illini State Park, and Buffalo Rock State Park. Typical wildlife in LaSalle and Bureau Counties include bats, mice, ground and tree squirrels, Eastern cottontail (*Sylvilagus floridanus*), red fox (*Vulpes vulpes*), river otter (*Lontra canadensis*), striped skunk (*Mephitis mephitis*), and white-tailed deer (*Odocoileus virginianus*) (UIE, 2017).

3.2.1.1.1 Marseilles

The Marseilles WWTP consists of impervious surfaces, with buildings and treatment facilities, an asphalt entryway, and dirt and gravel interior roads and staging areas. Vegetated areas are limited to landscaped lawn. Wooded areas border the east, and are interspersed with residences to the north of the WWTP. Landscaped lawn is maintained to the west and provides a buffer area between the WWTP and residential homes. To the south, there is a riparian corridor between the WWTP and the Illinois River. Typical riparian species found in LaSalle and Bureau Counties include willow (*Salix* spp.), cottonwood (*Populus* spp.), American sycamore (*Platanus occidentalis*), box elder (*Acer negundo*), and sedges (*Carex* spp.) (IDNR, 2016d).

3.2.1.1.2 Ottawa

The OTHS campus consists of impervious, disturbed surfaces. The campus contains buildings, concrete sidewalks, asphalt parking lots, a football field, tennis courts, soccer pitches, baseball diamonds, and other areas maintained for recreational activities. Other vegetated space is landscaped lawn. Outside of the levee on the Fox River, to the west of the school, vegetation is maintained lawn interspersed with trees. Outside of the levee on the Illinois River, to the south of the school, the riparian corridor is more pronounced. The corridor continues to the west of the school, providing a barrier between the levee and a wetland area. Residences with maintained lawn areas are on the north side of OTHS.

3.2.1.1.3 Peru

Peru's east WWTP consists of 75 percent impervious surfaces, with buildings and treatment facilities, an asphalt entryway, parking, and staging area. Vegetated areas are primarily landscaped lawn. The abandoned lagoon is partially vegetated with grasses and forbs. An active rail and dockyard borders the east side of the WWTP. The north side is separated from residences by a wooded buffer zone. Warehouses and other storage structures are to the west of the WWTP. The Peru east WWTP is separated from the Illinois River on the south by railroad tracks, a dirt and gravel staging area associated with the rail and dockyard, and a small riparian buffer zone.

3.2.1.1.4 DePue

DePue's WWTP consists of 20 percent impervious surfaces, with buildings and treatment facilities, and a dirt entryway. Vegetated areas are primarily landscaped lawn. Nine sludge beds are overplanted with reeds and other wetland species to aid in stabilization and dewatering. To the north and northeast, a landscaped area separates the WWTP from storage facilities and residences. Lake DePue is to the south and west of the WWTP, separated by a forested riparian corridor.

3.2.1.2 Environmental Consequences

3.2.1.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken and no improvements would be made. Infrastructure would continue to be at risk during flood events. The terrestrial and aquatic environment could be impacted during a

flood event resulting in sewage overflow from the Marseilles, Peru east, or DePue WWTPs. There would be no direct impact from the No Action Alternative on the terrestrial or aquatic environment at OTHS.

3.2.1.2.2 Alternative 2 – Illinois River Floodwall Projects

Proposed construction would result in the removal of vegetation on and around existing berms, which are currently landscaped. Alternative 2 would include landscaping to restore the berms and any staging grounds to pre-project conditions. Mature trees and other vegetation would only be removed if within the construction footprint, including 14 trees marked for removal at OTHS.

The project at Peru east WWTP includes filling an abandoned lagoon. The grasses and forbs currently growing within the lagoon would be permanently affected. This area would be filled, graded, and planted with grasses and become part of the landscaped area covering the rest of the grounds at the WWTP.

The DePue compensatory storage areas are currently covered with landscaped grasses, and only these grasses would be permanently affected. The compensatory storage areas would be re-landscaped at project completion. The Marseilles WWTP would be temporarily affected until the restoration of landscaping.

3.2.2 Wetlands (Executive Order 11990)

3.2.2.1 Affected Environment

Wetlands are areas inundated or saturated by water that normally support vegetation requiring wet conditions such as swamps, marshes, bogs, and similar areas (40 C.F.R. § 230.3(t), 1993). EO 11990, *Protection of Wetlands*, requires Federal agencies to take action to minimize the loss of wetlands. NEPA requires Federal agencies to consider direct and indirect impacts to wetlands, which may result from federally funded actions. As with EO 11988, FEMA applies the Eight-Step Decision-Making Process. Therefore, the Eight-Step Decision-Making Process has been applied through implementation of the NEPA process (see Appendix B).

The U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) State-specific mapping tools were used to identify wetlands. The USFWS NWI indicates that mapped wetlands are not present in the proposed subareas for the Marseilles WWTP, OTHS, and Peru east WWTP. Forested wetlands with a NWI designation of PFO1A (Palustrine, Forested, Broad-Leaved Deciduous, Temporary Flooded) surround the southern half of the DePue WWTP, with the closest point being approximately 15 feet from the DePue WWTP along the western side (USFWS, 2016).

3.2.2.2 Environmental Consequences

3.2.2.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken, and no improvements would be made. There would be the possibility of

direct impacts on wetlands, as current conditions would not change. Flood events impacting WWTPs due to inadequate flood protection could result in raw sewage flowing directly into wetlands, which would degrade wetland habitat and water quality. In addition, implementation of the No Action Alternative would not reduce the risk of flooding. Infrastructure would continue to be at risk during flood events.

3.2.2.2 Alternative 2 – Illinois River Floodwall Projects

No wetlands are present at the Marseilles WWTP, OTHS, or the Peru east WWTP. Wetlands adjacent to the DePue WWTP project site would not be affected by the Proposed Alternative and a Section 404 permit would not be required from the USACE.

To minimize impacts to adjacent wetlands at the DePue WWTP project site, BMPs would be implemented to reduce or eliminate potential run-off impacts (e.g., installing silt fence around the perimeter of the site, protecting existing downstream inlets and culverts, seeding all disturbed areas as soon as practical). Alternative 2 would comply with NPDES requirements that address both construction activities and long-term prevention of sediment and suspended solids from entering nearby WOUS. Therefore, any potential temporary impact to wetlands from the DePue WWTP subarea would be less than significant. No adverse effects to wetlands associated with the construction of the flood protection wall would occur.

3.2.3 Threatened and Endangered Species

3.2.3.1 Affected Environment

In accordance with Section 7 of the ESA the project subareas were evaluated for the potential occurrences of federally listed threatened and endangered species and for the presence of designated critical habitat. The ESA requires any Federal agency that funds, authorizes, or carries out an action to ensure that their action is "not likely to jeopardize the continued existence" of any endangered or threatened species (including plant species) or result in the destruction or adverse modification of designated critical habitats (USFWS, 2011).

LaSalle and Bureau Counties host six federally protected species under the ESA, two mammals, three flowering plants, and one insect (Table 3-1). All species and associated critical habitat are designated by the USFWS. The subareas where construction would occur do not contain the specific habitat requirements required for these ESA-listed species.

Table 3-1: ESA-Listed Species in LaSalle and Bureau Counties

Common Name	Scientific Name	Federal Status	Critical Habitat ^a	Habitat Requirements/Notes
Mammals				
Indiana bat	<i>Myotis sodalis</i>	E	Yes	Caves and mines for hibernation; small stream corridors with well-developed riparian woods; upland forests for foraging
Northern long-eared bat	<i>Myotis septentrionalis</i>	T	No	Caves and mines for hibernation; wooded areas surrounding caves; upland forests for foraging
Plants				
Decurrent false aster	<i>Boltonia decurrens</i>	T	No	Moist, sandy floodplains along the Illinois River
Eastern prairie fringed orchid	<i>Platanthera leucophaea</i>	T	No	Mesic to wet prairies
Leafy-prairie clover	<i>Dalea foliosa</i>	E	No	Prairie remnants over limestone
Insects				
Rusty patched bumble bee	<i>Bombus affinis</i>	E	No	Grasslands and tallgrass prairies; undisturbed, abandoned rodent cavities or grasses for nesting; undisturbed soil for hibernation

E = Endangered

T = Threatened

^a Critical Habitat designated in LaSalle or Bureau Counties

Source: (USFWS, 2017a)

Designated critical habitat for the Indiana bat (*Myotis sodalis*) occurs in North Utica, between Peru and Ottawa. The Blackball Mine is an abandoned limestone mine within a nature preserve more than 3 miles away from the subareas where construction activities would occur (USFWS, 2012). Bats generally arrive at hibernacula between late August and early September, with swarming and mating occurring in the fall. Hibernation begins for females after mating; males typically do not begin hibernation until November. Hibernation lasts six months, with activity resuming in April through mid-May. (NatureServe Explorer, 2016; USFWS, 2009)

One of the main threats to the Indiana bat is white nose syndrome, a fungus appearing on the muzzle of bats which spreads during hibernation. White nose syndrome was confirmed in LaSalle County in 2013. (USFWS, 2017b; USFWS, 2013)

LaSalle and Bureau Counties do not host any species listed by the National Marine Fisheries Service (NMFS) under ESA, nor do they contain essential fish habitat identified pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA), 16 U.S.C. §§ 1801-1884. It is unlikely that fish protected under the MSA would occur in the Illinois River.

Although no longer an ESA-listed species, bald eagles (*Haliaeetus leucocephalus*) are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668-668d) and the Migratory Bird Treaty Act (16 U.S.C. §§ 703-712). Bald eagles can sometimes be found along the Illinois and Fox Rivers and are discussed in greater detail in Section 3.2.4, Migratory Birds (IDNR, 2017a).

3.2.3.2 Environmental Consequences

3.2.3.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken, and no improvements would be made. There would be no direct impact on threatened and endangered species, as current conditions would not change. However, implementation of the No Action Alternative would not reduce the risk of flooding. Infrastructure would continue to be at risk during flood events.

3.2.3.2.2 Alternative 2 – Illinois River Floodwall Projects

Under Alternative 2, construction activities are not expected to result in adverse impacts to threatened and endangered species or critical habitat. The subareas where construction activities would occur do not contain the specific habitat requirements required by the six ESA-listed species in LaSalle and Bureau Counties which are under the jurisdiction of USFWS (Table 3-1). For example, there are no wooded areas of sufficient size to attract listed bat species within the subareas. While there is critical habitat for Indiana bats in LaSalle County, the proposed construction activities would not affect any critical habitat, as all the subareas where work will occur are more than 3 miles away from designated critical habitat. Furthermore, LaSalle and Bureau Counties do not host species listed by NMFS under ESA, nor do they contain essential fish habitat under MSA. See Section 9.1 for additional information and ESA compliance documentation.

Enhancing the floodwall infrastructure would reduce the likelihood and intensity of damages to the WWTPs from flooding of the Illinois River. Preventing the WWTPs from flooding would prevent pathogens and pollutants from being introduced into the environment and into the Illinois River, which could indirectly benefit some species that occur in the vicinity of the river. Therefore, implementation of the Alternative 2 is anticipated to have a long-term beneficial impact to habitats affected, but no effect on listed species or critical habitat because they would be absent from affected areas.

3.2.4 Migratory Birds

3.2.4.1 Affected Environment

The Migratory Bird Treaty Act, 16 U.S.C. §§ 703–712, protects migratory birds. The Mississippi Flyway covers the entire State of Illinois, and serves as a pathway for large numbers of migratory birds (Flyways, Undated).

The Donnelley and DePue State Fish and Wildlife Area, which includes Lake DePue, is a 3,015 acre Important Bird Area, and a resting and feeding stop for migratory waterfowl. It supports populations of wading birds; 767 Great Blue Herons (*Ardea herodias*) were counted in a 2000 survey. Also, the region is used by bald eagles. (NAS, Undated)

Bald eagles winter along the Illinois River and along the Fox River, typically arriving in December and remaining in residence until migrating north in March (IDNR, 2017a). Areas along the Illinois River,

including the Starved Rock State Park, which is at least 3 miles from the Peru east WWTP and OTHS, are active bald eagle nesting locations (Starved Rock State Park, Undated). Nesting by bald eagles has also reportedly occurred within the Donnelley and DePue State Fish and Wildlife Area complex, which includes Lake DePue (Illinois River Road, Undated). The first few months of the bald eagle nesting period, during the courtship and nest building period (generally lasting through March), are the portion of the nesting period when bald eagles would be most sensitive to disturbance (USFWS, 2016). The subareas (project sites) within the Action Area do not contain appropriate trees for bald eagles to roost or nest.

3.2.4.2 Environmental Consequences

3.2.4.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action and floodwall construction activities would not be undertaken and no improvements would be made. There would be no direct impact on migratory birds, as current conditions would not change. However, implementation of the No Action Alternative would not reduce the risk of flooding.

3.2.4.2.2 Alternative 2 – Illinois River Floodwall Projects

Under this Alternative, construction activities could temporarily discourage migratory birds from stopping in or near the Action Area due to temporary ground and vegetation disturbance and the increase in noise levels. Alternative 2 would not violate the Migratory Bird Treaty Act. Therefore, any potential temporary impact to migratory birds would be less than significant.

Bald eagles winter along the Illinois River and along the Fox River, typically arriving in December and remaining in residence until migrating north in March (IDNR, 2017a). The Starved Rock State Park, a few miles from Peru east WWTP and OTHS, is a noted location for bald eagle nesting (IDNR, 2017a). As noted above, eagle nesting has also been reported in Donnelley/DePue State Fish and Wildlife Area. The beginning of the bald eagle nesting period, through around March, is when any nesting bald eagles would be most sensitive to disturbance from such activities as construction. To minimize bald eagle impacts, construction activities shall not occur between December and March at the DePue WWTP. In the event an active or inactive bald eagle's nest is identified near any of the project sites, project partners must comply with the requirements of the Bald and Golden Eagle Protection Act.¹³

Enhancing the floodwall infrastructure would reduce the likelihood and intensity of damages to the WWTPs from flooding of the Illinois River. Preventing the WWTPs from flooding would prevent pathogens and pollutants from being introduced into the environment and into the Illinois River, indirectly benefiting migratory birds that use the Donnelley and DePue State Fish and Wildlife Area

¹³ USFWS provides recommendations for how to avoid non-purposeful take of bald eagles, particularly if an eagle's nest is visible from a construction site or if a project will occur within 660 feet (200 meters) of a nest. For more information, see <https://www.fws.gov/midwest/midwestbird/eaglepermits/baeatake/step1.html>. If these recommendations cannot be followed, the project partner should contact the local USFWS office.

and other portions of the Action Area as a resting and feeding stop. Therefore, implementation of Alternative 2 could have a long-term beneficial impact to migratory birds in the Action Area, but would result in no effect on listed species or critical habitat because they would be absent from affected areas.

3.3 SOCIOECONOMICS

3.3.1 Zoning and Land Use

3.3.1.1 Affected Environment

The lands within the Action Area in both counties are previously developed.

The Marseilles WWTP is on the west side of the city, north of Bell's Island, on the north shore of the Illinois River. The WWTP is currently zoned as an Incorporated Area (LaSalle County, 2016b). The proposed land use is consistent with the existing adjacent land use (LaSalle County, 2014).

OTHS is located on the northeast corner of the confluence between the Fox and Illinois Rivers. OTHS is currently zoned mostly as B (Apartment) with some A-2 (Single and Two Family Residential) (City of Ottawa, 2014a). Alternative 2 would not alter the existing adjacent land use (City of Ottawa, 2014b).

The City of Peru's east WWTP is on the bank of the Illinois River south of Water Street and west of River Dock Road. The WWTP is currently zoned as M-2 (Heavy Manufacturing) (City of Peru, 2005). The proposed land use is consistent with the existing adjacent land use (LaSalle County, 2014).

The Village of DePue's WWTP is on the west side of the village, on the northwest shore of Lake DePue, adjacent to the Illinois River, just off of West 2nd Street. The WWTP is currently zoned as Public Land (Wenzlaff, 2017). The proposed land use is consistent with the existing adjacent land use (NCICG, 2014a).

3.3.1.2 Environmental Consequences

3.3.1.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken, and no improvements would be made. There would be no direct impact on zoning and land use, as current conditions would not change. However, implementation of the No Action Alternative would not reduce the risk of flooding. Infrastructure would continue to be at risk during flood events.

3.3.1.2.2 Alternative 2 – Illinois River Floodwall Projects

Under Alternative 2, construction activities would occur on previously developed land within the Action Area. The proposed land use is consistent with the existing adjacent land use and the zoning for the Action Area would not have to be changed. Therefore, implementation of Alternative 2 is anticipated to have no impacts on zoning and land use.

3.3.2 Visual Resources

3.3.2.1 Affected Environment

Visual resources influence the human experience of a landscape. Various aspects combine to create visual resources, such as color, contrast, texture, line, and form. Features such as mountain ranges, city skylines, lake views, unique geological formations, and rivers as well as constructed landmarks such as bridges, memorials, cultural resources, and statues are considered visual resources. The Federal government does not have a single definition of what constitutes a visual resource; therefore, this PEA will use the general definition of visual resources used by the Bureau of Land Management, “the visible physical features on a landscape (e.g., land, water, vegetation, animals, structures, and other features).” (BLM, 1984)

The visual resources along the Illinois and Fox Rivers vary from natural forested landscapes and agricultural lands to developed, industrial areas. In both LaSalle and Bureau Counties, the dominant land use is agriculture. However, municipalities contain most of the residential, commercial, and industrial development (LaSalle County, 2014; Bureau County Regional Planning Commission, 2014). In LaSalle County’s Comprehensive Plan, high quality, natural scenic resources are valued for recreation and tourism (LaSalle County, 2014). In Bureau County, landscapes with scenic value along the Illinois River are considered in County Planning Policies for protection or conservation (Bureau County Regional Planning Commission, 2014).

Due to the nature of the proposed projects, the lands within the Action Area in both counties are previously developed with limited natural scenic resources. Visual resources surrounding the four subareas contain a variety of landscapes: river views, forest, open space, developed, and industrial areas.

3.3.2.2 Environmental Consequences

3.3.2.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken, and no improvements would be made. There would be no direct impact on visual resources, as current conditions would not change. Infrastructure would continue to be at risk during flood events.

3.3.2.2.2 Alternative 2 – Illinois River Floodwall Projects

Under Alternative 2, construction activities would occur on previously developed land within the subareas, which have already had the natural scenic resources removed or altered. Temporary visual impacts on the viewshed could occur during construction of the floodwalls. Therefore, any potential temporary impact to visual resources from construction activities in the subareas would be less than significant. The long-term impacts to visual resources from the addition of new floodwalls at the four project locations would be minimal considering current visual contexts.

3.3.3 Noise

3.3.3.1 Affected Environment

Noise is traditionally defined as unwanted sound and is measured in decibels (dB). Audible sounds range from 0 dB (threshold of hearing) to about 140 dB (threshold of pain) (OSHA, 2016). For example, conversational speech is measured at about 55 to 60 A-weighted dB, whereas a band playing loud music may be as high as 120 A-weighted dB. Noise is federally regulated by the Noise Control Act (NCA), 42 U.S.C. § 4901 et seq. (1972) and is administered by the EPA. Although the NCA gives the EPA authority to prepare guidelines for acceptable ambient noise levels, it only charges those Federal agencies that operate noise-producing facilities or equipment to implement noise standards. The EPA's guidelines state that outdoor sound level in excess of 55 dB are "normally unacceptable" for noise-sensitive land uses such as residences, schools, and hospitals. The IEPA regulates noise as described in the Illinois Environmental Protection Act (415 ILCS 5) (IEPA, 2014). Illinois has regulations for noise under Illinois Administrative Code, Title 35, Sections 901 and 902 which establish maximum noise limits for vehicles and other sources (IPCB, 2013).

The subareas are presently operational facilities producing varying noise levels. Roads, rail lines, industrial facilities, and other construction operations generate intermittent noise and vibrations in the areas surrounding the Action Area.

3.3.3.2 Environmental Consequences

3.3.3.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken, and no improvements would be made. There would be no direct impact resulting from noise, as current conditions would not change.

3.3.3.2.2 Alternative 2 – Illinois River Floodwall Projects

Under Alternative 2, construction activities would result in a temporary increase in noise levels in the Action Area. To minimize noise impacts, construction would be restricted to normal business hours to the maximum extent possible. Heavy equipment, machinery, and vehicles utilized at each project site would meet all Federal, State, and local noise requirements. Any adverse impacts to noise associated with the construction of the floodwalls would be short-term and minimized by the measures described above. No long-term impacts to noise are expected as a result of Alternative 2.

3.3.4 Public Services and Utilities

3.3.4.1 Affected Environment

Public services and utilities are the essential systems that support daily operations in a community and cover a broad array of public services, such as electricity, water, wastewater, and solid waste. Utility lines often cross or run along stream corridors, either overhead or underground. Public services and utilities include fire protection, law enforcement, Emergency Medical Services, schools,

water, wastewater, sanitation, solid waste disposal, stormwater drainage, electric utilities, natural gas, and telephone/telecommunications.

The public service providers in Marseilles include the Marseilles Police Department, the Marseilles Area Ambulance Service, the Marseilles Fire Protection District, and Marseilles Elementary School. Utility providers in Marseilles include Commonwealth Edison and Metamora Telephone Company (MTCO) Communications. Additionally, the City of Marseilles currently operates two water treatment and distribution systems and a WWTP (City of Marseilles, 2017a).

The public service providers in Ottawa include the Ottawa Police Department, Ottawa Fire Department, Ottawa Elementary School District, Wallace School District, Waltham School District, OTHS, Marquette Academy, and Illinois Valley Community College. Utility providers in Ottawa include Ameren Illinois, Nicor Gas, MediaCom, and AT&T. Additionally, the City of Ottawa operates a water treatment plant and WWTP (City of Ottawa, 2017).

The public service providers in Peru include the Peru Police Department, Peru Fire Department, Peru Public Schools, LaSalle-Peru Township High School, LaSalle-Peru Christian School, Peru Catholic School, and St. Bede Academy. Utility providers in Peru include Ameren Illinois, Total Environmental Service Technologies, Inc., and Comcast (City of Peru, 2017a).

The public service providers in DePue include the DePue Police Department, DePue Fire Company 1, and DePue Unit School District #103. Utility providers in DePue include Ameren Illinois, Frontier Communications, and Comcast. Additionally, the Village of DePue operates a water treatment system and WWTP (Village of DePue, 2017b).

3.3.4.2 Environmental Consequences

3.3.4.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken, and no improvements would be made. There would be no direct impact on public services and utilities, as current conditions would not change. Flood events impacting WWTPs due to inadequate flood protection could result in sewage and basement back-ups, infrastructure damage that leads to service interruptions, and loss of electric power and communications, which would prohibit the WWTPs from providing the communities with essential public services.

For the Marseilles WWTP, a flood event could result in raw, untreated sewage flowing directly into the Illinois River and its surrounding environment. Residents of the City of Marseilles could experience sewer and basement back-ups as the gravity-fed system would cause sewage to continue to flow to the plant. (City of Marseilles, 2017a)

Damage to OTHS would result in school closures of varying amounts of time, loss of learning time, and dislocated staff. Damage to the surrounding residences would likely include insurance claims and dislocated residents. (City of Ottawa, 2016)

Should the Peru east WWTP experience a loss, the facility is valued at approximately \$25 million. Eighty percent of the city's sewage is treated by the east WWTP, this sewage could cause basement and drain backups throughout the city, and would need to be rerouted, causing additional strain on resources. (City of Peru, 2016)

Should the DePue WWTP experience a flood, operations would halt, pumps would become inoperable, and water tanks would fill with flood water. As the WWTP uses a gravity-fed system, untreated sewage may have to be pumped into Lake DePue. (Village of DePue, 2016)

In addition, implementation of the No Action Alternative would not reduce the risk of flooding. Infrastructure would continue to be at risk during flood events.

3.3.4.2.2 Alternative 2 – Illinois River Floodwall Projects

Under this Alternative, construction activities would not result in adverse modifications or loss of service to public services and utilities. A stormwater pumping station would be constructed at the Marseilles WWTP to assist in removing stormwater runoff within the treatment facility and to pump final effluent out of the facility when river levels no longer allow effluent to be discharged by gravity.

Enhancing the floodwall infrastructure would reduce the likelihood and intensity of damages to nearby public services and utilities, including the WWTPs and OTHS, from flooding of the Illinois River. Therefore, implementation of Alternative 2 is anticipated to have a long-term beneficial impact on public services and utilities in the Action Area.

3.3.5 Traffic and Circulation

3.3.5.1 Affected Environment

The Action Area in both counties is previously developed with an existing transportation network.

The Marseilles WWTP is on the north shore of the Illinois River near the intersection of Spicer Lane and Commercial Street (County Highway 51), approximately 1 mile west of downtown Marseilles. Commercial Street is a two-lane, east-west street located on the southern edge of downtown, becoming Broadway Street at Main Street.

OTHS is located at the northeast corner of the confluence between the Fox and Illinois Rivers on East Main Street, less than half a mile east of downtown Ottawa. Main Street runs east-west on the southern edge of downtown.

The City of Peru's east WWTP is on the bank of the Illinois River on Water Street between Illinois Route 251 and River Dock Road, approximately 1 mile east of downtown Peru. Water Street runs east-west along the Illinois River.

The Village of DePue's WWTP is on the northwest shore of Lake DePue, adjacent to the Illinois River, just off of West 2nd Street, and less than half a mile west of downtown DePue. West 2nd Street runs east-west along the Illinois River.

3.3.5.2 Environmental Consequences

3.3.5.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken, and no improvements would be made. There would be no direct impact on traffic and circulation, as current conditions would not change. However, implementation of the No Action Alternative would not reduce the risk of flooding. Infrastructure would continue to be at risk during flood events.

3.3.5.2.2 Alternative 2 – Illinois River Floodwall Projects

Under Alternative 2, construction activities could result in a temporary increase in traffic volume on residential streets near the Action Area. To minimize traffic and circulation impacts, construction would be restricted to normal business hours to the maximum extent possible. Appropriate signage would be posted to notify the public of the construction activities and any potential road closures and detours. Any adverse impacts to traffic and circulation associated with the construction of the floodwalls would be short-term and minimized by the measures described above. No long-term impacts to traffic and circulation are expected as a result of Alternative 2.

3.3.6 Socioeconomic Conditions

3.3.6.1 Affected Environment

Section 102(A) of NEPA requires Federal agencies to “insure the integrated use of the natural and social sciences...in planning and in decision making” (42 U.S.C. § 4332(A)). Socioeconomics refers to a broad, social science-based approach to understanding a region’s social and economic conditions. Socioeconomics typically includes population, demographic descriptors, economic activity indicators, housing characteristics, property values, and public revenues and expenditures.

3.3.6.1.1 Population

Table 3-2 presents estimated populations of Marseilles, Ottawa, Peru, and DePue within the Action Area in comparison to Illinois and the nation (U.S. Census Bureau, 2016).

Table 3-2: Estimated Population

Geography	Estimated 2015 Population
Marseilles	5,094
Ottawa	18,342
Peru	9,952
DePue	1,838
Illinois	12,801,539
United States	323,127,513

Source: (U.S. Census Bureau, 2016)

Table 3-3 presents estimated projections of the 2030 population from the Illinois Department of Public Health, which analyzes demographic and economic data (State of Illinois, 2017).

Table 3-3: Projected Estimated Population Growth

Geography	Estimated 2015 Population	Projected 2030 Population
LaSalle County (Marseilles, Ottawa, Peru)	111,333	112,034
Bureau County (DePue)	33,587	33,144
Illinois	12,801,539	12,929,838
United States	323,127,513	360,828,810

Sources: (U.S. Census Bureau, 2016; State of Illinois, 2017)

3.3.6.1.2 Economic Activity

Table 3-4 presents two indicators of income – per capita and median household – as income is a good measure of general economic health of a region. Per capita income is useful as an indicator of the relative income level across two or more areas. As shown in Table 3-4, the 2015 per capita income in Illinois (\$30,494) was \$1,564 higher than that of the nation (\$28,930). The average per capita income within the Action Area (\$26,213) was \$4,281 lower than that of Illinois and \$2,717 lower than that of the nation.

Household income is a useful measure, and often used instead of family income, because in modern society there are many single-person households and households composed of non-related individuals. Median household income (MHI) is the income at which half of all households have higher income, and half have lower income. Table 3-4 shows that in 2015, the MHI in Illinois (\$57,574) was \$3,685 higher than that of the nation (\$53,889). The average MHI within the Action Area (\$45,666) was \$11,908 lower than that of Illinois and \$8,223 lower than that of the nation.

Employment status is a key socioeconomic parameter because employment is essential to the income of a large portion of the adult population. Table 3-4 compares the unemployment rate in the subareas to Illinois and the nation. In 2015, Illinois's statewide unemployment rate of 5.6 percent was higher than the rate for the nation (4.7 percent). The average unemployment rate within the Action Area (5.5 percent) was higher than the nation but somewhat lower than that of Illinois.

Table 3-4: Selected Economic Indicators

Geography	Per Capita Income 2015	Median Household Income 2015	Average Annual Unemployment Rate 2015 (%)
Marseilles	\$20,629	\$37,589	5.6
Ottawa	\$26,269	\$46,477	5.6
Peru	\$25,816	\$46,126	5.6
DePue	\$16,896	\$38,250	5.3
Illinois	\$30,494	\$57,574	5.6
United States	\$28,930	\$53,889	4.7

Sources: (U.S. Census Bureau, 2017a; IDES, 2017)

By industry, the Action Area has a mixed economic base. Detailed employment data provides useful insights into the nature of local, State, or national economy. Table 3-5 provides figures on employment percentages by type of worker and by industry based on surveys conducted in 2015 by the U.S. Census Bureau by class of worker (e.g., private industry, government, self-employed).

Table 3-5: Employment by Class of Worker and by Industry, 2015

Class of Worker and Industry	Action Area	Illinois	United States
Civilian Employed Population 16 Years and Over	71,843	6,086,226	145,128,676
Percentage by Class of Worker			
Private wage and salary workers	82.2	82.7	79.7
Government workers	11.9	12.4	14.1
Self-employed in own not incorporated business workers	5.8	4.7	6.0
Unpaid family workers	0.1	0.1	0.2
Percentage by Industry			
Agriculture, forestry, fishing and hunting, and mining	5.4	1.1	2.0
Construction	5.5	5.1	6.2
Manufacturing	13.8	12.6	10.5
Wholesale trade	2.7	3.0	2.7
Retail trade	13.8	11.0	11.6
Transportation and warehousing, and utilities	7.9	5.9	4.9
Information	0.7	2.0	2.1
Finance and insurance, and real estate and rental and leasing	4.1	7.3	6.6
Professional, scientific, management, administrative, and waste management services	5.2	11.4	11.1
Educational services, and health care and social assistance	23.7	23.0	23.0
Arts, entertainment, and recreation, and accommodation and food services	8.7	9.1	9.7
Other services, except public administration	4.7	4.7	5.0
Public administration	3.8	3.8	4.7

Source: (U.S. Census Bureau, 2017b)

3.3.6.1.3 Environmental Justice (Executive Order 12898)

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs Federal agencies, “to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or

environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States” (Executive Office of the President, 1994). EPA defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (EPA, 2011). Table 3-6 identifies minority populations within the Action Area and compares them with populations for Illinois and the nation.

Table 3-6: Estimated Population by Race and Hispanic Status, 2015

Geography	Total Estimated Population	Race (%)						Two or More Races (%)	Hispanic (%)
		White (%)	Black/African Am (%)	Am. Indian/Alaska Native (%)	Asian (%)	Native Hawaiian/Pacific Islander (%)	Some Other Race (%)		
Marseilles	5,094	98.0	0.0	0.3	0.3	0.0	1.1	0.2	4.6
Ottawa	18,342	91.4	4.3	0.1	0.8	0.0	1.2	2.3	9.0
Peru	9,952	98.0	1.0	0.0	0.3	0.0	0.2	0.4	8.1
DePue	1,838	75.5	0.3	0.0	0.4	0.0	22.4	1.4	54.7
Illinois	12,801,539	72.7	14.2	0.2	4.9	0.0	5.7	2.2	16.4
United States	323,127,513	73.7	12.6	0.8	5.1	0.2	4.7	3.0	17.1

Source: (U.S. Census Bureau, 2017c)

Table 3-7 presents the percentage of the estimated population living in poverty for the Action Area cities and towns, Illinois, and the nation. A larger percentage of the population of Marseilles lives below the poverty level when compared to the other project cities and towns, the State, and the nation.

Table 3-7: Percentage of Estimated Population (Individuals) in Poverty, 2011-2015

Geography	Percent Below Poverty Level (%)
Marseilles	19.1
Ottawa	15.4
Peru	8.9
DePue	14.4
Illinois	14.3
United States	15.5

Source: (U.S. Census Bureau, 2017a)

3.3.6.2 Environmental Consequences

3.3.6.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken, and no improvements would be made. There would be no direct impact on socioeconomic conditions, as current conditions would not change. However, implementation of

the No Action Alternative would not reduce the risk of flooding. Infrastructure would continue to be at risk during flood events.

3.3.6.2.2 Alternative 2 – Illinois River Floodwall Projects

Under Alternative 2, enhancing the floodwall infrastructure would reduce the likelihood and intensity of damages to nearby residents and central infrastructure (WWTPs and OTHS) from flooding of the Illinois River. These projects are not expected to have a disproportionately high and adverse effect on minority and low-income populations, but would instead result in beneficial effects to these populations, if present. Although Marseilles and Peru exhibit lower than the Illinois average income level, and DePue exhibits a higher percentage of minority residents than the Illinois minority population, implementation of Alternative 2 would have no adverse impacts on these populations. Therefore, implementation of Alternative 2 is anticipated to have a long-term beneficial impact on socioeconomic conditions in the Action Area.

3.3.7 Safety and Security

3.3.7.1 Affected Environment

Safety and security issues considered in this PEA include the health and safety of nearby residents and the protection of construction personnel. The Illinois River has a history of flooding events, illustrated in Section 1.3, which poses safety risks to nearby residents.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires Federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children. OTHS has approximately 1,440 students, all of whom would benefit from mitigation of the flood hazard.

To minimize risks to safety and occupational health, all construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment including all appropriate safety precautions. Additionally, all activities would be conducted in a safe manner in accordance with Occupational Safety and Health Act (OSHA; 29 U.S.C. § 651 et seq.) regulations.

3.3.7.2 Environmental Consequences

3.3.7.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken, and no improvements would be made. There would be no direct impact on safety and security from construction activities, as current conditions would not change. Flood events impacting the nearby residents and central infrastructure (WWTPs and OTHS) due to inadequate flood protection could result in raw sewage entering into local waterways, potentially resulting in a major public health risk. In addition, implementation of the No Action Alternative would not reduce the risk of flooding. Infrastructure and the safety of nearby residents would continue to be at risk during flood events.

3.3.7.2.2 Alternative 2 – Illinois River Floodwall Projects

Under this Alternative, construction activities would result in temporary safety hazards from the use of heavy equipment and machinery. All construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment including all appropriate safety precautions. Additionally, construction activities would be conducted in a safe manner in accordance with OSHA regulations. Appropriate signage would be posted to notify the public and OTHS students of the construction activities and security fencing should be installed where necessary to prevent unauthorized entry and ensure public safety.

Enhancing the floodwall infrastructure would reduce the likelihood and intensity of damages to nearby residents and central infrastructure (WWTPs and OTHS) from flooding of the Illinois River. Preventing the WWTPs from flooding would prevent pathogens and pollutants from being introduced into the environment and into the Illinois River. Additionally, many schools are often used for municipal needs, so ensuring the safety of OTHS students, staff, and buildings is a critical function. Therefore, implementation of Alternative 2 is anticipated to have a long-term beneficial impact on safety and security in the Action Area.

3.3.8 Hazardous Materials

3.3.8.1 Affected Environment

Hazardous wastes, as defined by the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901 et seq., are defined as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may; (A) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or; (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed.” (42 U.S.C. § 6903)

As of February 2017, in LaSalle and Bureau Counties there are four RCRA Corrective Action sites (American Nickeloid Co. and Flint Hills Resources Chemical in Peru, IL; Fagerdala USA in Mendota, IL; and US Ecology, Inc. in Sheffield, IL); 24 brownfield sites;¹⁴ and 4 final Superfund/National Priorities List sites (LaSalle Electric Utilities, and Matthiessen and Hegeler Zinc Company in LaSalle, IL; New Jersey Zinc/Mobil Mining & Minerals Co. in DePue, IL; and Ottawa City Landfill in Ottawa, IL) (EPA, 2017b).

The New Jersey Zinc/Mobil Chemical Superfund Site’s active location, the phosphogypsum stack, is approximately 1 mile from the DePue WWTP. The DePue WWTP is on the southern edge of Operable Unit 4, Off-Site Soils, which was considered for soil clean-up by IEPA (IEPA, 2016d). The IEPA’s Record of Decision, published May 2017, did not identify any principal waste threats. Soil samples

¹⁴ EPA defines a brownfield as "a property, the expansion, redevelopment, or reuse of which may be complicated by the presence of a hazardous substance, pollutant, or contaminant" (EPA, 2017a).

taken from 40 of the 41 residential properties within Operable Unit 4 contained concentrations of lead and/or arsenic. No hazardous wastes were present, pursuant to RCRA and Illinois regulations; such contaminated soils are considered solid waste (IEPA, 2017).

The Toxics Release Inventory, administered by the EPA under the Emergency Planning and Community Right to Know Act of 1986, 42 U.S.C. § 11001-11003, requires certain industrial facilities to report annually on their releases of toxic chemicals into the air, water, or land. As of December 2015, the Action Area had 21 facilities reporting to the Toxics Release Inventory (NIH, 2015).

3.3.8.2 Environmental Consequences

3.3.8.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken, and no improvements would be made. There would be no direct impact from hazardous materials, as current conditions would not change. However, implementation of the No Action Alternative would not reduce the risk of flooding. Infrastructure would continue to be at risk during flood events.

3.3.8.2.2 Alternative 2 – Illinois River Floodwall Projects

Under Alternative 2, construction activities are not expected to result in the use and storage of hazardous materials. If hazardous materials are discovered during construction, appropriate measures would be taken to identify, remove, and dispose of these materials in accordance with Federal, State, and local regulations. Therefore, there would be no anticipated change to hazardous material discharges.

3.4 HISTORIC AND CULTURAL RESOURCES

3.4.1 Affected Environment

3.4.1.1 Regulatory Background

Multiple Federal statutes and regulations require consideration of the effects of an agency's undertakings on historic properties. These include the National Historic Preservation Act (NHPA) of 1966, as amended, 54 U.S.C. § 300101 et seq. (formerly 16 U.S.C. § 470 et seq.); its implementing regulations (36 C.F.R. § 800); the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), 25 U.S.C. § 3001 et seq.; the American Indian Religious Freedom Act of 1978 (AIRFA), 42 U.S.C. § 1996; and the Archaeological Resources Protection Act of 1979 (ARPA), 16 U.S.C. § 470aa et seq.

Section 106 of the NHPA and its implementing regulations direct Federal agencies to consider the effects of their undertakings¹⁵ on Historic Properties, and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. Alternate procedures are often used to streamline the Section 106 review process and may be in the form of a Programmatic Agreement, Memorandum of Agreement, or other legal document developed among the agency, the appropriate State Historic Preservation Officer (SHPO), the ACHP, a Tribal Historic Preservation Officer (THPO), and/or other stakeholders as appropriate to the undertaking. For the proposed projects, FEMA would utilize, to the extent possible, an existing Programmatic Agreement to satisfy Section 106 compliance requirements (FEMA, 2014).

Under the NHPA, a higher standard is applicable to historic properties that are designated as National Historic Landmarks (NHLs). In accordance with this guidance, Federal agencies must, to the maximum extent possible, minimize harm to NHLs that are directly and adversely affected by their actions. In addition, Federal agencies must notify and formally invite the Secretary of the Interior to join the consultation process and invite the ACHP to participate in the consultation process to resolve any adverse effects. (NPS, 2014)

The National Register of Historic Places (NRHP) was established by the NHPA, and the listings are maintained by the Department of the Interior. Properties may be eligible for listing in the NRHP if they possess significance at the national, tribal, State, territory, or local level and within the context of American history, architecture, archaeology, engineering, or culture. Whether archaeological, architectural, or cultural-religious in nature, cultural resources that are listed in or eligible for listing in the NRHP are called Historic Properties. Potential impacts on Historic Properties are discussed below by site type: architectural resources (e.g., buildings, structures, objects) and archaeological resources, including Native American resources. (NPS, 2017)

3.4.1.2 Historic Properties – Architectural Resources

Architectural resources, also referred to as above-ground resources, are a type of Historic Properties defined as consisting of buildings, structures, objects, and districts (NPS, 1991). These property types may be affected by direct activities (physical alteration), as well as indirect activities (visual or vibrational) from construction and/or operational activities.

After the War of 1812 and the entrance of Illinois into the Union in 1818, Euro-American settlement in the area along the Illinois River began to increase as French settlers moved away and Native American tribes were pushed west. Industries and railway lines along the Illinois River developed, fueled by the Illinois River as a shipping lane that connected the towns within the Action Area to the Mississippi River near St. Louis, MO, and down to New Orleans, LA, where goods could be sold (Conger & Hull, 1932, p. 147). By 1828, steamboats replaced flatboats as transportation vehicles for

¹⁵ An undertaking, in the context of Section 106 and as used throughout this document, refers to a “project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval” (36 C.F.R. § 800.16(y)).

the river, allowing goods to move upstream (Conger & Hull, 1932, p. 156). Between 1836 and 1848, The Illinois & Michigan Canal was constructed as a shipping route between the Great Lakes and the Gulf of Mexico. The Illinois & Michigan Canal started on the Illinois River in Peru/LaSalle, and continued northeast to Lake Michigan via the Chicago River (see Figure A-11) (Canal Corridor Association, 2017).

Today, the 96-mile Illinois & Michigan Canal route is a National Heritage Corridor, the first historic resource designated as such in the United States. Additionally, the Illinois & Michigan Canal is an NRHP-listed resource, and the Illinois and Michigan Canal Locks and Towpath is a NHL. The Area of Potential Effect (APEs) in Marseilles, Ottawa, and Peru all lie within the defined boundaries of the Illinois & Michigan Canal National Heritage Corridor.

3.4.1.2.1 Marseilles

One of the earliest Euro-American settlers in the Marseilles area was William Richey, who in 1829 with his wife and son, moved there to farm along the Illinois River and establish a trading location with the Native Americans still living in the area. A cabin constructed in 1831 by the Richeys eventually became a stagecoach stop known as the Buckhorn Tavern (demolished in 1976), and was one of the earliest structures in what would become Marseilles. Knowing that the Illinois & Michigan Canal would pass through the area, another settler, Lovell Kimball, established a sawmill at the head of the Marseilles rapids on the Illinois River and platted the town in 1835 (Historic American Buildings Survey, 1933a). After construction began on the Illinois & Michigan Canal in 1836, the population of Marseilles increased as laborers recruited to work on the canal from Ireland, Germany, and Sweden settled in the area, with other arrivals from England, Scotland, and France (Carney, 1960). These settlers established businesses and built structures near the Illinois River that still remain.

There are five NRHP-listed or eligible Historic Properties in the vicinity of the Action Area, with 34 recorded architectural resources that not have been formally evaluated for the NRHP (IHPA, 2017b). Of the Historic Properties, two are located within the vicinity of the WWTP: the NRHP-listed Illinois & Michigan Canal is located approximately 350 feet north, and the Marseilles Hydro Plant Historic District, constructed in 1906-1911, is located 2,100 feet to the east.

The location of the Direct APE is within the property of the Marseilles WWTP. Constructed in 1939, this facility was funded by the Federal Works Agency's Public Works Administration, and has not been previously evaluated for the NRHP.

3.4.1.2.2 Ottawa

Euro-Americans began to settle in the Ottawa area on the south side of the Illinois River after a United States land grant was given to Illinois in 1827, purchasing land for homesteads along the river and speculation in advance of the construction of the Illinois & Michigan Canal. The proceeds from the land sales were used to help with the canal's construction financing. In 1826, Dr. David Walker arrived on the south shore and with his son George, and built structures between 1826 and 1831 that functioned as their home and a post to trade with Native Americans still living in the area. In 1832,

the original town of Ottawa, on the south shore, was platted, and more settlers began to arrive from eastern States. The north shore of the Illinois River and west of the Fox River was platted in 1830 by trustees of the Illinois & Michigan Canal. Ottawa became the County seat in 1831 due to its location at the confluence of these two rivers (Historic American Buildings Survey, 1933b).

In the 1830s-1840s, Ottawa's population increased with the construction of the Illinois & Michigan Canal, rail lines, and creation of other industries, such a flour mills and a brick and tile factory. By 1859, more than 50 buildings had been constructed on the north bank of the Illinois River (Historic American Buildings Survey, 1933b). On August 21, 1858, the historic first debate between Senate candidate Abraham Lincoln and incumbent Senator Stephen Douglas occurred in Washington Park, an important event in Ottawa's and the nation's history, within what is now listed in the NRHP as the Washington Park Historic District (Fetzer, 1973).

In 1855, a bridge was constructed that crossed the Fox River, connecting the commercial center of Ottawa to the NRHP-listed Ottawa East Side Historic District, the residential neighborhood directly adjacent to the Direct APE. The Ottawa East Side Historic District started being developed in 1848, with the Ottawa Township High School adjacent to the Direct APE being constructed in 1916, and expanded in 1931. Prior to being platted and developed, this land had been used for farming. The majority of the area of the Direct APE does not appear to have been developed with structures due to the regular floods that covered the area, and it was only recently developed with parking lots and sports fields for the high school (Granacki & Ramsey, 2013).

There are 301 NRHP-listed or eligible Historic Properties in the vicinity of the Action Area contained within the Ottawa East Side Historic District, with the main OTHS building, a contributor to the Historic District, being the closest historic property to the Direct APE, approximately 300 feet away (IHPA, 2017b).

3.4.1.2.3 Peru

Euro-Americans began to settle in the Peru area on the north side of the Illinois River after a U.S. land grant was given to the State of Illinois in 1827. The first, named John Hays, arrived with his family in 1830. The Hays family constructed a log cabin and developed a business operating a ferry across the Illinois River. In 1834, the town was platted, and it was not long before a common border was established as a result of increasing populations and land subdivision in the town of LaSalle to the east. In 1836, construction began on the Illinois & Michigan Canal, the entrance from the Illinois River being located at the boundary of Peru and LaSalle. To attract much-needed labor for the construction efforts, advertisements for workers were placed in newspapers in the eastern United States, Canada, and Ireland, and shortly after Peru began to grow with an influx of immigrant laborers. Within a few years, many of these immigrants began to purchase land in the area and became farmers or laborers.

There are four NRHP-listed Historic Properties in the vicinity of the action area, and two NRHP-listed Historic Districts (IHPA, 2017b). Of the Historic Properties, there are two located within the vicinity of the Action Area: the NRHP-listed Illinois & Michigan Canal is located approximately 650 feet

southeast, and the Westclox Manufacturing Plant Historic District is located approximately 1,000 feet to the northeast. The Illinois and Michigan Canal Locks and Towpath NHL is located approximately 650 feet to the southeast, and the Action Area is within the boundaries of the Illinois & Michigan Canal National Heritage Corridor.

The location of the Direct APE is within the property of the Peru east WWTP. Constructed in 1939, this facility was funded by the Federal Works Agency's Public Works Administration, and has not been previously evaluated for the NRHP.

3.4.1.2.4 DePue

The first record of Lake DePue is the account of an early French missionary, Father Marquette, in 1673, who held Christian mass on the shore and wrote of the Native American villages nearby. It was some time after when Euro-American settlement began in the immediate area, with the early settlement initially called Newport Steamboat Landing, then Trenton, and then DePue (DePue Centennial Committee, 1961).

Historic accounts indicate that groups of Native Americans were living around Lake DePue as late as 1828. This group told the early Euro-American settlers of a band of Potawatomi who arrived in the area around 1780 after the Illini were attacked at Starved Rock near Peru, and left just before the settlers began to arrive in the late 1820s. Another account indicated that a band of Potawatomi had a village on the bluffs located north of Lake DePue, with a burial ground near the location of the railroad tracks. There are also historic accounts of a large Blackfoot village of about 500 people located near the bluffs when Euro-American settlers began to arrive (Crandell, 1976).

A large warehouse was constructed by John Hall on the Illinois River in 1835 for local farms to load their foodstuffs onto steamboats for delivery to river towns on the Illinois and Mississippi Rivers. In 1836, additional warehouses (Figure A-12) were constructed, and the settlement started to grow as a shipping depot for goods west of the Illinois River. The town was platted in 1853 by Benjamin Newell as Trenton. Newell owned a large area of land, approximately 2,000 acres including Lake DePue, and constructed numerous structures along the Lake DePue to take advantage of the growing need for food and materials shipped west to the Mississippi River towns. He constructed a sawmill to produce railroad ties; a grist mill to make flour; a cooper shop to make barrels; and warehouses to hold produce and meat (DePue Centennial Committee, 1961).

Along Lake DePue, numerous docks and ice storehouses (Figure A-13) were constructed for cutting and storing ice blocks in winter, with two of the largest being constructed by the W. L. Lemp Brewing Company and the Anheuser Bush Brewing Company to store approximately 100,000 tons of ice. In addition to the ice industry, commercial fishing was another important early industry for Lake DePue. Numerous fishing shacks lined the shore to catch fish and collect clams and mussels, the shells of which were shipped to factories to make buttons. (DePue Centennial Committee, 1961)

The population and commercial industry steadily increased. In 1905, the Mineral Point Zinc Company constructed a plant in DePue to process zinc, starting a population boom that shaped the modern

boundaries of the town, and serving as the major construction event that established many of the standing structures in DePue today (DePue Centennial Committee, 1961).

The DePue WWTP was initially constructed in 1965, and major renovations were made in 1981 and 1991. Structures on the property are the Blower Building, Lab and Pump Building, Primary Aerator/Digester/Clarifier, and Secondary Aerator/Digester/Clarifier. Landscape features include a levee enclosing the DePue WWTP structures, an entrance driveway and interior roadway, and three sludge drying beds. A commemorative plaque on the Blower Building suggests it was constructed circa 1982, and a commemorative plaque on the Lab and Pump Building suggests construction circa 1965. The primary and secondary aerator/digester/clarifier structures are constructed of poured concrete and steel elements, such as safety railings. The dates of construction of these structures is not known; however, it is theorized that the Secondary Aerator/Digester/Clarifier, immediately adjacent to the Lab and Pump Building, was constructed at the same time as this building (in 1965), and the Primary Aerator/Digester/Clarifier was constructed as part of the 1981 or 1991 renovations.

3.4.1.3 Historic Properties - Archaeological Resources

Archaeological resources are a type of Historic Properties and may include prehistoric and ethnohistoric archaeological sites (Native American or other cultures); historic archaeological sites; or other features or items; and elements or areas of the natural landscape that have cultural character and significance to a culture, subculture, or community (NPS, 1991; King, 1998). These property types may be affected by direct, ground-disturbing activities, as well as indirect activities (visual or auditory intrusions), from construction or operational activities.

Native American groups occupied the Illinois River Valley from time immemorial. Early archaeological materials from mobile hunting and gathering bands has been found buried deeply in the form of Clovis points, providing physical evidence of occupation by 12,500 – 9,500 years Before Present (BP). Archaeological evidence for the continuous habitation of Native American groups found throughout the area shows the transition from mobile hunting and gathering to the incorporation of farming into their subsistence based in semi-permanent and permanent large villages along major rivers, spanning the Archaic (9,500 – 2,750 BP), Woodland (2,750 – 1,000 BP), Mississippian (1,000 – 500 BP), and Ethnohistoric and Historic Periods.

3.4.1.3.1 Ethnohistoric/Contact Period (1600s – 1700s Anno Domini [AD])

The ethnohistoric period in the area began with early contacts between Native American groups and French explorers and Jesuit missionaries. When Jesuit missionaries began establishing a presence in the Illinois River Valley in the 1600s, they encountered and interacted with the Illinois Confederacy (Illini), a group of Native American tribes (Kaskaskia, Cahokia, Peoria, Tamaroa, Moingwena, Michigamea, Chepoussa, Chinkoa, Coiracoentanon, Espeminkia, Maroa, and Tapouara) (Swanton, 1901). For determining areas where archaeological resources are more likely to be encountered, early recorded settlement patterns of the Illini showed three types of settlements throughout the year: large, semi-permanent Summer villages located near rivers occupied for the planting (April-May) and the harvesting (July-October) of crops; Summer camps in the prairies for bison hunting

(June-July); and smaller Winter villages in river bottoms (Warren & Walthall, Illini Indiana in the Illinois Country, 1673-1832, 1998b). Many of the excavated sites in the Illinois River Valley are Summer Villages, due to the existence of ethnographic documents that have assisted archaeologists in locating them (Warren & Walthall, Illini Archaeology: Cultural Heritage and Repatriation, 1998a).

During the 1700s and 1800s, the lands along the Illinois River served as a significant corridor for Native American tribes moving through the area as disease, warfare, and European expansion pushed groups west. After the Illinois tribes left, Potawatomi peoples and associated Ottawa and Ojibwa established small villages along the Illinois River and its tributaries. These groups then traveled further west after ceding the lands on 10 miles on either side of the Illinois River from the confluence of the Fox and Illinois Rivers to Lake Michigan in the Indian Treaty of August 24, 1816 (Davis, 1935).

3.4.1.3.2 Historic Period (post 1816 AD)

By the 1830s, Euro-American settlement in the area along the Illinois River had started to increase, along with the construction of the Illinois & Michigan Canal as a shipping route between the Great Lakes and the Gulf of Mexico between 1836 and 1948. The Illinois & Michigan Canal started at the confluence of the Illinois River and Fox River, and continued to Lake Michigan via the Chicago River (IDNR, 2017c; Illinois Secretary of State, 2017). Towns were platted along the canal at specific distances spaced by how far mules could pull barges along the parallel towpaths along the canal, of which Peru/LaSalle and Ottawa were two such locations (Schroer, Peterson, & Bradford, 1975). As mentioned in Section 3.4, the Illinois & Michigan Canal route is a National Heritage Corridor, a NRHP-listed resource, and an NHL. Portions of the canal, towpaths, and other associated infrastructure have been filled in, making this an important archaeological resource where it is encountered.

The Inventory of Illinois Archaeological Sites (IIAS) database was reviewed to determine if any previously recorded archaeological resources are known to occur at or near the project Direct APEs, in addition to any previous archaeological resources surveys that encompassed the APE. For all four Direct APEs along the Illinois River, the IIAS database identified areas as having a high probability for the occurrence of archaeological resources (IHPA, 2017c). Archaeological deposits in floodplains can sometimes be buried deeply due to alluvial action, with deposits along riverbanks buried deeper than further into the floodplain because of differential rates of sedimentation (NRCS, Undated).

3.4.1.3.3 Marseilles

The data contained within the IIAS database indicates that a small portion of the Direct APE has been previously surveyed for archaeological resources, with no record of survey on the remaining portion. Previously surveyed areas along the river adjacent to the APE contain a high density of recorded archaeological sites (IHPA, 2017c). The Illinois Historic Preservation Agency's Historic and Architectural Resources Geographic Information System (HARGIS) (IHPA, 2017a) and IIAS (IHPA, 2017c) databases both indicate the Direct APE as high probability locations for archaeological resources. A review of historic topographic maps in the general vicinity of the APE resulted in no

evidence of demolished structures within the Direct APE that would have resulted in any subsurface historic-era archaeological materials.

LaSalle County has six archaeological sites listed on the NRHP that are associated with Native Americans and Euro-Americans, providing evidence of human activities in the area spanning the Clovis, Archaic, Middle Woodland, Late Woodland, Upper Mississippian, and Ethnohistoric and Historic Periods (NPS, 2017).

3.4.1.3.4 Ottawa

The data contained within the IAS database indicates that none of the Direct APE has been previously surveyed for archaeological resources. Previously surveyed areas along the Illinois and Fox Rivers adjacent to the APE contain no recorded archaeological sites (IHPA, 2017c). The Illinois Historic Preservation Agency's HARGIS (IHPA, 2017a) and IAS (IHPA, 2017c) databases both indicate the Direct APE as high probability locations for archaeological resources. The residential neighborhood directly adjacent to the APE along the Fox River started being developed in 1848, thus any surface prehistoric archaeological deposits at this confluence of the Fox and Illinois Rivers were likely to have been destroyed as residential development increased. The OTHS adjacent to the Direct APE was constructed in 1916, with an expansion in 1931. The general vicinity of the APE has a high likelihood of containing historic-era archaeological deposits; however, in reviewing historic topographic maps there is no evidence of demolished structures within the Direct APE that would have resulted in any subsurface cultural materials.

LaSalle County has six archaeological sites listed on the NRHP that are associated with Native Americans and Euro-Americans, providing evidence of human activities in the area spanning the Clovis, Archaic, Middle Woodland, Late Woodland, Upper Mississippian, and Ethnohistoric and Historic Periods (NPS, 2017).

3.4.1.3.5 Peru

The data contained within the IAS database indicates that approximately 50 percent of the Direct APE has been previously surveyed for archaeological resources, with no record of survey on the remaining portion. The Illinois Historic Preservation Agency's HARGIS (IHPA, 2017a) and IAS (IHPA, 2017c) databases both indicate the Direct APE as high probability locations for archaeological resources. Previously surveyed areas along the river adjacent to the APE contain no recorded archaeological sites (IHPA, 2017c). A review of historic topographic maps in the general vicinity of the APE resulted in no evidence of demolished structures within the Direct APE that would have resulted in any subsurface historic-era archaeological materials.

LaSalle County has six archaeological sites listed on the NRHP that are associated with Native Americans and Euro-Americans, providing evidence of human activities in the area spanning the Clovis, Archaic, Middle Woodland, Late Woodland, Upper Mississippian, and Ethnohistoric and Historic Periods (NPS, 2017).

Approximately 5 miles upriver from the Action Area is the Kaskaskia Village site, sometimes called the Grand Village of the Illinois, a large agricultural settlement of members of the Illinois Confederacy (NPS, 2005) (NPS, Undated) and a Jesuit mission, Mission of the Immaculate Conception, founded in 1675 by Father Jacques Marquette on the banks of the Illinois River. Across the River is Starved Rock, the former location of Fort St. Louis established in 1683 by French explorer René-Robert Cavelier, Sieur de LaSalle. The fort became a trading center between the Illinois tribes and Europeans in the upper Illinois River Valley, and served as a draw for Native Americans in the area, evidenced by traces of habitation during the Ethnohistoric Period in the greater vicinity, including the area around of Peru, that peaked around approximately 10,000 people (IDNR, 2017b). A 1718 map of the Illinois area by French cartographer Guillaume de L'Isle (Figure A-14) identifies the Kaskaskia Village as "Ancien Village des Illinois" ("Old Illinois Village") and Starved Rock as "le Rocher" ("the Rock") (L'Isle, 1718).

3.4.1.3.6 DePue

The data contained within the IIAS database indicates that the Direct APE, and no surrounding areas, have been previously surveyed for archaeological resources. Recorded archaeological sites exist in the vicinity of the APE, with a large site recorded in close proximity (IHPA, 2017c). The Illinois Historic Preservation Agency's HARGIS (IHPA, 2017a) and IIAS (IHPA, 2017c) databases both indicate the Direct APE as high probability locations for archaeological resources.

A review of historic topographic maps in the general vicinity of the APE resulted in no evidence of demolished structures within the Direct APE that would have resulted in any subsurface historic-era archaeological materials; however, historic accounts of the Action Area and historic photographs evidence significant construction of wooden structures of varying sizes along the shore of Lake DePue in the vicinity of the Action Area (Crandell, 1976; DePue Centennial Committee, 1961). In addition, historic accounts discuss Native Americans living in small villages around the Lake until the 1820s, with one source stating that "[m]any Indian relics, including flint arrows, beads, stone axes, and pottery have been found throughout the DePue area" (Crandell, 1976).

3.4.1.4 SHPO Consultation

Although direct impacts to previously documented sites are not anticipated, subgrantees (i.e., the Cities of Marseilles, Ottawa, and Peru and the Village of DePue) would be required to avoid these resources as a precaution to prevent even minor potential disturbances. To reduce the potential for impacts to cultural resources, implementation of Alternative 2 would be conditioned so that no ground disturbance occurs outside of the proposed areas that have been reviewed, and no modifications to above-ground structures would occur outside of any reviewed project plans.

FEMA requires that all ground-disturbing projects protect cultural resources during site work. In the event of an unanticipated discovery, and in compliance with State and Federal laws, including those protecting cultural resources such as Section 106 of the NHPA, all work is required to cease in the immediate vicinity of the find until the appropriate parties (including the SHPO) are consulted and an appropriate resolution plan is established.

3.4.1.4.1 Marseilles

FEMA has determined that no additional identification or evaluation efforts are necessary, and that implementation of Alternative 2 would have no effect on historic properties. FEMA provided Section 106 findings and its determination in a formal letter to the SHPO in June 2017, and received a concurrence on July 13, 2017, indicating the SHPO's concurrence that no historic properties are affected from the implementation of Alternative 2 (Section 9.2.1).

3.4.1.4.2 Ottawa

FEMA has determined that no additional identification or evaluation efforts are necessary, and that implementation of Alternative 2 would have no adverse effect on historic properties. FEMA provided Section 106 findings and its determination in a formal letter to the SHPO in June 2017, and received a response on July 3, 2017, indicating that more documentation of prior ground disturbance was necessary. FEMA provided additional information, and received concurrence on August 3, 2017, indicating the SHPO's concurrence that no adverse effect on historic properties would result from the implementation of Alternative 2 (Section 9.2.1).

3.4.1.4.3 Peru

FEMA has determined that no additional identification or evaluation efforts are necessary, and that implementation of Alternative 2 would have no effect on historic properties. FEMA provided Section 106 findings and its determination in a formal letter to the SHPO in June 2017, and received a concurrence on July 13, 2017, indicating the SHPO's concurrence that no historic properties would be affected from the implementation of Alternative 2 (Section 9.2.1).

3.4.1.4.4 DePue

FEMA has determined that no additional identification or evaluation efforts are necessary, and that implementation of Alternative 2 would have no effect on historic properties. On August 16-17, 2017, archaeologists working on behalf of FEMA conducted a Phase I archaeological survey to determine the presence of cultural resources in potentially undisturbed soils within the project location. The results of the survey were negative, and indicated a significant level of previously disturbed soil existed at the project location. FEMA provided Section 106 findings and its determination in a formal letter to the SHPO in September 2017, and concurrence by the SHPO that no historic properties are affected was received September 20, 2017.

3.4.1.5 Native American Consultation

In addition to the applicable sections of the NHPA (Section 101(d)(6)(A)-(B)) and Section 106), Native American consultation policies outlined by the ACHP are based on Federal statutes and EOs. Under NEPA, CEQ regulations and guidance require agencies to contact Indian tribes and provide them with an opportunity to participate in the preparation of an Environmental Assessment (EA). AIRFA establishes the policy of the Federal government "to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including, but not limited to, access to sites, use and

possession of sacred objects, and the freedom to worship through ceremonials and traditional rites." Section 3(c) of NAGPRA requires Federal land-managing agencies to consult with federally recognized Indian tribes prior to the intentional removal or excavation of Native American human remains and other cultural items as defined in NAGPRA from Federal lands. In instances where a proposed project that is funded or licensed by a Federal agency may cross Federal or tribal lands, it is the Federal land managing agency that is responsible for compliance with NAGPRA. EO 13007, *Indian Sacred Sites*, encourages land-managing agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sites. This EO applies to all federally owned lands except "Indian trust lands." EO 13175, *Consultation and Coordination with Tribal Governments*, strengthens "the United States' government-to-government relationships with Indian tribes..." Thus, the government-to-government consultation process continues to embody the unique relationship between the United States and Indian tribes.

FEMA conducts government-to-government consultation with Tribes regarding potential impacts of the proposed undertakings on cultural or religious resources. Eleven tribes with an interest in Bureau and LaSalle Counties were identified for consultation:

- Citizen Potawatomi Nation,
- Forest County Potawatomi Community of Wisconsin,
- Hannahville Indian Community,
- Ho-Chunk Nation,
- Kickapoo Tribe of Indians of the Kickapoo Reservation,
- Kickapoo Tribe of Oklahoma,
- Osage Nation,
- Prairie Band Potawatomi Nation,
- Sac and Fox Nation of Missouri in Kansas and Nebraska,
- Sac and Fox Nation, and
- Sac and Fox Tribe of the Mississippi in Iowa.

Section 106 consultation letters, dated in June 2017, were sent to the Citizen Potawatomi Nation, Forest County Potawatomi Community of Wisconsin, Hannahville Indian Community, Ho-Chunk Nation, Kickapoo Tribe of Indians of the Kickapoo Reservation, Kickapoo Tribe of Oklahoma, Osage Nation, Prairie Band Potawatomi Nation, Sac and Fox Nation of Missouri in Kansas and Nebraska, Sac and Fox Nation, and the Sac and Fox Tribe of the Mississippi in Iowa. On July 13, 2017, the Osage Nation responded indicating that for the proposed project in DePue, the Osage Nation Historic Preservation Office is requesting a copy of the cultural resources survey report to review prior to providing its comments. For the three project locations in LaSalle County, it indicated that these are outside of the Osage Ancestral Territory and do not concern the Osage Nation (Section 9.2.2). On July 14, 2017, the Forest County Potawatomi Community of Wisconsin replied, indicating that it would comment after receipt of the "archaeological report and SHPO comment letter for the projects" (Section 9.2.2). No responses have been received to date from the other Tribes. On

September 7 and 8, 2017, FEMA sent a copy of the Phase I archaeological survey conducted at the proposed project in DePue, as well as the SHPO concurrence letters received for the other three projects, to the Osage Nation and the Forest County Potawatomi Community (Section 9.2.2). On October 5, 2017, the Forest County Potawatomi Community THPO responded to FEMA, concurring with the report's finding that there were no historic properties found at the site in DePue and the SHPO's findings with respect to the other three projects (Section 9.2.2). No response has been received to date from the Osage Nation.

3.4.2 Environmental Consequences

3.4.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no Federal action, floodwall construction activities would not be undertaken, and no improvements would be made. There would be no direct impact on historic and cultural resources, as current conditions would not change. However, implementation of the No Action Alternative would not reduce the risk of flooding. Infrastructure would continue to be at risk during flood events.

3.4.2.2 Alternative 2 – Illinois River Floodwall Projects

Under Alternative 2, FEMA has concluded the following with regard to the effect of the undertaking on historic properties within the proposed project APEs:

- Project activities would result in little surface disturbance, and most disturbance would occur in previously-disturbed soils within the Direct APEs;
- Modern disturbances (existing structures and infrastructure) are common and widespread;
- There is no potential to affect viewshed of the Illinois and Michigan Canal;
- Extant historic buildings would not be directly affected within the Direct APE or visually affected within the Visual APE; and
- Cultural resources documented in the vicinity of the project APEs have well-defined boundaries that do not overlap with any of the APEs.

Accordingly, FEMA determined that given the nature of Alternative 2 and disturbed nature of the project APEs, no intensive pedestrian survey of the APEs was necessary. A Phase I archaeological survey was conducted for the DePue Floodwall project, prior to FEMA reaching a determination pursuant to NHPA with respect to that project. FEMA consulted with the Illinois Historic Preservation Agency (IHPA) to seek concurrence for its determinations that the implementation of Alternative 2 would have no adverse effect on historic properties in the vicinity of OTHS and that no historic properties would be affected in DePue, Peru, or Marseilles by the implementation of Alternative 2. IHPA concurred with these determinations.

In addition, FEMA consulted with Native American tribes regarding the Alternative 2 and any potential impacts to tribal cultural or religious resources. The Forest County Potawatomi Community responded to FEMA on June 14, 2017, and the Osage Nation responded on June 13, 2017, both

indicating that they would like to review the results of FEMA's cultural resources surveys. Once the survey for the DePue Floodwall project was complete, FEMA provided the report to these Tribes for review. The only response FEMA has received to date is from the Forest County Potawatomi Community, which concurred with the finding of no historic properties found at the site in DePue studied in the report and with the SHPO's findings for the proposed work in Marseilles, Ottawa, and Peru.

If unexpected discoveries are made during the course of project execution, FEMA would proceed in compliance with State and Federal laws protecting cultural resources, including Section 106 of the NHPA. All work would cease in the immediate vicinity of the find until appropriate parties are consulted and a treatment plan is established.

4 CUMULATIVE IMPACTS

According to CEQ regulations, cumulative impacts represent the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 C.F.R. § 1508.7).

In 2014, the City of Marseilles identified energy efficiency upgrades to improve the Marseilles WWTP. These included upgrading treatment systems, lighting, green building practices, and the implementation of other projects to make the Marseilles WWTP more energy efficient (NCICG, 2014b). The potential impacts from implementing projects to increase the energy efficiency of the Marseilles WWTP in combination with the implementation of Alternative 2 are unlikely to have cumulatively adverse effects on the environment.

OTHS began renovations in the fall of 2016 to make improvements to the school (The Ottawa Herald, 2016). Improvements include heating, ventilation, air conditioning, and other interior renovations, additions to east side of the building, and the conversion of a parking lot to a multi-purpose field (Ottawa High School Board, 2015). According to the schematics, planned additions would be limited to areas inside the existing traffic circle surrounding the campus (Ottawa High School Board, 2015). The implementation of Alternative 2 would not have cumulatively adverse impacts on the environment with the current renovations to OTHS, which are fully within the existing disturbed footprint of the high school.

The City of Peru awarded a contract to upgrade the clarifier at the Peru east WWTP (City of Peru, 2017b). As of the writing of this PEA, upgrades to the clarifier had not yet begun (City of Peru, 2017b). Upgrades would be above-ground or replacement of buried pipe at the same location; there would be no ground disturbance at previously undisturbed locations (Chamblin & Associates, 2016).

In 2014, the Village of DePue identified several improvements needed for the DePue WWTP (NCICG, 2014a). These included purchasing and installing new clarifiers, replacing blowers and the west digester tank aeration system, and conducting a thorough sewer study to identify sources of inflow and to help prioritize repair and replacement projects (NCICG, 2014a). Implementation of Alternative 2, in combination with these improvements to the DePue WWTP, would not cumulatively have adverse impacts on the environment.

FEMA recently funded construction of the new Spring Valley WWTP, completed in 2017. The Spring Valley WWTP is located on the bank of the Illinois River between the DePue and Peru east WWTPs, approximately 6 miles east of the DePue WWTP and 4.5 miles west of the Peru east WWTP. The new Spring Valley WWTP replaces an outdated facility that was prone to flooding. The WWTP’s former berm was 461 feet, 1.4 feet lower than the BFE of 462.4 feet, and below the 500-year flood elevation of 465.1 feet. The new WWTP includes tank tops at 466 feet, above the 500-year flood elevation (FEMA, 2014). The potential impacts from the Preferred Alternative in combination with the Spring

Valley WWTP project would not cumulatively have adverse impacts on the environment. There are no other mitigation projects in the area.

In addition to the Spring Valley WWTP project, there are two bridge replacement projects currently underway and one future road relocation project in the Action Area. The two bridge replacement projects are included in the Illinois Department of Transportation's (IDOT) FY 2016-2021 Proposed Highway Improvement Program for Region 2, District 3 (IDOT, 2015). The Dee Bennett Road Relocation project is included in the Illinois Federal Lands Access Program of Projects for Federal Fiscal Years 2015-2018 (FHWA, 2015).

The Route 89 bridge in Spring Valley spans the Illinois River and is located between the DePue and Peru east WWTPs in the Action Area. Construction on the new bridge began in early 2016 and is expected to be complete by December 2017. The new bridge is being built alongside the existing Route 89 bridge, which remains open to traffic. Once the new bridge is complete, the old bridge will be demolished. To reduce flood risks, the new road approaching the bridge will be more than 5 feet higher than the current road to be above the 100-year flood elevation (LaSalle NewsTribune, 2014). The potential impacts from the Preferred Alternative in combination with the Route 89 bridge replacement project would not cumulatively have adverse impacts on the environment.

The Route 178 bridge in Utica spans the Illinois River and is located between the Peru east WWTP and the Ottawa Township High School in the Action Area. Construction on the new bridge began in February 2017 and is expected to be complete in 2019. The new Route 178 bridge is being built alongside the existing bridge, which remains open to traffic. Once the new bridge is complete, the old bridge will be demolished. The Route 178 bridge project will impact 0.537 wetland acres permanently and approximately 0.226 wetland acres temporarily. Permanent impacts will be mitigated with the purchase of 1.074 acres of wetland credit from IDOT's Morris Wetland Bank. The chosen wetland bank is outside the project's basin; therefore, mitigation will be at a 2:1 ratio (IEPA, 2016f). The potential impacts from the Preferred Alternative in combination with the Route 178 bridge replacement project would not cumulatively have adverse impacts on the environment.

The proposed Dee Bennett Road Relocation project in Utica is located near the Route 178 bridge between the Peru east WWTP and the Ottawa Township High School in the Action Area. LaSalle County plans on acquiring rights-of-way and clearing for construction by 2018 with construction beginning in 2020. This proposed project involves relocating 1.9 miles of Dee Bennett Road north of its current location and utilizing the existing roadway as a shared use path along the Illinois River (Village of Utica, 2016). To reduce flood risks, the new road will be elevated above the 100-year flood elevation (LaSalle County, 2016a). The potential impacts from the Preferred Alternative in combination with the Dee Bennett Road Relocation project would not cumulatively have adverse impacts on the environment.

The IEPA is undertaking the excavation of off-site soils contaminated with lead and/or arsenic near the New Jersey Zinc/Mobil Chemical Corp Superfund Site. The IEPA published a Record of Decision in May 2016 and anticipates excavation activities for 2.5 years. Excavated soils and site-related

materials removed from contaminated properties will be transported to the former plant site area for stockpiling and management. (IEPA, 2017) Implementation of Alternative 2 would not add to potential soil contamination at the DePue WWTP. Any soil relocation resulting from Alternative 2 would be managed and disposed of in accordance with Federal, State, and local laws and regulations, including any regulations from the IEPA. The potential impacts from implementing Alternative 2 in combination with the removal of contaminated soils would not cumulatively have adverse effects on the environment.

Adjacent to the DePue WWTP, Lake DePue receives contaminated surface water and groundwater discharge from the New Jersey Zinc/Mobil Chemical Corp Superfund Site that contain elevated concentrations of metals (EPA, 2017d). IEPA is evaluating next steps, and a clean-up process could be undertaken in the foreseeable future (EPA, 2017d). Implementation of Alternative 2 would not include construction in the waterway, and would be above the groundwater table. Implementation of Alternative 2 would not further degrade the water quality of Lake DePue, and would not interfere with the future clean-up and remediation of the lake. The potential impacts from implementing Alternative 2 in combination with the clean-up of Lake DePue would not cumulatively have adverse effects on the environment.

5 PUBLIC PARTICIPATION

5.1 INITIAL PUBLIC NOTICES

FEMA published Initial Public Notices for the proposed actions in local newspapers of general circulation. The notices provided general information about the Proposed Action, the purpose and need, and contact information for comments and requests for information. No comments were received on any of the Initial Public Notices. The notices were published as follows:

- Marseilles WWTP: October 29 and 31, 2016, in the *Times*;
- OTHS: November 2 and 3, 2016, in the *Times*;
- Peru east WWTP: October 31 and November 1, 2016, in the *News Tribune*; and
- DePue WWTP: November 10, 2016, in the *Bureau County Register*.

5.2 PUBLIC NOTICE OF AVAILABILITY FOR COMMENT

FEMA published a public notice for the Pre-Disaster Mitigation Floodwall Projects Draft PEA in local newspapers of general circulation. The notices were published as follows:

- December 7, 2017 in *The Times* and
- December 8, 2017 in the *News Tribune*.

The public, Tribes, and agencies had the opportunity to comment on the Draft PEA for 30 days from the date of publication. The notices announced the availability of the Draft PEA, the public comment period, and how to submit comments. No comments were received during the 30 day comment period.

6 CONDITIONS AND MITIGATION MEASURES

The subgrantees are responsible for compliance with Federal, State, and local laws and regulations, including obtaining any necessary permits prior to beginning construction activities and adhering to any conditions laid out in these permits. Any substantive change to the scope of work would require re-evaluation by FEMA for compliance with NEPA, NHPA and any other laws or EOs.

Subgrantees must adhere to the following conditions should Alternative 2 be implemented. Failure to comply with FEMA grant conditions may jeopardize Federal funding.

1. All State, local, and county ordinances would be followed.
2. Any proposed construction within the floodplain must be coordinated with the local floodplain administrator and comply with Federal, State, and local floodplain laws and regulations.
3. Construction activities at the DePue WWTP would not take place between December and March (the most sensitive portion of the nesting period for bald eagles).
4. If bald eagle nests are identified in the vicinity of any of the project sites, construction would comply with requirements the Bald and Golden Eagle Protection Act (including guidance at <https://www.fws.gov/midwest/midwestbird/eaglepermits/baeatake/step1.html>).
5. All equipment would be properly maintained with applicable noise controls in place.
6. Excavated soil and waste materials must be managed and disposed of in accordance with Federal, State, and local laws and regulations.
7. All clean construction or demolition debris shall be disposed of in compliance with IEPA's clean construction or demolition debris regulations.
8. If applicable, the subgrantees must have in place and comply with State Construction and Operating Permits from IEPA.
9. If applicable, the subgrantees must have in place and comply with NPDES Construction Stormwater Permits from IEPA.
10. In the event unmarked graves, burials, human remains, or archaeological deposits are uncovered, construction work must immediately cease. The subgrantee must secure the site and take reasonable efforts to avoid and restrict access to the finds. The subgrantee shall inform the Illinois Emergency Management Agency (IEMA), FEMA, and the IHPA immediately. Construction in sensitive areas shall not resume until the appropriate consultations are completed or until an archaeologist meeting the Secretary of the Interior Professional Qualification Standards has determined the extent and significance of the find. Construction may not resume until the subgrantee is notified by IEMA and FEMA to proceed.
11. Site fill may only be obtained from a permitted commercial supplier or a locally municipally owned source.
12. Copies of all permits must be submitted to IEMA and FEMA prior to grant close-out.
13. OSHA standards must be followed to avoid impacts to worker health and safety.
14. Industry-standard construction BMPs are to be used, for example: sedimentation and erosion control; dust control; and noise abatement.

15. Subgrantees must restore disturbed construction and staging areas with native seed and/or plants typical of the area at project completion.
16. Subgrantees must not initiate construction activities until 15 days after approval and official signing of a Finding of No Significant Impact (FONSI).

7 REFERENCES

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9 CONSULTATION DOCUMENTATION

9.1 ENDANGERED SPECIES ACT (ESA) MEMORANDUM FOR RECORD (MFR)



Interoffice Memorandum

To: File

From: Nicholas Mueller

Date: October 13, 2017

RE: FEMA Pre-Disaster Mitigation Grant Program

Project Numbers: FEMA-PDMC-PJ-05-IL-2016-007, FEMA-PDMC-PJ-05-IL-2016-005, FEMA-PDMC-PJ-05-IL-2016-004, and FEMA-PDMC-PJ-05-IL-2016-003

Subapplicants: Cities of Marseilles, Ottawa, and Peru, and the Village of DePue

The Federal Emergency Management Agency (FEMA), under the Pre-Disaster Mitigation (PDM) Grant Program, is considering funding proposals by the cities of Marseilles, Ottawa, and Peru, and the Village of DePue, in cooperation with the Illinois Emergency Management Agency (IEMA), for the construction of improvements to flood mitigation measures along the Illinois River:

- Marseilles Waste Water Treatment Plant (WWTP), 2 Spicer Lane, Marseilles, LaSalle County, IL (41.328911, -88.723478);
- Ottawa Township High School (OTHS), 211 East Main Street, Ottawa, LaSalle County, IL (41.345106, -88.838297);
- Peru east WWTP, Water Street and River Dock Road, Peru, LaSalle County, IL (41.325926, -89.115699); and
- DePue WWTP, West 2nd Street, DePue, Bureau County, IL (41.321912, -89.315304).

Based on the proposed action and its associated best management practices, and in accordance with Section 7 of the Endangered Species Act (ESA) and its implementing regulations through 50 Code of Federal Regulations (C.F.R.) Part 402, FEMA has determined that this project would have **no effect** on threatened or endangered species.

Background Information

The City of Marseilles proposes to construct a floodwall, primarily atop an existing berm, surrounding the Marseilles WWTP, construct a stormwater pumping station, and use fill to raise the entrance road 3 feet. The City of Ottawa proposes to raise an existing levee surrounding OTHS and to construct a 1,000-foot levee to close an existing gap. The City of Peru proposes to construct a floodwall atop an existing berm surrounding the Peru east WWTP, fill an existing abandoned treatment lagoon, and install a generator. The Village of DePue proposes to raise the existing levee

surrounding the DePue WWTP, elevate the existing roadway, replace a chain link fence, and construct 2 compensatory storage areas totaling 22,600 cubic yards.

Work on the properties would be conducted within pre-disturbed, landscaped grounds.

The U.S. Fish and Wildlife Service (USFWS) Midwest Region's Endangered Species lists for LaSalle and Bureau Counties were carefully reviewed on January 9, 2017, to identify any threatened and endangered species that may occur in the project area. Project locations were also entered into the USFWS Information for Planning and Consultation (IPaC) website, which allows users to identify threatened and endangered species that may be present at particular sites. FEMA downloaded updated species lists for the project sites from IPaC in fall 2017. This research identified six listed species that may be potentially present within the Action Area: three threatened and three endangered species (see Table 1). A variety of sources were reviewed to determine if the project area could be appropriate habitat for the identified species, including the USFWS Environmental Conservation Online System (ECOS), USFWS Fact Sheets, USFWS Recovery Plans, and *Federal Register* publications.

Table 1: ESA-Listed Species Potentially Present within Action Area

Common Name	Scientific Name	Federal Status	Critical Habitat	Illinois County	Habitat Requirements/Notes
Mammals					
Indiana bat	<i>Myotis sodalis</i>	Endangered	Yes	Bureau, LaSalle	Caves and mines for hibernation; small stream corridors with well-developed riparian woods; upland forests for foraging
Northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	No	Bureau, LaSalle	Caves and mines for hibernation; wooded areas surrounding caves; upland forests for foraging
Plants					
Decurrent false aster	<i>Boltonia decurrens</i>	Threatened	No	Bureau, LaSalle	Moist, sandy floodplains along the Illinois River
Eastern prairie fringed orchid	<i>Platanthera leucophaea</i>	Threatened	No	Bureau, LaSalle	Mesic to wet prairies
Leafy-prairie clover	<i>Dalea foliosa</i>	Endangered	No	LaSalle	Prairie remnants over limestone
Insects					
Rusty patched bumble bee	<i>Bombus affinis</i>	Endangered	No	Bureau, LaSalle	Grasslands and tallgrass prairies; undisturbed, abandoned rodent cavities or grasses for nesting; undisturbed soil for hibernation

Source: Species lists for the four project sites from IPaC.

Marseilles WWTP: The Marseilles WWTP consists of impervious surfaces, with buildings and treatment facilities, an asphalt entryway, and dirt and gravel interior roads and staging areas. Vegetated areas are limited to a landscaped lawn. The immediate project area is not potential habitat for ESA-listed species. Wooded areas border the east, and are interspersed with residences to the north of the WWTP. Landscaped lawn is maintained to the west and provides a buffer area between the WWTP and residences. To the south, there is a riparian corridor between the WWTP and the Illinois River. This corridor is not sufficiently large to be suitable habitat for listed bat species. There would be no effects to endangered or threatened species or to critical habitat from

construction activities at the Marseilles WWTP because these resources are not present at the site. In the event migratory birds stop in the areas surrounding the project area, construction activities could temporarily discourage these birds from using the areas in the vicinity of the construction sites due to temporary ground and vegetation disturbance and increased noise levels. However, considering that migratory bird nesting is not expected to occur in the project area, and considering typical noise generated by a WWTP, residential neighborhoods, and associated traffic, short-term construction noise at the Marseilles WWTP would have negligible impacts on any migratory birds.

OTHS: The OTHS campus consists of primarily impervious, disturbed surfaces. The campus contains buildings, concrete sidewalks, asphalt parking lots, a football field, tennis courts, soccer pitches, baseball diamonds, and other areas maintained for recreational activities. Other vegetated space is the maintained lawn. The immediate project area is not potential habitat for ESA-listed species. Outside of the levee on the Fox River, to the west of the school, vegetation is maintained lawn interspersed with trees. Outside of the levee on the Illinois River, to the south of the school, the riparian corridor is more pronounced. The corridor continues to the west of the school and provides a barrier between the levee and a wetland area. Residences with maintained lawn areas are on the north side of OTHS. Construction plan call for the removal of 14 trees. Other trees would be protected from damage using best management practices. A representative of USFWS' Illinois and Iowa Ecological Services Field Office reviewed an aerial photograph of the project site and confirmed that neither the riparian corridor nor other portions of the OTHS site includes large enough tracts of trees to attract roosting Indiana or northern long-eared bats (K. Lundh, Illinois and Iowa Ecological Services Field Office, U.S. Fish and Wildlife Service, personal communication, September 5, 2017). Given that bats would not be expected to use the project site and the fact that no other listed species are found at the site, there would be no effects to endangered and threatened species from construction activities at OTHS. Because it is not present at the project site, there would be no effect to critical habitat. In the event migratory birds occur in the areas surrounding the project area, considering typical noise generated by a high school, residential neighborhoods, and associated traffic, short-term construction noise at OTHS would have negligible impacts on any birds using nearby habitat.

Peru east WWTP: Peru's east WWTP consists of 75% impervious surfaces, with buildings and treatment facilities, an asphalt entryway, parking, and staging area. Vegetated areas are primarily landscaped lawn. The abandoned lagoon is partially vegetated with grasses and forbs. The immediate project area is not potential habitat for ESA-listed species. An active rail and dockyard borders the east side of the WWTP. The north side is separated from residences by a wooded buffer zone. Warehouses and other storage structures are to the west of the WWTP. The WWTP is separated from the Illinois River on the south by railroad tracks, a dirt and gravel staging area associated with the rail and dockyard, and a small riparian buffer zone. Considering typical noise generated by a WWTP, residential neighborhoods, and associated traffic, and noise generated by the operation of the rail and dockyard, additional construction noise at the Peru east WWTP would be negligible. Critical habitat for the Indiana bat is within the Blackball Mines Nature Preserve, located over 3.5 miles east of the Peru east WWTP. However, there is no suitable habitat for listed bats at the WWTP site. There would be no effect to endangered and threatened species or critical habitat from construction activities at the Peru east WWTP because these resources are not present. In the event migratory birds were stopping or feeding in areas surrounding the project area, considering

typical noise generated by a WWTP, industry, residential neighborhoods, and associated traffic, short-term construction noise at the Peru east WWTP would have negligible impacts on any birds using nearby habitat.

DePue WWTP: DePue's WWTP consists of 20% impervious surfaces with buildings, treatment facilities, and a dirt entryway. Vegetated areas are primarily landscaped lawn. Nine sludge beds are overplanted with reeds and other wetland species to aid in stabilization and dewatering. The immediate project area is not potential habitat for any ESA-listed species, nor does it contain designated critical habitat. Given the distance between the construction area and these resources, there would be no effect to threatened or endangered species or to critical habitat from construction activities at the DePue WWTP.

To the north and northeast, a landscaped area separates the WWTP from storage facilities and residences. Lake DePue is located to the south and west of the WWTP, separated by a large, forested riparian corridor. The area surrounding Lake DePue is considered an Important Bird Area, used by migratory birds for stopping and feeding. In the event migratory birds occur in the areas surrounding the project area, considering typical noise levels at a WWTP, residential neighborhoods, businesses, and associated traffic, construction noise at the DePue WWTP would have negligible impacts on these species. To reduce the potential for any impacts to bald eagles, construction shall not occur between December and March, to avoid the times when migrating or wintering bald eagles are most likely to be in Illinois, according to the Illinois Department of Natural Resources publication on "Bald Eagles in Illinois" (see <https://www.illinois.gov/gov/eagles/pages/eaglewatching.aspx>). This time period includes the portion of the nesting season when any nesting bald eagles would be most sensitive to disturbance.

Disturbance related to the proposed action would be limited to the boundaries of the individual properties. All activities, equipment storage, and staging areas would be limited to the properties. Existing berms and levees would not increase in width or add fill to the Illinois River. Tree removal is only planned at OTHS, where construction cannot be accomplished otherwise.

Conditions to the grant include best management practices to prevent and/or mitigate potential impacts to sensitive species and habitats from construction noise, as follows:

- No construction shall occur at DePue WWTP between December and March.
- All federal laws shall be followed, including the Bald and Golden Eagle Protection Act.¹
- All state, local, and county ordinances shall be followed.
- All equipment shall be properly maintained with applicable noise controls in place.

¹ USFWS provides recommendations for how to avoid non-purposeful take of bald eagles, particularly if a nest is within sight of a construction site or if a project will occur within 660 feet (200 meters) of a nest. For more information, see guidance at <https://www.fws.gov/midwest/midwestbird/eaglepermits/baeatake/step1.html>. If there are any questions, applicants shall contact the local USFWS field office.

9.2 NATIONAL HISTORIC PRESERVATION ACT (NHPA) CONSULTATION DOCUMENTATION

9.2.1 State Historic Preservation Office (SHPO) Consultation Documentation

9.2.1.1 Marseilles SHPO Consultation Documentation

U.S. Department of Homeland Security
Federal Emergency Management Agency
536 Clark Street, 6th Floor
Chicago, Illinois 60605-1521



FEMA

June 26, 2017

Dr. Rachel Leibowitz
Deputy State Historic Preservation Officer
Preservation Services Division
Illinois Historic Preservation Agency
1 Old State Capitol Plaza
Springfield, Illinois 62701-1507

Re: City of Marseilles Flood Wall, LaSalle County
PDMC-PJ-05-IL-2016-007 / IHPA #016110916

Dear Dr. Leibowitz:

Pursuant to Section 106 of the National Historic Preservation Act, I am writing this letter to conclude consultation regarding the captioned undertaking, which will use Federal funding provided by FEMA to mitigate future damages caused by flooding.

In accordance with 36 CFR §800.11, I am enclosing documentation providing justification for FEMA's finding of no historic properties affected; the purpose of this communication is to seek concurrence in that finding.

We look forward to your response to FEMA's finding. Pursuant to 36 CFR 800.4(d)(1), if we receive no response from your office within thirty (30) days, we will consider FEMA's responsibilities under Section 106 fulfilled and will move forward with this undertaking. For your convenience, we have included a response area below. If you have questions or comments please contact me at 312-408-5438 or at nicholas.mueller@fema.dhs.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Nicholas Mueller".

Nicholas Mueller
Regional Environmental Officer
FEMA Region V

Enclosures

+++++++*You may fax this page to 312-408-5551, attn: Nicholas Mueller*+++++++

Re: City of Marseilles Flood Wall, LaSalle County (PDMC-PJ-05-IL-2016-007)

- Under the authority of the National Historic Preservation Act of 1966, as amended, the Illinois State Historic Preservation Office *concurs* with FEMA's determination that the captioned undertaking will result in *no historic properties affected*.

- Under the authority of the National Historic Preservation Act of 1966, as amended, the Illinois State Historic Preservation Office *objects* to FEMA's determination that the captioned undertaking will result in *no historic properties affected* for the reasons provided below:

Illinois Historic Preservation Agency

Date



FEMA

June 26, 2017

City of Marseilles Floodwall, LaSalle County

PDMC-PJ-05-IL-2016-007

IHPA Log #016110916

City of Marseilles, LaSalle County, Illinois

41.328911 -88.723478, Section 13, 33N, 4E and Section 14, 33N, 4E

Description of Undertaking and Area of Potential Effect:

The City of Marseilles proposes the construction of a floodwall around the city's wastewater treatment plant (WWTP), located on the north shore of the Illinois River. The Marseilles WWTP is surrounded by an existing berm with an elevation of 480.5' above sea level (ASL), which is one (1) foot above the 100-year flood elevation of 479.5' ASL. However, record-breaking floods have become more frequent. In 2008 the Illinois River rose to 489.77' ASL at the Marseilles WWTP. In 2013 the river rose to 481.15' ASL, closely approaching the 500-year flood elevation of 481.5' ASL, and topped the berm. The Marseilles WWTP was saved on that occasion through sandbagging efforts. A long-term solution is necessary to protect against future floods.

The proposed scope of work for this Undertaking includes:

- Construct approximately 150' of earthen berm at the northwest corner of the Marseilles WWTP on either side of the entrance. The berm will raise the existing ground by approximately 5' to elevation 485'.
- Reconstruct and elevate the existing gravel entrance roadway near the northwest corner and along the northern perimeter of the Marseilles WWTP. Area of construction of roadway, 12" in thickness, to extend approximately 600' from Commercial Street south, southeasterly, and easterly to the intersection with the extension of Spicer street, then southerly along said extension.
- Installation of a floodwall constructed of approximately 1210' of hot rolled steel sheet piling placed within the existing earthen levee located around the western, southern, and eastern perimeter of the Marseilles WWTP. Sheet piling shall be driven to a distance of 11' to 17.5' below the top of the existing levee with the top of the piling at elevation 485.0'. The piling shall be capped with a channel steel beam welded to the top of the steel. A three-foot high

chain link fence topped with a 12" high three-strand barbed wire will be placed on top of the channel beam.

- Construct a flood protection system at the Marseilles WWTP entrance including the following elements:
 - Cast-in-place concrete walls to support installation of stop logs during times of flooding. Walls to measure 4' by 3' by 6.5' high extending to depth of 3.5' below the surface with a bottom of concrete elevation at 478.5' and top of concrete elevation of 485'.
 - Concrete base support at entrance measuring 16' by 3' by 3.5' deep with top of concrete at elevation 482'.
 - Gasketed, aluminum stop logs to be placed in guide system during times of flooding.
- Placement of topsoil, seeding and fertilizer on all disturbed areas.
- Installation of a stairway for access over the proposed sheet pile floodwall to be located on top of the levee between the chlorine contact tank and secondary clarifier.
- Construction of a pumping station, pumps, and related piping, controls, and discharge for the purpose of pumping storm water during storm events and wastewater effluent when the river elevation exceeds 473.53'. The new pumping station will be located to the east of the existing chlorine contact tank and will measure 14' by 14' and extend approximately 13' into the ground with the bottom of the structure at an approximately elevation of 462.16'. The top of structure shall be at elevation 476.16', approximately flush with the existing ground. Discharge piping shall consist of two 14" diameter ductile iron pipes with storm water flowmeters. Piping shall extend southerly from the station approximately 6' below the ground and then emerge from the ground near the base of the levee and extend to above the proposed sheet piling to an elevation of approximately 486' then descend down the slope of the levee on the river side to the discharge. At the discharge, located just east of the existing discharge piping, an A-jacks system and rip rap material will be placed in an area measuring 20' by 20'.
- Installation of 24" diameter ductile iron piping to connect the proposed pumping station to the existing excess flow pump station and installation of 12" diameter ductile iron piping to connect the proposed pumping station to the existing outfall junction box.
- Removal and replacement of an undisclosed area of existing asphalt pavement in the northeastern area of the Marseilles WWTP.
- Re-grading of the area around the perimeter of the blower building and the anaerobic digester.
- Installation of approximately 50' of 10" culvert west of blower building on the east side of existing roadway.
- Installation of an 18" culvert from the southwestern corner of the existing public works building southwesterly for a distance of approximately 50'.
- Installation of a catch basin and approximately 230' of 16" HDPE storm piping through the southern section of the Marseilles WWTP and extending

from approximately 60' east of the sludge dewatering building easterly between the secondary clarifiers to the proposed pumping station.

- Installation of a catch basin southwesterly of the proposed pumping station and approximately 20' of 12" HDPE storm piping extending from the catch basin to the pumping station.
- Repair of the existing excess flow outfall headwall located on the river side of the levee near the southeastern corner of the Marseilles WWTP. Repair shall include placement of an A-jacks system and rip rap material in an area of 16' by 20' at the discharge of the existing piping.
- Installation of approximately 50' of concrete segmental retaining wall along the northern side of the sludge drying beds. The retaining wall shall extend approximately 2.5' into the ground and shall be supported by a granular base. A perforated drain system shall be installed behind the wall. The top of wall shall be placed at approximately elevation 479.25'.
- Repainting of the following Marseilles WWTP components:
 - Sluice gate in aeration tanks.
 - Metallic components of the secondary clarifiers.
- Replacement of existing 8" air control valves in aeration tanks.
- Installation of air flow meters in aeration tanks.
- Removal and replacement of existing electric wiring at locations designated on the plan drawings

In accordance with 36 Code of Federal Regulations (CFR) §800.11, the following documentation is submitted for the scope of work to construct a floodwall. The area of potential effects (APE) for this scope is noted on the enclosed maps and plans.

As defined in 36 CFR §800.16(d), the APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist. Based on this definition and the nature and scope of the undertaking, FEMA has determined that the APE is limited to the areas within which all construction and ground disturbing activity would be confined and includes the view shed of the proposed project. No potential for indirect effects outside of the view shed of the proposed project exists. The enclosed project plans, location, aerials, and photographs show the proposed construction area and activities.

Steps Taken to Identify Historic Properties:

Archaeology:

A review of the archaeological site files from the Illinois State Museum GIS Database indicates that the project area is located in a high probability archaeological zone although there are no known archaeological sites within the APE. There are 12 recorded prehistoric archaeological sites located to the west along the banks of the Illinois River and just upland to the northwest. One site, [REDACTED] was recorded in 1986 by Hart and Jeske as a scatter of lithic materials, chert flakes and fire-cracked rock, with no evidence for a more-significant level of human occupation at the location. The location was revisited in 2002 by Rohrbaugh (Surveys 12947, 12975). A Phase II survey was conducted at [REDACTED] by Rohrbaugh in 2003

(Survey 13049), consisting of a backhoe trench, revealing no evidence of subsurface deposits.

The recorded resources further west and northwest [REDACTED] [REDACTED] come from pedestrian surface survey in plowed fields. Collectively, these sites were recorded as having surface scatters of lithic materials, ceramic pot sherds and pipe fragments, clam shell, and a human incisor, likely representing different Woodland and Mississippian periods of occupation.

One recorded historic site to the west along the river [REDACTED] contains the remains of an old farm and associated debris, and another, [REDACTED], is the remains of the former Boyce Paper Mill (Survey 91080).

While any remains of prehistoric occupation directly to the north and east of the project location would likely have been disturbed for the construction of the Illinois & Michigan Canal and the surrounding commercial and residential development, a 2000 survey (Survey 10116) of land directly to the east yielded no evidence of prehistoric materials via pedestrian survey and shovel tests.

A review of historic topographic maps in the general vicinity of the APE resulted in no evidence of demolished structures within the Direct APE that would have resulted in any subsurface historic-era archaeological materials.

Prior ground disturbance

The existing berm surrounding the Marseilles WWTP, upon which the proposed Undertaking would expand and improve, along with the Marseilles WWTP's infrastructure, involved a significant amount of soil excavation and movement. Given the extent of grading and construction within the Marseilles WWTP, it is unlikely that undisturbed soils horizons exist, and therefore unlikely that the Direct APE possesses archaeological artifacts or features within their original depositional context.

Soils

The Natural Resources Conservation Service Web Soil Survey identifies soils in the project area as being 69.4% Du Page silt loam, 0-2% slopes (3321A); 21.7% Brenton silt loam, 0-2% slopes (794G); 7.3% Marseilles, Northfield, and Richey silt loams, 30-60% slopes (794G); and 1.6% Proctor silt loam, 5-10 percent slopes (148C2) (websoilsurvey.sc.egov.usda.gov).

Soil	Description	pH	% Slope	Drainage
Du Page silt loam (3321A)	A Horizon (cm/0-"): A1 (0-17") very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; A2 (17-34") very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry C Horizon: C1 (34-60") brown (10YR 4/3) loam; many light gray (10YR 7/1) shell fragments	Moderately alkaline	0-2%	Well drained
Brenton silt loam (149A)	A Horizon: Ap (0-14") black (10YR 2/1) silt loam to very dark gray (10YR 3/1) silt loam B Horizon: Bt1 (14-33") brown (10YR 4/3) silty clay loam; 2Bt2 (33-54"): olive brown (2.5Y 4/4) stratified loam and fine sandy loam C Horizon: 2Cg (54-79") gray (2.5Y 6/1) silt loam to gray (2.5Y 6/1) silt	Moderately acid to slightly alkaline	0-2%	Somewhat poorly drained
Marseilles, Northfield, and Richey silt loams (794G)	H Horizon (0-35"): yellowish brown (10YR 5/4) silt loam to brown (10YR 5/3) silty clay loam	Slightly acid	30-60%	Well drained
Proctor silt loam (148C2)	A Horizon (0-8"): Ap; very dark grayish brown (10YR 3/2) silt loam B Horizon: Bt1 (8-27") dark yellowish brown (10YR 4/4) silty clay loam; 2Bt2 (27-48") yellowish brown (10YR 5/4) loam C Horizon: 2C (48-69") strong brown (7.5YR 5/6) stratified sandy loam and loamy sand	Slightly acid	5-10%	

Standing Structures:

A search of the National Register of Historic Places (NRHP) database online at <https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466> showed three NRHP-listed properties or districts located within one mile of the APE. These properties are the Marseilles Lock and Dam Historic District (04000165), the Marseilles Hydro Plant District (89000343), and the Chicago, Rock Island, and Pacific Railroad Depot (95001239). None of these properties are within the APE.

A search of the Historic and Architectural Resources Geographic Information System (HARGIS) database online at <http://www.illinoishistory.gov/ps/hargis.htm> showed five NRHP-listed or eligible Historic Properties in the general vicinity of the project area, with 34 more distant recorded architectural resources that have not have been formally evaluated for the NRHP. Of the Historic Properties, one is located within close proximity to the project area: the NRHP-listed Illinois & Michigan Canal National Heritage Corridor (Ref. #66000332, listed January 29, 1964). None of the properties recorded in HARGIS are located within the APE for this undertaking.

Marseilles WWTP

The Marseilles WWTP was initially constructed in 1939 by the Public Works Administration (PWA), and major additions were made in 1974 and 2010. The New Deal programs, bureaus, and agencies "were designed to assist victims of the [Great]

Depression, stimulate economic recovery, guarantee minimum living standards and prevent future economic crises.... [PWA] projects were intended to be “self-liquidating” in that they eventually paid for themselves.” The PWA was not intended as a direct employment relief program but, rather, to “‘prime the pump’ of industry by placing large sums of money in circulation and by creating a demand for construction materials.... Actual construction was carried out by contracted firms, who were not required to hire unemployed from the relief rolls.” For many communities, the construction of public works during the Great Depression was the first time the federal government had taken an interest in local projects, and “the New Deal was undeniably the most important period of federal government legislation in the twentieth century.”¹

The Raw Sewage/Bar Screen Building, the Boiler Room, the Primary Clarifier, and the Anaerobic Digester were constructed on the property ca 1939. The structures added ca 1974 are the Lab Building, Storage Building, Press Room & Sludge Room/Storage Building #2, Chlorine Contact Tank, Excess Flow Tank, Aeration Tanks, Aerobic Digesters, and Secondary Clarifiers. The most recent additions to the Marseilles WWTP, added ca 2010, are the Grit Building and the Blower Room Building.² Landscape features include a levee enclosing the Marseilles WWTP structures on all four sides, two entrance driveways, an interior roadway, and sludge drying beds located at the northwest corner.

The Raw Sewage/Bar Screen Building and the Boiler Room Building are one-story concrete block structures sheathed in running bond brick and resting on poured concrete foundations. The northwest elevation of the Boiler Room Building is banked into the adjacent hill surrounding the Anaerobic Digester to the southwest, and the wall is sheathed in concrete. The southwest elevation of the Boiler Room Building shares a wall with the ca 1939 Anaerobic Digester. Both the Boiler Room Building and the Raw Sewage/Bar Screen Building have flat concrete roofs covered with tar over a rubber membrane. The Boiler Room Building presents steel sash awning type windows atop thick concrete sills; they appear to be original to the structure. The Raw Sewage/Bar Screen Building does not have any windows; however, a review of historic aerial photos suggests the building had windows on the south, north, and west elevations prior to a renovation that likely took place in 2010.³ The Raw Sewage/Bar Screen Building and Boiler Room Building are sheathed in brick that appears identical to the brick veneer of the ca 2010 Blower Room and Grit Building. The doors of both ca 1939 buildings are steel slab style with single, fixed-pane windows in the upper half; the doors appear to be replacements. Both buildings are mostly devoid of architectural detail, though both feature a prominent concrete band at the flat

¹ Wolfenbarger, Deon. National Register of Historic Places: Multiple Property Documentation Form – “New Deal Resources on Colorado’s Eastern Plains”, 2005.

² NETR aeriels accessed June 2017, www.historicaerials.com

³ Bing Bird’s Eye View accessed June 2017, <https://www.bing.com/maps?q=Marseilles%2C%20IL&mkt=en&FORM=BYLH1>

roofline on all four elevations. The Anaerobic Digester and the ca 1939 Primary Clarifier are utilitarian poured concrete structures with no architectural detailing. The plain appearance of these structures is typical of PWA-sponsored WWTPs.

A major expansion of the Marseilles WWTP was made in 1974 with the construction of the Lab Building, Storage Building, Press Room/Sludge Room/Storage Building #2, Chlorine Contact Tank, Excess Flow Tank, Aeration Tank, Aerobic Digesters, and Secondary Clarifiers. The Lab Building is a one-story concrete block structures sheathed in running bond brick and resting on poured concrete foundations; its appearance is very similar to the ca 1939 Raw Sewage/Bar Screen Building and Boiler Room Building, including the flat roof. The windows of the Lab Building are one-by-one aluminum framed slider types. The Storage Building and Press Room/Sludge Room/Storage Building #2 are steel-framed structures with standing-seam metal siding. Their side-gabled roofs also are sheathed in standing-seam metal. The Storage Building rests on an asphalt slab, and the Press Room/Sludge Room/Storage Building #2 rests on a concrete foundation. The doors of these buildings include steel slab and steel with a single light pedestrian doors and metal overhead vehicle doors. These buildings do not have windows. The Chlorine Contact Tank, Aeration Tank, Aerobic Digesters, and Secondary Clarifiers are constructed of poured concrete and have steel or aluminum safety railings. The Excess Flow Tank is of steel construction.

The Blower Room Building and Grit Building were added to the Marseilles WWTP ca 2010. Both structures are of similar appearance to the ca 1939 and ca 1974 brick veneer structures, though the Grit Building's height gives the impression that it may be two stories. Both ca 2010 structures rest on poured concrete foundations and have flat concrete roofs. The Grit Building has a steel and single light pedestrian door and a metal overhead vehicle door. The Blower Room Building has paired steel and single light doors on the west elevation.

The Marseilles WWTP is associated with the federal works projects of the New Deal during the Great Depression, an era that had a significant impact on the broad patterns of American, regional, and local history. The property, therefore, many have significance under Criterion A.

The property is not closely associated with any person who made a significant contribution to American, regional, or local history (Criterion B). Furthermore, although four of the structures on the property are original to the 1939 construction project, it appears that significant physical changes have been made to the Raw Sewage/Bar Screen Building, and other physical changes have been made to the Boiler Room Building. These changes, particularly to the sheathing of the Raw Sewage/Bar Screen Building and Boiler Room Building in brick veneer, have significantly reduced these buildings' integrity of design, materials, workmanship, and association.

The buildings and structures of the Marseilles WWTP were constructed to be functional facilities and are not illustrative of any academic architectural style or styles. They are not known to be the work of any master architect, and their method of

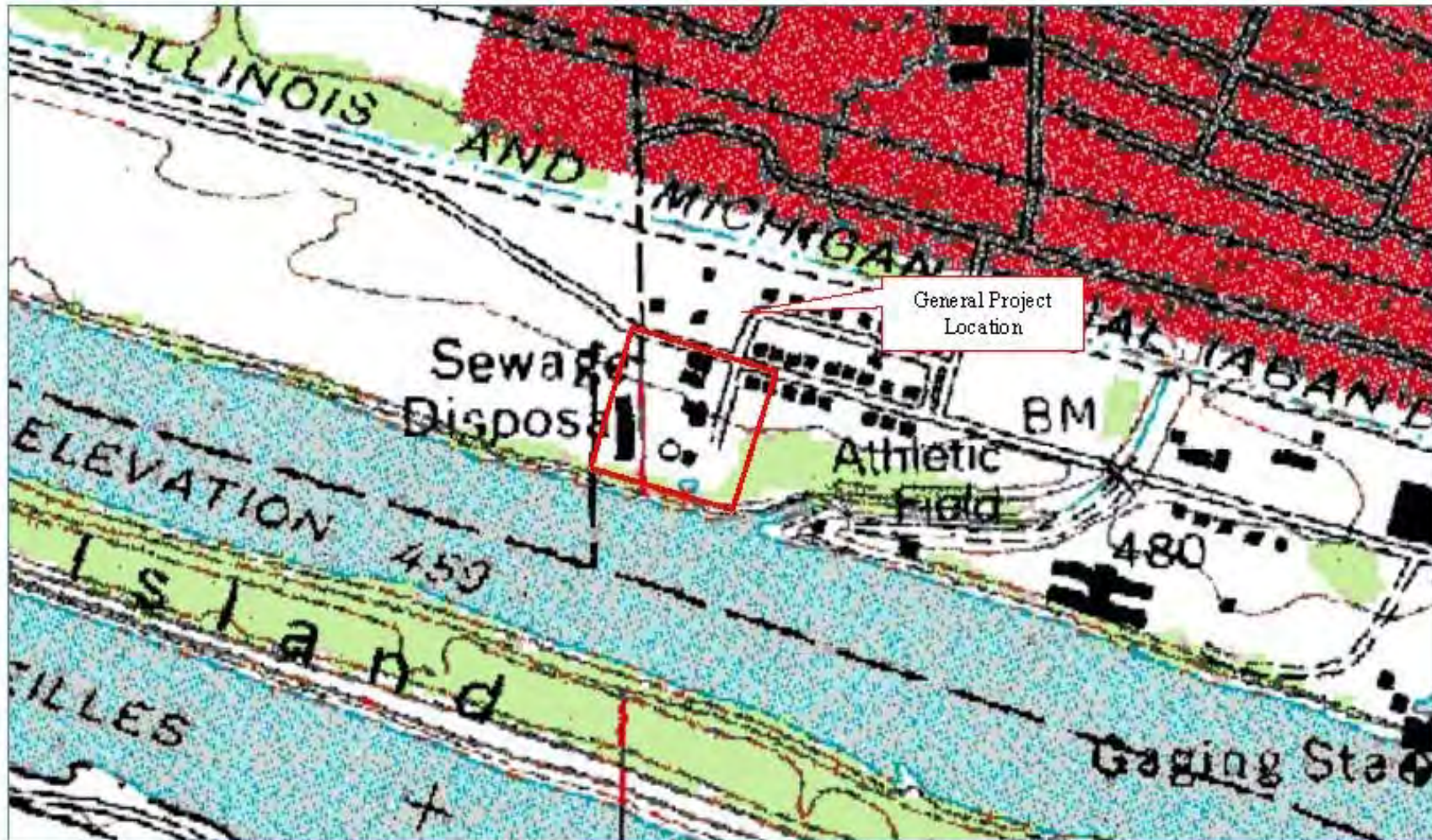
construction does not constitute any technical innovation. The Raw Sewage/Bar Screen Building, Boiler Room Building, Primary Clarifier, and Anaerobic Digester are of standard construction, and they do not represent any technical or engineering advances. Their designs are almost devoid of any architectural elaboration or detailing; therefore, even minor changes have significant impacts on integrity of design, workmanship, and association. Therefore, the property is not considered eligible for listing in the NRHP under Criterion C, and the Marseilles WWTP is not considered eligible for listing in the NRHP under Criterion A due to its loss of integrity.

Determination of Eligibility: Based on the information provided here and given the highly disturbed soils, FEMA has determined that *no properties eligible for listing in the National Register for Historic Places* exist within the APE for this undertaking.

Finding: FEMA finds that *no historic properties would be affected* by this undertaking.

APPENDIX A: PROJECT MAPS

General Location of proposed floodwall (Marseilles, IL USGS quad map).



Location of proposed undertaking on a street map (Bing Maps 2017).



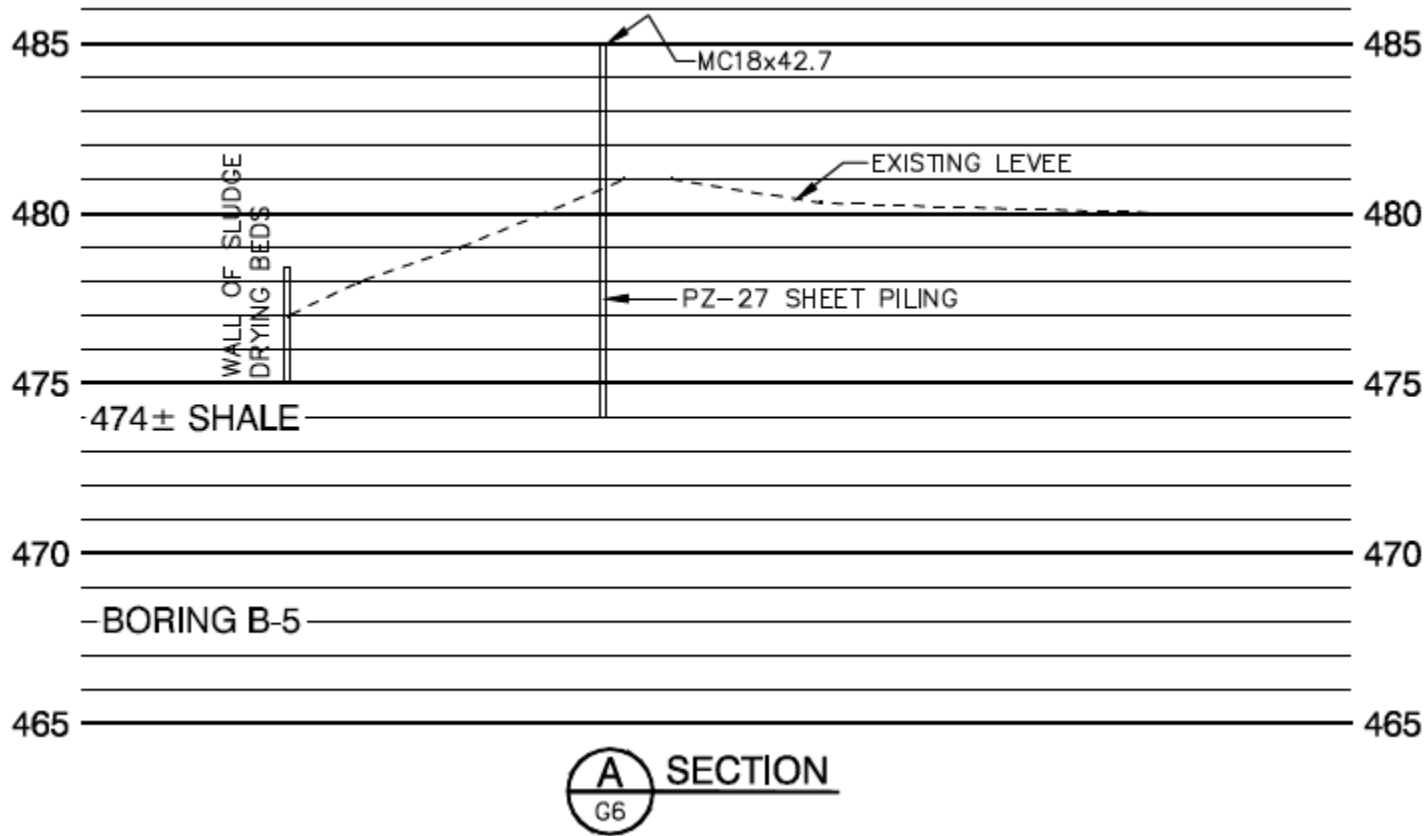
Approximate APE for proposed floodwall (Google Earth 2016).



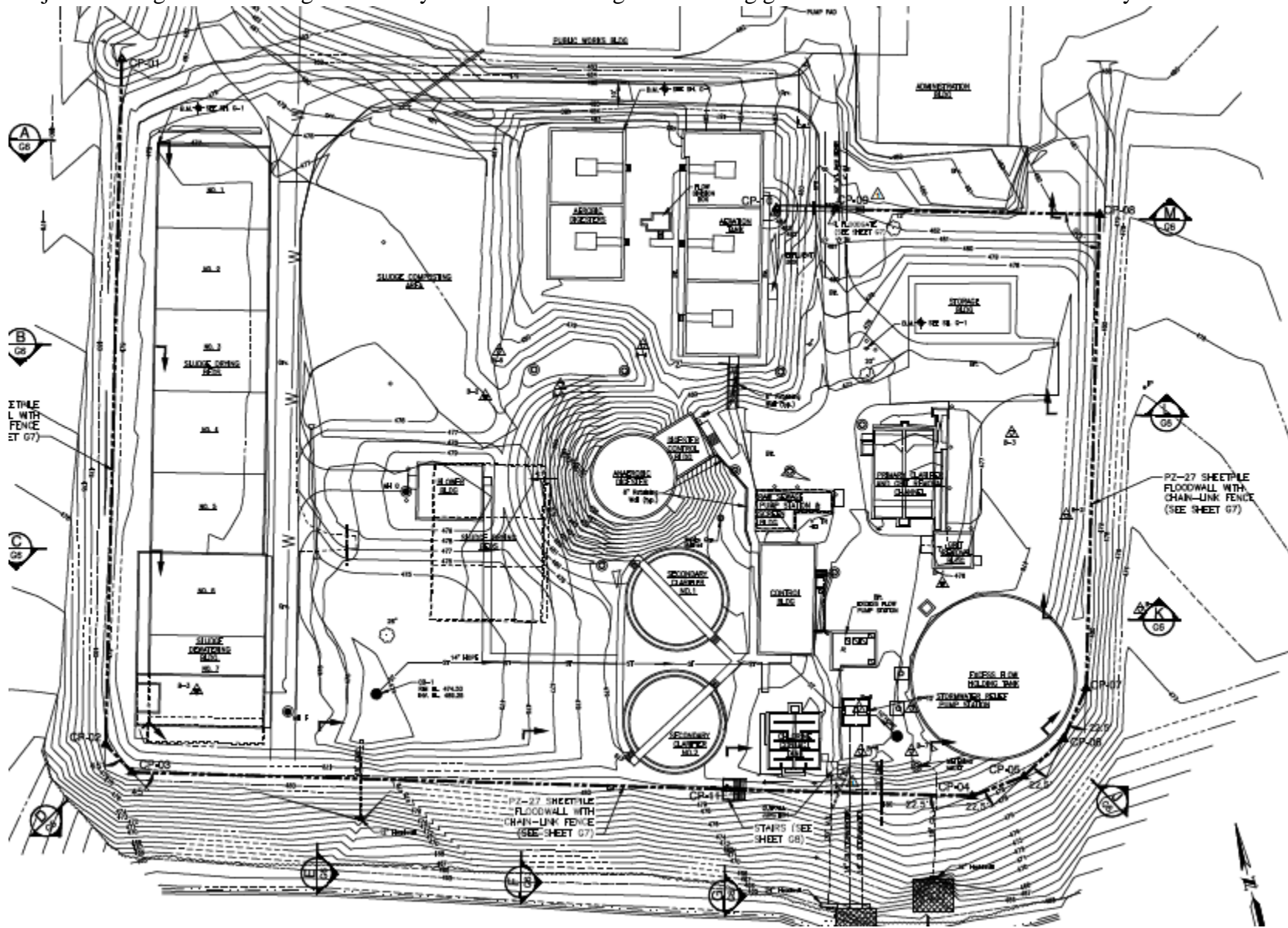
Red lines indicate the proposed floodwall location (Google Earth 2016).



Project drawing cross section of the proposed floodwall location within the existing earthen levee.



Project drawing of the existing WWTP layout to show the degree of exiting ground disturbance within the facility.



APPENDIX B: LOCATION PHOTOS



Photo 1: View south into east entrance to Marseilles WWTP.



Photo 2: View southeast into west entrance to Marseilles WWTP.



Photo 3: View north-northeast to south elevation of c. 2010 Storage Building.



Photo 4: View southeast to north elevation of Storage Building.



Photo 5: View northeast to west elevation of c. 1974 Grit Building.



Photo 6: North elevation of Grit Building; Excess Flow Tank at rear left.



Photo 7: View south-southwest to north elevation of c. 1939 Raw Sewage/Bar Screen Building.



Photo 8: East elevation of Raw Sewage/Bar Screen Building.



Photo 9: East elevation of c. 1974 Lab Building.



Photo 10: West elevation of Lab Building.



Photo 11: View southwest to northeast elevation of c. 1939 Boiler Room Building.



**Photo 12: View south-southeast to northwest elevation of Boiler Room Building;
Raw Sewage Screen Bar Building at rear left.**



Photo 13: West elevation of c. 2010 Blower Room Building.



Photo 14: North elevation of Blower Room Building.



Photo 15: East elevation of c. 1974 Press Room/Sludge Room/Storage Building #2.



Photo 16: South elevation of Press Room/Sludge Room/Storage Building #2.



Photo 17: View east over c. 1939 Primary Clarifier; Grit Building at rear right.



Photo 18: View east to c. 1974 Excess Flow Tank.



Photo 19: View southeast across c. 1974 Chlorine Contact Tank.



Photo 20: View northwest across c. 1974 Aeration Tank.



Photo 21: View northwest across c. 1974 Aerobic Digesters.



Photo 22: View east to c. 1939 Anaerobic Digester.



Photo 23: View northeast across c. 1974 Secondary Clarifiers.



Photo 24: View southeast to c. 1974 Secondary Clarifiers.



Photo 25: View northwest across Sludge Drying Beds.



Photo 26: View east across Sludge Drying Beds.

APPENDIX C: SHPO RESPONSE



**Illinois Historic
Preservation Agency**

FAX 217/524-7525

1 Old State Capitol Plaza • Springfield, Illinois 62701-1512 • www.illinois-history.gov

LaSalle County
Marseilles
#2 Spicer Lane
FEMA-PDMC-PJ-05-IL-2016-007, IEMA
New construction, WWTP Flood Wall

PLEASE REFER TO: IHPA LOG #016110916

July 13, 2017

Nicholas Mueller
U.S. Department of Homeland Security
Federal Emergency Management Agency
536 S. Clark St., 6th Floor
Chicago, IL 60605-1521

Dear Mr. Mueller:

We have reviewed the documentation submitted for the referenced project(s) in accordance with 36 CFR Part 800.4. Based upon the information provided, no historic properties are affected. We, therefore, have no objection to the undertaking proceeding as planned.

Please retain this letter in your files as evidence of compliance with section 106 of the National Historic Preservation Act of 1966, as amended. This clearance remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Skeletal Remains Protection Act (20 ILCS 3440).

If you are an applicant, please submit a copy of this letter to the state or federal agency from which you obtain any permit, license, grant, or other assistance.

Sincerely,

Rachel Leibowitz, Ph.D.
Deputy State Historic
Preservation Officer

9.2.1.2 Ottawa SHPO Consultation Documentation

U.S. Department of Homeland Security
Federal Emergency Management Agency
536 Clark Street, 6th Floor
Chicago, Illinois 60605-1521



FEMA

June 26, 2017

Dr. Rachel Leibowitz
Deputy State Historic Preservation Officer
Preservation Services Division
Illinois Historic Preservation Agency
1 Old State Capitol Plaza
Springfield, Illinois 62701-1507

Re: Ottawa Township High School, City of Ottawa, LaSalle County
PDMC-PJ-05-IL-2016-005 / IHPA #014110916

Dear Dr. Leibowitz:

Pursuant to Section 106 of the National Historic Preservation Act, I am writing this letter to conclude consultation regarding the captioned undertaking, which will use federal funding provided by FEMA to mitigate future damages caused by flooding.

In accordance with 36 CFR §800.11, I am enclosing documentation providing justification for FEMA's finding of no adverse effect on historic properties; the purpose of this communication is to seek concurrence in that finding.

We look forward to your response to FEMA's finding. Pursuant to 36 CFR 800.5(c)(1), if we receive no response from your office within thirty (30) days, we will consider the lack of response agreement with FEMA's finding and will move forward with this undertaking. For your convenience, we have included a response area below. If you have questions or comments please contact me at 312-408-5438 or at nicholas.mueller@fema.dhs.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Nicholas Mueller".

Nicholas Mueller
Regional Environmental Officer
FEMA Region V

Enclosures

+++++++*You may fax this page to 312-408-5551, attn: Nicholas Mueller*+++++++

Re: Ottawa Township High School, City of Ottawa, LaSalle County (PDMC-PJ-05-IL-2016-005)

- Under the authority of the National Historic Preservation Act of 1966, as amended, the Illinois State Historic Preservation Office *concurs* with FEMA's determination that the captioned undertaking will result in *no adverse effect on historic properties*.

- Under the authority of the National Historic Preservation Act of 1966, as amended, the Illinois State Historic Preservation Office *objects* to FEMA's determination that the captioned undertaking will result in *no adverse effect on historic properties* for the reasons provided below:

Illinois Historic Preservation Agency

Date



FEMA

June 20, 2017

***Ottawa Township High School
PDMC-PJ-05-IL-2016-005
IHPA #014110916
City of Ottawa, LaSalle County, Illinois
41.345106, -88.838297 / Sections 11 and 12, T33N, R3E***

Description of Undertaking and Area of Potential Effect:

The City of Ottawa is proposing to raise and extend an existing levee and floodwall along the Fox River adjacent to Ottawa Township High School (OTHS) to recertify the existing levee system and floodwall in accordance with FEMA’s 44 Code of Federal Regulations (CFR) 65.10. The extension and additional elevation of the levee and floodwall would ensure heightened protection of OTHS campus and the nearby residential neighborhood from flood related damages.

The scope of work for this undertaking includes (see Appendix C):

- Removal of miscellaneous curb, gravel driveway, and concrete driveway.
- Removal of 14 trees, the diameters of which vary, between Station 13+00 and Station 14+00.
- Removal and replacement of water main in area of levee work near Station 12+60 and Station 15+60.
- Placement of new curb and gutter east of the floodwall along the perimeter of school parking lot from approximately Station 0+50 to Station 4+30.
- Installation of five 5-foot-diameter manholes at Stations 11+95, 12+90, 14+45, 14+90, and 16+15.
- Installation of aluminum stop log gate at Station 11+50 including two concrete supports measuring approximately 3' in length by 2' wide by 10.7' high with slot for aluminum stop logs. The top of these supports shall be at elevation 477.7' and shall extend into the ground to elevation 467.0'.
- Installation of concrete drainage structure and concrete pad at Station 15+45. Structure measures approximately 9.5' high by 12' wide by 12' long. The top shall be at elevation 472.5' and the bottom at 463.0'.
- Installation of approximately 114' of a 2-foot-wide concrete paved ditch from approximately Station 16+20 to Station 17+34.

-
- Placement of fill and new asphalt driveway to raise existing asphalt driveway on “Melody” property near Station 15+00.
 - Floodwall improvements as described below:
 - Installation of new floodwall with top of wall elevation of 477.5' constructed of approximately 196' of fiber reinforced polymer sheet pile with cap at the following locations:
 - Station 12+89 to Station 14+05
 - Station 15+60 to Station 16+40
 - Installation of floodwall with top of wall elevation at 477.5' constructed of Concrete I-Wall at the following location. Concrete I-Wall shall measure 2' wide by 8' long by approximately 21' high with bottom at elevation 456.5':
 - Station 15+10 to Station 15+60
 - Installation of approximately 971' of Concrete Knee Wall on top of the existing earthen levee to raise the top of levee elevation at the following locations. Concrete Knee Wall shall measure approximately 1.08' in width with the top of wall at elevation 477.5' and bottom of wall at an undisclosed depth into the berm:
 - Station 5+16 to Station 12+89
 - Station 14+05 to Station 15+10
 - Station 16+40 to Station 17+33
 - Installation of approximately 322' of Concrete Extension on top of the existing concrete knee wall to raise the top of levee elevation to 477.5' at the following locations. Concrete Extension shall measure approximately 1.08' in width and 1.5' in height and be placed on and tied into existing concrete floodwall:
 - Station 0+93 to Station 4+15
 - Placement of topsoil, seeding and fertilizer on all disturbed areas.

OTHS and all of its supporting infrastructure is at 211 East Main Street, Ottawa, IL, on approximately 30 acres adjacent to the northeast corner of the confluence of the Fox and Illinois Rivers. The nearest intersecting streets to the project area are East Main and Division Streets.

In accordance with 36 CFR §800.11, the following documentation is submitted for the scope of work to construct a new floodwall. The area of potential effects (APE) for this scope is noted on the enclosed maps and plans.

As defined in 36 CFR §800.16(d), the APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist. Based on this definition and the nature and scope of the undertaking, FEMA has determined that the APE is limited to the areas within which all construction and ground disturbing activity would be confined (Direct APE) and includes the view shed of the proposed project (Indirect

APE). The Direct APE is located within the current East Main Street right-of-way and the OTHS property. The Indirect APE includes all properties from which the proposed undertaking will be visible once constructed. No potential for indirect effects outside of the view shed of the proposed project exists. The enclosed project plans, location, aerials, and photographs show the proposed construction area and activities.

Steps Taken to Identify Historic Properties:

Archaeological Resources

A review of the archaeological site files from the Illinois State Museum GIS Database indicates that the project area is located in a high probability archaeological zone, although there are no known archaeological sites within the APE for direct effects. The closest archaeological site, an Upper Mississippian period Native American village stretching for several acres [REDACTED]. Other reported sites are located along the Illinois River banks in undeveloped areas of woods or fallow fields (see Appendix E).

The Undertaking is in a developed area at the confluence of the Illinois and Fox Rivers. East Main Street runs east-west through the location of the proposed ground disturbance. Much of the area around the proposed ground disturbance is bordered by existing school parking lots and the Fox River is directly adjacent to the west. The greater surrounding area is filled with dense residential development constructed starting in the 1830s, and prior to that the land was used for farming.

Previous Survey

Previous Phase I archaeological surveys in the vicinity of the project area all found no evidence of any surface or subsurface archaeological deposits (see Appendix E):

- Survey 2319 (Schnerre, 1984, Phase I archaeological survey submitted by USACE for erosion control along the Fox River)
- Survey 7880 (Barr, 1997, Phase I archaeological survey submitted to USACE for the levee construction)
- Survey 8823 (Barr, 1997, Phase I archaeological survey submitted to USACE for wetland mitigation area for the levee construction)
- Survey 12267 (Rohrbaugh, 2001, Phase I archaeological survey for a land acquisition)
- Survey 12345 (Rohrbaugh, 2001, Phase I archaeological survey for a construction project along the Fox River)
- Survey 99999 (No information available)

Prior ground disturbance

The existing levee system surrounding OTHS, upon which the proposed Undertaking would expand and improve, was constructed to its current extent in 1998 and involved a significant amount of grading soil movement. The Illinois Historic Preservation Agency was consulted in 1984 and 1987 by the US Army Corps of Engineers regarding the initial floodwall construction (see Appendix D). At that time, your office indicated that a large amount of land south of East Main Street had been

modified and contained recent fill, therefore this area presented a low probability of encountering archaeological deposits. North of East Main Street, your office indicated had a higher chance of encountering deposits. The result of the consultation was a determination of no historic properties in the project area.

South of East Main Street, the area directly south of the entrance to the Fox River Bridge where the project activities would occur (Station 0+00 to Station 5+00), was most recently disturbed in 1998 during construction of the existing levee, and was graded and seeded post-construction. Prior to that, the area was disturbed for the grading and construction of the OTHS parking lot.

North of East Main Street, the area directly north at the entrance to the Fox River Bridge (Station 5+00 to Station 11+00) was disturbed in 1994-1995 for construction of the current bridge, serving as a staging area for construction, during which the area was graded and one to three inches of aggregate was placed. After the work was complete, the area was hogged out, filled, regraded, and covered with topsoil and seed. In 1998, during construction of the existing levee system, this location served as a staging area for equipment and materials. After construction, the area was graded and seeded. The general area was also disturbed for the grading and construction of the OTHS parking lot and section of the levee that borders it on the west and north sides.

The area to the northeast of the OTHS parking lot where the new portion of the levee is proposed (Station 11+00 to Station 14+00), starting near the northeast corner of the parking lot at the intersection of Shabbona Street and Congress Street, and extending northeast to the termination of Pearl Street was recently disturbed in 1998 and 2010. In 1998, this vicinity served as the construction staging area for equipment and materials during construction of the existing levee and was graded and seeded post-construction. In 2010, the area was disturbed for the construction of a water main river crossing, which included excavation of a sending pit.

Lastly, continuing northeast, the area of the proposed levee extension near the intersection of Pearl Street and Division Street (Station 14+00 to Station 17+33.48) was disturbed to a significant depth in 2010 for the construction of the new water main, a storm sewer, and sanitary sewer (see attached photos and construction plans).

Given the extent of the prior ground disturbance, depth of the proposed project, and lack of evidence for archaeological deposits in the greater vicinity of the direct APE, it is unlikely that the Direct APE possesses archaeological artifacts or features within their original depositional context.

Soils

The project area lies in the Illinois and Fox River bottomlands, with Hesch-Calco-Millington Association of alluvial soils. Soils in the vicinity are characterized by calcareous, dark colored, stony silt loams, with high fertility and somewhat poor drainage, underlain by sandstone, limestone, and shale bedrock. The Natural Resources Conservation Service Web Soil Survey identifies soils in the APE as being Lawson silt loam, 0-2% slopes (3451A) (<https://websoilsurvey.sc.egov.usda.gov>).

Soil	Description	pH	% Slope	Drainage
Lawson silt loam (3451A)	A Horizon (60-90cm/0-35" thick): A1 (0-30cm) very dark brown (10YR 2/2) silt loam, grayish brown 10YR 5/2); A2 (30-49cm) black (10YR 1/2) and very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; A3 (48-76cm) black (10YR 2/1) and very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry C Horizon: C1 (76-102cm; 0-39cm/0-15" thick) very dark gray (10YR 3/1) and black (10YR 2/1) silty clay loam stratified with thin lenses of silt loam and loam; C2 (102-152cm) dark grayish brown (10YR 4/2) silt loam interlayered with thin lenses of loam and sandy loam	Slightly selenic	0-2%	Somewhat poorly drained

Above-Ground Resources

A search of the Historic and Architectural Resources Geographic Information System (HARGIS) database shows one National Register of Historic Places District, the Ottawa East Side Historic District (Ref. # 13000718, listed September 18, 2013). There are 301 NRHP-listed or eligible properties within this Historic District, to which OTHS is a contributing resource. The locations for proposed work within the Direct APE would occur within approximately 100' of the four closest contributing structures of the Historic District: 300 Congress Street (1914 Prairie-style residential structure), 311 Congress Street (circa 1900 Gabled Ell-style residential structure) 300 Pearl Street (circa 1880 Tudor Revival-style residential structure, remodeled in 1929), and 323 Pearl Street (1929 Colonial Revival-style residential structure). The proposed work would not impact the nearby brick streets (Pearl Street and Congress Street). FEMA is unaware of any changes to these buildings that would affect their status as contributing resources.

Direct APE

Based on the information provided here and given the highly disturbed soils at the project location, FEMA has determined that no properties eligible for listing in the NRHP exist within the Direct APE for this undertaking.

Indirect APE

FEMA has determined that the Indirect APE extends no farther than the western bank of the Fox River to the west and north, and no farther than to the properties on the western boundary of the East Side Historic District. When the Historic District was designated in 2013, the nomination did not note any adverse effects or impacts as a result of the more recent development surrounding OTHS and the existing levee, likely given that the district's significance is largely due to the architectural styles of the individual residences dating to different periods of construction, rather than the surrounding visual setting of the neighborhood. The existing levee and proposed

improvements provide a benefit to the resources of the Historic District by protecting them from flood events and structural damage.

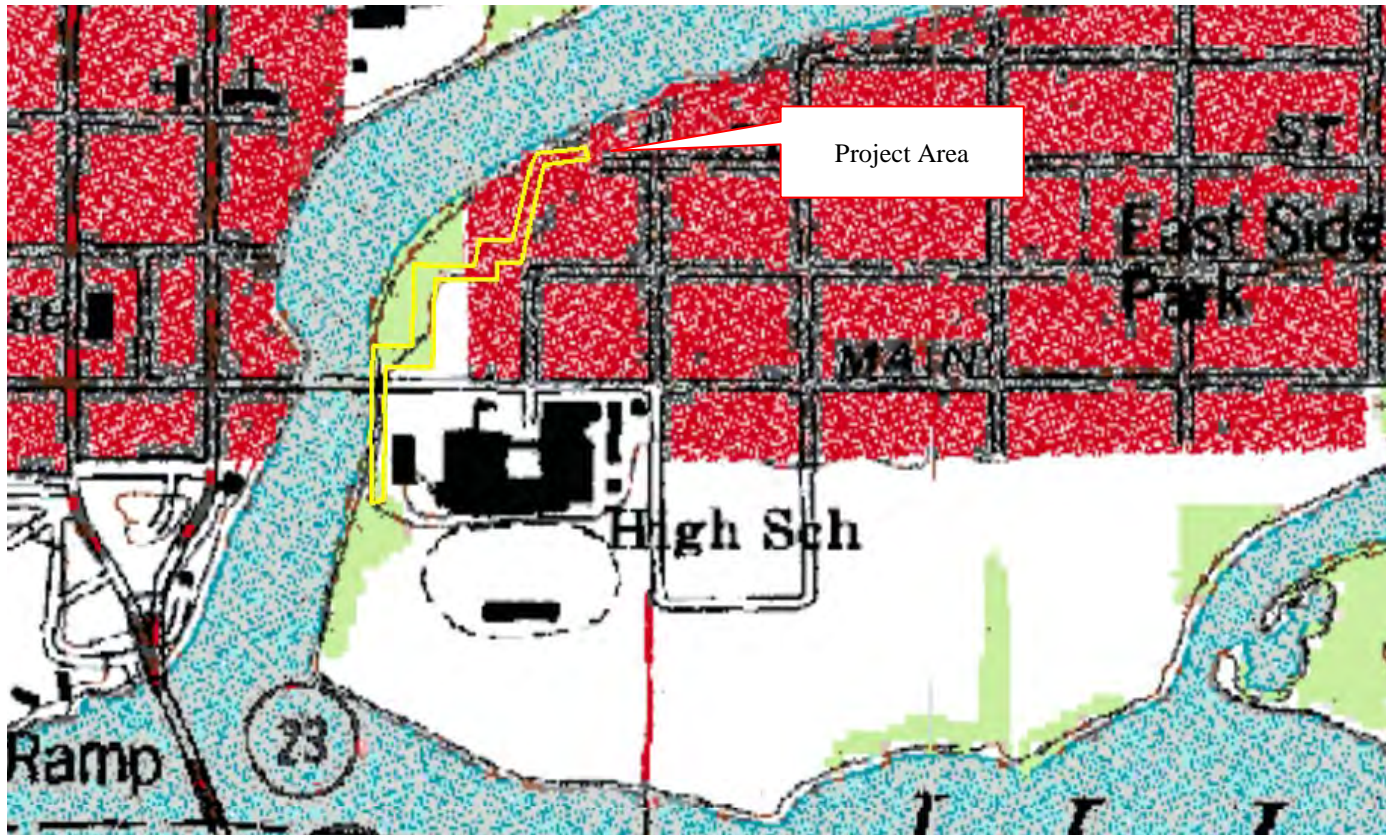
Determination of Eligibility: FEMA maintains that the resources within the APE for this undertaking which stand within the boundaries of the Ottawa East Side Historic District contribute to the district, and therefore has determined that they would remain *eligible for listing on the National Register of Historic Places*.

Undertaking's Effects on Historic Properties: The proposed undertaking will result in improvements to existing floodwalls which will not directly impact any character defining features of the Ottawa East Side Historic District. Nor will the undertaking introduce any substantial new visual elements visible from the boundary of that district.

Finding: FEMA finds that this undertaking would result in *no adverse effects on historic properties*.

APPENDIX A: PROJECT MAPS

General vicinity of proposed new flood wall (Ottawa, IL USGS quad map).



General vicinity of proposed new flood wall (*Google Maps*).



General vicinity of the proposed project area.



Approximate APE for proposed flood wall (Google Earth 2016).



APPENDIX B: LOCATION PHOTOS

Photo 1: View South along existing levee toward the confluence of the Illinois and Fox Rivers.



Photo 2: View Northwest along west side of the existing levee toward the Fox River, Main Street Bridge, and OTHS parking lot south of Main Street.



Photo 3: View Southeast along existing levee toward the OTHS athletic fields and the Illinois River.



Photo 4: View Northwest of the existing concrete floodwall, riprap, and levee adjacent to the OTHS parking lot south of Main Street and the Fox River.



Photo 5: View North toward the Main Street Bridge along the existing concrete floodwall adjacent to the Fox River.



Photo 6: View North from Main Street of the existing levee adjacent to the OTHS parking lot.



Photo 7: View Northwest toward the Fox River along existing levee and riprap adjacent to the OTHS parking lot north of Main Street.



APPENDIX C: SHPO RESPONSE



Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

Bruce Rauner, Governor
Wayne A. Rosenthal, Director

LaSalle County
Ottawa

PLEASE REFER TO: SHPO LOG #014110916

211 E. Main St., Along the West Bank of the Fox River between Pearl St. to South of Main St.
FEMA-PDMC-PJ-05-IL-2016-005
New Construction of Flood Wall

August 17, 2017

Nicholas Mueller
U.S. Department of Homeland Security
Federal Emergency Management Agency
536 S. Clark St., 6th Floor
Chicago, IL 60605-1521

Dear Mr. Mueller:

We have reviewed the documentation submitted for the referenced project(s) in accordance with 36 CFR Part 800.4. Based upon the information provided, no historic properties are affected. We, therefore, have no objection to the undertaking proceeding as planned.

Please retain this letter in your files as evidence of compliance with section 106 of the National Historic Preservation Act of 1966, as amended. This clearance remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Skeletal Remains Protection Act (20 ILCS 3440).

If you are an applicant, please submit a copy of this letter to the state or federal agency from which you obtain any permit, license, grant, or other assistance. If further assistance is needed contact Joe Phillippe of my office at 217/785-1279 or joe.phillippe@illinois.gov.

Sincerely,

Rachel Leibowitz, Ph.D.
Deputy State Historic
Preservation Officer

c: Erin Gasiel, Illinois Emergency Management Agency

9.2.1.3 Peru SHPO Consultation Documentation

U.S. Department of Homeland Security
Federal Emergency Management Agency
536 Clark Street, 6th Floor
Chicago, Illinois 60605-1521



FEMA

June 26, 2017

Dr. Rachel Leibowitz
Deputy State Historic Preservation Officer
Preservation Services Division
Illinois Historic Preservation Agency
1 Old State Capitol Plaza
Springfield, Illinois 62701-1507

Re: City of Peru Floodwall, LaSalle County (PDMC-PJ-05-IL-2016-004)

Dear Dr. Leibowitz:

Pursuant to Section 106 of the National Historic Preservation Act, I am writing this letter to initiate and conclude consultation regarding the referenced undertaking, which will use federal funding provided by FEMA to mitigate future damages caused by flooding.

In accordance with 36 CFR §800.11, I am enclosing documentation providing justification for FEMA's finding of no adverse effect on historic properties; the purpose of this communication is to seek concurrence with that finding.

We look forward to your response to FEMA's finding. Pursuant to 36 CFR 800.5(c)(1), if we receive no response from your office within thirty (30) days, we will consider the lack of response agreement with FEMA's finding and will move forward with this undertaking. For your convenience, we have included a response area below. If you have questions or comments please contact me at 312-408-5438 or at nicholas.mueller@fema.dhs.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Nicholas Mueller".

Nicholas Mueller
Regional Environmental Officer
FEMA Region V

enclosures

+++++++*You may fax this page to 312-408-5551, attn: Nicholas Mueller*+++++++

Re: City of Peru Floodwall, LaSalle County (PDMC-PJ-05-IL-2016-004)

- Under the authority of the National Historic Preservation Act of 1966, as amended, the Illinois State Historic Preservation Office *concurs* with FEMA's determination that the captioned undertaking will result in *no adverse effect on historic properties*.

- Under the authority of the National Historic Preservation Act of 1966, as amended, the Illinois State Historic Preservation Office *objects* to FEMA's determination that the captioned undertaking will result in *no adverse effect on historic properties* for the reasons provided below:

Illinois Historic Preservation Agency

Date



FEMA

June 26, 2017

***City of Peru Floodwall
PDMC-PJ-05-IL-2016-004
City of Peru, LaSalle County, Illinois
41.325926 -89.115699, Sections 16 and 21, T33N, R1E***

**Description of
Undertaking and
Area of Potential
Effect:**

The City of Peru's east Wastewater Treatment Plant (WWTP) is located on the north shore of the Illinois River. The WWTP is surrounded by an existing berm with an elevation of 463.5' above sea level (ASL). At the time of its construction, the berm was sufficient to withstand a 100-year flooding event. During the flooding events in 2008 and 2013, water levels reached 462.98' ASL and 463.99' ASL, respectively. The Peru east WWTP was saved on the latter occasion through sandbagging efforts. However, July 2011 revisions to FEMA's Flood Insurance Rate Maps (FIRMs) raised the 100-year flood elevation to 464.2' ASL, and the 500-year flood elevation was raised to 466.5' ASL. Therefore, the Peru east WWTP is at risk for flooding from such an event, and a long-term solution is necessary to protect against future floods.

The scope of work for this undertaking includes:

- Construction of an approximately 1,450' long floodwall out of large, pre-cast concrete blocks along the top of the existing earthen levee around the perimeter of the Peru east WWTP. The concrete blocks will measure 8' x 4' x 2' and 8' x 2' x 2', and be placed such that the top of the concrete block wall shall be at elevation 467.5'. The blocks are of a tongue and groove construction and will be placed on a bed of mastic and the joints grouted with a cementitious material. The bottom of the concrete block will be placed 2' below the top of the levee and will rest on a 6" thick concrete slab. The slab will be placed on 42" of aggregate, 3' in width. The bottom of the excavation necessary to place the aggregate is anticipated to be at approximately elevation 456.5'. Existing ground on each side of the bottom of the levee is at approximately elevation 461'.
 - Two feet of the precast concrete wall will be placed below the existing earthen berm surface, and two feet of the wall will extend above the top of the existing berm surface.
 - Removal of 163 square yards of existing asphalt pavement.
-

-
- Placement of 4300 cubic yards of fill for the following two purposes:
 - Elevation of generator and pad approximately 7.5 feet above existing ground in the northeastern corner of the Peru east WWTP, and
 - Abandonment of existing lagoon located in the southeastern section of the Peru east WWTP.
 - Construction of flood protection system at the entrance including the following elements:
 - Cast-in-place concrete walls to support installation of stop logs during times of flooding,
 - Concrete pavement measuring 20.75' x 6' x 8" thick with embedded guide system for stop logs, and
 - Stop logs and removable anchor post assembly to be placed in guide system during times of flooding.
 - Provision of generator and installation of supporting electrical and natural gas piping/controls.
 - Installation of three sump pits, pumps, and related piping at locations on the site to be determined.
 - Removal and replacement of fencing as noted on the plans.
 - Placement of topsoil, seeding and fertilizer on all disturbed areas.
 - Total proposed ground disturbance is less than 1 acre.

In accordance with 36 Code of Federal Regulations (CFR) §800.11, the following documentation is submitted for the scope of work to construct a floodwall. The APE for this scope is noted on the enclosed maps and plans.

As defined in 36 CFR §800.16(d), the area of potential effects (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist. Based on this definition and the nature and scope of the undertaking, FEMA has determined that the APE is limited to the areas within which all construction and ground disturbing activity would be confined and includes the view shed of the proposed project. No potential for indirect effects outside of the view shed of the proposed project exists. The enclosed project plans, location, aerials, and photographs show the proposed construction area and activities.

Steps Taken to Identify Historic Properties:

Archaeology:

A review of the archaeological site files from the Illinois State Museum GIS Database indicates that the project area is located in a high probability archaeological zone although there are no known archaeological sites within or immediately adjacent to the Direct APE.

The proposed undertaking is located in a developed industrial area along the Illinois River near the entrance to the Illinois & Michigan Canal. To the north are the former railroad tracks of the Rock Island, Chicago, and Pacific Railroad, and to the south the tracks of the Illinois Valley Electric Railroad and the Chicago, Burlington & Quincy Railroad. Given the existing soil disturbance within the Peru east WWTP during construction, as well as the construction of the existing earthen berm and railroad

tracks, it is unlikely that intact and distinct soils horizons exist that could be disturbed by the proposed undertaking. It is also unlikely that the Direct APE possesses archaeological artifacts or features within their original depositional context.

Prior ground disturbance

The existing levee system surrounding the Peru east WWTP, upon which the proposed Undertaking would expand and improve, involved a significant amount of soil disturbance for its construction, in addition to the soil excavation and grading for the construction of the Peru east WWTP infrastructure. Given this, the soils within the project area are highly disturbed.

Soils

The Natural Resources Conservation Service Web Soil Survey identifies soils in the Direct APE as being Orthents, loamy, undulating, 0-2% slopes (802B) (websoilsurvey.sc.egov.usda.gov).

Soil	Description	pH	% Slope	Drainage
Orthents, loamy, undulating (802B)	Derived from earthy fill material, orthents refers to poor-quality disturbed shallow soils lacking horizon development. (0-152cm/0-60"): loam	n/a	1-7%	Well drained

Standing Structures:

A search of the National Register of Historic Places (NRHP) database online at <https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466> showed two National Register of Historic Places (NRHP) listed districts located within one mile of the undertaking, the Westclox Manufacturing Plant Historic District (07000475) located approximately 1,000 feet north of the WWTP, and the Illinois & Michigan Canal Historic District’s Section “H” LaSalle-Peru to Utica (66000332) located approximately 700 feet southeast of the proposed Undertaking. In addition to being a Historic District, the the Illinois & Michigan Canal is a National Heritage Corridor. These previously-identified historic properties are outside the APE for this undertaking.

A search of the Historic and Architectural Resources Geographic Information System (HARGIS) database online at <http://www.illinoishistory.gov/ps/hargis.htm> showed 40 additional surveyed properties located within one mile of the Undertaking. Based upon review of aerial photography, 28 of the properties (HARGIS Reference Nos. 124286, 124339, 124389, 124390, 124391, 124393, 124394, 124428, 124497, 124498, 124499, 124503, 124505, 124508, 124510, 124511, 124529, 124538, 124541, 124546, 124657, 124658, 124661, 124662, 124664, 124667, 124669, and 124670) appear to be extant. Seven properties (HARGIS Reference Nos. 124397, 124501, 124504, 124509, 124659, 124668, and 304908) do not appear to be extant, and it cannot be determined whether the

remaining five are extant (HARGIS Reference Nos. 124395, 124396, 124496, 124663, and 124673)¹. None of these properties, however, stand within the APE.

Peru East WWTP

The Peru east WWTP was initially constructed in 1939 by the Public Works Administration (PWA), and major additions were made at later, unknown dates. The New Deal programs, bureaus, and agencies “were designed to assist victims of the [Great] Depression, stimulate economic recovery, guarantee minimum living standards and prevent future economic crises...[PWA] projects were intended to be “self-liquidating” in that they eventually paid for themselves.” The PWA was not intended as a direct employment relief program but, rather, to “‘prime the pump’ of industry by placing large sums of money in circulation and by creating a demand for construction materials.... Actual construction was carried out by contracted firms, who were not required to hire unemployed from the relief rolls.” For many communities, the construction of public works during the Great Depression was the first time the federal government had taken an interest in local projects, and “the New Deal was undeniably the most important period of federal government legislation in the twentieth century².”

The Control Building and Secondary Digester Tank were constructed on the property ca. 1939. The later structures are the Grit Building, Storm Building/Excess Flow, Chlorine Building, Blower Room Building, Effluent Tank, Storage Tank, Walker Processor Unit 1, and Walker Processor Unit 2. Landscape features include a levee enclosing the Peru east WWTP on all sides, an entrance driveway, an interior roadway, and an abandoned sludge lagoon located at the southeast corner of the property.

The Control Building is a two-story concrete structure resting on a poured concrete foundation. The structure retains its original steel windows. The front (north elevation) door is a metal and glass replacement; the rear (south elevation) is metal and glass and may be original to the structure. Metal and glass vehicle doors on the east and west elevations of the building appear to be historic. The Control Building is covered with a flat concrete roof covered with tar over a rubber membrane. The building is elaborated with Art Deco style variations in the exterior wall planes and chevron incising over the front door.

The ca. 1939 Secondary Digester Tank is a poured concrete structure with pilaster trim around its circumference and decorative geometric incising at the lip. A small pavilion attached on the north side of the tank echoes the Control Building’s Art Deco style wall plane variation and the tank’s geometric incising above the aluminum and glass door.

¹ Google Earth Pro aerial dated 9/20/2015, accessed May 2017

² Wolfenbarger, Deon. National Register of Historic Places: Multiple Property Documentation Form – “New Deal Resources on Colorado’s Eastern Plains”, 2005.

The construction dates of the Grit Building, Storm Building/Excess Flow, Chlorine Building, Blower Room Building, and remaining tanks are not known and could not be determined from available aerial photographs. However, the structures appear to date from after the New Deal era.

The Peru east WWTP is associated with the federal works projects of the New Deal during the Great Depression, an era that had a significant impact on the broad patterns of American, regional, and local history. The property, therefore, is considered eligible for listing in the NRHP under Criterion A.

The property is not closely associated with any person who made a significant contribution to American, regional, or local history (Criterion B).

The buildings and structures of the Peru east WWTP were constructed to be functional facilities. The ca. 1939 structures are good and well-preserved examples of the Art Deco style as applied to municipal facilities. Therefore, the property is considered eligible for listing in the NRHP under Criterion C.

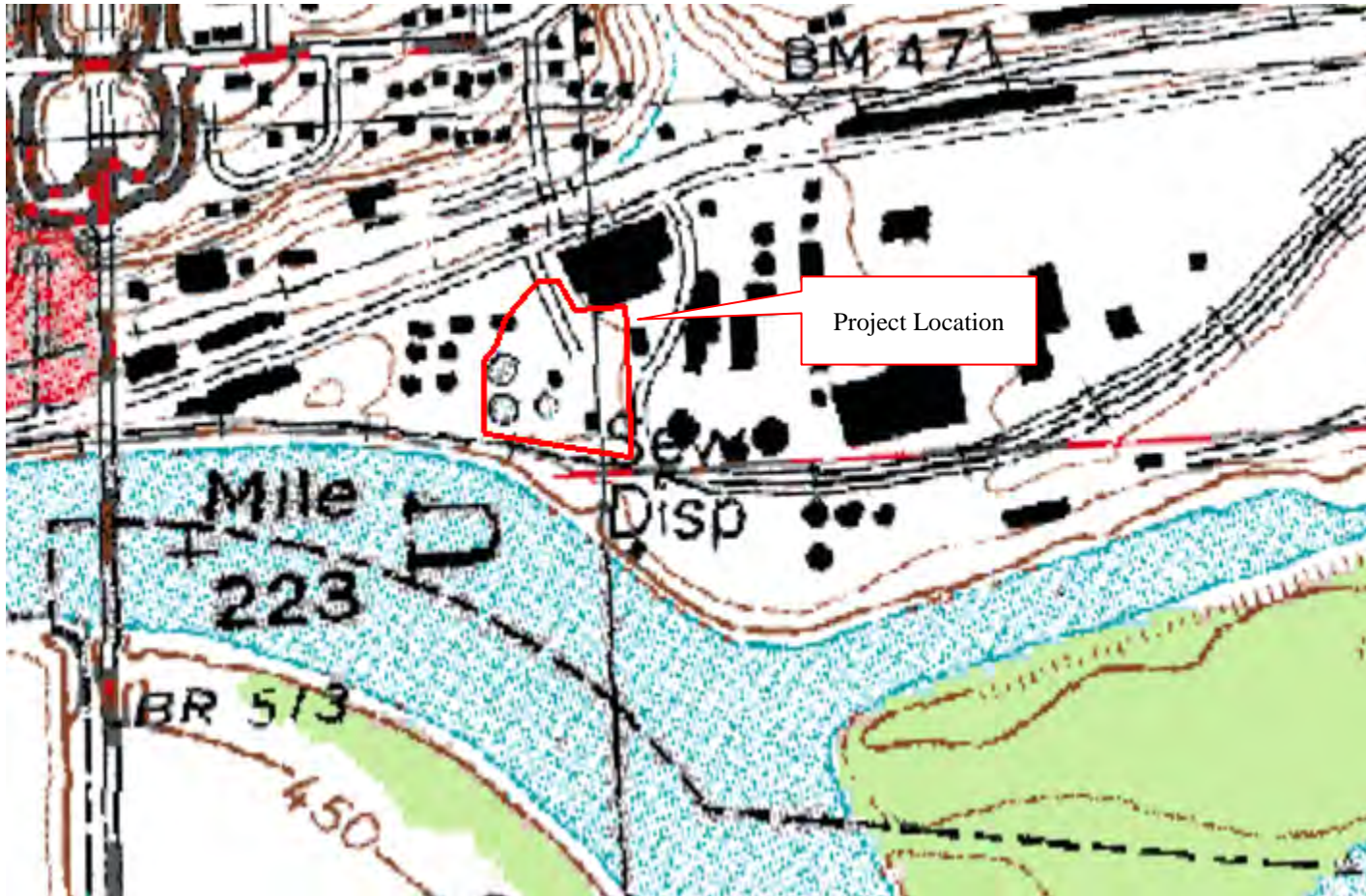
Determination of Eligibility: Based on the information provided here and in the absence of any evidence to the contrary, FEMA finds that the ca. 1939 Control Building and Secondary Digester Tank and pavilion *are eligible for listing in the National Register of Historic Places under Criterion C for architecture.*

Undertaking's Effects on Historic Properties: The contributing structures within the Peru east WWTP (the ca. 1939 Control Building, Secondary Digester Tank and pavilion) will not incur direct effects from the addition of the floodwall atop the existing perimeter berm. The views into and out of the Peru east WWTP are currently limited by the existing berm, non-historic structures located on the subject property, structures on adjacent properties, and the distances from which the historic structures may be viewed by the general public. Visual effects upon the structures from this undertaking, therefore, will be limited.

Finding: FEMA finds that this undertaking will result in *no adverse effects on historic properties.*

APPENDIX A: PROJECT MAPS

Location of proposed floodwall (*LaSalle, IL USGS quad map*).



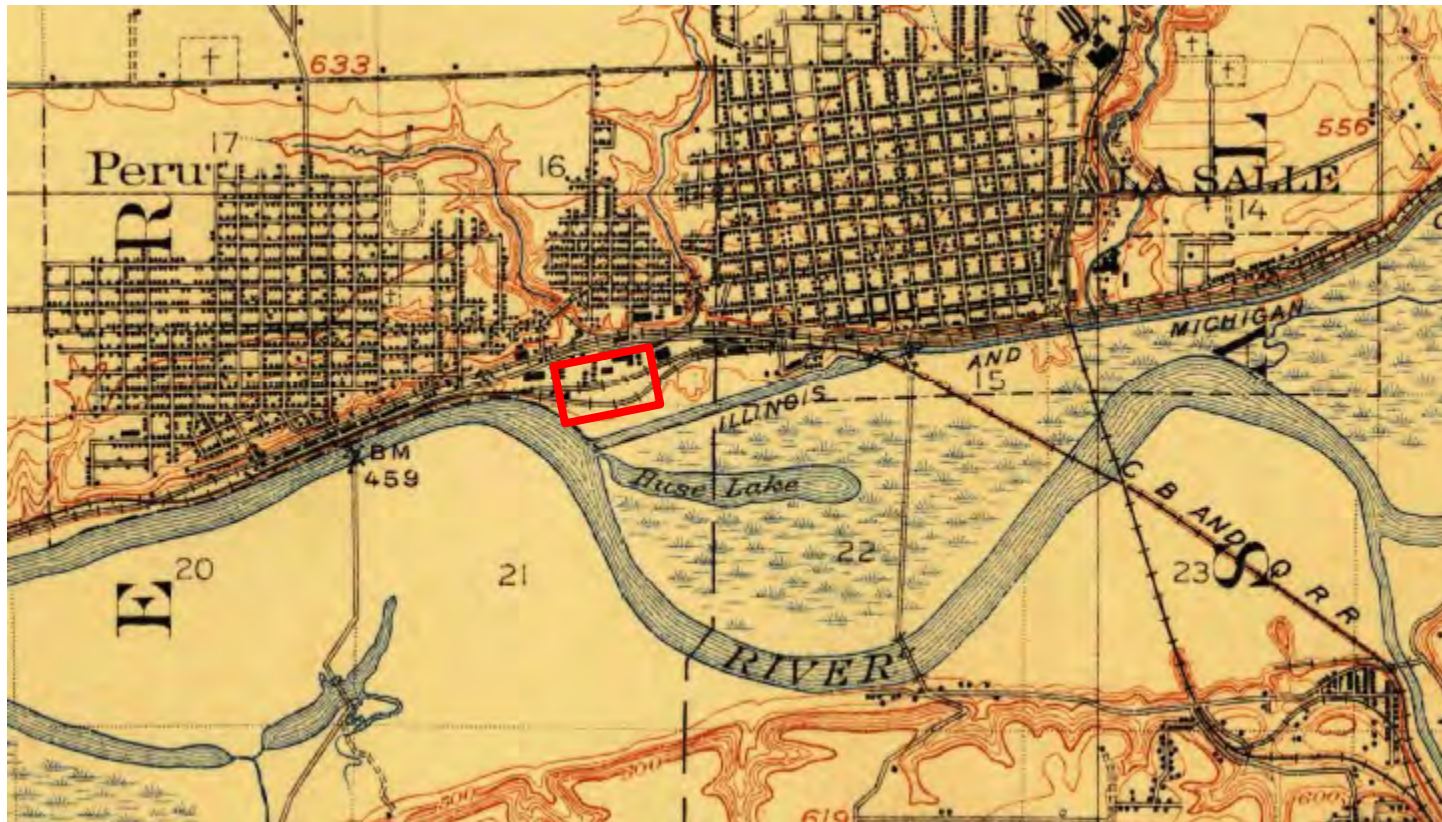
Location of proposed floodwall (Google Earth 2016).

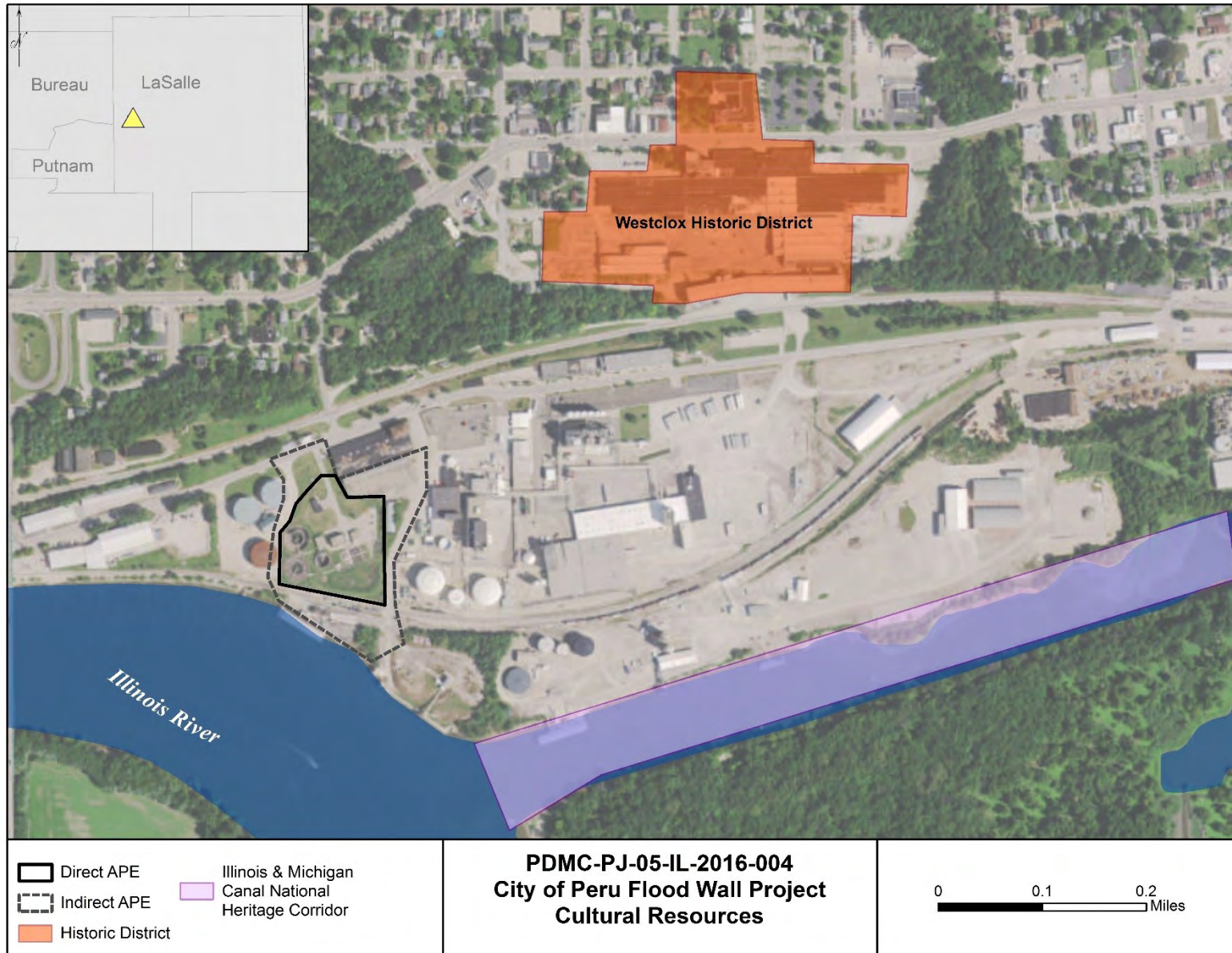


Birds-eye view of Project Location (Google Earth 2016).



1911 USGS topographic map of the project vicinity.





APPENDIX B: LOCATION PHOTOS



Photo 1: View south into WWTP; Control Building at center background.



Photo 2: East elevation of Grit Building.



Photo 3: West elevation of Grit Building.



Photo 4: View southeast to north and west elevations of Grit Building.



Photo 5: View northwest to east elevation of Blower Room Building.



Photo 6: West elevation of Blower Room Building.



Photo 7: View north-northwest to south elevation of Blower Room Building.



Photo 8: North elevation of c. 1939 Control Building.



Photo 9: South elevation of Control Building.



Photo 10: West elevation of Control Building



Photo 11: East elevation of Control Building



Photo 12: Detail of steel windows and incised detailing above entry on north elevation of Control Building.



Photo 13: View south-southwest toward Control Building (left) and Blower Room Building (right).



Photo 14: View south-southeast toward Control Building (left) and Blower Room Building (center).



Photo 15: View southwest to east and north elevations of the Storm Building/Excess Flow.



Photo 16: North elevation of Storm Building/Excess Flow.



Photo 17: East elevation of Storm Building/Excess Flow.



Photo 18: East elevation of Chlorine Building



Photo 19: View northeast to west and south elevations of Chlorine Building.



Photo 20: View southwest to Effluent Tank.



Photo 21: View southwest to Storage Tank.



Photo 22: View southeast to Storage Tank.



Photo 23: View northwest to c. 1939 Secondary Digester Tank.



Photo 24: View southeast to Secondary Digester Tank and attached building.



Photo 25: View south to building attached to north side of Secondary Digester Tank.



Photo 26: View south-southwest to Walker Processor Unit 2.

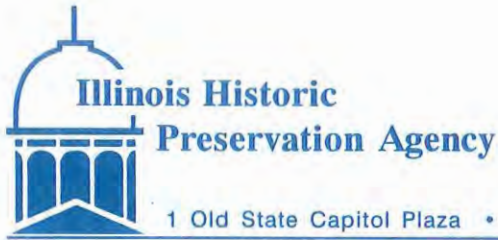


Photo 27: View northwest to Walker Processor Unit 1.



Photo 28: View east across the southern end of the property; abandoned lagoon at right.

APPENDIX C: SHPO RESPONSE



FAX 217/524-7525

1 Old State Capitol Plaza • Springfield, Illinois 62701-1512 • www.illinois-history.gov

LaSalle County
Peru

PLEASE REFER TO: IHPA LOG #006063017

Water Street, Illinois River mile 223
FEMA-PDMC-PJ-05-IL-2016-004
New construction, flood wall/flood damage prevention - WWTP

July 13, 2017

Nicholas Mueller
U.S. Department of Homeland Security
Federal Emergency Management Agency
536 S. Clark St., 6th Floor
Chicago, IL 60605-1521

Dear Mr. Mueller:

We have reviewed the documentation submitted for the referenced project(s) in accordance with 36 CFR Part 800.4. Based upon the information provided, no historic properties are affected. We, therefore, have no objection to the undertaking proceeding as planned.

Please retain this letter in your files as evidence of compliance with section 106 of the National Historic Preservation Act of 1966, as amended. This clearance remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Skeletal Remains Protection Act (20 ILCS 3440).

If you are an applicant, please submit a copy of this letter to the state or federal agency from which you obtain any permit, license, grant, or other assistance.

Sincerely,

Rachel Leibowitz, Ph.D.
Deputy State Historic
Preservation Officer

9.2.1.4 DePue SHPO Consultation Documentation

U.S. Department of Homeland Security
Federal Emergency Management Agency
536 Clark Street, 6th Floor
Chicago, Illinois 60605-1521



FEMA

September 7, 2017

Dr. Rachel Leibowitz
Deputy State Historic Preservation Officer
Illinois Department of Natural Resources
Illinois State Historic Preservation Office
Attn: Review and Compliance
1 Natural Resources Way
Springfield, Illinois 62702

Re: Village of DePue Flood Wall, Bureau County (PDMC-PJ-05-IL-2016-003)

Dear Dr. Leibowitz:

Pursuant to Section 106 of the National Historic Preservation Act, I am writing this letter to initiate and conclude consultation regarding the captioned undertaking, which will use Federal funding provided by FEMA to repair current damages and mitigate future damages caused by flooding. Your office was previously contacted by Chamlin & Associates, Inc. in 2015 about this project location (IHPA Log #027051815).

In accordance with 36 CFR §800.11, I am enclosing documentation providing justification for FEMA's finding of no historic properties affected; the purpose of this communication is to seek concurrence in that finding.

We look forward to your response to FEMA's finding. Please provide your final response by fax, email or mail. Pursuant to 36 CFR §800.3(c)(4), if we receive no response from your office within thirty (30) days, we will assume your concurrence with our findings. For your convenience, we have included a response area below. If you have questions or comments please contact me at 312-408-5438 or at nicholas.mueller@fema.dhs.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Nicholas Mueller".

Nicholas Mueller
Regional Environmental Officer
FEMA Region V

Enclosures

+++++++*You may fax this page to 312-408-5551, attn: Nicholas Mueller*+++++++

Re: Village of DePue Flood Wall, Bureau County (PDMC-PJ-05-IL-2016-003)

- Under the authority of the National Historic Preservation Act of 1966, as amended, the Illinois State Historic Preservation Office *concurs* with FEMA's determination that the captioned undertaking will result in *no historic properties affected*.

- Under the authority of the National Historic Preservation Act of 1966, as amended, the Illinois State Historic Preservation Office *objects* to FEMA's determination that the captioned undertaking will result in *no historic properties affected* for the reasons provided below:

Illinois Historic Preservation Agency

Date



FEMA

September 7, 2017

Village of DePue Floodwall

PDMC-PJ-05-IL-2016-003

Village of DePue, Bureau County, Illinois

41.321912 -89.315304, Section 16N, 10E, 34 & 35

**Description of
Undertaking and
Area of Potential
Effect:**

The Village of DePue is proposing installation of a compensatory floodwater storage basin and a new concrete block floodwall on top of an existing levee surrounding the existing wastewater treatment plant (WWTP). The WWTP is located at 801 W 2nd Street, in the southwest section of the Village just north of Lake DePue, a 300-acre backwater lake located along the north bank of the Illinois River. The entire WWTP site is located within the mapped floodway of the Illinois River. The WWTP has been protected from floodwaters by an existing levee since the DePue WWTP's initial construction in 1965. The top of the levee ranges from 460.5' to 461.5' above sea level (ASL). However, this level is too low to protect the DePue WWTP from a 100-year flood, which has an elevation of 462.0' ASL. The 500-year flood elevation is 464.9' ASL. Both 100-year and 500-year floods would inundate the DePue WWTP.

After extended periods of rain in September 2008 and 2013, the Illinois River rose to record levels of 460.36' and 461.67' ASL, respectively, coming within inches of topping the levee. Sandbags were utilized to prevent the DePue WWTP from flooding on each of those occasions but a long-term solution is necessary to protect against future floods.

The scope of work for this undertaking includes:

- Placement and grading of soil to level the top of the existing earthen levee, constructed in 1964, to increase the height. This placement would extend for the length of the levee approximately 1,300' along its 10' width.
- Placement of a concrete block wall, approximately 1,300' long, along the top of the existing earthen levee. The concrete blocks (6' long, 2' wide, and 2' high) would be placed such that the top of the concrete block wall shall be at an elevation of 465.9'. The blocks are of a tongue and groove construction and would be placed on a bed of mastic and the joints grouted with a cementitious material. The bottom of the concrete block wall would be placed

2' below the top of the levee and would rest on a 6" thick concrete slab and 42" of aggregate, 3' in width. The lowest depth of excavation necessary to place the aggregate is anticipated to be approximately elevation 455.9', higher than the present surrounding ground surface (455').

- Installation of a thin, sprayed-on, waterproof coating along the exterior of the concrete block wall.
- Removal and replacement of approximately 1300' of chain link fencing along the top of the levee perimeter.
- Elevation of approximately 350' of the existing entrance aggregate roadway from a distance approximately 150' north of its intersection with W 2nd Street to a point on the existing WWTP roadway lying north of the northwest corner of the blower building. The roadway would be 12' wide.
- Approximately 5,000 square yards of topsoil, seeding, and fertilizer placement on all disturbed areas.
- Grading of two compensatory storage areas adjacent to the north side of the WWTP. The West Area/Area 1 measures approximately 1.4 acres with an average elevation of 459', and would be excavated to an average elevation of 453'. The East Area/Area 2 measures approximately 0.7 acres with an average elevation of 461', and would be excavated to an average elevation of 460' (see attached storage area exhibit).

In accordance with 36 Code of Federal Regulations (CFR) §800.11, the following documentation is submitted for the scope of work to construct a floodwall and storage basin. The area of potential effects (APE) for this scope is noted on the enclosed maps and plans.

As defined in 36 CFR §800.16(d), the APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such properties exist. Based on this definition and the nature and scope of the undertaking, FEMA has determined that the APE is limited to the areas within which all construction and ground disturbing activity would be confined and includes the view shed of the proposed project. No potential for indirect effects outside of the view shed of the proposed project exists. The enclosed project plans, location, aerials, and photographs show the proposed construction area and activities. The APE is located within the current Village of DePue WWTP and open space parcels adjacent to the north.

Steps Taken to Identify Historic Properties:

Archaeology:

A review of the archaeological site files from the Illinois State Museum GIS Database indicates that the project area is located in a high probability archaeological zone, although there are no known archaeological sites within or immediately adjacent to the APE. There is one nearby prehistoric archaeological site, [REDACTED]

[REDACTED] The site, first recorded and tested by Knight and Mueller in 1990, and revisited in 1991 to define the site boundaries and conduct further test excavation and surface collection (Survey Report #3173). This site is located along the DePue Lake bank in an undeveloped area

of woods and fallow fields and contains prehistoric deposits dating to Early Archaic, Late Woodland and Mississippian occupations. The site was previously recommended as potentially National Register of Historic Places (NRHP) eligible.

[REDACTED], there are nine additional previously recorded archaeological sites. Two of the previously recorded sites have not been assessed for NRHP eligibility, and the remaining seven have been recommended as not eligible. [REDACTED]

Reviews of historic maps show no previous standing structures within or adjacent to the project APE prior to construction of the WWTP. The project area is located at the edge of a developed area along DePue Lake, adjacent to the Illinois River. To the east is a developed residential area, outgrowth of the original commercial center of DePue, and to the north are modern metal storage sheds; beyond those, the tracks of the Chicago, Rock Island, and Pacific Railroad and former Illinois Valley Electric Railroad. To the West and south are wooded areas.

The West Area/Area 1 compensatory storage basin (see attached storage area exhibit) would be located directly to the north of the WWTP infrastructure, where approximately 1.4 acres would be graded for a compensatory storage basin to a depth of approximately 453'. This location has a significant amount of ground disturbance resulting from the adjacent construction, grading of the structures to the north and for the WWTP, and its current use as a municipal dumping area (see Photos 20, 21, 22).

The East Area/Area 2 compensatory storage basin, northeast of the WWTP and directly adjacent to a fenced municipal storage facility, would be graded approximately 1' over 0.7 acres. This location was previously graded for its current use as open space in a park (Photo 23).

Soils

The Natural Resources Conservation Service Web Soil Survey identifies soils in the project location as being approximately 57% Minneiska loam, 0-2% slopes, occasionally flooded (8179A), and 43% Orthents, loamy, undulating (802B) (websoilsurvey.sc.egov.usda.gov).

Soil	Description	pH	% Slope	Drainage
Minneiska silt loam (8179A)	A Horizon (0-25cm/0-10"): very dark brown (10YR 2/2) fine sandy loam, dark grayish brown (10YR 4/2) dry. C Horizon (25-127cm/10-60"): stratified very dark grayish brown (10YR 3/2), very dark brown (10YR 2/2), and light olive brown (2.5Y 5/3) fine sandy loam, loam, loamy fine sand, and fine sand	Slightly alkaline	0-2%	Moderately well drained
Orthents, loamy, undulating (802B)	Derived from earthy fill material, orthents refers to poor-quality disturbed shallow soils lacking horizon development. (0-152cm/0-60"): loam	N/A	1-7%	Well drained

The location of the WWTP and proposed West Area/Area 1 compensatory storage basin are located within Minneiska silt loam and Orthent soils, with the East

Area/Area 2 compensatory storage basin location wholly within Orthent soils (see soil map).

Prior ground disturbance

The existing berm surrounding the DePue WWTP, upon which the proposed Undertaking would expand and improve, as well as the existing WWTP infrastructure, access roadways, and the large structures and graded area to the north involved a significant amount of soil disturbance and the addition of fill during construction. For proposed work on the berm within the WWTP boundaries, the maximum depth of excavation within the existing earthen flood berm would be wholly contained within existing disturbed soils. In addition, the elevation of the existing access road will remain within the current road right of way with no excavation below the sub-base.

To the north of the WWTP property where the West Area/Area 1 compensatory storage basin construction is proposed, current and past grading and dumping activities there make it unlikely that undisturbed soil horizons exist within the proposed basin footprint. The ground surface within the footprint of the proposed East Area/Area 2 compensatory storage basin location has also been impacted by the construction activities of the roadway, municipal yard, and athletic fields.

Per the Village Superintendent, Bruce Yuvan, the Project location was formerly a swamp. He was told by older village residents that locals began dumping debris at this location over a hundred years ago. When the area was converted into a park and wastewater treatment facility, there was additional landfilling to create a level area for a baseball field, which was eventually converted into soccer fields.

Phase I Archaeological Survey

In August 2017, a Phase I archaeological survey, following the IHPA guidelines, was conducted within the locations north of the WWTP where the proposed compensatory storage basins would be located (see attached). A 15-meter (50-foot) survey grid on all potential Project work areas was established, across which visual pedestrian inspection, shovel-test excavations, auger bucket excavations, and mechanical trench excavations were conducted.

A total of 26 shovel tests were excavated across the 2.13 acres (0.86 hectares) of potential Project work areas. A majority of the shovel tests exposed compacted subsoil containing angular gravel, and were all negative for cultural materials or evidence of archaeological features and deposits. These shovel tests exposed soil profiles which displayed varying levels of disturbance.

In order to investigate below the heavily compacted gravelly subsoil, two soil profile trenches (measuring approximately 3.0 meters by 0.6 meters in size) were excavated with a backhoe in Area 1, within the yard waste drop-off area. Both trenches were excavated to a depth of 150 centimeters below ground surface (maximum depth of the backhoe). The two trenches exposed layers of debris including bricks, cement, fly-ash, disturbed soil, construction debris, modern refuse, etc.

None of the excavated shovel tests yielded any evidence for cultural materials or features, and the visual inspection of the Project area was likewise negative for any prehistoric or pre-modern features.

Above-Ground Resources

A search of the Historic and Architectural Resources Geographic Information System (HARGIS) and NRHP databases show no NRHP listed properties or districts located within one mile of the APE. HARGIS shows five surveyed properties located to the north and northeast of the DePue WWTP, none of which have been assessed for NRHP eligibility. Based upon review of aerial photography, three of the properties (HARGIS Reference Numbers 125539, 125360, and 125544) do not appear to be extant. The other two properties (HARGIS Reference Numbers 125486 and 125543) may be extant.¹

Determination of Eligibility:

With regard to below-ground archaeological resources, the amount of ground disturbance for the grading and construction of the DePue WWTP, access roadways, storage shed area to the north, and current grading and dumping activities at the proposed West Area/Area 1 compensatory storage basin location, and the confirmed ground disturbance at the East Area/Area 2 compensatory storage basin location, undisturbed soil horizons do not exist within the proposed basin footprints. In addition, for proposed work on the berm within the WWTP boundaries, the maximum depth of excavation within the existing earthen berm would be wholly contained within existing disturbed soils. Given this, it is unlikely that the project APE possess archaeological artifacts or features within their original depositional context.

The DePue WWTP was initially constructed in 1965, and major renovations were made in 1981 and 1991. Structures on the property are the Blower Building, Lab and Pump Building, Primary Aerator/Digester/Clarifier, and Secondary Aerator/Digester/Clarifier. Landscape features include a levee enclosing the DePue WWTP structures, an entrance driveway and interior roadway, and three sludge drying beds.

The Blower Building and Lab and Pump Building are one-story structures sheathed in running bond brick and resting on poured concrete foundations. Both structures have flat concrete roofs covered with tar over a rubber membrane. The vinyl windows in the Blower Building have one large fixed sash over a horizontally pivoting sash, and the doors are steel slab style. A commemorative plaque on the north elevation of the Blower Building suggests it was constructed circa 1982. The vinyl windows in the Lab and Pump Building are awning style with three sashes. The doors on the west elevation of this building are paired steel slab style, and the door on the east elevation is steel slab with a square, single pane window toward the top. The commemorative plaque on the west elevation of the Lab and Pump Building suggests construction circa 1965.

¹ Google Earth imagery dated 9/30/2015.

The primary and secondary aerator/digester/clarifier structures are constructed of poured concrete and steel elements, such as safety railings. The dates of construction of these structures is not known; however, it is theorized that the Secondary Aerator/Digester/Clarifier, immediately adjacent to the Lab and Pump Building, was constructed at the same time as this building (in 1965), and the Primary Aerator/Digester/Clarifier was constructed as part of the 1981 or 1991 renovations.

The DePue WWTP is not considered eligible for listing in the NRHP. The DePue WWTP is not associated with any event or trend that made a significant contribution to the broad patterns of American, regional, or local history. Therefore, the property is not considered eligible for listing in the NRHP under Criterion A. The DePue WWTP is not considered eligible for listing in the NRHP under Criterion B because it is not closely associated with any person who made a significant contribution to American, regional, or local history.

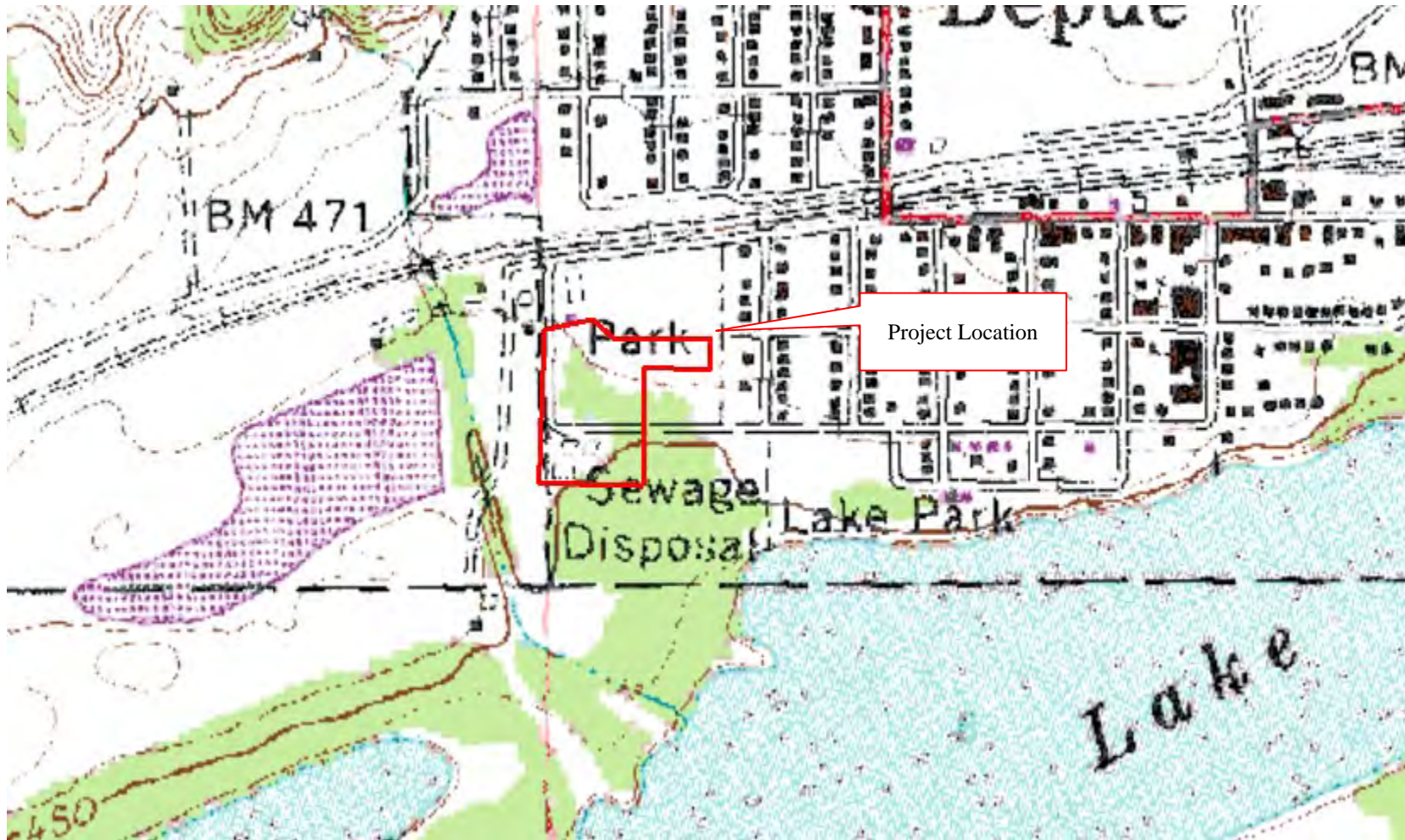
The DePue WWTP is not considered eligible for listing in the NRHP under Criterion C as the buildings and structures were constructed to be economical and functional industrial facilities. Neither the circa 1965 Lab and Pump Building nor the circa 1981 Blower Building is illustrative of any academic architectural style or styles; the design is utilitarian (exhibiting no distinctive style) and minimal in form and material. The buildings individually and as a collective grouping are not known to be the work of any master architect, their method of construction does not constitute any technical innovation, embody distinctive characteristics of a type, period, or method of construction, represent the work of a master, possess high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction. The primary and secondary aerator/digester/clarifier structures are similarly standard construction, and do not represent any technical or engineering advances. Therefore, the DePue WWTP is not considered eligible for listing in the NRHP under Criterion C. FEMA has determined that *no properties eligible for listing in the National Register for Historic Places* exist within the APE for this undertaking.

Project Condition: Contractor is expected to use fill from a commercial source or regularly-maintained stockpile. If this is not the case, the subrecipient shall inform FEMA of the fill source so required agency consultations can be completed.

Finding: Based on the information provided here, and with the above stipulated condition, FEMA finds that this undertaking will result in *no historic properties affected.*

APPENDIX A: PROJECT MAPS

General Location of Proposed Floodwall Improvement and Compensatory Storage Basin (DePue, IL USGS quad map).



General Location for Proposed Floodwall Improvement (*Google Earth 2016*).



General Location for Proposed Floodwall Improvement and Compensatory Storage Basin (Bing Maps 2017).



Approximate Direct APE for Proposed Floodwall Improvement and Compensatory Storage Basin (Google Earth 2016).



APPENDIX B: LOCATION PHOTOS



Photo 1: View south from DePue WWTP entrance, Blower Building at center.



Photo 2: North elevation of Blower Building.



Photo 3: View east-southeast to west elevation of Blower Building.



Photo 4: Detail view of vinyl window on north elevation of Blower Building.



Photo 5: Plaque on north elevation of Blower Building.



Photo 6: View east-northeast to west elevation of Lab and Pump Building.



Photo 7: East elevation of Lab and Pump Building with secondary aerator/digester/clarifier in foreground.



Photo 8: View southwest to north elevation of Lab and Pump Building.



Photo 9: Commemorative plaque on west elevation of Lab and Pump Building.



Photo 10: View to northeast across primary clarifier.

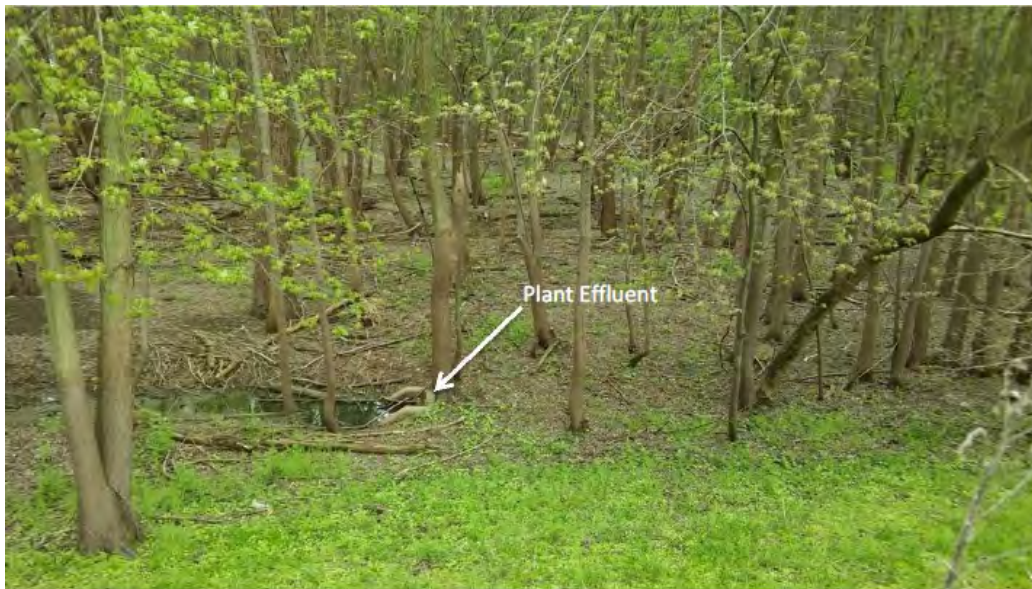


Photo 11: Facing south from the southeast corner of the WWTP levee.



Photo 12: Facing west along top of southeast corner of levee.



Photo 13: Facing southwest from southwest corner of levee.



Photo 14: Facing south from northeast corner of levee.



Photo 15: Facing west along levee at north facility boundary.



Photo 16: Facing southwest from levee along north facility boundary.



Photo 17: Facing southwest toward northwest corner of levee along north facility boundary.



Photo 18: Facing northwest from southeast corner of levee.



Photo 19: Facing north from northwest corner of WWTP toward proposed West Area/Area 1 compensatory storage basin.



Photo 20: Facing east from southwest corner of proposed West Area/Area 1 compensatory storage basin.

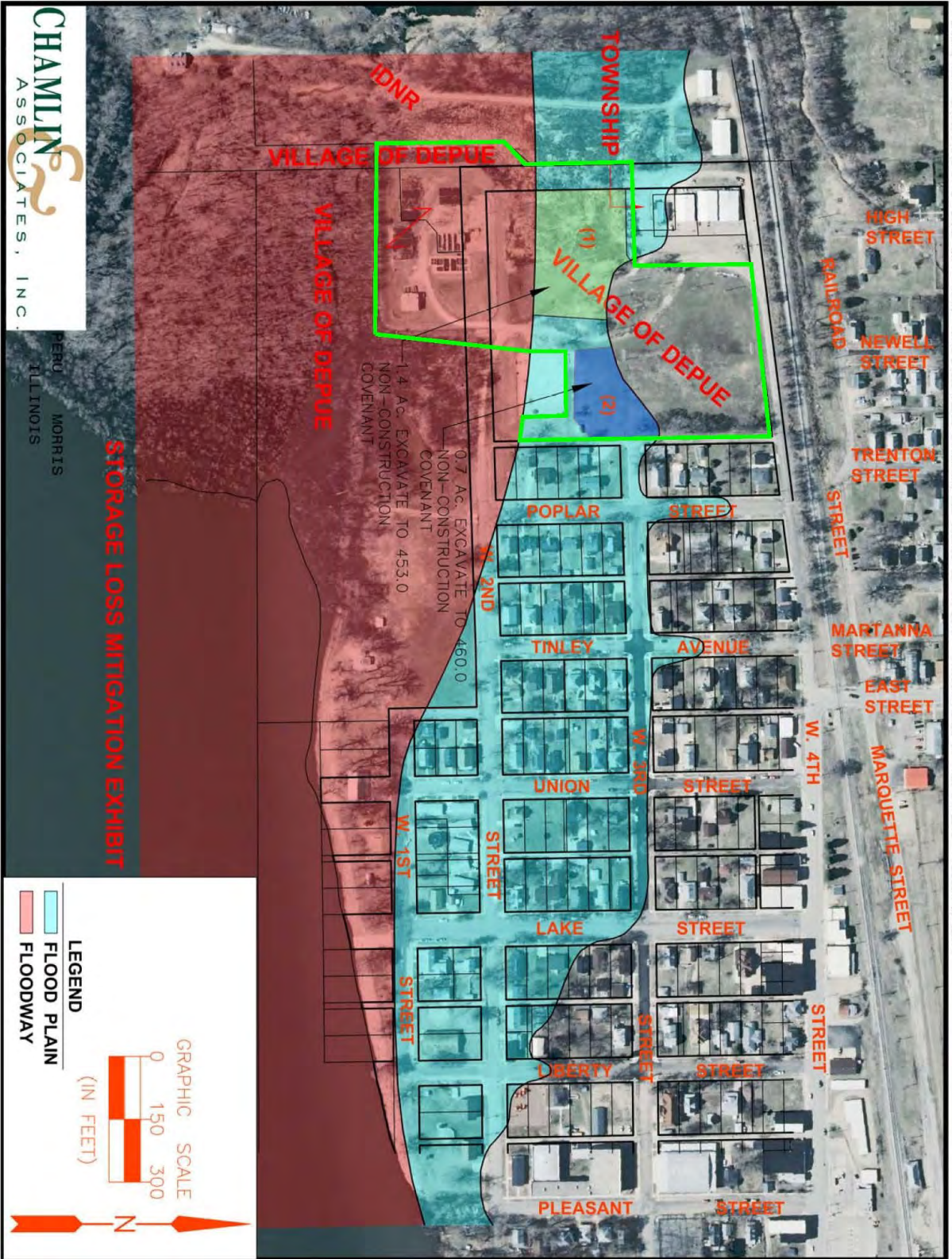


Photo 21: Facing south toward West Area/Area 1 compensatory storage basin.



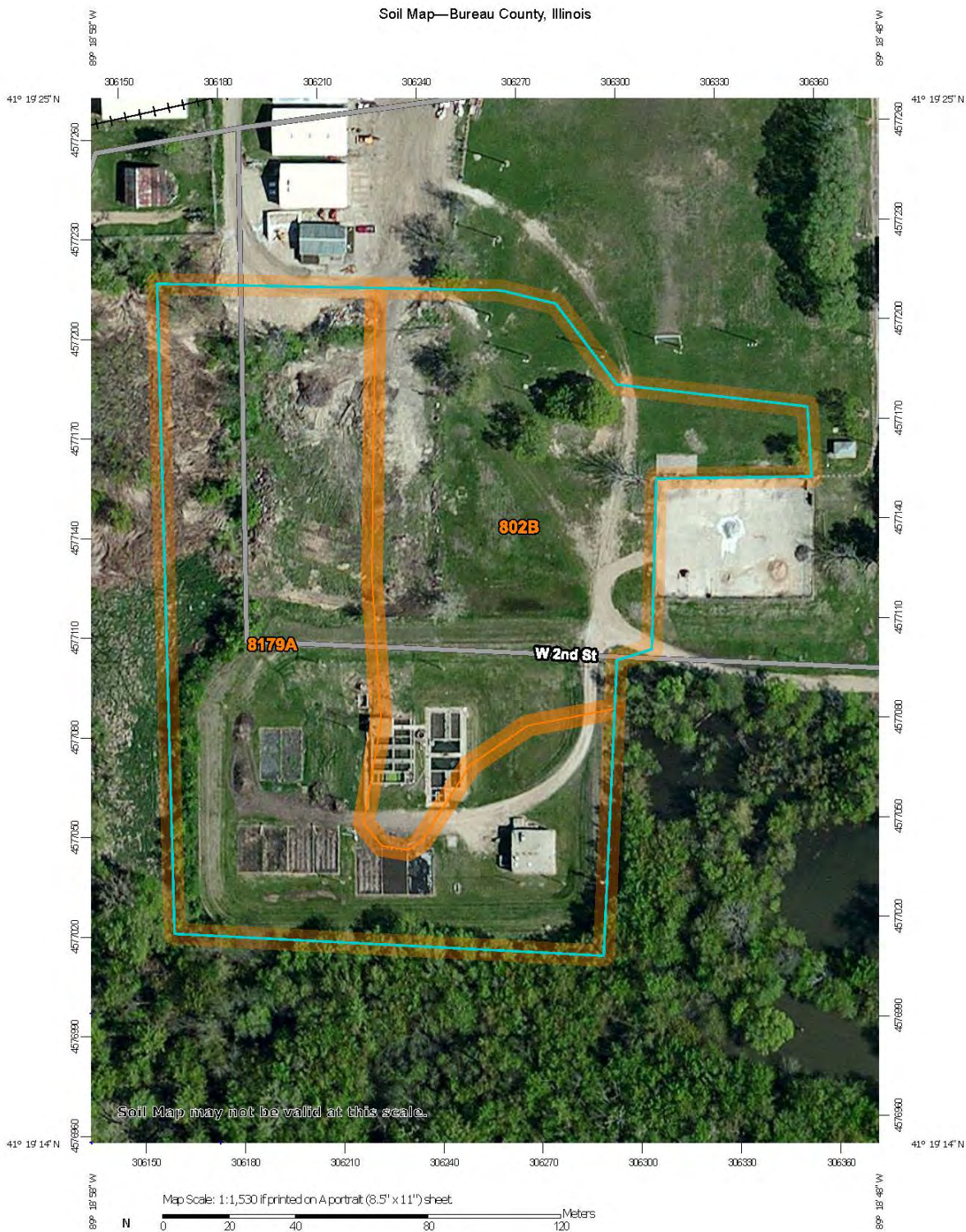
Photo 22: Facing east from northeast corner of WWTP toward East Area/Area 2 compensatory storage basin.

APPENDIX C: STORAGE LOSS MITIGATION EXHIBIT



APPENDIX D: SOIL MAP

Soil Map—Bureau County, Illinois



Map Scale: 1:1,530 if printed on A portrait (8.5" x 11") sheet.

0 20 40 80 120 Meters

0 50 100 200 300 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 16N WGS84

MAP LEGEND		MAP INFORMATION
<p>Area of Interest (AOI)</p> <ul style="list-style-type: none"> Area of Interest (AOI) <p>Soils</p> <ul style="list-style-type: none"> Soil Map Unit Polygon Soil Map Unit Lines Soil Map Unit Points <p>Special Point Features</p> <ul style="list-style-type: none"> Blowout Borrow Pit Clay Spot Closed Depression Gravel Pit Gravelly Spot Landfill Lava Flow Marsh or swamp Mine or Quarry Miscellaneous Water Perennial Water Rock Outcrop Salina Spot Sandy Spot Severely Eroded Spot Sinkhole Slide or Slip Sodic Spot 	<ul style="list-style-type: none"> Spoil Area Stony Spot Very Stony Spot Wet Spot Other Special Line Features <p>Water Features</p> <ul style="list-style-type: none"> Streams and Canals <p>Transportation</p> <ul style="list-style-type: none"> Rails Interstate Highways US Routes Major Roads Local Roads <p>Background</p> <ul style="list-style-type: none"> Aerial Photography 	<p>The soil surveys that compose your AOI were mapped at 1:12,000.</p> <p>Warning: Soil Map may not be valid at this scale.</p> <p>Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.</p> <p>Please rely on the bar scale on each map sheet for map measurements.</p> <p>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)</p> <p>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</p> <p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p> <p>Soil Survey Area: Bureau County, Illinois Survey Area Date: Version 14, Sep 16, 2015</p> <p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p> <p>Date(s) aerial images were photographed: Date not available.</p> <p>The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.</p>

Map Unit Legend

Bureau County, Illinois (IL011)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
802B	Orthents, loamy, undulating	3.0	42.9%
8179A	Minneiska loam, 0 to 2 percent slopes, occasionally flooded	4.0	57.1%
Totals for Area of Interest		7.1	100.0%

APPENDIX E: SHPO RESPONSE



Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

Bruce Rauner, Governor
Wayne A. Rosenthal, Director

Bureau County
Depue
West of W. 2nd Street
Section:35-Township:16N-Range:10E
CAI-05734.01, FEMA-PDMC-PJ-05-IL-2016-003, IEPA
Waste water treatment plant improvements

PLEASE REFER TO: SHPO LOG #027051815

September 20, 2017

Nicholas Mueller
U.S. Department of Homeland Security
Federal Emergency Management Agency
536 S. Clark St., 6th Floor
Chicago, IL 60605-1521

Dear Mr. Mueller:

We have reviewed the documentation submitted for the referenced project(s) in accordance with 36 CFR Part 800.4. Based upon the information provided, no historic properties are affected. We, therefore, have no objection to the undertaking proceeding as planned.

Please retain this letter in your files as evidence of compliance with section 106 of the National Historic Preservation Act of 1966, as amended. This clearance remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Skeletal Remains Protection Act (20 ILCS 3440).

If you are an applicant, please submit a copy of this letter to the state or federal agency from which you obtain any permit, license, grant, or other assistance. If further assistance is needed contact Joe Phillippe of my office at 217/785-1279 or joe.phillippe@illinois.gov.

Sincerely,

Rachel Leibowitz, Ph.D.
Deputy State Historic
Preservation Officer

9.2.2 Tribal Historic Preservation Office (THPO) Consultation Documentation

Tribal notices were sent to the tribes listed in Section 3.4.2. All tribes received the same notice. An example notice is below. Responses follow the example.

U.S. Department of Homeland Security
Federal Emergency Management Agency
536 South Clark Street, 6th Floor
Chicago, Illinois 60605-1521



FEMA

May 9, 2017

Dr. Kelli Mosteller, Tribal Historic Preservation Officer
Citizen Potawatomi Nation
1601 S. Gordon Cooper Drive
Shawnee, Oklahoma 74801

Re: PDMC-PJ005-IL-2016-003, -004, -005, and -007
Floodwall improvement projects in the Village of DePue, and Cities of Peru, Marseilles, and
Ottawa
Bureau and LaSalle Counties, Illinois

Dear Dr. Mosteller:

The purpose of this communication is to provide background regarding the captioned undertakings and to invite comment on any potential impacts in areas traditionally used by or sacred to the Citizen Potawatomi Nation or other Native American groups.

The PDM Program, authorized by Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, is designed to assist States, U.S. Territories, Federally-recognized tribes, and local communities in implementing a sustained pre-disaster natural hazard mitigation program. The goal is to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding in future disasters. The Illinois Emergency Management Agency (Recipient) submitted applications to the Federal Emergency Management Agency (FEMA) in 2016, for the hardening of existing earthen berm floodwalls or installation of floodwalls around existing wastewater treatment plants and the Ottawa High School in the captioned communities.

In accordance with the National Historic Preservation Act and other legislation, FEMA determined that the projects constituted federally-assisted undertakings, requiring a Section 106 Review under the National Historic Preservation Act of 1966, as amended.

The Village of DePue is proposing installation of a new concrete block floodwall on top of an existing earthen berm surrounding the existing waste water treatment plant (WWTP) and a compensatory floodwater storage basin. The existing earthen berm protecting the facility was

www.fema.gov

constructed in 1964 when the WWTP was constructed, and is no longer high enough to protect the facility from flood events. The WWTP is located at 801 West Second Street (41.321912, -89.315304, Section 35, T16N, R2W), in the southwest section of the Village just north of Lake DePue, a 300-acre backwater lake located along the north bank of the Illinois River. Due to the APE's location within an archaeological high probability area and the new ground disturbance associated with the compensatory floodwater storage basin, a Phase I Archaeological Survey was requested by FEMA.

The City of Peru has proposed the construction of a flood wall out of large, pre-cast concrete blocks measuring 8 feet by 2 feet by 4 feet placed at the location of the existing earthen berm around the perimeter of the WWTP located at 41.325926, -89.115699, in Sections 16 and 21, T33N, R1E. Two feet of the precast concrete wall will be placed below the existing earthen berm surface, and two feet of the wall will extend above the top of the existing berm surface.

The City of Marseilles proposes constructing a flood wall around the city's WWTP atop an existing berm. The WWTP is located at 41.328911, -88.723478, in Sections 13 and 14, T33N, R4E. Scope of work includes building a sheet metal pile flood wall approximately 1,400 feet in length, driven underground to the top of the underlying shale (11 feet - 17.5 feet). The proposed wall includes 150 feet of new earthen construction at the northwest corner of the WWTP; 1,210 feet of sheet pile on the west, south, east, and north sides of the WWTP; and approximately 40 feet for an access gate system at the entrance road on the north side of the plant. The proposed project also includes construction of a pumping station on the WWTP site (14 feet by 14 feet), requiring installation of pumps and related piping, controls, and discharge piping, which would include two new 14-inch diameter pipes extending south from the station approximately 6 feet below the ground and would emerge from the ground near the base of the floodwall.

The City of Ottawa is proposing to upgrade and extend an existing floodwall protecting the Ottawa Township High School (OTHS), 211 East Main Street, Ottawa, LaSalle County, IL (41.345106, -88.838297) and surrounding neighborhood. The upgrade and extension will match a common elevation of 477.5, Project elements include:

- Installation of new floodwall constructed of approximately 196 feet of sheet pile
- Installation of new floodwall constructed of Concrete I-Wall measuring 2 feet wide by 8 feet long by approximately 21 feet high. Installation of approximately 971 feet of Concrete Knee Wall on top of the existing earthen berm. Concrete Knee Wall shall measure approximately 1.08 feet in width with the bottom of wall to an undisclosed depth into the berm.
- Installation of approximately 322 feet of Concrete Extension on top of the existing concrete knee wall floodwall. Concrete Extension shall measure approximately 1.08 feet in width and 1.5 feet in height.

FEMA recognizes the special and unique legal relationship that exists between the Federal Government and federally-recognized American Indian Tribes (Tribes). FEMA also recognizes that Tribes may attach religious and cultural significance to historic properties located on aboriginal, ancestral or ceded lands that are not contiguous with reservation lands. For this reason, FEMA consults with Tribes regarding the possible effects of FEMA-funded undertakings on cultural

properties of historic or traditional significance, referred to as Traditional Cultural Properties (TCPs).

We invite your comments on the potential impacts the floodwall improvement projects may have on lands traditionally used by or sacred to the Citizen Potawatomi Nation or other Native American groups. We understand the sensitive nature of much of the information regarding TCPs and assure you in advance that any information you provide will be considered privileged and confidential. In order to safeguard cultural resources or TCPs of interest to Native Americans, we are contacting the following Tribes requesting information regarding their interests in the affected county.

- Citizen Potawatomi Nation
- Forest County Potawatomi of Wisconsin
- Hannahville Indian Community
- Ho-Chunk Nation
- Kickapoo Tribe of Oklahoma
- Osage Nation
- Kickapoo Tribe of Indians of the Kickapoo Reservation
- Prairie Band Potawatomi Nation
- Sac and Fox Nation
- Sac and Fox Nation of Missouri in Kansas and Nebraska
- Sac and Fox Tribe of the Mississippi in Iowa

Receiving information from you regarding any areas of interest to the Citizen Potawatomi Nation, or notice of Tribes other than those listed above that may have an interest in the area of potential effect and the improved project request would improve FEMA's efforts to protect resources that may exist in the areas noted on the enclosed map.

If you have questions or information that will help us protect properties having cultural importance, do not hesitate to contact me at 312-408-5438 or nicholas.mueller@fema.dhs.gov. We would appreciate a response by mail or email from your office within thirty (30) days. If we receive no response within that time, we will assume that this project has no impact to TCPs of interest to the Citizen Potawatomi Nation and will move forward with the project.

Sincerely,



Nicholas Mueller
Regional Environmental Officer
FEMA Region V

enclosures

9.2.2.1 Tribal Response: Osage Nation



TRIBAL HISTORIC PRESERVATION OFFICE

Date: June 13, 2017

File: 1617-2718IL-5

RE: FEMA, PDMC-PJ005-IL-2016-003, Floodwall Improvement Projects in the Village of DePue, Bureau County, Illinois

FEMA
Nicholas Mueller
536 South Clark Street, 6th Floor
Chicago, IL 60605-1521

Dear Mr. Mueller,

The Osage Nation has received notification and accompanying information for the proposed project listed as FEMA, PDMC-PJ005-IL-2016-003, Floodwall Improvement Projects in the Village of DePue, Bureau County, Illinois. **The Osage Nation Historic Preservation Office requests a copy of the cultural resources survey report.** We also received notices for similar projects in three cities in LaSalle County, however, these are outside of Osage Ancestral Territory, and we have no further concern for the LaSalle County projects.

In accordance with the National Historic Preservation Act, (NHPA) [16 U.S.C. 470 §§ 470-470w-6] 1966, undertakings subject to the review process are referred in S101 (d)(6)(A), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

The Osage Nation has a vital interest in protecting its historic and ancestral cultural resources. The Osage Nation anticipates reviewing and commenting on the survey report for the proposed FEMA, PDMC-PJ005-IL-2016-003, Floodwall Improvement Projects in the Village of DePue, Bureau County, Illinois.

Should you have any questions or need any additional information, please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter.



John Fox
Archaeologist

627 Grandview, Pawhuska, OK 74056, (918) 287-5328, Fax (918) 287-5376

U.S. Department of Homeland Security
Federal Emergency Management Agency
536 South Clark Street, 6th Floor
Chicago, Illinois 60605-1521



FEMA

September 8, 2017

Andrea Hunter, Director & Tribal Historic Preservation Officer
Osage Nation
627 Grandview Avenue
Pawhuska, Oklahoma 74056

Re: PDMC-PJ005-IL-2016-003, -004, -005, and -007
Floodwall improvement projects in the Village of DePue,
Bureau County, Illinois

Dear Dr. Hunter:

Pursuant to the Section 106 of the National Historic Preservation Act, I am writing this letter to continue and conclude consultation regarding the captioned PreDisaster Mitigation grant project.

In response to documentation FEMA submitted dated May 9, 2017, your office requested a copy of the cultural resource survey report for the DePue wastewater treatment plant floodwall improvements. This amended consultation provides the requested additional information.

FEMA recognizes the special and unique legal relationship that exists between the Federal Government and federally-recognized American Indian Tribes (Tribes). FEMA also recognizes that Tribes may attach religious and cultural significance to historic properties located on aboriginal, ancestral or ceded lands that are not contiguous with reservation lands. For this reason, FEMA consults with Tribes regarding the possible effects of FEMA-funded undertakings on cultural properties of historic or traditional significance, referred to as Traditional Cultural Properties (TCPs).

We invite your comments on the potential impacts the floodwall improvement projects may have on lands traditionally used by or sacred to the Osage Nation. We understand the sensitive nature of much of the information regarding TCPs and assure you in advance that any information you provide will be considered privileged and confidential.

www.fema.gov

U.S. Department of Homeland Security
Federal Emergency Management Agency
536 South Clark Street, 6th Floor
Chicago, Illinois 60605-1521



FEMA

Receiving information from you regarding any areas of interest to the Osage Nation would improve FEMA's efforts to protect resources that may exist within the proposed project area. If you have questions or information that will help us protect properties having cultural importance, do not hesitate to contact me at 312-408-5438 or nicholas.mueller@fema.dhs.gov. We would appreciate a response by mail or email from your office within thirty (30) days. If we receive no response within that time, we will assume that this project has no impact to TCPs of interest to the Osage Nation and will move forward with the project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Nicholas Mueller".

Nicholas Mueller
Regional Environmental Officer
FEMA Region V

enclosures

www.fema.gov

9.2.2.2 Tribal Response: Forest County Potawatomi Community

Veas, Lindsey [USA]

From: Michael LaRonge <Michael.LaRonge@fcpotawatomi-nsn.gov>
Sent: Wednesday, June 14, 2017 12:13 PM
To: Mueller, Nicholas
Subject: Re: PDMC-PJ005-IL-2016-003, -004, -005, and -007, Floodwall Improvements

Re: PDMC-PJ005-IL-2016-003, -004, -005, and -007, Floodwall Improvements for the Village of DePue, and Cities of Peru, Marseilles, and Ottawa, located in Bureau and LaSalle Counties, Illinois.

Dear Mr. Mueller,

Pursuant to consultation under Section 106 of the National Historic Preservation Act (1966 as amended) the Forest County Potawatomi as a Federally Recognized Native American Tribe reserves the right to comment on Federal undertakings, as defined under the act. Thank you for your participation in the process.

This response is regarding the projects mentioned above. The Historic Preservation office on behalf of the Tribe requests the archaeological report and SHPO comment letter for the projects mentioned above.

Your interest in protecting cultural and historic properties is appreciated. If you have any questions or concerns, please contact me at the phone number, or email listed below.

Respectfully,

Michael LaRonge
Tribal Historic Preservation Officer
Natural Resources Department
Forest County Potawatomi Community
5320 Wensaut Lane
P.O. Box 340
Crandon, Wisconsin 54520
Phone: 715-478-7354
Fax: 715-478-7225
Email: Michael.LaRonge@FCPotawatomi-nsn.gov

From: Michael LaRonge [mailto:Michael.LaRonge@fcpotawatomi-nsn.gov]

Sent: Thursday, October 05, 2017 2:20 PM

To: Mueller, Nicholas <Nicholas.Mueller@fema.dhs.gov>

Subject: RE: PDMC-PJ005-IL-2016-003, -004, -005, and -007, Floodwall Improvements

Re: PDMC-PJ005-IL-2016-003, -004, -005, and -007, Floodwall Improvements for the Village of DePue, and Cities of Peru, Marseilles, and Ottawa, located in Bureau and LaSalle Counties, Illinois.

Dear Mr. Mueller,

Pursuant to consultation under Section 106 of the National Historic Preservation Act (1966 as amended) the Forest County Potawatomi as a Federally Recognized Native American Tribe reserves the right to comment on Federal undertakings, as defined under the act. Thank you for your participation in the process.

This response is regarding the projects mentioned above. THPO Staff has reviewed the archaeological short report filed for this undertaking. The Office is please to concur with the finding of NO HISTORIC PROPERTIES found in the report, and SHPO findings relevant to the separate project locations. In the event that human remains or archaeological materials are identified during construction the Tribe asks to be included in any discussion regarding treatment and handling protocols prior to removal.

Your interest in protecting cultural and historic properties is appreciated. If you have any questions or concerns, please contact me at the phone number, or email listed below.

Respectfully,

Michael LaRonge
Tribal Historic Preservation Officer
Natural Resources Department
Forest County Potawatomi Community
5320 Wensaut Lane

APPENDICES

A. MAPS AND FIGURES

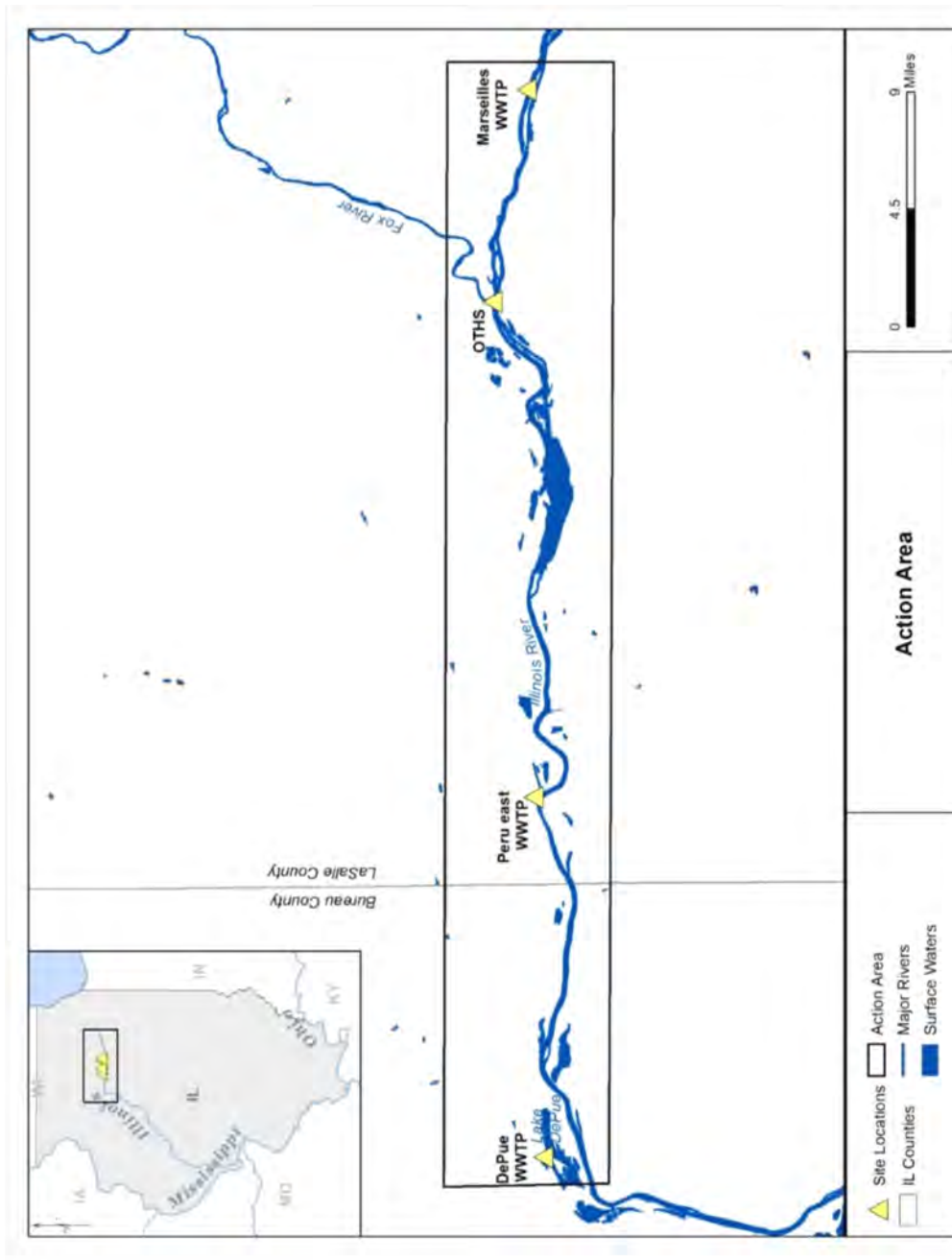


Figure A-1: Action Area



Figure A-2: Marseilles WWTP Levee Plan



Figure A-3: OTHs Levee Plan



Figure A-4: Peru east WWTP Levee Plan

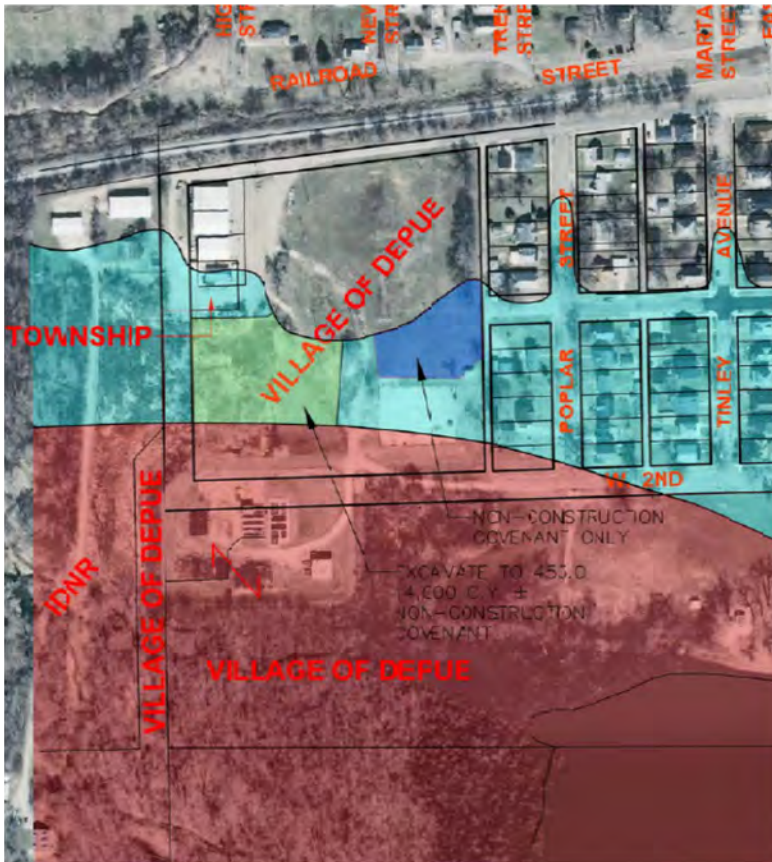


Figure A-5: DePue WWTP Levee Plan

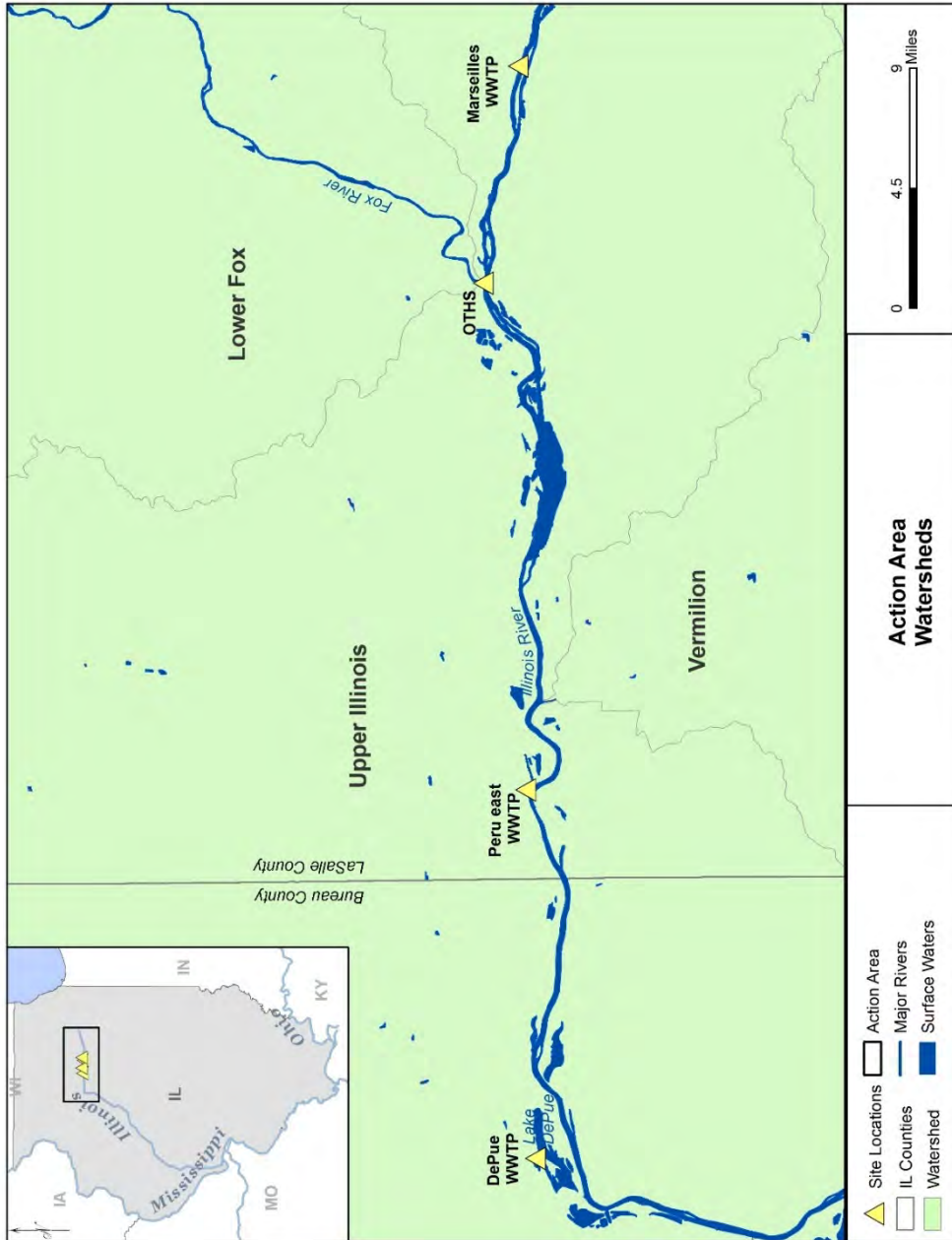


Figure A-6: Action Area Watersheds

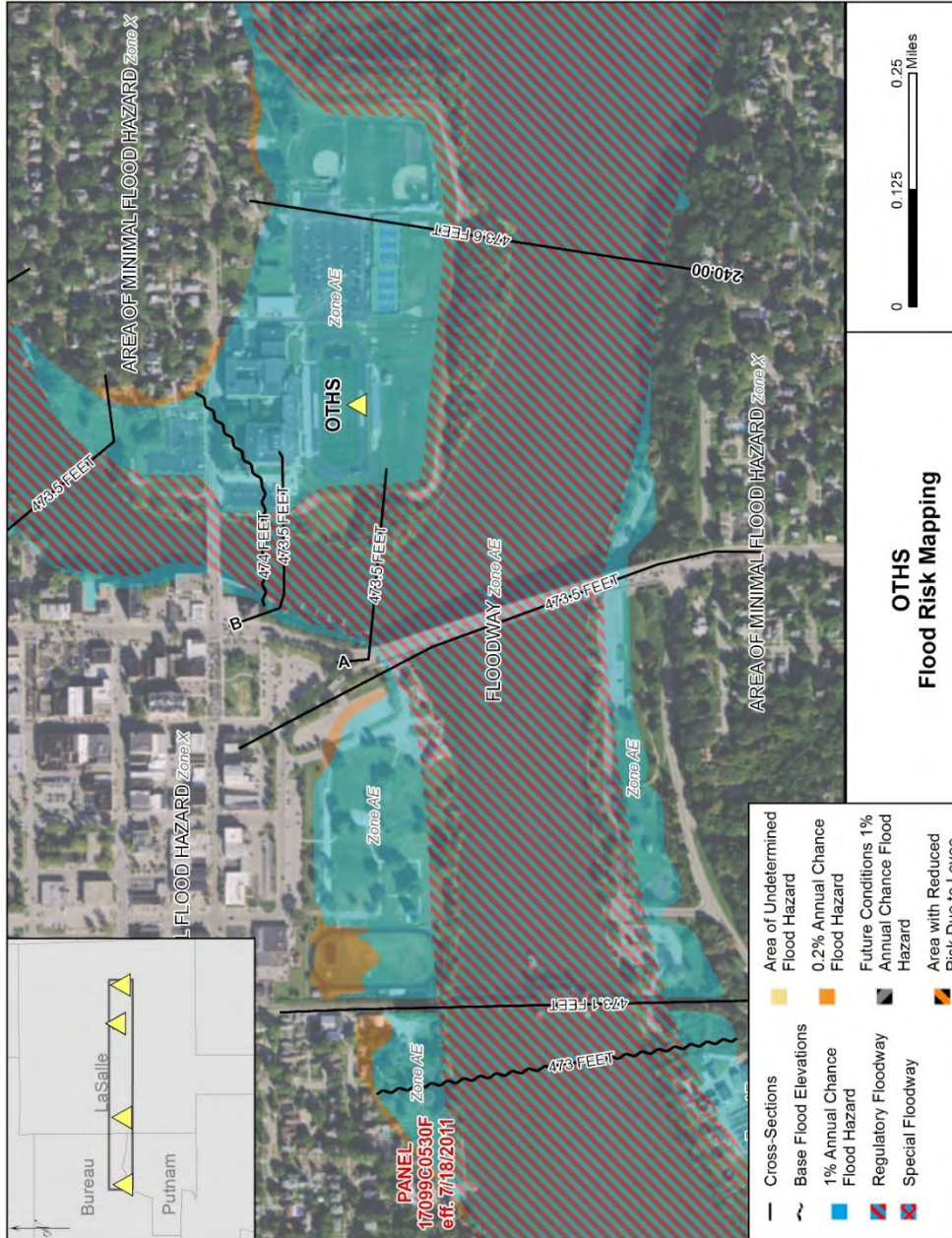


Figure A-8: OTHS Flood Risk Map

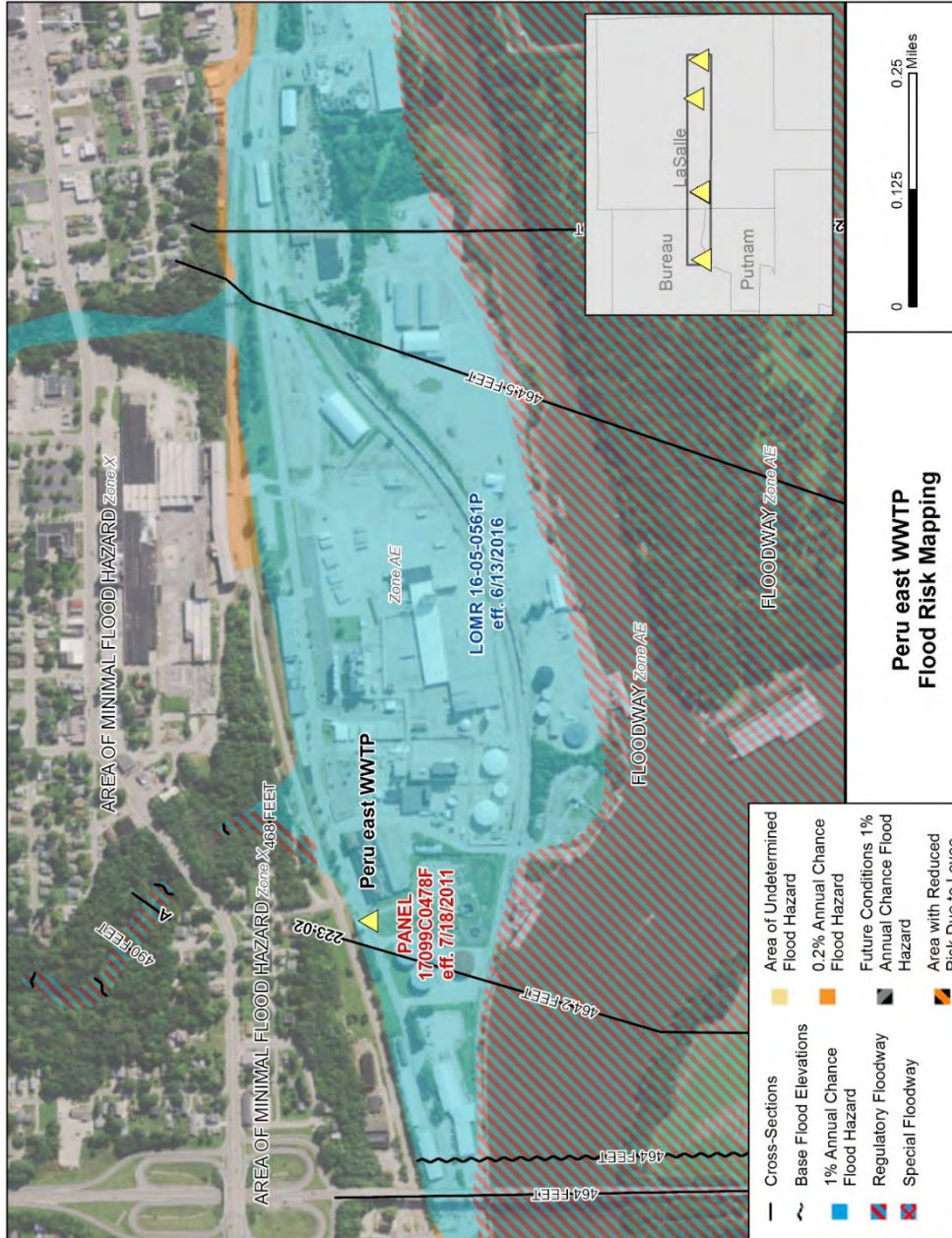


Figure A-9: Peru east WWTP Flood Risk Map

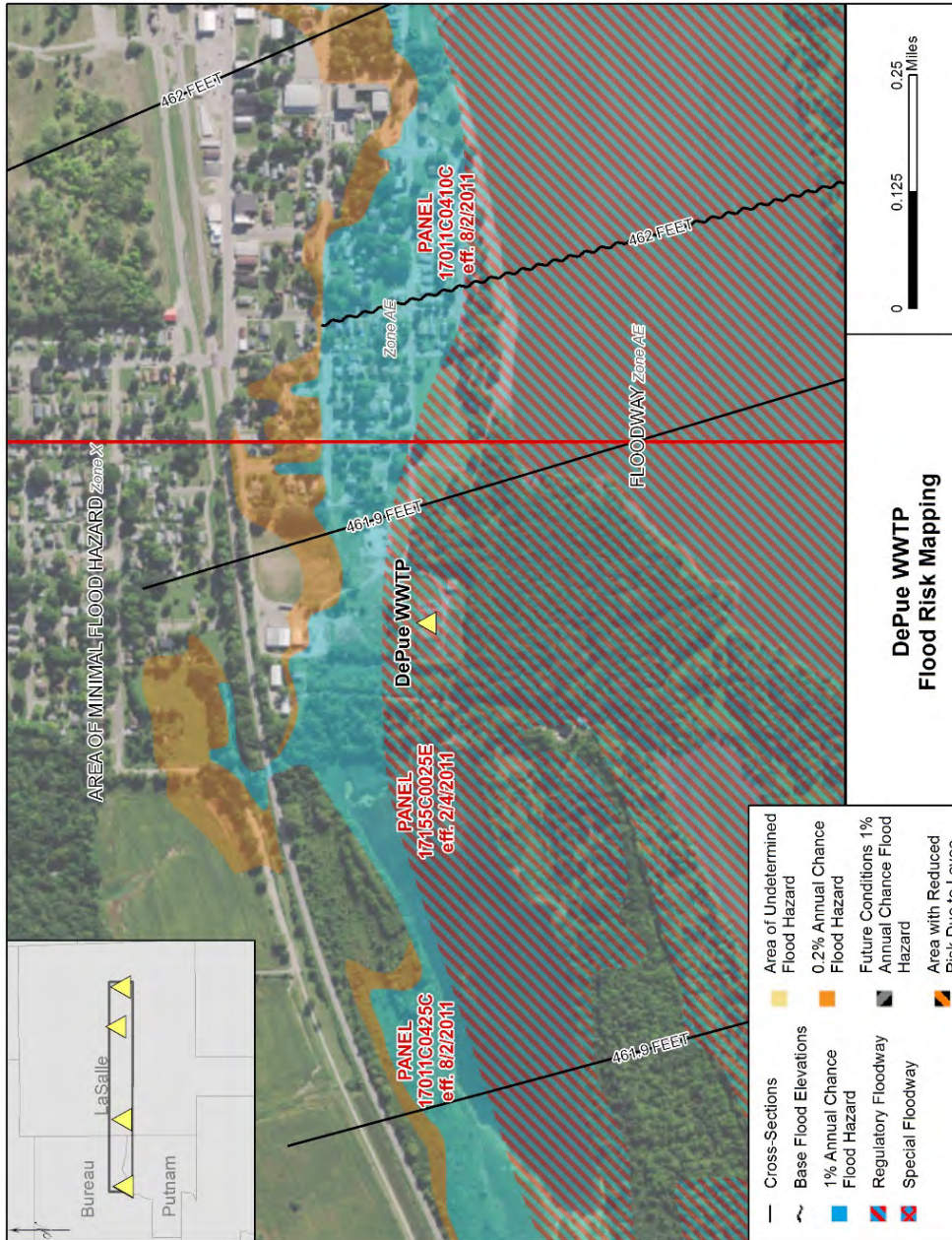
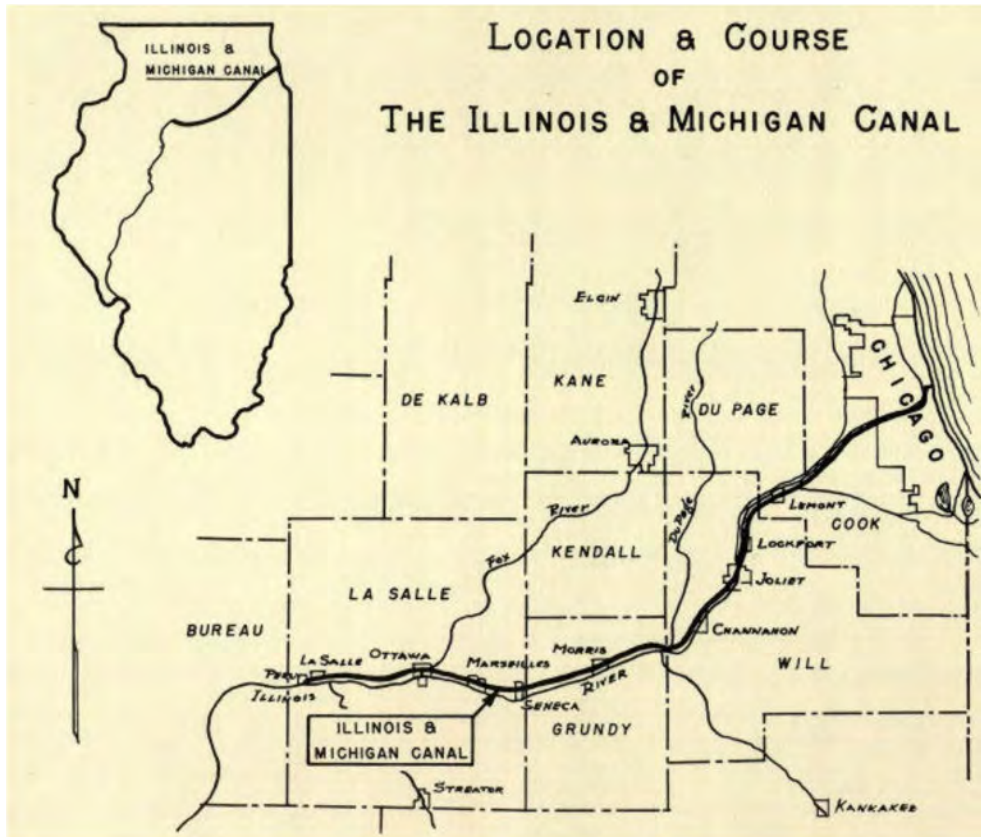
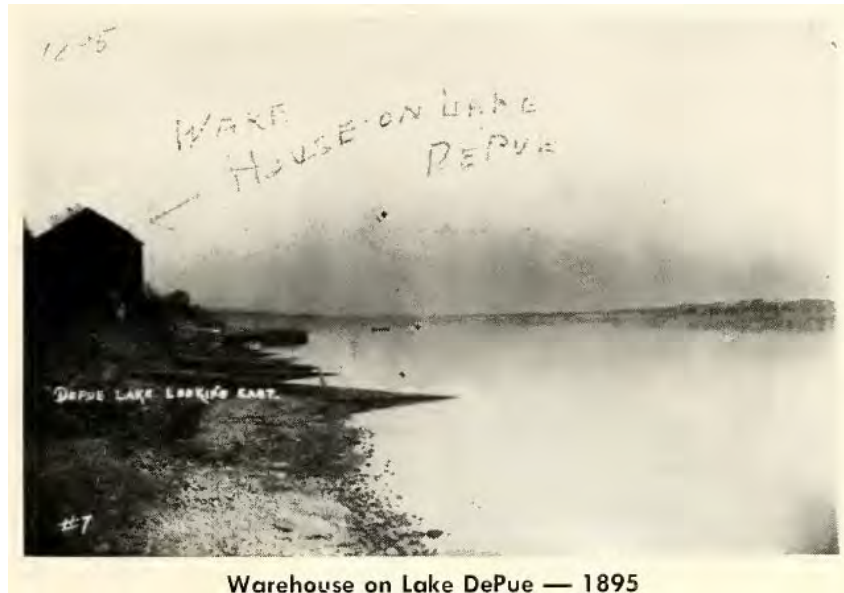


Figure A-10: DePue WWTP Flood Risk Map



Source: (Illinois Secretary of State, 2017)

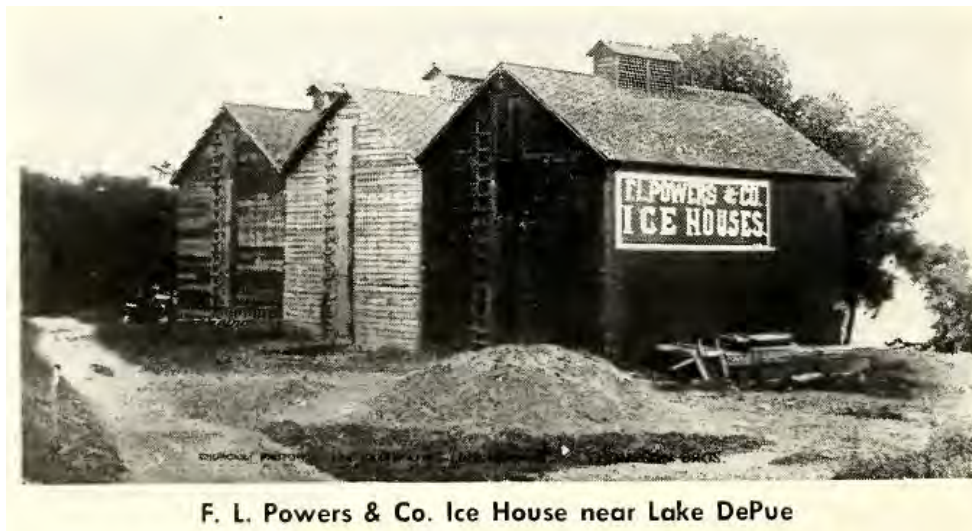
Figure A-11: Location and Course of the Illinois and Michigan Canal



Warehouse on Lake DePue — 1895

Source: (DePue Centennial Committee, 1961)

Figure A-12: Historic Photograph Taken in 1895 of a Wooden Warehouse



F. L. Powers & Co. Ice House near Lake DePue

Source: (DePue Centennial Committee, 1961)

Figure A-13: Historic Photograph of Wooden Icehouses



Source: (L'Isle, 1718).

Figure A-14: 1718 Map of the Illinois Area by French Cartographer Guillaume De L'Isle

B. 8-STEP PROCESS DOCUMENTATION

B-1. Marseilles WWTP

PDMC-PJ-05-IL-2016-007 City of Marseilles Floodwall EO11988 Compliance

Subject: Executive Order 11988 Compliance Memo for City of Marseilles Floodwall Project, Illinois
Date: 19 May 2017

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide Federal financial assistance under the Pre-Disaster Mitigation (PDM) grant program to the City of Marseilles (subgrantee), through the North Central Illinois Council of Governments, for the City of Marseilles floodwall project (proposed action). The purpose of the proposed action is to "construct a floodwall around the City of Marseilles waste water treatment plant," as required by the Bureau, LaSalle, Marshall, Putnam, and Stark Counties Natural Hazards Mitigation Plan (North Central Illinois Council of Governments, 2015).

The assistance would be provided under the competitive PDM grant program. Funds are available for projects that both reduce overall risk to people and structures and reduce reliance on Federal funding following a disaster.

Based on the results of the Eight-Step Decision-Making Process described herein, the proposed construction project was found to be in compliance with Executive Order (EO) 11988, Floodplain Management, and Title 44 Code of Federal Regulations (CFR) Part 9, Floodplain Management and Protection of Wetlands.

The City of Marseilles, LaSalle County, IL, proposes to construct a sheet-pile floodwall atop an existing berm at the city's waste water treatment plant (WWTP). The Marseilles WWTP is located on the west side of the city, north of Bell's Island, on the north shore of the Illinois River at 2 Spicer Lane (41.328911, -88.723478). The Marseilles WWTP services the entire city of 5,094 people (U.S. Census Bureau, 2016). It was originally constructed in 1939, with major renovations performed in 1974 and 2010 (City of Marseilles, 2016).

The proposed action is shown on the FEMA FIRM number 17099C0575F, effective 7/18/2011. The FIRM indicates that the proposed action is in a Special Flood Hazard Area (SFHA) Zone AE (Figure 1, an area subject to inundation by the 1 percent annual chance flood event [i.e., the 100-year flood or flood having a 1 percent chance of being equaled or exceeded in any given year]) and in the floodway of the Illinois River.

Results of the Eight-Step Decision-Making Process for the proposed action are described below.

STEP 1: DETERMINE WHETHER THE PROPOSED ACTION IS LOCATED IN THE 100-YEAR FLOODPLAIN (500-YEAR FLOODPLAIN FOR CRITICAL ACTIONS), AND WHETHER IT HAS THE POTENTIAL TO AFFECT, OR BE AFFECTED BY, A FLOODPLAIN.

The proposed action affects the Illinois River floodplain shown on FIRM number 17099C0575F, effective 7/18/2011. The FIRM indicates that the proposed action is in SFHA Zone AE (Figure 1) and the floodway of the Illinois River.

The Marseilles WWTP is protected by an existing berm, which is 480.8 feet, 1 foot above the Base Flood Elevation (BFE), also known as the 100-year flood elevation, of 479.5 feet, and below the 500-year flood elevation of 481.5 feet.

The intent of the proposed action is to reduce the likelihood and intensity of damages to central infrastructure, the consequent public health impacts on the residents of Marseilles if the Marseilles WWTP is damaged, and the risk that pathogens and pollutants may be introduced into the environment and the Illinois River.

STEP 2: NOTIFY THE PUBLIC AT THE EARLIEST POSSIBLE TIME OF THE INTENT TO CARRY OUT AN ACTION IN A FLOODPLAIN, AND INVOLVE THE AFFECTED AND INTERESTED PUBLIC IN THE DECISION-MAKING PROCESS

FEMA published an Initial Public Notice for the proposed action on October 29 and 31, 2016. The Initial Public Notice was published in the *Times*, a local newspaper of general circulation. The Initial Public Notice provided general information about the proposed action, its goals, and FEMA's intent to carry out actions in the floodplain. The notice provided contact information for comments and requests for information. No comments or requests were received on the Initial Public Notice.

STEP 3: IDENTIFY AND EVALUATE PRACTICABLE ALTERNATIVES TO LOCATING THE PROPOSED ACTION IN THE FLOODPLAIN.

Two alternatives to the proposed action were evaluated. Because the Marseilles WWTP is within the floodplain, no alternative exists that would avoid the floodplain completely, as required by 44 CFR Part 9.

Alternative 1: No Action

Under the no action alternative, there would be no Federal action and proposed floodwall construction activities would not be undertaken. There would be no direct impact to the floodplain, as current conditions would not change. However, the risk of flooding would continue.

Currently, the berm surrounding the Marseilles WWTP is 1 foot above the BFE of 479.5 feet, and 1 foot below the 500-year flood elevation of 481.5 feet. Should flooding occur at the Marseilles WWTP, the cost of restoring the facility to operability could exceed \$3 million (City of Marseilles, 2016). Raw, untreated sewage could flow directly into the Illinois River and its surrounding environment. Discharges would continue for up to six months while the facility was repaired. Residents of the City of Marseilles could experience sewer and basement back-ups as the gravity-fed system would cause sewage to continue to flow to the facility.

Based on the risks to central infrastructure, the environment, public health, and cost, this alternative is not recommended.

Alternative 2: Raise Existing Levee (proposed action)

The proposed action would construct a floodwall around the Marseilles WWTP to prevent flooding from the Illinois River. The floodwall would be built atop the existing berm and would increase its protection to the 500-year flood mark (481.5 feet). The sheet pile floodwall would be approximately 1,400 feet long, which would include 150 feet of earthen construction at the Marseilles WWTP's northwest corner. The floodwall would continue to the west, south, east, and north sides of the facility, with 40 feet for an access gate system on the north side. The berm would be raised 5 feet to reach 485 feet, and would be 10 feet wide across the top, with a slope of 4:1.

The floodwall would be sheet pile constructed with PZ 27 hot-rolled steel at a thickness of 3/8 inches and ribs 12 inches thick. The sheet pile would be driven into the top of the underlying shale between 11 feet and 17.5 feet beneath the existing berm. The sheet pile would be 485 feet high, topped with a cap channel and steel beam welded to the top of the sheet piling. The beam would be the base for a 3-foot tall chain link fence, to be topped with 1 foot high, 3 strand barbed wire.

A stormwater pumping station would also be constructed to assist in removing stormwater runoff within the Marseilles WWTP and to pump final effluent out of the facility when river levels no longer allow effluent to be discharged by gravity (above 473.52 feet). The pumping station would be equipped with two submersible pumps with a total pumping capacity of 7,200 gallons per minute (gpm) (3,600 gpm each). The pumps would automatically pump stormwater trapped by the levee system when the Illinois River exceeds 473.53 feet.

A section of the existing entrance road to the Marseilles WWTP would be raised to accommodate a gate closure system. This section is approximately 170 feet long and would be tapered from the existing grade at the north end, up to a high mid-point, and then back to the existing grade on the south end. The maximum amount it would be raised over the existing pavement is roughly 3 feet reaching an elevation of 482 feet. The gate closure system

would provide an additional barrier if water should reach elevations of 482 feet to 485 feet, and would be stored when not in use. (City of Marseilles, 2017)

Construction would include precautions to minimize vegetation disturbance. However, minor disturbance would be unavoidable. Vegetative grading, shaping, and restoration would occur for all areas disrupted by construction activities.

Alternative 3: Earthen Berm

The City of Marseilles considered raising the existing levee with an earthen embankment. This method would cause fill to extend 20 feet into the Illinois River. Alternative 3 would likely have impacts on the Illinois River such as impeding flow, causing siltation, and creating erosion issues. Therefore, Alternative 3 was eliminated from consideration.

STEP 4: IDENTIFY THE POTENTIAL DIRECT AND INDIRECT IMPACTS ASSOCIATED WITH THE OCCUPANCY OR MODIFICATION OF FLOODPLAINS, AND THE POTENTIAL DIRECT AND INDIRECT SUPPORT OF FLOODPLAIN DEVELOPMENT THAT COULD RESULT FROM THE PROPOSED ACTION.

The proposed action would protect the Marseilles WWTP from a 500-year flood, as required for critical actions (44 CFR Part 9.4). The proposed action would also provide the three feet of freeboard above the BFE as required for levee certification (44 CFR Part 65.10).

The proposed action is in the floodway of the Illinois River. An initial hydrologic and hydraulic analysis indicated that the proposed encroachment of the floodway would result in a 0.01 ft increase in flood levels upstream of the proposed floodwall during the base flood discharge (FEMA, 2017). If a rise is shown during state and local permitting, the City of Marseilles would need to meet all permit requirements including obtaining a Conditional Letter of Map Revision (CLOMR) before project construction.

The stretch of the Illinois River within the project area is already impacted by instream structures (e.g., navigation locks and dams) and existing floodwalls/levees, including the project sites. The existing levee cuts this area off from seasonal floods and does not provide riparian habitat. Protecting the Marseilles WWTP from flooding would reduce the risk of pathogens and pollutants being introduced into the environment and the Illinois River. This action would protect both central infrastructure and the natural and beneficial functions of the floodplain.

The adverse effect on flood risk just upstream of the proposed action is small in magnitude and limited in spatial effect. In contrast, the benefits of protecting the Marseilles WWTP are extensive. The importance of completing the proposed action “clearly outweighs” the adverse effects. Therefore, the proposed action is practicable (44 CFR Part 9.9(e)(5)).

STEP 5: MINIMIZE THE POTENTIAL ADVERSE IMPACTS AND SUPPORT TO OR WITHIN FLOODPLAINS TO BE IDENTIFIED UNDER STEP 4, RESTORE AND PRESERVE THE NATURAL AND BENEFICIAL VALUES SERVED BY FLOODPLAINS.

The proposed action is required to comply with all local floodplain ordinances, including NFIP requirements for encroachment of floodways (44 CFR 60.3(d)). The City of Marseilles has obtained a floodway permit from the Illinois Department of Natural Resources – Office of Water Resources (IDNR-OWR), which is valid until Dec 2018. The IDNR permit is conditioned on updated plans being submitted for review and approval before work is begun.

To minimize impacts to floodplains, Best Management Practices (BMPs) would be implemented to reduce or eliminate potential run-off impacts. It is expected that if the grant is awarded a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and submitted to the Illinois Environmental Protection Agency prior to the start of work. The SWPPP would likely require:

- Perimeter erosion control barrier place around the site;
- Existing inlets and pipe culverts downstream of the work area would be protected;
- All disturbed areas would be seeded with grass as soon as practical; and
- Following seeding all slopes would be covered with erosion control blanket and all other seeded areas would receive mulch or an erosion control blanket.

The SWPPP would also address other BMPs associated with spill prevention, non-storm water discharges, and inspection procedures. Construction would include precautions to minimize vegetation disturbance. However, minor disturbance would be unavoidable. Vegetative grading, shaping, and restoration would occur for all areas disrupted by construction activities.

The proposed action would comply with National Pollutant Discharge Elimination System (NPDES) requirements that address both construction activities and long term prevention of sediment and suspended solids from entering nearby waters of the U.S. Therefore, the temporary impact to floodplains from the proposed action would be less than significant. Any adverse effects to floodplains associated with the construction of the floodwall would be short term and be minimized by the measures described above. No long-term effects to floodplains are expected as a result of the proposed action.

STEP 6: REEVALUATE THE PROPOSED ACTION TO DETERMINE FIRST, IF IT IS STILL PRACTICABLE IN LIGHT OF ITS EXPOSURE TO FLOOD HAZARDS, THE EXTENT TO WHICH IT WOULD AGGRAVATE THE HAZARDS TO OTHERS, AND ITS POTENTIAL TO DISRUPT FLOODPLAIN AND WETLAND VALUES; AND SECOND, IF ALTERNATIVES PRELIMINARILY REJECTED AT STEP 3 ARE PRACTICABLE IN LIGHT OF THE INFORMATION GAINED IN STEPS 4 AND 5.

As described in Step 3, alternatives to the proposed action were evaluated and were not recommended. As described in Step 4, the proposed action would reduce the risk of flood damage to central infrastructure, and contamination of the environment but would likely result in a minor adverse impact on the floodplain. The waiver process for floodway encroachment (44 CFR Part 65.12) includes creation of a new flood hazard map and contacting affected property owners. This process would be undertaken by the subgrantee and would serve as the necessary re-evaluation.

STEP 7: PREPARE AND PROVIDE THE PUBLIC WITH A FINDING AND PUBLIC EXPLANATION OF ANY FINAL DECISION THAT THE FLOODPLAIN OR WETLAND IS THE ONLY PRACTICABLE ALTERNATIVE.

A Programmatic Environmental Assessment (PEA) for the Marseilles WWTP floodwall and three other nearby projects was prepared under the National Environmental Policy Act (NEPA). Final Public Notice for the proposed action was performed as part of the NEPA notification process in December 2017. The notice contained the following information:

- The reason the proposed action must be in the floodplain;
- A description of all significant facts considered in the decision-making process;
- A list of alternatives considered;
- A statement demonstrating that the action conforms to applicable state and local floodplain protection standards;
- A statement on how the proposed action affects, or is affected by, the floodplain and wetlands;
- Identification of the implementing organization and point of contact for further information; and
- Maps of the proposed action area.

STEP 8: REVIEW THE IMPLEMENTATION AND POST-IMPLEMENTATION PHASES OF THE PROPOSED ACTION.

The subgrantee would ensure that the proposed action is implemented as approved.

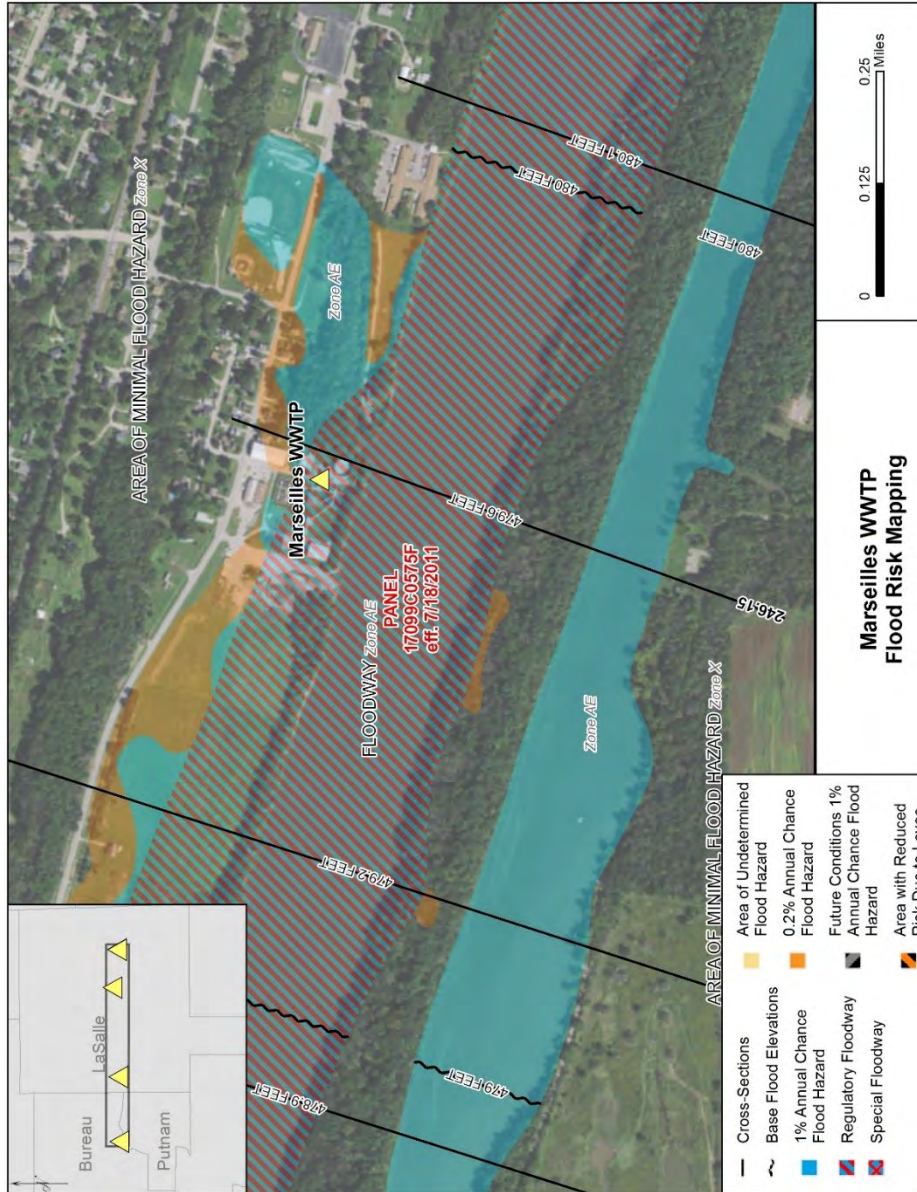


Figure 1: FIRM Showing Project Area

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City of Marseilles. (2016). *Subgrant Project Application*.

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B-2. OTHS

PDMC-PJ-05-IL-2016-005 Ottawa Township High School EO 11988 Compliance

Subject: Executive Order 11988 Compliance Memo OTHS Floodwall Project, Ottawa, Illinois
Date: 22 May 2017

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide Federal financial assistance under the Pre-Disaster Mitigation (PDM) grant program to the City of Ottawa (subgrantee), through the North Central Illinois Council of Governments, for the Ottawa Township High School Floodwall project (proposed action). The purpose of the proposed action is to "bring the levee surrounding the high school into compliance to be FEMA certified," as required by the Bureau, LaSalle, Marshall, Putnam, and Stark Counties Natural Hazards Mitigation Plan (North Central Illinois Council of Governments, 2015).

The assistance would be provided under the competitive PDM grant program. Funds are available for projects that both reduce overall risk to people and structures and reduce reliance on Federal funding following a disaster.

Based on the results of the Eight-Step Decision-Making Process described herein, the proposed construction project was found to be in compliance with Executive Order (EO) 11988, Floodplain Management, and Title 44 Code of Federal Regulations (CFR) Part 9, Floodplain Management and Protection of Wetlands.

The City of Ottawa, LaSalle County, IL, proposes to raise and extend an existing floodwall at the Ottawa Township High School (OTHS). The school is on the northeast corner of the confluence between the Fox and Illinois Rivers at 211 East Main Street (41.345106, -88.838297). OTHS has approximately 1,440 students and 90 full-time staff members. The OTHS campus is protected by an existing levee system, floodwall, and gates. Currently, the levee along the Fox River protects OTHS and the surrounding neighborhood during flood events up to 472.5 feet, 1 foot below the base flood elevation (BFE) of 473.5 feet. The proposed action would raise and extend the existing levee at OTHS to 477.5 feet, allowing the levee system to be recertified in accordance with 44 CFR Part 65.10.

The proposed action affects the Illinois River Floodplain shown on FEMA Flood Insurance Rate Map (FIRM) number 17099C0530F, effective 7/18/2011. The FIRM indicates that the proposed action is in a Special Flood Hazard Area (SFHA) Zone AE (Figure 1, an area subject to inundation by the 1 percent annual chance flood event [i.e., the 100-year flood or flood having a 1 percent chance of being equaled or exceeded in any given year]).

Results of the Eight-Step Decision-Making Process for the proposed action are described below.

STEP 1: DETERMINE WHETHER THE PROPOSED ACTION IS LOCATED IN THE 100-YEAR FLOODPLAIN (500-YEAR FLOODPLAIN FOR CRITICAL ACTIONS), AND WHETHER IT HAS THE POTENTIAL TO AFFECT, OR BE AFFECTED BY, A FLOODPLAIN.

The proposed action affects the Illinois River Floodplain shown on FIRM number 17099C0530F, effective 7/18/2011. The FIRM indicates that the proposed action is in SFHA Zone AE (Figure 1). The proposed action would remove the OTHS campus from the floodplain and reduce the potential for flooding at the school.

The OTHS campus is protected by an existing levee system, floodwall, and gates. The OTHS floodwall follows the Fox River from Division Street south nearing the confluence of the Fox and Illinois Rivers. The BFE of the Fox River is 473.7 feet, and the existing floodwall ranges from 474.5 to 478 feet. The levee breaks at East Main Street, which is a bridge across the Fox River. The floodwall north of East Main Street has a section of approximately 1,000 feet that requires a sandbag closure system. Currently, the levee along the Fox River protects OTHS and the surrounding neighborhood during flood events up to 472.5 feet, 1 foot below the BFE (473.5 feet). Should the Fox River flood to a level exceeding the levee, the school and residences in adjacent neighborhoods would be damaged. The portion of the OTHS campus below BFE is valued at \$35,000,000, exceeding 50 percent of the market value of the campus (City of Ottawa, 2016). Loss of this magnitude would cause the OTHS campus to be

declared substantially damaged and unusable. Damage to the school would result in school closures of varying amounts of time, loss of learning time, and dislocated staff. Damage to the surrounding residences would be followed by insurance claims and dislocated residents.

In summary, the need for the proposed action is to safeguard communities and central infrastructure from flood events.

STEP 2: NOTIFY THE PUBLIC AT THE EARLIEST POSSIBLE TIME OF THE INTENT TO CARRY OUT AN ACTION IN A FLOODPLAIN, AND INVOLVE THE AFFECTED AND INTERESTED PUBLIC IN THE DECISION-MAKING PROCESS

FEMA published an Initial Public Notice for the proposed action on November 2 and 3, 2016 in the *Times*, a local newspaper of general circulation. The Initial Public Notice provided general information about the proposed action, its goals, and FEMA's intent to carry out actions in the floodplain. The notice provided contact information for comments and requests for information. No comments or requests were received on the Initial Public Notice.

STEP 3: IDENTIFY AND EVALUATE PRACTICABLE ALTERNATIVES TO LOCATING THE PROPOSED ACTION IN THE FLOODPLAIN.

Two alternatives to the proposed action were evaluated: no action and relocation of OTHS. Because the OTHS is already within the floodplain, no alternative exists that would avoid the floodplain completely, as required by 44 CFR Part 9, but relocating the school would reduce the development and occupancy of the floodplain. The City also considered floodproofing or elevating OTHS, but preliminary inquiries determined that these approaches were technically infeasible, and were not developed further.

Alternative 1: No Action

Under the no action alternative, there would be no Federal action and the proposed floodwall construction activities would not be undertaken. There would be no direct impact to the floodplain, as current conditions would not change. However, the risk of flooding would continue. If the floodwaters rose higher than the levee at OTHS, the school and residences in adjacent neighborhoods would be damaged. The portion of the OTHS campus below BFE is valued at \$35,000,000, exceeding 50 percent of the market value of the campus (City of Ottawa, 2016). Loss of this magnitude would cause the campus to be declared substantially damaged, which would require the building to be raised above BFE as a condition of any repairs. The evaluation of alternatives found that elevation and/or floodproofing of the structure was not technically feasible; therefore, flooding of the OTHS would likely result in a need to relocate the school at an estimated cost of \$130,000,000.

Due to the risk of potential damage to central infrastructure, resulting disruption to the community and prohibitive cost of repairs, this alternative is not recommended.

Alternative 2: Extend and Raise Levee (proposed action)

The proposed action would raise and extend the existing levee at OTHS to 477.5 feet, 3 feet above BFE. Two access ramps would be constructed on the eastern portion of the OTHS campus. One ramp would be immediately south of the termination of York Street, graded as required to meet the existing roadway, and a 14-inch cast iron water main would be installed as a culvert. A 16-foot long, 6-foot high chain link gate would be installed at the entrance to the ramp. The existing fence would be removed and reinstalled. The second ramp would lead into the pre-existing mitigation area. V ditches would be excavated to allow for 3 inches of topdressing and to provide drainage on the east side of OTHS. Excavated soil material would form the new 463-foot high berm south of the baseball diamond. On the southwest side of OTHS, the existing catch basin would be replaced in the same location.

The major points of levee construction would occur on the west side, from the confluence of the Illinois and Fox Rivers north along the Fox River. All cracks in existing concrete would be grouted above adjacent earth fill prior to

construction. Existing concrete caps would be removed. Dowels would be inserted into drilled holes in the existing concrete, with the new concrete wall extension cast in place, reaching an elevation of 476-feet.

Construction would include earth excavation, embankment, storm sewers, manholes, inlets, retaining wall, various pavement items, and other miscellaneous items of construction. For major portions of the construction site, isolated tree removal and protection of remaining trees against damage would occur. Excavation and embankment would be completed at the job site to achieve the proposed site contours. Placement, maintenance, removal, and proper clean-up of temporary erosion control, such as perimeter erosion control barrier, temporary ditch checks, inlet and pipe protection, and temporary seeding would occur.

For the retaining wall work, final grading and landscaping would be conducted. Placement of permanent erosion control, such as riprap ditch, and erosion control blanket, and seeding would be implemented. The total area of the construction site is estimated to be 2.1 acres, of which 1.3 acres would be disturbed by excavation, grading, and other construction activities.

Alternative 3: Relocate OTHS

The City of Ottawa considered relocating OTHS out of the floodplain. The city estimated that this alternative would cost \$130,000,000. Alternative 3 would not be financially feasible for the City of Ottawa to undertake. Due to the prohibitive cost of relocating the school, Alternative 3 is not recommended.

STEP 4: IDENTIFY THE POTENTIAL DIRECT AND INDIRECT IMPACTS ASSOCIATED WITH THE OCCUPANCY OR MODIFICATION OF FLOODPLAINS, AND THE POTENTIAL DIRECT AND INDIRECT SUPPORT OF FLOODPLAIN DEVELOPMENT THAT COULD RESULT FROM THE PROPOSED ACTION.

As parts of the action area are in the floodway of the Illinois and Fox Rivers, a hydrologic and hydraulic analysis was performed in accordance with 44 CFR Part 60.3. This analysis determined that the activities in the proposed action would not result in any increase of flood levels during the base flood discharge (FEMA, 2017).

The stretch of the Illinois River within the action area is already impacted by instream structures (e.g., navigation locks and dams) and existing floodwalls/levees, including the project sites. The existing levee prevents the annual floods typical of unmodified rivers and the area behind the levee does not provide riparian habitat. The proposed action would provide the three feet of freeboard above the BFE required for levee certification (44 CFR Part 65.10). It would prevent financial loss and emergency school closures. The proposed action would reduce the risk of flooding at the OTHS campus without adverse effects on others. Therefore, the proposed action is practicable (44 CFR Part 9.9(e)(5)).

STEP 5: MINIMIZE THE POTENTIAL ADVERSE IMPACTS AND SUPPORT TO OR WITHIN FLOODPLAINS TO BE IDENTIFIED UNDER STEP 4, RESTORE AND PRESERVE THE NATURAL AND BENEFICIAL VALUES SERVED BY FLOODPLAINS.

The proposed action is required to comply with all local floodplain ordinances. Coordination with the Illinois Department of Natural Resources – Office of Water Resources (IDNR-OWR) has been performed to obtain the necessary floodway permits for OTHS.

To minimize impacts to floodplains, Best Management Practices (BMPs) would be implemented to reduce or eliminate potential run-off impacts. The Proposed Alternative would comply with National Pollutant Discharge Elimination System (NPDES) requirements that address both construction activities and long term prevention of sediment and suspended solids from entering nearby waters of the U.S. Construction would include precautions to minimize vegetation disturbance; however, limited tree removal would occur. Other disturbance would be minor. Vegetative grading, shaping, and restoration would occur for all areas disrupted by construction activities. For seeding and planting, only native species would be used.

Based on the above, any potential short term impacts associated with construction activities would be minimized by controls described above. The proposed alternative would have no long-term adverse impact to the floodplain.

STEP 6: REEVALUATE THE PROPOSED ACTION TO DETERMINE FIRST, IF IT IS STILL PRACTICABLE IN LIGHT OF ITS EXPOSURE TO FLOOD HAZARDS, THE EXTENT TO WHICH IT WOULD AGGRAVATE THE HAZARDS TO OTHERS, AND ITS POTENTIAL TO DISRUPT FLOODPLAIN AND WETLAND VALUES; AND SECOND, IF ALTERNATIVES PRELIMINARILY REJECTED AT STEP 3 ARE PRACTICABLE IN LIGHT OF THE INFORMATION GAINED IN STEPS 4 AND 5.

As described in Step 3, alternatives to the proposed action were evaluated and were not recommended. As described in Step 4, the proposed action would reduce the risk of flood damage to infrastructure and result in no significant adverse impact on the floodplain. Therefore, no reevaluation was conducted.

STEP 7: PREPARE AND PROVIDE THE PUBLIC WITH A FINDING AND PUBLIC EXPLANATION OF ANY FINAL DECISION THAT THE FLOODPLAIN OR WETLAND IS THE ONLY PRACTICABLE ALTERNATIVE.

A Programmatic Environmental Assessment (PEA) for the OTHS floodwall project and three other nearby projects was prepared under the National Environmental Policy Act (NEPA). Final Public Notice for the proposed action was performed as part of the NEPA notification process in December 2017. The notice contained the following information:

- The reason the proposed action must be in the floodplain;
- A description of all significant facts considered in the decision-making process;
- A list of alternatives considered;
- A statement demonstrating that the action conforms to applicable state and local floodplain protection standards;
- A statement on how the proposed action affects, or is affected by, the floodplain and wetlands;
- Identification of the implementing organization and point of contact for further information; and
- Maps of the proposed action area.

STEP 8: REVIEW THE IMPLEMENTATION AND POST-IMPLEMENTATION PHASES OF THE PROPOSED ACTION.

The subgrantee would ensure that the proposed action is implemented as approved.

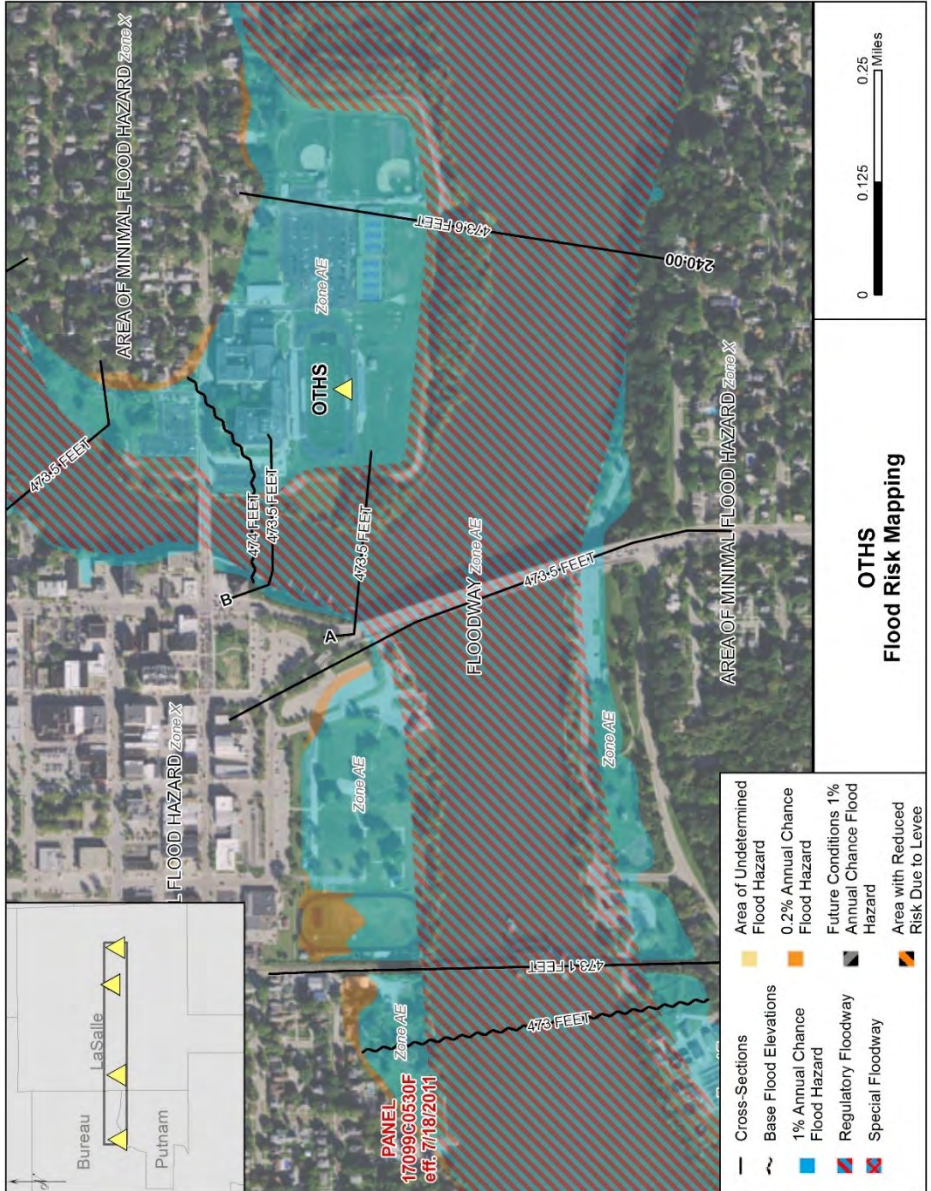


Figure 1. Ottawa Township High School Flood Risk Map.

References

City of Ottawa. (2016). *Subgrant Project Application*.

FEMA. (2017). *Engineering Report, Proposed Floodwalls on Illinois River, IL*.

North Central Illinois Council of Governments. (2015). *2015 Bureau, LaSalle, Marshall, Putnam, and Stark Counties Natural Hazards Mitigation Plan*. Retrieved May 2017, from https://media.wix.com/ugd/b1189c_1ddd62b44c4447159b93f623d11a0fca.pdf

B-3. Peru east WWTP

PDMC-PJ-05-IL-2016-004 City of Peru Floodwall EO 11988 Compliance

Subject: Executive Order 11988 Compliance Memo for City of Peru Floodwall Project, Peru, Illinois
Date: 19 May 2017

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide Federal financial assistance under the Pre-Disaster Mitigation (PDM) grant program to the City of Peru (subgrantee), through the North Central Illinois Council of Governments, for the City of Peru Floodwall project (proposed action). The purpose of the proposed action is to "construct a floodwall atop of the existing earthen berm that surrounds the waste water treatment plant," as required by the Bureau, LaSalle, Marshall, Putnam, and Stark Counties Natural Hazards Mitigation Plan (North Central Illinois Council of Governments, 2015).

The assistance would be provided under the competitive PDM grant program. Funds are available for projects that both reduce overall risk to people and structures and reduce reliance on Federal funding following a disaster.

Based on the results of the Eight-Step Decision-Making Process described herein, the proposed construction project was found to be in compliance with Executive Order (EO) 11988, Floodplain Management and Title 44 Code of Federal Regulations (CFR) Part 9, Floodplain Management and Protection of Wetlands.

The City of Peru, LaSalle County, IL, proposes to construct a floodwall on an existing earthen berm surrounding the Peru east Waste Water Treatment Plant (WWTP). The existing berm is 463.5 feet, 0.7 feet lower than the base flood elevation (BFE) of 464.2 feet. The proposed floodwall would provide an additional 4 feet of protection to reach a height of 467.5 feet.

The proposed action affects the Illinois River Floodplain shown on Flood Insurance Rate Map (FIRM) number 17099C0478F, effective 7/18/2011, as modified by Letter of Map Revision (LOMR) 16-05-0561P, effective 6/13/2016. The FIRM indicates that the proposed action is in a Special Flood Hazard Area (SFHA) Zone AE (Figure 1, an area subject to inundation by the 1 percent annual chance flood event [i.e., the 100-year flood or flood having a 1 percent chance of being equaled or exceeded in any given year]). The LOMR clarified that the floodway ends at the railroad tracks south of the facility and that the east WWTP is not in the floodway.

Results of the Eight-Step Decision-Making Process for the proposed action are described below.

STEP 1: DETERMINE WHETHER THE PROPOSED ACTION IS LOCATED IN THE 100-YEAR FLOODPLAIN (500-YEAR FLOODPLAIN FOR CRITICAL ACTIONS), AND WHETHER IT HAS THE POTENTIAL TO AFFECT, OR BE AFFECTED BY, A FLOODPLAIN.

The proposed action affects the Illinois River Floodplain shown on FIRM number 17099C0478F, effective 7/18/2011, as modified by LOMR 16-05-0561P, effective 6/13/2016. The FIRM indicates that the proposed action is in SFHA Zone AE (Figure 1). The proposed action would remove the Peru east WWTP from the floodplain and reduce the potential for flooding at the WWTP.

The earthen berm protecting Peru's east WWTP is 463.5 feet, 0.7 feet below the BFE of 464.2 feet. Should the Illinois River breach the earthen berm resulting in damage or destruction to the Peru east WWTP, raw sewage could be released into the Illinois River causing adverse impacts on public health and the environment. The Peru east WWTP is valued at approximately \$25 million. Additionally, as 80 percent of the city's sewage is treated by the Peru east WWTP, the release of raw sewage could cause basement and drain backups throughout the city, and would need to be rerouted causing additional strain on resources. (City of Peru, 2016)

The intent of the proposed action is to reduce the likelihood and intensity of damages to central infrastructure, the consequent public health impacts on the residents of Peru if the Peru east WWTP is damaged, and the risk that pathogens and pollutants may be introduced into the environment and Illinois River.

STEP 2: NOTIFY THE PUBLIC AT THE EARLIEST POSSIBLE TIME OF THE INTENT TO CARRY OUT AN ACTION IN A FLOODPLAIN, AND INVOLVE THE AFFECTED AND INTERESTED PUBLIC IN THE DECISION-MAKING PROCESS

FEMA published an Initial Public Notice for the proposed action on the October 31 and November 1, 2016 in the *News Tribune*, a local newspaper of general circulation. The Initial Public Notice provided general information about the proposed action, its goals, and FEMA's intent to carry out actions in the floodplain. The notice provided contact information for comments and requests for information. No comments or requests were received on the Initial Public Notice.

STEP 3: IDENTIFY AND EVALUATE PRACTICABLE ALTERNATIVES TO LOCATING THE PROPOSED ACTION IN THE FLOODPLAIN.

Two alternatives to the proposed action were evaluated. Because the Peru east WWTP is already located within the floodplain, no alternative exists that would avoid the floodplain completely, as required by 44 CFR Part 9.

Alternative 1: No Action

Under the no action alternative, there would be no Federal action and the proposed floodwall construction activities would not be undertaken. There would be no direct impact to the floodplain, as current conditions would not change. However, the risk of flooding would continue. Wastewater received at the municipal Peru east WWTP are predominately household and industrial waste. Should the Peru east WWTP flood, pathogens and pollutants may be introduced into the environment and into the Illinois River. Sewage-contaminated floodwaters could back up into basements throughout the city, posing a public health risk.

Based on the risks to central infrastructure, the environment and public health, this alternative is not recommended.

Alternative 2: Pre-cast Floodwall (proposed action)

The proposed action would raise the existing earthen berm around the Peru east WWTP using two different sized pre-cast concrete blocks: 8 feet long, 2 feet wide, and 4 feet or 8 feet long, 2 feet wide, and 2 feet high. Two feet of the floodwall would be embedded into the berm and four feet would be above the berm's surface. Gaps created by the placement of blocks on curved areas would be filled completely with mortar and finished flush to the river-facing side of the floodwall. Mastic would be used on the inside and outside edges of all pre-cast blocks.

To create a watertight system, a removable connecting support system of fiberglass stop logs would be placed across the entrance to the Peru east WWTP. Concrete walls would be cast in place at each side of the entrance, using the same base as the pre-cast blocks. Forms would be placed directly against the pre-cast blocks, at a minimum of 6 feet tall, with interior reinforcement. A blockout would accommodate embedded side slide rails for installation of the fiberglass stop logs. An 8-foot long pavement patch with a bottom-guide for the fiberglass logs would be installed along the gap; an anchor post (12.5 inches deep, 12 inches wide, and 13 inches long) for a removable reinforcement anchor would be at the 4-foot mark.

Rubber wall sealant would be applied to the river-facing side of both pre-cast and cast-in-place concrete from the base of the wall (pre-backfill) to the top. Drying time would be allowed per manufacturer's recommendation prior to backfill. The rubber wall would be an aluminized ultraviolet and weather resistant polymer coating capable of withstanding above-ground conditions including direct sunlight, freezing, and moisture. The rubber wall sealant would be sprayable grade and applied by spray method.

To serve as a staging area, the abandoned treatment lagoon would be filled. Any fill remaining after backfill of the floodwall would be utilized in the filling of the lagoon. Approximately 4,200 cubic yards of fill would be placed in the lagoon.

A natural gas 500 electrical kilowatt generator would be installed on proposed fill at a 3:1 slope at a height of 467.5 feet with a Portland cement concrete (PCC) generator pad (24 feet by 15 feet). Natural gas lines would be run at the landside foot of the levee.

Areas disturbed during construction would be graded and covered with a minimum of six inches of vegetative sustaining soil and seeded. The earthen berm, sloping areas, filled lagoon, and other disturbed areas would be reseeded using an erosion control blanket and fertilized using nitrogen, phosphorus, and potassium fertilizers. A sediment and erosion control plan to minimize the transport of sediment by vehicles would be in place, and adjacent properties would be protected from sediment disposition by using erosion control practices such as vegetative buffer strips or sediment barriers.

Alternative 3: Expand Existing Earthen Berm

The City of Peru considered raising the height, and thus the width, of the existing earthen berm surrounding the Peru east WWTP. This alternative is not feasible as widening the existing berm would encroach upon the floodway. There would not be enough room to elevate the berm with sufficiently gentle slopes back to existing ground to permit safe maintenance of the berm.

STEP 4: IDENTIFY THE POTENTIAL DIRECT AND INDIRECT IMPACTS ASSOCIATED WITH THE OCCUPANCY OR MODIFICATION OF FLOODPLAINS, AND THE POTENTIAL DIRECT AND INDIRECT SUPPORT OF FLOODPLAIN DEVELOPMENT THAT COULD RESULT FROM THE PROPOSED ACTION.

The proposed action would protect the Peru east WWTP from a 500-year flood, as recommended for critical actions (44 CFR Part 9.4). The proposed action would also provide three feet of freeboard above the BFE as required for levee certification (44 CFR Part 65.10).

The proposed action is in the floodplain of the Illinois River. A hydrologic and hydraulic analysis was performed, which determined that the proposed action would not result in any increase of flood levels during the base flood discharge (FEMA, 2017).

The stretch of the Illinois River within the project area is already impacted by instream structures (e.g., navigation locks and dams) and existing floodwalls/levees, including the project sites. The existing levee currently cuts this area off from seasonal floods and does not provide riparian habitat. Protecting the Peru east WWTP from flooding would reduce the risk of pathogens and pollutants being introduced into the environment and into the Illinois River. This action would protect both central infrastructure and the natural and beneficial functions of the floodplain. Therefore, the proposed action is practicable (44 CFR Part 9.9(e)(5)).

STEP 5: MINIMIZE THE POTENTIAL ADVERSE IMPACTS AND SUPPORT TO OR WITHIN FLOODPLAINS TO BE IDENTIFIED UNDER STEP 4, RESTORE AND PRESERVE THE NATURAL AND BENEFICIAL VALUES SERVED BY FLOODPLAINS.

The proposed action is required to comply with all local floodplain ordinances. The City of Peru would need to obtain local building permits prior to the start of construction.

To minimize impacts to floodplains, Best Management Practices (BMPs) would be implemented to reduce or eliminate potential run-off impacts. It is expected that if the grant is awarded, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and submitted to the Illinois Environmental Protection Agency prior to the start of work. The SWPPP would likely require:

- Perimeter erosion control barrier place around the site;
- Existing inlets and pipe culverts downstream of the work area would be protected;
- All disturbed areas would be seeded with grass as soon as practical; and
- Following seeding all slopes would be covered with erosion control blanket and all other seeded areas would receive mulch or erosion control blanket.

The SWPPP would also address other BMPs associated with spill prevention, non-storm water discharges, and inspection procedures. Construction would include precautions to minimize vegetation disturbance. However, minor disturbance would be unavoidable. Vegetative grading, shaping, and restoration would occur for all areas disrupted by construction activities.

The proposed action would comply with National Pollutant Discharge Elimination System (NPDES) requirements that address both construction activities and long term prevention of sediment and suspended solids from entering nearby waters of the U.S. Therefore, the temporary impact to floodplains from the proposed action would be less than significant. Any adverse effects to floodplains associated with the construction of the floodwall would be short term and be minimized by the measures described above. No long-term effects to floodplains are expected as a result of the proposed action.

STEP 6: REEVALUATE THE PROPOSED ACTION TO DETERMINE FIRST, IF IT IS STILL PRACTICABLE IN LIGHT OF ITS EXPOSURE TO FLOOD HAZARDS, THE EXTENT TO WHICH IT WOULD AGGRAVATE THE HAZARDS TO OTHERS, AND ITS POTENTIAL TO DISRUPT FLOODPLAIN AND WETLAND VALUES; AND SECOND, IF ALTERNATIVES PRELIMINARILY REJECTED AT STEP 3 ARE PRACTICABLE IN LIGHT OF THE INFORMATION GAINED IN STEPS 4 AND 5.

As described in Step 3, alternatives to the proposed action were evaluated and were not recommended. As described in Step 4, the proposed action would reduce the risk of flood damage to central infrastructure, and contamination of the environment and result in no significant adverse impact on the floodplain. Therefore, no reevaluation was conducted.

STEP 7: PREPARE AND PROVIDE THE PUBLIC WITH A FINDING AND PUBLIC EXPLANATION OF ANY FINAL DECISION THAT THE FLOODPLAIN OR WETLAND IS THE ONLY PRACTICABLE ALTERNATIVE.

A Programmatic Environmental Assessment (PEA) for the Peru east WWTP floodwall project and three other nearby flood-related projects was prepared under the National Environmental Policy Act (NEPA). Final Public Notice for the proposed action was performed as part of the NEPA notification process in December 2017. The notice contained the following information:

- The reason the proposed action must be in the floodplain;
- A description of all significant facts considered in the decision-making process;
- A list of alternatives considered;
- A statement demonstrating that the action conforms to applicable state and local floodplain protection standards;
- A statement on how the proposed action affects, or is affected by, the floodplain and wetlands;
- Identification of the implementing organization and point of contact for further information; and
- Maps of the proposed action area.

STEP 8: REVIEW THE IMPLEMENTATION AND POST-IMPLEMENTATION PHASES OF THE PROPOSED ACTION.

The subgrantee would ensure that the proposed action is implemented as approved.

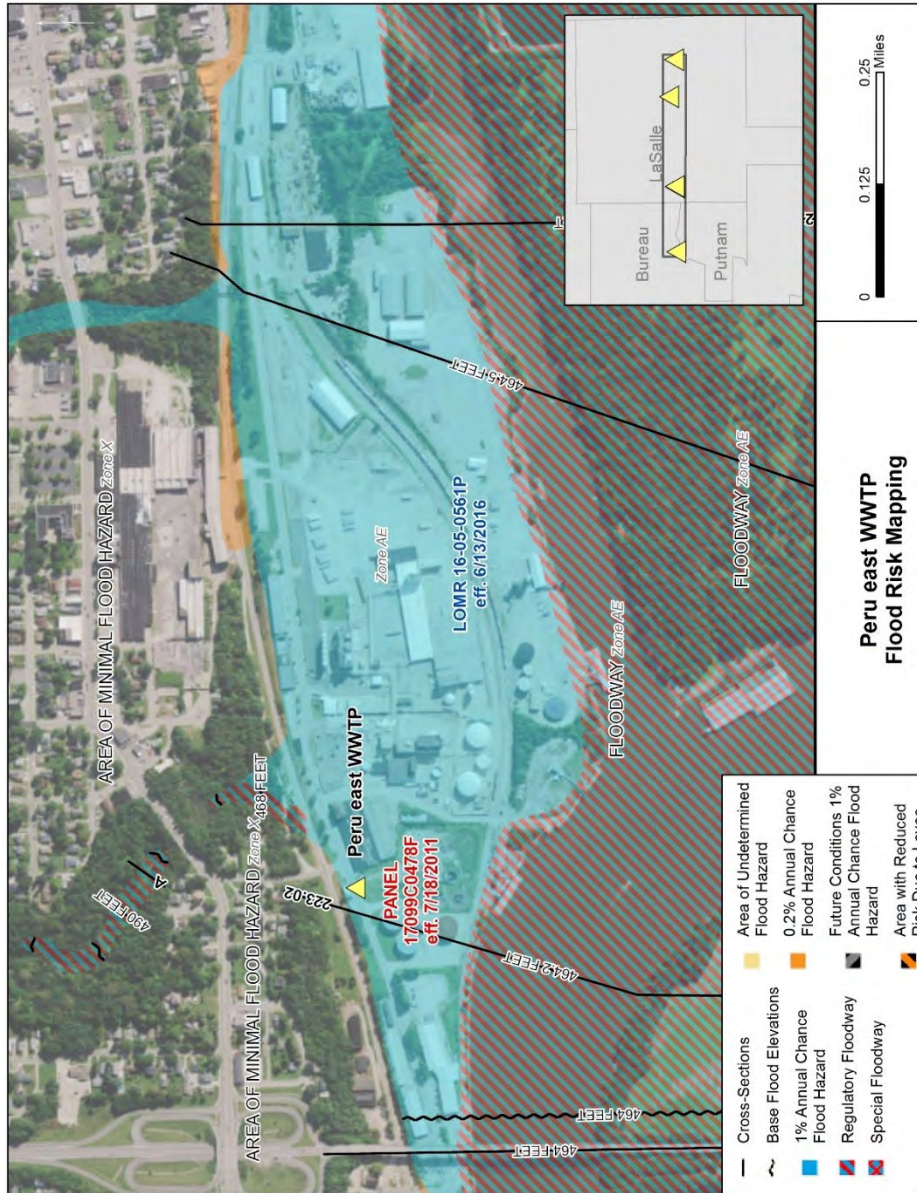


Figure 1. FIRM Showing Project Area

References

City of Peru. (2016). *Subgrant Application*.

FEMA. (2017). *Engineering Report, Proposed Floodwalls on Illinois River, IL*.

North Central Illinois Council of Governments. (2015). *2015 Bureau, LaSalle, Marshall, Putnam, and Stark Counties Natural Hazards Mitigation Plan*. Retrieved May 2017, from https://media.wix.com/ugd/b1189c_1ddd62b44c4447159b93f623d11a0fca.pdf

B-4. DePue WWTP

PDMC-PJ-05-IL-2016-003 DePue Floodwall EO 11988 Compliance

Subject: Executive Order 11988 Compliance Memo for DuPue Floodwall Project, DePue, Illinois
Date: 19 May 2017

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide Federal financial assistance under the Pre-Disaster Mitigation (PDM) grant program to the village of DePue (subgrantee), through the North Central Illinois Council of Governments, for the Village of DePue Floodwall project (proposed action). The purpose of the proposed action is to "address deficiencies with the levee surrounding the waste water treatment plant," as required by the Bureau, LaSalle, Marshall, Putnam, and Stark Counties Natural Hazards Mitigation Plan (North Central Illinois Council of Governments, 2015).

The assistance would be provided under the competitive PDM grant program. Funds are available for projects that both reduce overall risk to people and structures and reduce reliance on Federal funding following a disaster.

Based on the results of the Eight-Step Decision-Making Process described herein, the proposed construction project was found to be in compliance with Executive Order (EO) 11988, Floodplain Management, and Title 44 Code of Federal Regulations (CFR) Part 9, Floodplain Management and Protection of Wetlands.

The proposed action would raise the existing levee at the Village of DePue's wastewater treatment plant (WWTP) by building a six-foot concrete floodwall on top of the existing earthen levee. The DePue WWTP is on the west side of the village, on the northwest shore of Lake DePue, adjacent to the Illinois River, just off of West 2nd Street (41.321912, -89.315304). The DePue WWTP services the entire village of 1,838 people (Village of DePue, 2016; U.S. Census Bureau, 2016). The DePue WWTP was originally constructed in 1965, with major renovations in 1981 and 1991 (Village of DePue, 2016).

The proposed action is shown on Flood Insurance Rate Map (FIRM) number 17011C0425C, effective 2/4/2011 (Figure 1). The FIRM indicates that the proposed action is in a Special Flood Hazard Area (SFHA) Zone AE (an area subject to inundation by the 1 percent annual chance flood event [i.e., the 100-year flood or flood having a 1 percent chance of being equaled or exceeded in any given year]). The proposed action is in the floodway and 100-year floodplain of the Illinois River.

Results of the Eight-Step Decision-Making Process for the proposed action are described below.

STEP 1: DETERMINE WHETHER THE PROPOSED ACTION IS LOCATED IN THE 100-YEAR FLOODPLAIN (500-YEAR FLOODPLAIN FOR CRITICAL ACTIONS), AND WHETHER IT HAS THE POTENTIAL TO AFFECT, OR BE AFFECTED BY, A FLOODPLAIN.

The proposed action affects the Illinois River floodplain shown on FIRM number 17011C0425C, effective 2/4/2011. The FIRM indicates that the proposed action is in a SFHA Zone AE (Figure 1) and the regulatory floodway. The proposed action would remove the WWTP site from the floodplain and reduce the potential for flooding at the WWTP.

The DePue WWTP has been protected by an existing levee since its original construction in 1965. The existing levee ranges from 460.5 to 461.5 feet. The 2011 FIRM places the base flood elevation (BFE) at 462 feet and the 500-year flood elevation at 464.9 feet. This levee is too low to protect the DePue WWTP from the BFE. Both the BFE and 500-year floods would inundate and cause severe damage to the DePue WWTP.

The intent of the proposed action is to reduce the likelihood and intensity of damages to central infrastructure, the consequent public health impacts on the residents of DePue if the WWTP is damaged, and the risk that pathogens and pollutants may be introduced into the environment and into the Illinois River.

STEP 2: NOTIFY THE PUBLIC AT THE EARLIEST POSSIBLE TIME OF THE INTENT TO CARRY OUT AN ACTION IN A FLOODPLAIN, AND INVOLVE THE AFFECTED AND INTERESTED PUBLIC IN THE DECISION-MAKING PROCESS

FEMA published an Initial Public Notice for the proposed action on November 10, 2016 in the *Bureau County Register*, a local newspaper of general circulation. The Initial Public Notice provided general information about the proposed action, its goals, and FEMA's intent to carry out actions in the floodplain. The notice provided contact information for comments and requests for information. No comments were received on the Initial Public Notice.

STEP 3: IDENTIFY AND EVALUATE PRACTICABLE ALTERNATIVES TO LOCATING THE PROPOSED ACTION IN THE FLOODPLAIN.

Four alternatives to the proposed action were evaluated. Because the DePue WWTP is already located within the floodplain, no alternative exists that would avoid the floodplain completely, as required by 44 CFR Part 9; however, relocation of the DePue WWTP would remove infrastructure from the floodplain and reduce development of the floodplain in the future.

Alternative 1: No Action

Under the no action alternative, there would be no Federal action and the proposed floodwall construction activities would not be undertaken. There would be no direct impact to the floodplain, as current conditions would not change. However, the risk of flooding would continue. Wastewater received at the municipal DePue WWTP are predominately household and industrial waste. Should the DePue WWTP flood, pathogens and pollutants may be introduced into the environment and into the Illinois River. It would take at least six months to repair the DePue WWTP after a flood event, during which time untreated sewage would be discharged into the environment. Sewage-contaminated floodwaters could back up into basements throughout the village, posing a public health risk. The cost to replace the facility would exceed \$10 million, including \$2.5 million to replace existing equipment.

Based on the risks to central infrastructure, the environment and public health, and cost this alternative is not recommended.

Alternative 2: Build Pre-cast Concrete Floodwall on Top of Existing Levee (proposed action)

The proposed action would raise the existing levee around the DePue WWTP by constructing a six-foot concrete floodwall. The floodwall would be built using one cubic yard pre-cast concrete blocks with tongue and groove type edges to prevent against sliding. The blocks would be stacked three high to increase the elevation of the levee from 461.25 feet to 465.25 feet, above the 500-year flood level of 464.90 feet. The lowest block would be embedded into the earthen levee by two foot to resist sliding during flood events. An aggregate/concrete foundation would be constructed for the blocks to improve stability. The cost of implementing Alternative 2 is \$763,402, and would use local contractors and available materials.

Under Alternative 2, the roadway entering the DePue WWTP would be elevated. The floodwall would not be designed with points of entry/egress that would require temporary sealing during a flood event. Therefore, the roadway would be elevated for vehicles to drive over the floodwall to enter/exit the DePue WWTP. The chain link fence surrounding the facility would be replaced.

To mitigate the impact of work occurring in the floodplain, the Village of DePue would construct two compensatory storage areas totaling approximately 22,600 cubic yards north of the DePue WWTP on village-owned property and would place a non-construction covenant on the property adjacent to the storage areas. The storage areas are nearly adjacent with a small strip of land between. These areas are currently minimally vegetated.

- Section 1 is approximately 1.4 acres and would need to be excavated a depth of 4 feet, from approximately 459 feet, to obtain a final elevation of 453 feet. Section 1 could provide approximately 20,300 cubic yards of storage loss mitigation.
- Section 2 is approximately 0.7 acres and would need to be excavated a depth of 1 foot, from approximately 461 feet, to obtain a final elevation of 460 feet. Section 2 could provide approximately 2,300 cubic yards of storage loss mitigation.

Excess soil materials from excavation that are not used in embankment construction would be disposed of off-site by the contractor.

Construction would include precautions to minimize vegetation disturbance. However, minor disturbance would be unavoidable. Vegetative grading, shaping, and restoration would occur for all areas disrupted by construction activities.

Alternative 3: Relocate the WWTP

Relocating the DePue WWTP out of the floodplain would eliminate the flood risk to the facility, while not adversely impacting the floodplain or increasing the flood risk of other occupants of the floodplain. However, this alternative would require not only moving the DePue WWTP, but reworking the reticulation of the entire sewage network to drain to a new site. The cost for Alternative 3 is higher than Alternative 2 as the estimated cost would exceed \$10 million. The cost and implementation challenges of Alternative 3 are not practicable and Alternative 3 was excluded from further analysis.

Alternative 4: All Berm Construction

This alternative would raise the existing levee by approximately four feet using additional earth (dirt and fill). This option would require the construction of a retaining wall to protect the sludge beds located near the existing levee toe of slope. Availability of quality fill in the area is limited, the cost of Alternative 4 is higher than the proposed action, and the impacts on the floodplain would be the same as the proposed action. Therefore, Alternative 4 is not recommended.

Alternative 5: Cast in Place Floodwall

This alternative would build a floodwall on top of the existing levee using cast in place concrete to eliminate the need for walls to be built around the sludge beds and quality fill. However, Alternative 5 was deemed to be more expensive than the proposed action while having the same impacts on the floodplain as the proposed action. Therefore, Alternative 5 is not recommended.

STEP 4: IDENTIFY THE POTENTIAL DIRECT AND INDIRECT IMPACTS ASSOCIATED WITH THE OCCUPANCY OR MODIFICATION OF FLOODPLAINS, AND THE POTENTIAL DIRECT AND INDIRECT SUPPORT OF FLOODPLAIN DEVELOPMENT THAT COULD RESULT FROM THE PROPOSED ACTION.

The proposed action would protect the DePue WWTP from a 500-year flood, as required for critical actions (44 CFR Part 9.4). The proposed action would also provide three feet of freeboard above the BFE as required for levee certification (44 CFR Part 65.10).

The proposed action is in the floodway of the Illinois River. A hydrologic and hydraulic analysis was performed, in accordance with 44 CFR Part 60.3, which determined that the proposed encroachment of the floodway would not result in any increase of flood levels during the base flood discharge (FEMA, 2017).

The stretch of the Illinois River within the project area is already impacted by instream structures (e.g., navigation locks and dams) and existing floodwalls/levees, including the levee currently at the project site. The existing levee

currently cuts this area off from seasonal floods and does not provide riparian habitat. Protecting the DePue WWTP from flooding would reduce the risk of pathogens and pollutants being introduced into the environment and into the Illinois River. This action would protect both central infrastructure and the natural and beneficial functions of the floodplain. Therefore, the proposed action is practicable (44 CFR Part 9.9(e)(5)).

STEP 5: MINIMIZE THE POTENTIAL ADVERSE IMPACTS AND SUPPORT TO OR WITHIN FLOODPLAINS TO BE IDENTIFIED UNDER STEP 4, RESTORE AND PRESERVE THE NATURAL AND BENEFICIAL VALUES SERVED BY FLOODPLAINS.

The proposed action is required to comply with all local floodplain ordinances. The Village of DePue would need to obtain a floodway permit from the Illinois Department of Natural Resources – Office of Water Resources (IDNR-OWR) prior to the start of construction.

To minimize impacts to floodplains, Best Management Practices (BMPs) would be implemented to reduce or eliminate potential run-off impacts. It is expected that if the grant is awarded, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and submitted to the Illinois Environmental Protection Agency prior to the start of work. The SWPPP would likely require:

- Perimeter erosion control barrier place around the site;
- Existing inlets and pipe culverts downstream of the work area would be protected;
- All disturbed areas would be seeded with grass as soon as practical; and
- Following seeding all slopes would be covered with erosion control blanket and all other seeded areas would receive mulch or erosion control blanket.

The SWPPP would also address other BMPs associated with spill prevention, non-storm water discharges, and inspection procedures. Construction would include precautions to minimize vegetation disturbance. However, minor disturbance would be unavoidable. Vegetative grading, shaping, and restoration would occur for all areas disrupted by construction activities.

The proposed action would comply with National Pollutant Discharge Elimination System (NPDES) requirements that address both construction activities and long term prevention of sediment and suspended solids from entering nearby waters of the U.S. Therefore, the temporary impact to floodplains from the proposed action would be less than significant. Any adverse effects to floodplains associated with the construction of the floodwall would be short term and be minimized by the measures described above. No long-term effects to floodplains are expected as a result of the proposed action.

STEP 6: REEVALUATE THE PROPOSED ACTION TO DETERMINE FIRST, IF IT IS STILL PRACTICABLE IN LIGHT OF ITS EXPOSURE TO FLOOD HAZARDS, THE EXTENT TO WHICH IT WOULD AGGRAVATE THE HAZARDS TO OTHERS, AND ITS POTENTIAL TO DISRUPT FLOODPLAIN AND WETLAND VALUES; AND SECOND, IF ALTERNATIVES PRELIMINARILY REJECTED AT STEP 3 ARE PRACTICABLE IN LIGHT OF THE INFORMATION GAINED IN STEPS 4 AND 5.

As described in Step 3, alternatives to the proposed action were evaluated and were not recommended. As described in Step 4, the proposed action would reduce the risk of flood damage to central infrastructure, and contamination of the environment and result in no significant adverse impact on the floodplain. Therefore, no reevaluation was conducted.

STEP 7: PREPARE AND PROVIDE THE PUBLIC WITH A FINDING AND PUBLIC EXPLANATION OF ANY FINAL DECISION THAT THE FLOODPLAIN OR WETLAND IS THE ONLY PRACTICABLE ALTERNATIVE.

A Programmatic Environmental Assessment (PEA) for the DePue WWTP floodwall project and three other nearby flood-related projects was prepared under the National Environmental Policy Act (NEPA). Final Public Notice for the proposed action was performed as part of the NEPA notification process in December 2017. The notice contained the following information:

- The reason the proposed action must be in the floodplain;
- A description of all significant facts considered in the decision-making process;
- A list of alternatives considered;
- A statement demonstrating that the action conforms to applicable state and local floodplain protection standards;
- A statement on how the proposed action affects, or is affected by, the floodplain and wetlands;
- Identification of the implementing organization and point of contact for further information; and
- Maps of the proposed project area.

STEP 8: REVIEW THE IMPLEMENTATION AND POST-IMPLEMENTATION PHASES OF THE PROPOSED ACTION.

The subgrantee would ensure that the proposed action is implemented as approved.

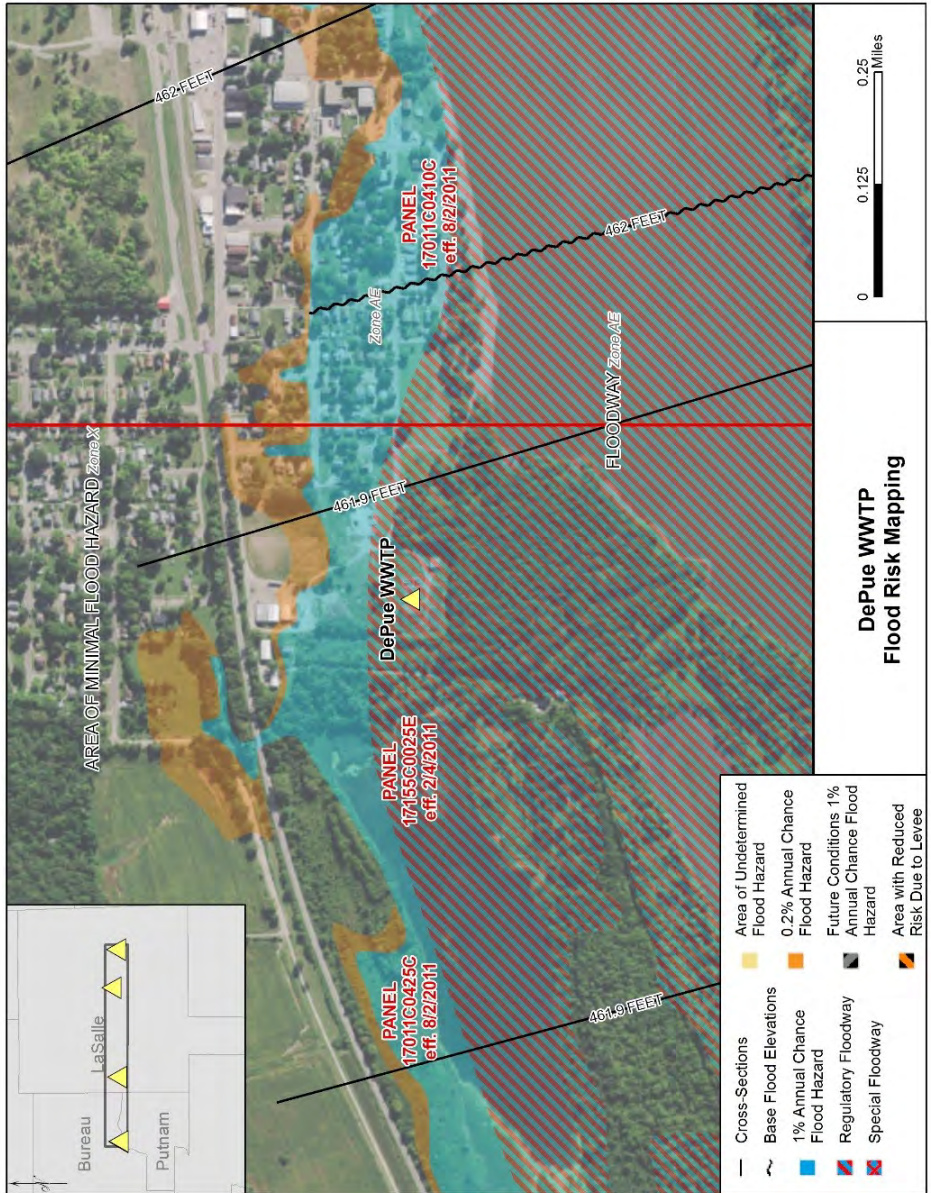


Figure 1: FIRM Showing Project Area

References

FEMA. (2017). *Engineering Report, Proposed Floodwalls on Illinois River, IL.*

North Central Illinois Council of Governments. (2015). *2015 Bureau, LaSalle, Marshall, Putnam, and Stark Counties Natural Hazards Mitigation Plan.* Retrieved May 2017, from https://media.wix.com/ugd/b1189c_1ddd62b44c4447159b93f623d11a0fca.pdf

U.S. Census Bureau. (2016). *Population Estimates Program, 2010-2016 Data.* Retrieved March 2015, from <http://www.census.gov/data/datasets/2016/demo/popest/nation-total.html>

Village of DePue. (2016). *Subgrant Project Application.*

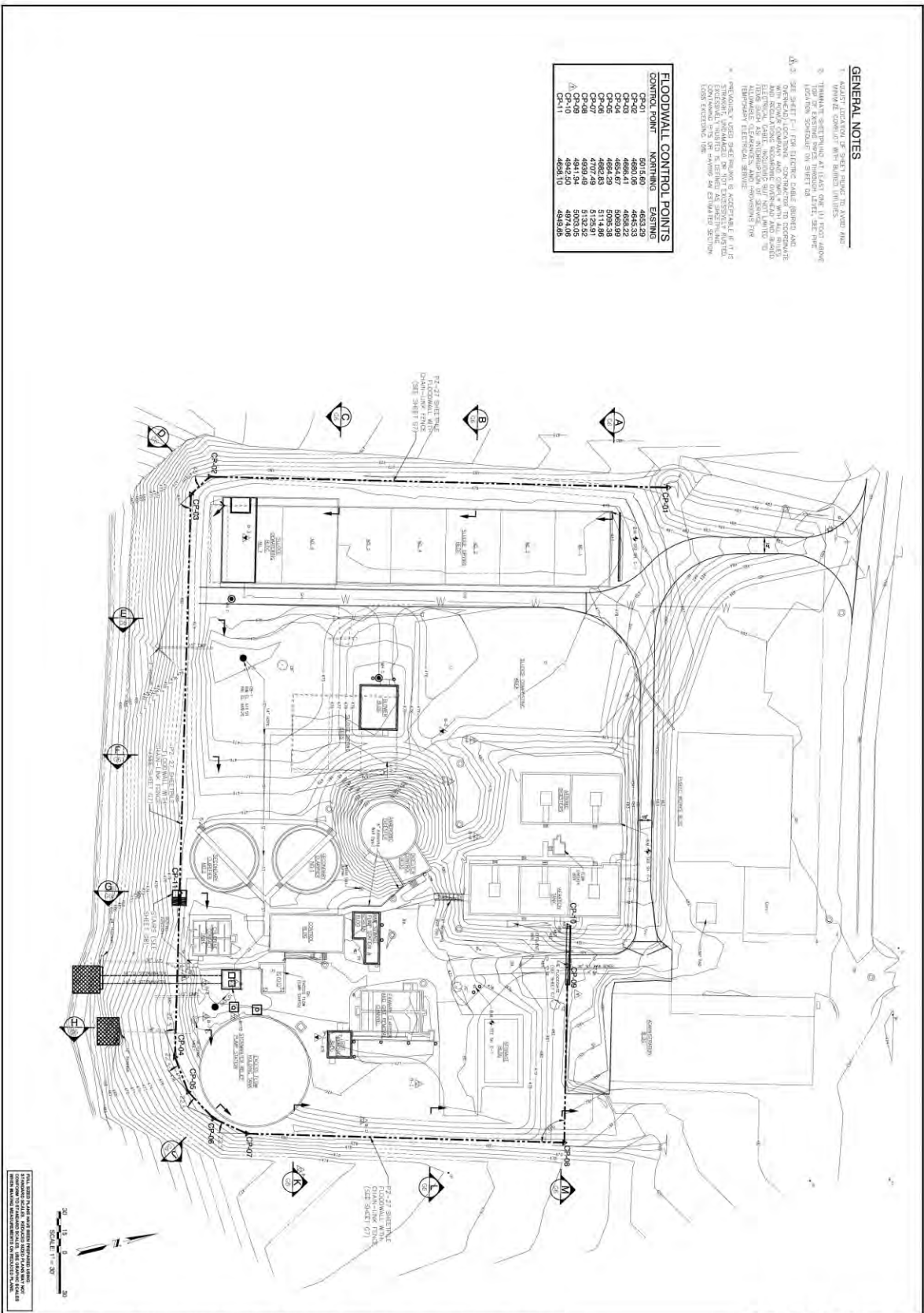
C. Preliminary Plans

C-1 MARSEILLES WWTP

GENERAL NOTES

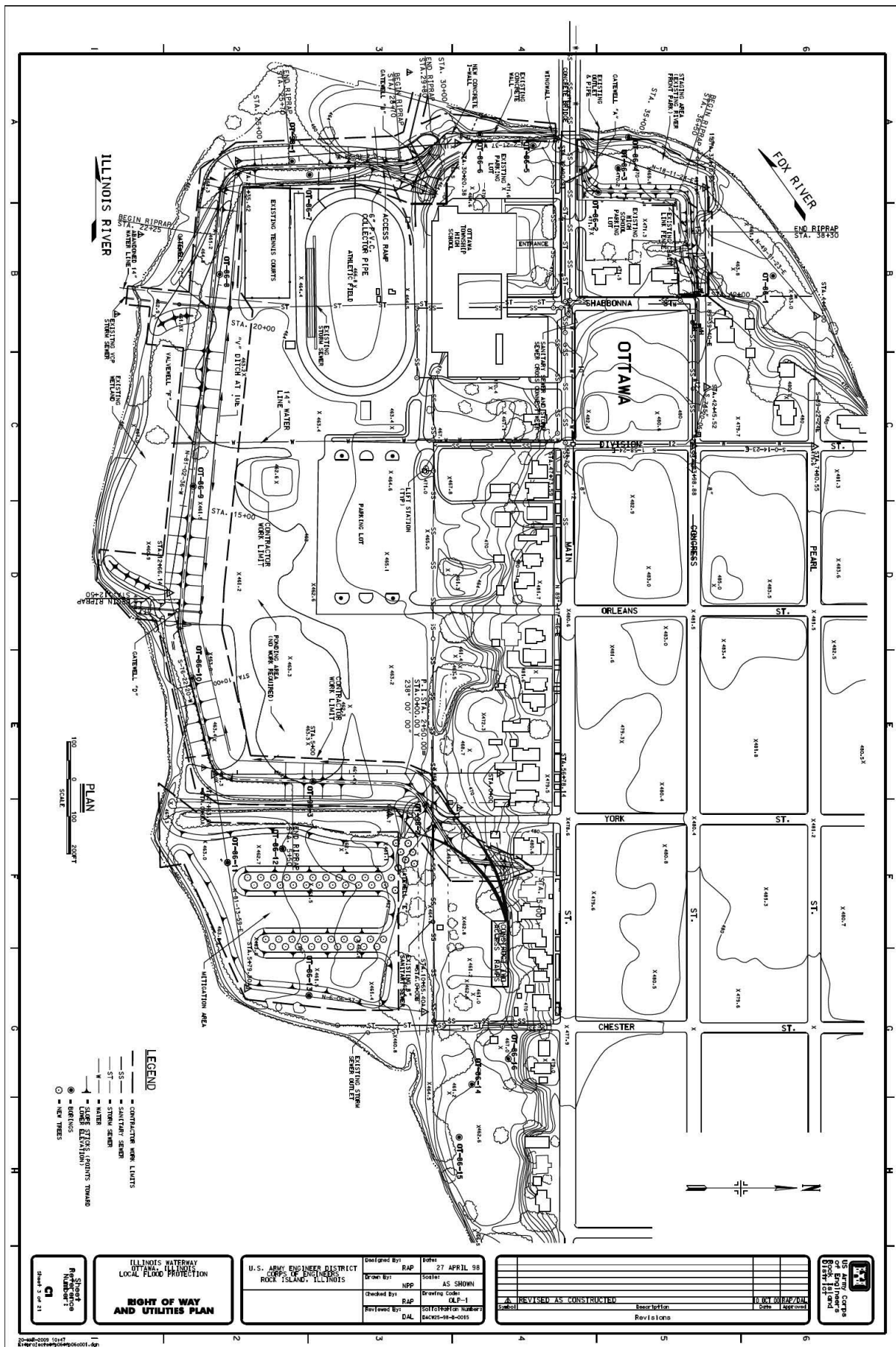
- 1. ADJUST LOCATION OF SHEET PILING TO AVOID THE UNDESIRABLE CORNER WITH BENTONITE UNITS.
- 2. TERMINAL SETTING AT EACH ONE (1) FOOT ABOVE LOCATION SHOWN ON SHEET.
- 3. SEE SHEET P-1 FOR ELEVATION CHANGES AND GENERAL CONTRACTOR'S COMMENTS TO CONTRACTOR AND REVISIONS TO BE MADE TO CONTRACT AND BIDDING ITEMS SUCH AS REVISIONS TO CONTRACT AND BIDDING ITEMS FOR THE PROVISION OF SERVICES FOR THE PROVISION OF ELECTRICAL SERVICE.
- 4. CONTRACTOR'S USE OF SHEET PILING IS ACCEPTABLE IF IT IS PROVED TO BE THE MOST ECONOMICAL AND MOST EFFECTIVE METHOD OF PROTECTING THE EXISTING SECTION FROM OVERFLOW.

FLOODWALL CONTROL POINTS			
CONTROL POINT	NORTHING	EASTING	
CP-01	5015.60	4663.23	
CP-02	4663.33	4663.33	
CP-03	4663.67	5015.60	
CP-04	4663.67	5068.99	
CP-05	4663.23	5068.99	
CP-06	4707.49	5128.91	
CP-07	4663.67	5128.91	
CP-08	4663.67	4974.06	
CP-09	4663.67	4663.23	
CP-10	4663.23	4663.23	
CP-11	4663.23	4663.23	



<p>KLINGNER & ASSOCIATES, P.C. Engineers • Architects • Surveyors</p> <p>4050 Park Grand Road, Huntland, MO 64563 4050 S. River Valley Rd., Springfield, MO 65803 40 North Main Street, Gladwin, MI 49724</p> <p>Ph: (417) 322-0800 Fax: (417) 322-0805 Ph: (417) 221-4800 Fax: (417) 221-4812 Ph: (417) 733-4800 Fax: (417) 733-4805 Ph: (906) 445-4800 Fax: (906) 441-3131</p> <p>Internet Address: www.klingner.com</p>	<p>MARSELLES WWTP - FLOODWALL</p> <p>BAXTER & WOODMAN 8678 RIDGEFIELD RD CRYSTAL LAKE, ILLINOIS 60012</p>	<p>PROFESSIONAL ENGINEER OF ILLINOIS</p> <p>4050 PARK GRAND ROAD HUNTLAND, MO 64563</p>	<p>DESIGNED: WJW DRAWN: CLA FIELD BOOK: CHECKED: CHECK DATE: PROJECT NO: 07-0117.00 FILE NAME: G-070117</p>	<p>SCALE: 1:30 FULL SCALE DRAWING: 24" x 36"</p>
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C-2 OTHS



PLAN
SCALE 1" = 200'

- LEGEND**
- CONTRACTOR WORK LIMITS
 - SS --- SANITARY SEWER
 - ST --- STORM SEWER
 - W --- WATER
 - EXISTING ELEVATION
 - NEW ELEVATION
 - BORINGS
 - NEW TREES

Sheet
P&M
Number 3 of 21

ILLINOIS WATERWAY
OTTTAWA LOCAL FLOOD PROTECTION
RIGHT OF WAY AND UTILITIES PLAN

U.S. ARMY ENGINEER DISTRICT
CORPUS CHRISTI ENGINEERING
ROCK ISLAND, ILLINOIS

Designed By	RAP	Date	27 APRIL 98
Drawn By	NPP	Scale	AS SHOWN
Checked By	RAP	Drawing Code	OLF-1
Reviewed By	DAL	Software Number	
		Accession Number	

REVISED AS CONSTRUCTED

Revised By		Date	
Revised By		Date	

US Army Corps of Engineers District Office	Project Number	Sheet Number

C-3 Peru east WWTP

GENERAL NOTES

The above Department of Transportation Standard Specifications for Road and Bridge Construction adopted April 1, 2016 and the Standard Specifications for Bridge Construction adopted April 1, 2016 shall apply to all work unless otherwise specified.

It shall be the responsibility of the Contractor to examine the Plans and Specifications and to verify that the same are in accordance with the Department of Transportation, State of Ohio, and local laws, local code requirements, ordinances, rules and regulations, and any other applicable laws, rules and regulations, and to advise the Engineer in writing of any discrepancies, omissions, or errors in the Plans and Specifications. The Engineer shall not be responsible for any discrepancies, omissions, or errors in the Plans and Specifications. The Contractor shall be responsible for the accuracy of the information shown on the Plans and Specifications. The Contractor shall be responsible for the accuracy of the information shown on the Plans and Specifications. The Contractor shall be responsible for the accuracy of the information shown on the Plans and Specifications.

The Contractor shall provide for the construction of the various structures and appurtenances shown on the Plans and Specifications. The Contractor shall be responsible for the accuracy of the information shown on the Plans and Specifications. The Contractor shall be responsible for the accuracy of the information shown on the Plans and Specifications. The Contractor shall be responsible for the accuracy of the information shown on the Plans and Specifications.

Each Contractor shall assume all liability, special or otherwise, in connection with the work shown on the Plans and Specifications. Each Contractor shall assume all liability, special or otherwise, in connection with the work shown on the Plans and Specifications. Each Contractor shall assume all liability, special or otherwise, in connection with the work shown on the Plans and Specifications.

SUMMARY OF QUANTITIES

NO.	ITEM	UNIT	QUANTITY
1	Earth Excavation (Including Shoring for Proposed Wall)	CY	792.00
2	Foot Wall, Precast Concrete Retention Wall	LS	1,350.00
3	Cast-in-Place Concrete Retention Wall Complete	FOOT	40.00
4	Excavate Flood Protection Complete (Slope, Gutters, Lifting Assembly and Storage Rack)	LS	4,275.00
5	Aggregate Base Material, 6"	SP	160.00
6	Aggregate Base Material, 6"	SP	160.00
7	Aggregate Base Material, 6"	SP	160.00
8	Aggregate Base Material, 6"	SP	160.00
9	Aggregate Base Material, 6"	SP	160.00
10	Aggregate Base Material, 6"	SP	160.00
11	Aggregate Base Material, 6"	SP	160.00
12	Aggregate Base Material, 6"	SP	160.00
13	Aggregate Base Material, 6"	SP	160.00

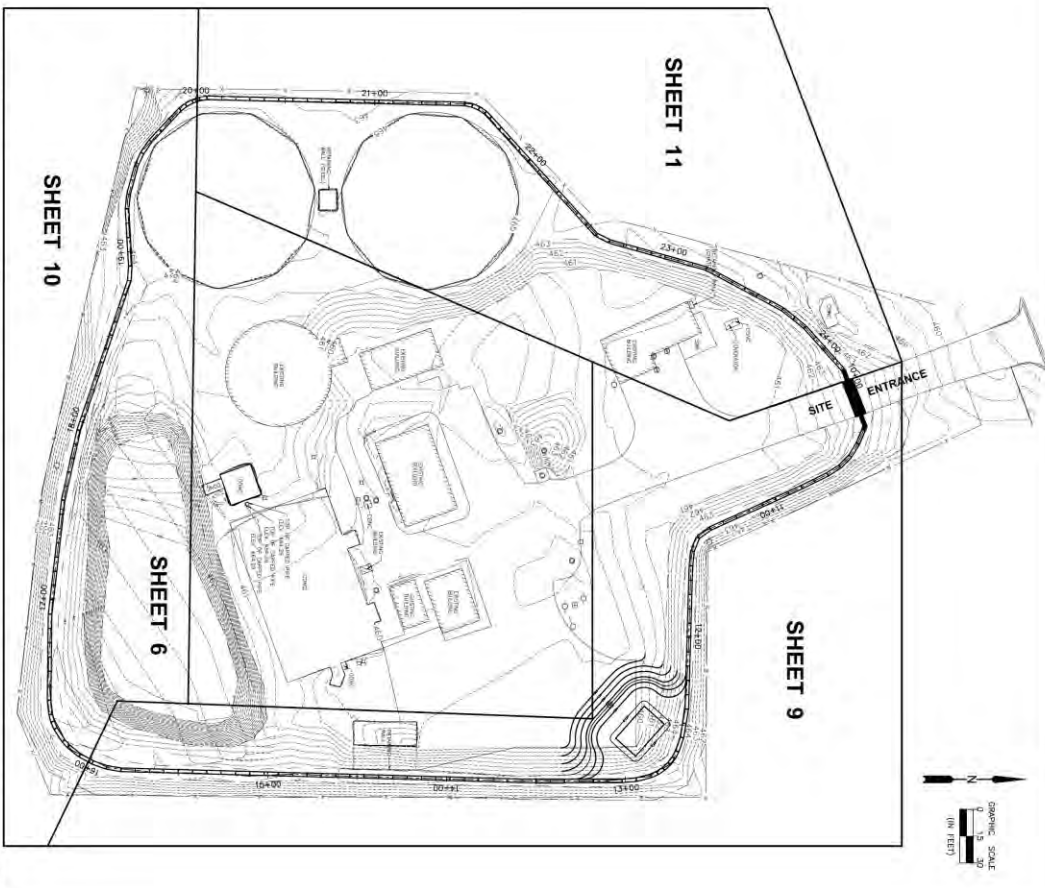
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7	Aggregate Base Material, 6"	SP	160.00
8	Aggregate Base Material, 6"	SP	160.00
9	Aggregate Base Material, 6"	SP	160.00
10	Aggregate Base Material, 6"	SP	160.00
11	Aggregate Base Material, 6"	SP	160.00
12	Aggregate Base Material, 6"	SP	160.00
13	Aggregate Base Material, 6"	SP	160.00

CHAMLIN & ASSOCIATES, INC.
PERU, ILLINOIS

CITY OF PERU
WWTP FLOOD-PROOFING
MAY, 2016

SHEET LAYOUT, GENERAL NOTES
AND SUMMARY OF QUANTITIES

DRAFT
NOT FOR CONSTRUCTION



C-4 DePue WWTP

DESIGNED BY: WJ	DATE: 05/04/16	REVISIONS:	DATE: 05/04/16
CHECKED BY: ALO	DATE: 05/04/16	SCALE:	AS SHOWN
DATE: 04/16			
		PROJECT:	NO. 0115
		LOCATION:	ILLINOIS
VILLAGE OF DEBUE WTP FLOOD-PROOFING APRIL, 2016		PLAN:	ALTERNATIVE C
ELEVATIONS SHOWN: NAVD 83 DATUM		CONTRACT NO.:	0115
		SCALE: AS SHOWN	SHEET: 1
		FILE NO. 574.02	OF: 1

