ENVIRONMENTAL ASSESSMENT
for
DETROIT BEACH, FRENCHTOWN TOWNSHIP
MONROE COUNTY, MICHIGAN

May 2010

U.S. Army Engineer District, Detroit
Corps of Engineers

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Table of Contents

Attachments

Separate Documents

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1.0 INTRODUCTION, PURPOSE and NEED, and AUTHORITY

1.1 Introduction: This Environmental Assessment evaluates potential environmental impacts associated with providing new and rehabilitated flood protection at Detroit Beach, a residential community in Frenchtown Township, Monroe County, Michigan. The project site is approximately 30 miles south of Detroit, Michigan (Figure 1). The Detroit Beach community occupies approximately 240 acres and includes over 380 residential structures, extending approximately 4300 feet inland from the Lake Erie shore and northward from Sandy Creek approximately 3500 feet (Figure 2).

Figure 1. Approximate location of Frenchtown Township.

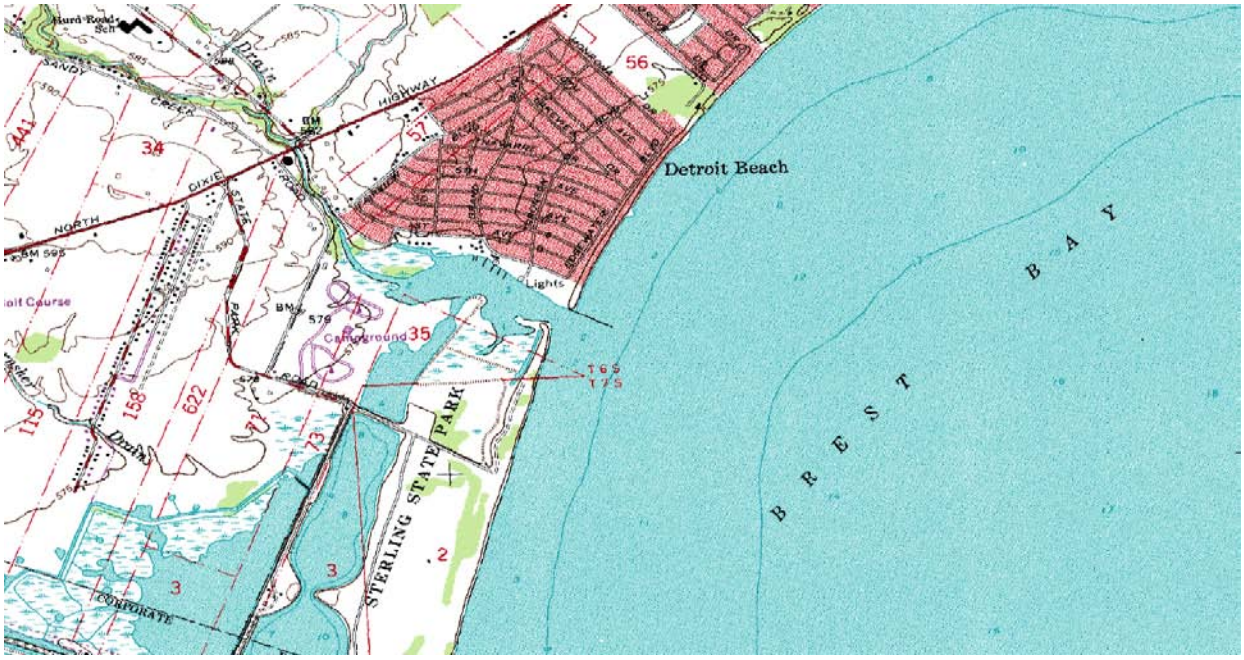


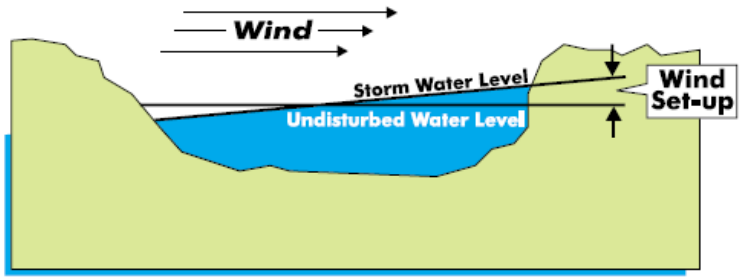
Figure 2. Brest Bay of Lake Erie, showing location of Detroit Beach (1 inch ~ 2750 feet).

1.2 Detroit Beach experiences flooding from storm waves overtopping the existing flood wall during periods of high water levels on Lake Erie, and from overtopping water backup within the protected area. The existing temporary flood protection, which consists of a steel sheet pile bulkhead (floodwall), dikes, and riprap (stone shore protection), is dilapidated and no longer retains structural integrity.

1.3 Alternatives considered include 1) No Action, 2) Rehabilitate the Existing Flood Protection Wall, 3-8) Construct New Flood Protection Structure (with new wall alternatives), 9) Armor the Existing Fronting Dike, 10) Activate the Flood Warning System, and 11) Conduct Buyouts. The proposed action is Alternative 5 – "Replace Existing Flood Wall with New Floodwall," which would be an H-pile/concrete panel design along the Lake Erie Shore. Economic justification criteria supports a top elevation approximately 2 feet lower than that of the existing dilapidated wall, which remains above current height requirements for the Detroit Beach community. The project also requires restoration/upgrading of the tie back flood protection to prevent flanking of the proposed flood wall on the north and south sides of the neighborhood, and re-working of the interior drainage system. Alternative selection and detailed description of the proposed action follow this section.

1.4 Project Authority: The proposed action is authorized by Section 205 of the Federal Flood Control Act of 1948, as amended. This Act authorizes the construction of small flood control projects.

1.5 Project Purpose and Need: The purpose of the proposed flood control project is to help provide reliable permanent flood control for the Detroit Beach community. This is needed because the existing temporary structures are in such a dilapidated condition that the floodwall eventually would fail. Wall failure would allow the clay levee to erode, causing soil deposition into the lake, more frequent flooding within the community, and potentially catastrophic property losses along the lake shore. Were the existing flood protection to fail, moderate to severe flooding may require evacuation of residents and businesses, availability of emergency shelter/supplies, road closures, and possible isolation of certain areas of the community. Safety risks from waterborne illnesses and flood-induced injury also increases during flood events.



Lake profile showing wind set-up

The project is needed because storm-induced water level rises combined with wind-driven waves during high water periods have caused substantial flooding along the Michigan shoreline of western Lake Erie. Strong spring or autumn storms traversing the Ohio Valley, with associated gale force northeast winds, may be sustained for 12-36 hours. This, combined with the long narrow and relatively shallow configuration of western Lake Erie, causes dramatic raising of the lake surface in western Lake Erie. Water levels may rise several feet in just a few hours. This wind set-up effect, compounded with storm generated waves, results in wave heights that can be in excess of ten feet above still water level. Significant floods have occurred at Detroit Beach and the surrounding area in 1952, 1974, 1986 and 1997—all during periods of high water levels on Lake Erie.

1.6 Existing Flood Protection at Detroit Beach: The existing temporary flood protection for Detroit Beach is shown in Figure 3. A steel sheet pile (SSP) bulkhead (floodwall), approximately 0.6 mile long was installed at Detroit Beach circa 1954, along with an earthen dike perpendicular to the seawall, which forms a catchment area for drainage, and flanking dikes extending inland along the north and south sides of the subdivision, tying in to higher ground. In 1973, the U.S. Army Corps of Engineers (USACE) constructed additional emergency flood control structures, which consisted of SSP that was installed across the southern end of the area and up a short distance of Sandy Creek.

1.7 In 1986, the USACE provided additional protective works including, but not limited to, three-foot high clay dikes approximately 15 feet landward of the SSP wall; new temporary SSP walls; SSP wall extensions which raised the elevation of protection to 581 feet IGLD85; standard flap gates to allow for drainage from overtopping; stone and clay fill behind existing SSP wall, and riprap along the lake side of the new and existing SSP walls. The maximum elevation of the system is 581 feet IGLD85. The modern mean lake elevation is 571 feet IGLD 85.

1.8 Much of the existing riprap along the Lake Erie shore has been lost over the years, resulting in more overtopping of the levee (the stone dissipates wave energy) and a loss of lateral support to the bulkhead (floodwall), which is beginning to bow out in some areas (Figure 4). The SSP is

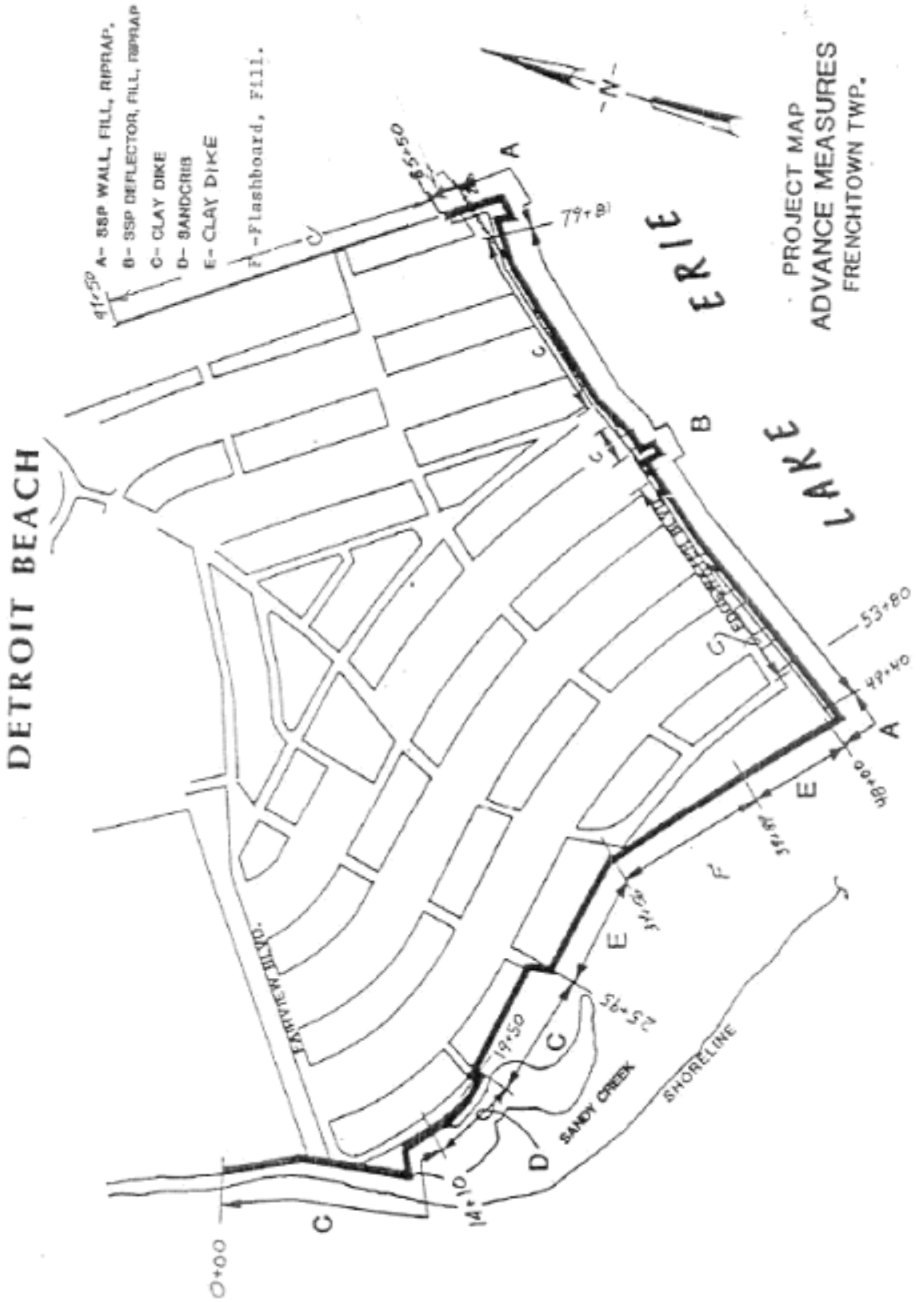


Figure 3. Existing Flood Protection for the Detroit Beach Community (Not to scale).

Figure 4. Typical condition of existing SSP wall (south end, Lake Erie shore, looking NE).

showing various signs of distress. Flapper gates are damaged or missing from the drains; riprap has been washed away from in front of the existing wall and fill material has settled and/or washed out from behind the SSP. The seawalls bow outward at the toe and some of the tiebacks are tearing through the steel.

1.9 Interior drainage of the Detroit Beach flood protected area is handled by the Sandy Creek Pump Station (Figure 5), located approximately 650 feet upstream on Sandy Creek. This facility, which dates to 1987, automatically engages when stormwater fills float-monitored holding tanks and a series of four pumps alternate to empty the tanks. The station is capable of pumping 80,000 gallons per minute during a flood event. A back-up diesel generator protects against

system failure during a power outage. The Pump Station is maintained and monitored by the Monroe County Drain Commission.

Figure 5. Sandy Creek Pump Station (see also Figure 8).

1.10 In addition to constructing a new, permanent flood protection wall along the lake shore, the existing tie-back dikes on the north and south sides of the community will need to be repaired and/or upgraded. The dike on the north side is heavily overgrown (Figure 6) with vegetation that will have to be cleared to ensure the structural integrity of the flood protection system. The south tie-back levee, along Sandy Creek, also has areas of heavy vegetation and areas of interfering structures or excavations (Figures 7-8). In addition, riprap shore protection will need to be replenished/upgraded along Sandy Creek.

2.0 ALTERNATIVES CONSIDERED

2.1 Alternatives considered for Detroit Beach include:

1. No Action
2. Rehabilitate the Existing Flood Protection Wall
3. Replace Existing Flood Protection with a Cantilever Steel Sheet Pile
4. Replace Existing Flood Protection with an Anchored Steel Sheet Pile Wall

5. Replace Existing Flood Protection with a Concrete Panel/H- Pile Wall
6. Replace Existing Flood Protection with a Steel Sheet Pile/H-Pile Wall
7. Replace Existing Flood Protection with a Concrete Gravity Wall
8. Rehabilitate and Replace Existing Flood Protection – Gabion Wall
9. Armor the Existing Fronting Dike
10. Activate the Flood Warning System
11. Conduct Buyouts

2.2 Estimated costs for each alternative are listed, both construction cost and total cost. Total cost (or implementation cost) includes real estate costs based on each alternative's footprint, engineering and design, and overheads such as supervision, administration, and contracting.

2.3 The construction cost estimates with each alternative represent the cost of that particular protection at the evaluated elevations along Lake Erie including the clearing, grubbing and supplemental construction along the north and south flanking dikes to create a complete flood damage reduction project. The estimates also include a 25% contingency.

2.4 The construction costs are listed as well as the "implementation" costs. The construction costs include the cost to construct the Lake Erie-facing protection and to rehabilitate the flanking dikes to create a permanent flood protection system. Implementation costs include the construction costs plus the estimated sponsor-borne costs for obtaining easements and other real estate based on the footprint of each alternative. Also included in implementation is the cost-shared engineering and design of the selected alternative, supervision and administrative costs and contracting costs of each constructed alternative.

Figure 6. Tie-Back Dike, North Side of Detroit Beach Community (August 2008).

Figure 7. Riprap Shore in Backyards on Sandy Creek Upstream from Marina & Lake Erie (Tie-back dike is very low in this area).

Figure 8. Shoreline Downstream of Marina by Lake Erie. Note Sandy Creek Pump Station above riprap (also shown in Figure 5).

2.5 Alternative 1 - No Action - *Estimated construction cost - $0; implementation - $0.*

2.6 Under the "No Action" alternative, the Corps would not participate in further flood protection measures for the Detroit Beach community. With this alternative, it is expected that the existing degradation trend of the existing steel sheet pile (SSP) flood protection will continue on an accelerated basis.

2.7 Ongoing loss of backfill and toe-protection washout will increase the chances of the existing floodwall failing once high water levels return. The SSP is currently buckling and wavy and will continue to tear and list, rendering it useless in a flood event. Also, the integrity of the flanking dikes is compromised from various modifications and structures that are not part of the flood control.

2.8 The non-Federal sponsor can perform reasonable repairs; however the overall system will continue to degrade to a state of uselessness within the next decade. If the SSP fails during a significant storm event, the parallel inland dike will be exposed to direct wave energy, which it is not designed to withstand. As a result, rapid erosion and deterioration of this dike would occur, as would subsequent flooding of Detroit Beach.

2.9 Also massive erosion of the community land would also wash thousands of tons of soil into Lake Erie. Considering the condition of the severely degraded temporary flood protection system, and the expected imminent failure, this alternative is not a good option. Therefore, this alternative will not be considered further, except as a baseline for evaluating the impacts of the proposed action.

2.10 Alternative 2 – Rehabilitate the Existing Flood Protection Wall – *Estimated construction cost - Undetermined*

2.11 Under this alternative, the SSP floodwall would be rehabilitated with new tie-backs and re-welding of seams; additional toe-protection riprap would be placed along the SSP; additional riprap would be placed along the bank of Sandy Creek, especially for improved protection of the pumping station; and the flap gate system would be redesigned and improved, and flanking dikes would be rehabilitated. Because of the dilapidated state of the existing temporary floodwall, even with rehabilitation, the wall may fail during a sustained storm. As such, this alternative will not be considered further.

2.12 Alternative 3 – 8 Construct New Flood Protection Structure:

2.13 Under this alternative, the existing temporary SSP wall would be replaced with more substantial permanent SSP or concrete wall, and additional toe-protection riprap would be placed along the wall. New flap gates would be designed and positioned to allow for the efficient drainage of any overtopping water. Alternatives 3-8 describe six wall options and are detailed below.

2.14 Alternative 3 - Replace Existing Flood Protection with a Cantilever Steel Sheet Pile Wall

Alternative 3 - Costs (2010$)			
Alternative 3	**Elevation 576.6'**	**Elevation 578'**	**Elevation 581'**
Construction	$4,926,000	$5,524,000	$7,706,000
Implementation	$6,606,540	$7,287,578	$9,775,352

2.15 The existing temporary steel sheet pile (SSP) wall would be replaced with a thicker SSP, driven to bedrock for a cantilever (embedded end supports the free end) wall (Figure 9). Stone would be placed along the lakeside of the wall for scour protection.

2.16 Alternative 4 - Replace Existing Flood Protection with Anchored Steel Sheet Pile Wall

- *Estimated total construction costs - $9,900,000; implementation costs - $13,406,000.(581')*

2.17 This option is the same as Alternative 3, with the added support tie-backs to anchor the wall. The tie-backs require installation of supporting structures farther inland, such as a parallel buried SSP wall or deadmen anchors (such as SSP sections) to hold the inner ends of the tie-backs, which typically are steel rods.

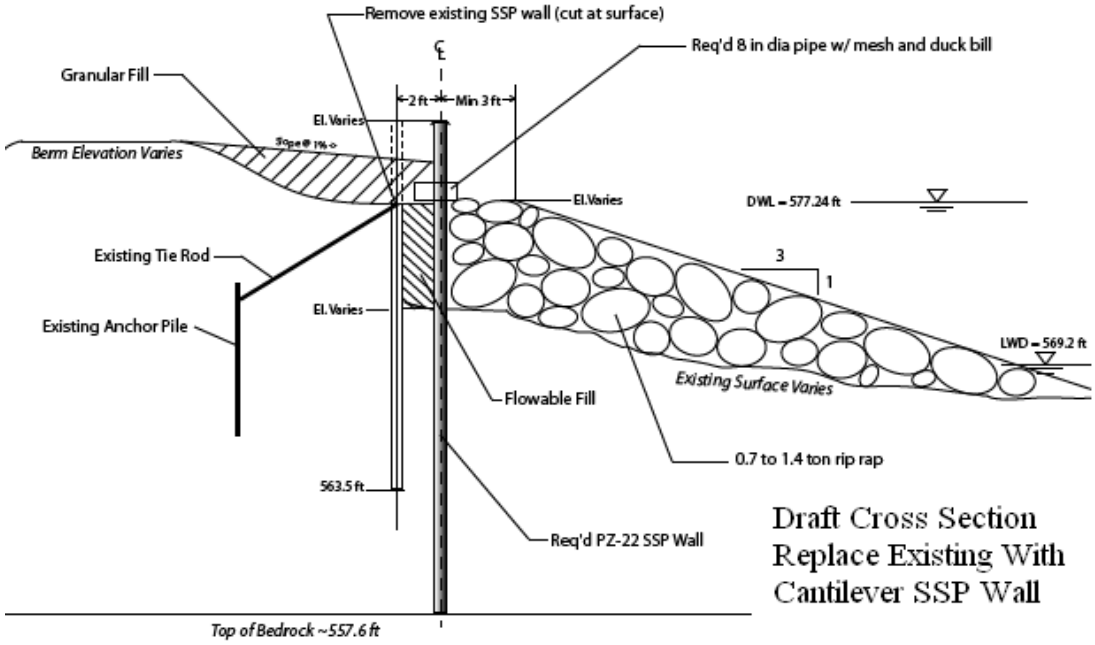


Figure 9. Alternative 3 —Replace Existing with a Cantilever Steel Sheet Pile Wall.

2.18 Alternative 5 - Replace Existing Flood Protection with a Concrete Panel/H-Pile

Alternative 5 - Costs (2010$)			
Alternative 5	**Elevation 576.6'**	**Elevation 578'**	**Elevation 581'**
Construction	$3,536,000	$4,112,000	$5,974,000
Implementation	$5,021,858	$5,678,216	$7,800,490

2.19 Steel H-pile posts would be driven deep into the ground to support SSP panels, which would be seated in a trench a few feet deep between the piles (Figure 10). Stone toe protection would be added lakeward from the foot of the wall.

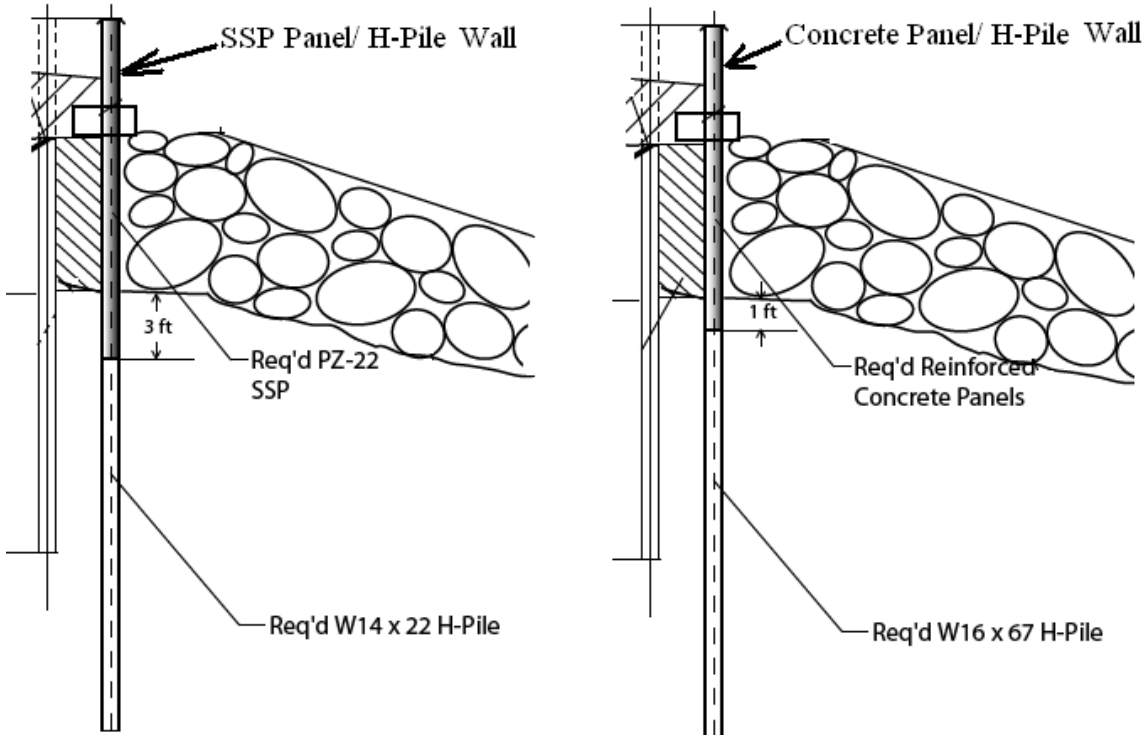


Figure 10. Alternatives 5 and 6 - Draft Variations for SSP & Concrete H-Pile Walls (Ref. Fig 5).

2.20 Alternative 6- Replace Existing Flood Protection with Steel Sheet Pile/ H-Pile Wall

Alternative 6 - Costs (2010$)			
Alternative 6	**Elevation 576.6'**	**Elevation 578'**	**Elevation 581'**
Construction	$4,532,000	$5,152,000	$7,505,000
Implementation	$6,156,690	$6,863,479	$9,546,372

2.21 Steel H-pile posts would be driven deep into the ground to support concrete panels, which would be seated in a trench a few feet deep between the piles (Figure 10). Stone toe protection would be added lakeward from the foot of the wall.

2.22 Alternative 7 - Replace Existing Flood Protection with a Concrete Gravity Wall

Alternative 7 – Costs (2010$)			
Alternative 7	**Elevation 576.6'**	**Elevation 578'**	**Elevation 581'**
Construction	$4,271,000	$4,841,000	$6,939,000
Implementation	$5,858,952	$6,509,600	$8,900,542

2.23 This alternative would involve constructing a concrete “L” or “T” wall to replace the temporary SSP wall. Because of the footings required to create a stable wall in such an environment, significant excavation would be required, along with considerably more concrete than any other Alternative that uses concrete. (Figure 11).

2.24 Alternative 8 – Rehabilitate and Replace Existing Flood Protection – Gabion Wall

Not Considered Further

2.25 This alternative consists of placing stacked rock filled baskets, or gabions, along the shoreline. Along with riprap stone at the toe of the structure, this alternative would minimize erosion along the shoreline but it would not provide any flood protection in the event of high water. A splash apron at the top and an excavated key for scour protection would be required. This would increase construction costs considerably as well as increase O&M costs due to the typically shorter life span of the wire mesh baskets and replacement of lost stone fill due to wave and ice action. Therefore, this alternative will no longer be considered.

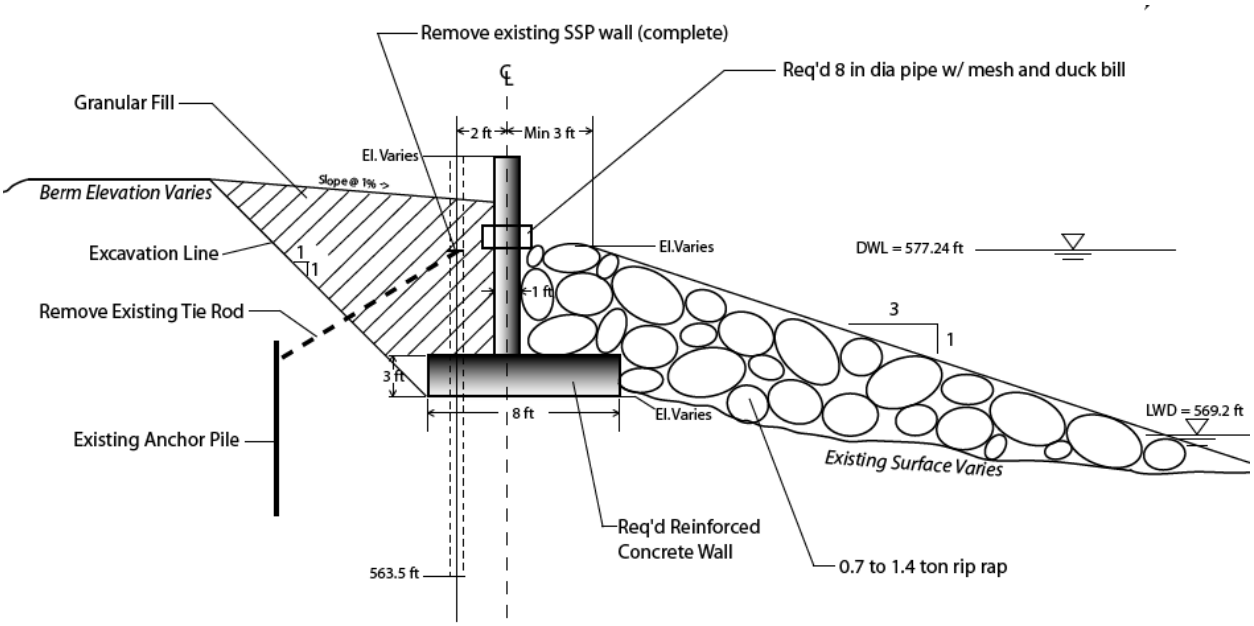


Figure 11. Alternative 7 —Replace Existing Flood Protection with a Concrete Gravity Wall.

2.26 Alternative 9 – Armor the Existing Fronting Dike

Alternative 9 - Costs (2010$)			
Alternative 7	**Elevation 576.6'**	**Elevation 578'**	**Elevation 581'**
Construction	$4,431,000	$4,953,000	$6,694,000
Implementation	$6,042,291	$6,636,860	$8,621,254

2.27 This alternative would involve removing the SSP seawalls entirely and re-grading of the existing dike between the water's edge and the crest of the dike (Figure 12). Geo-textile and riprap would be placed on the lakeward side of the dike to prevent wave run-up. This alternative was rejected because it is not acceptable to the local sponsor, local residents, Fish & Wildlife Service, or the Department of Environmental Quality and due to its higher total cost, which is largely due to the need for removal of several houses to accommodate the wider footprint of the armored dike.

2.28 Alternative 10 – Activate the Flood Warning System - *Estimated construction cost- $0*

2.29 This alternative is a "non-structural" solution that uses an audible flood warning system that is activated by Monroe County Emergency Management. The nearest speakers are located at

Fermi Nuclear Power Plant, and are audible at Detroit Beach. The system can be activated to send voice messages to residents along western Lake Erie and throughout Monroe County. Generally, lake levels would have to be above to well above average before significant flood threat to Detroit Beach would occur. However, this system will not provide long-term protection to permanent structures than is currently existent. Because of this, a flood warning system (as a stand-alone system) would not offer much economic benefit for the community or value against flood property damages.

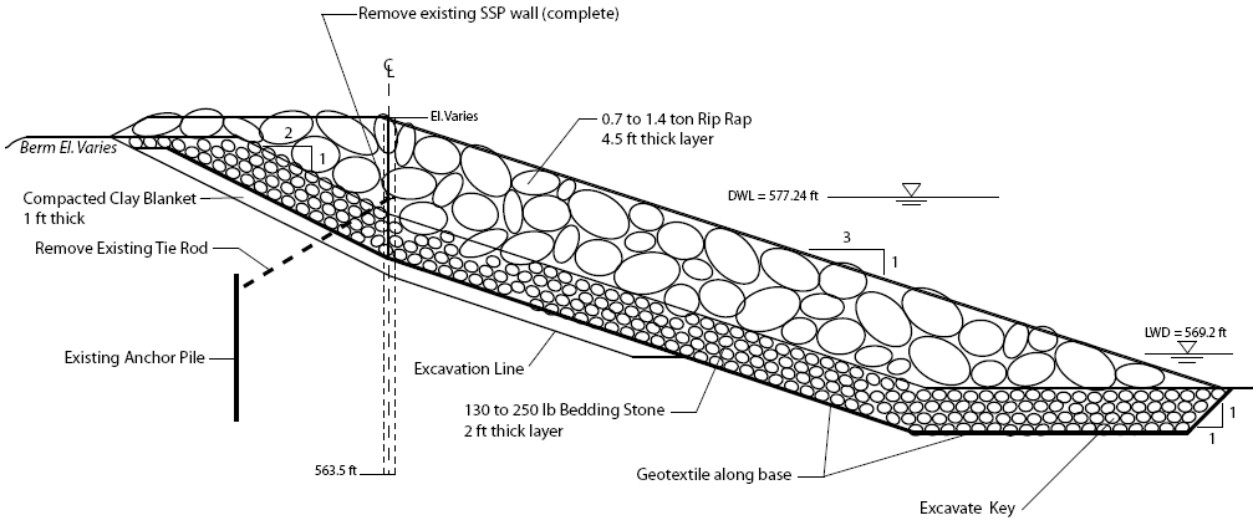


Figure 12. Draft Cross Section for Alternative 4—Armor Existing Lakeside Dike.

2.30 Alternative 11 – Conduct Buyouts - *Estimated cost- $52,689,000*

2.31 This alternative would involve the demolition and removal of many of the approximately 380 structures located in the Detroit Beach community adjacent to the mouth of Sandy Creek on Lake Erie. This would entail buying out each of the residents in the area of greatest flood threat. Because of the large number of affected houses, buyout costs would total far more than several times the cost of replacing the flood control structures. Therefore, this alternative will not be considered further.

3.0 DESCRIPTION OF THE RECOMMENDED ALTERNATIVE

3.1 The recommended alternative ("Base Plan") for the Detroit Beach/Frenchtown Section 205 project is **Alternative 5 – Construct New Flood Protection Structure- Concrete Panel/H-Pile Wall,** combined with **Alternative 10 – Activate the Flood Warning System.** This combined solution is selected for several reasons beyond being the least costly solution. Primarily, the

concrete panels are durable and effective in such applications, may be tinted with color or painted and will not rust like the existing steel sheet pile.

3.2 The new flood protection concrete panel/H-pile wall along the Lake Erie shoreline would be installed approximately 2 feet lakeward of the existing wall. Existing SSP wall sections at the south end (approximately 50 linear feet) and north end (approximately 500 linear feet) of the Lake Erie shore of Detroit Beach are newer and in good condition; therefore, these sections will not be replaced but will be incorporated into the new wall.

3.3 After the new wall is installed along Lake Erie, the old wall would be cut off below grade and left in place (complete removal of select sections could occur if advantageous). In one location, the new wall will be constructed farther lakeward to allow for maintenance and emergency flood fighting access around an existing house (Figure 13). The maximum deviation in this location is approximately 15 feet from the existing wall on the southwest and 30 feet on the northeast. Riprap would be placed along the lake bottom in front of the new flood wall; the riprap would provide additional support to the wall, minimize scour in front of the wall, dissipate some wave energy, and would provide aquatic habitat.

3.4 The tie-back dikes require maintenance and repairs to ensure the integrity of the flood control system. Necessary vegetation clearance from the tie-back dike on the north side of the Detroit Beach community would be disruptive to the existing dike to the degree that 1200 feet of the dike would need to be completely reconstructed. Since the side slopes of this dike are steeper than current design criteria, a re-constructed dike would have a wider footprint. This is unacceptable because the dike is along the edge of a State Conservation Easement that cannot be encroached. Therefore, the north tie-back dike, which is approximately 1200 feet long, will be converted to a floodwall (Figures 13, 14 and 15).

3.5 The south tie-back dike can generally be restored to original condition within the existing footprint, except for one area, approximately 450 feet long, where houses are beside the dike and space is needed for maintenance and emergency flood fighting access. A new wall would be constructed along this 450-foot section of the south tie-back dike, which currently has two existing sections of bulkhead wall (Figure 13, 16 and 17). Other areas of the south tie-back dike require removal of vegetation and structures such as lamp posts or decks.

3.6 Level of Protection: Preliminary economic analysis indicates the maximum benefit is achieved at an elevation above the 1% chance of exceedance (100-year flood) elevation. For Detroit Beach, that elevation is 581 feet. The existing flood protection, which has a maximum elevation of 581 feet, is reported to be overtopped during periods of high Lake Erie water levels coinciding with strong storms. This current design level of protection is a result of a requirement to maximize benefits in accordance with the National Economic Development (NED) plan for urban areas

3.7 Project Construction: Site preparation for construction includes removing obstacles in the immediate vicinity of the existing protection to allow access for construction equipment. Vegetation and encroaching fixed objects (such as lamp posts or decks) would be removed from the flood protection dikes and the dike that runs parallel to the Lake Erie floodwall as part of the

dike rehabilitation. Riprap would be removed along the Lake Erie shoreline to allow for driving of the H-piles and trenching/setting of the concrete wall panels lakeward of the existing temporary wall. Removed and supplemental stone along Sandy Creek and along Lake Erie would be temporarily stockpiled in-water, adjacent to the shore and re-used in project reconstruction or disposed of properly on land.

Figure 13. Detroit Beach Community Showing Deviations from Existing Flood Protection.

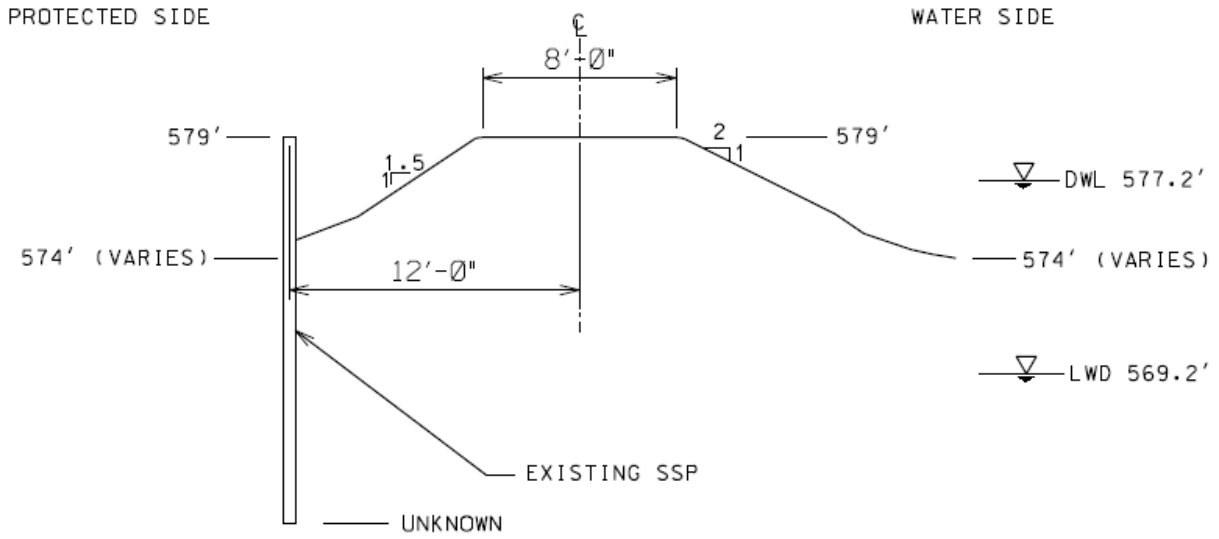


Figure 14. Existing North Tie-Back Dike (typical section).

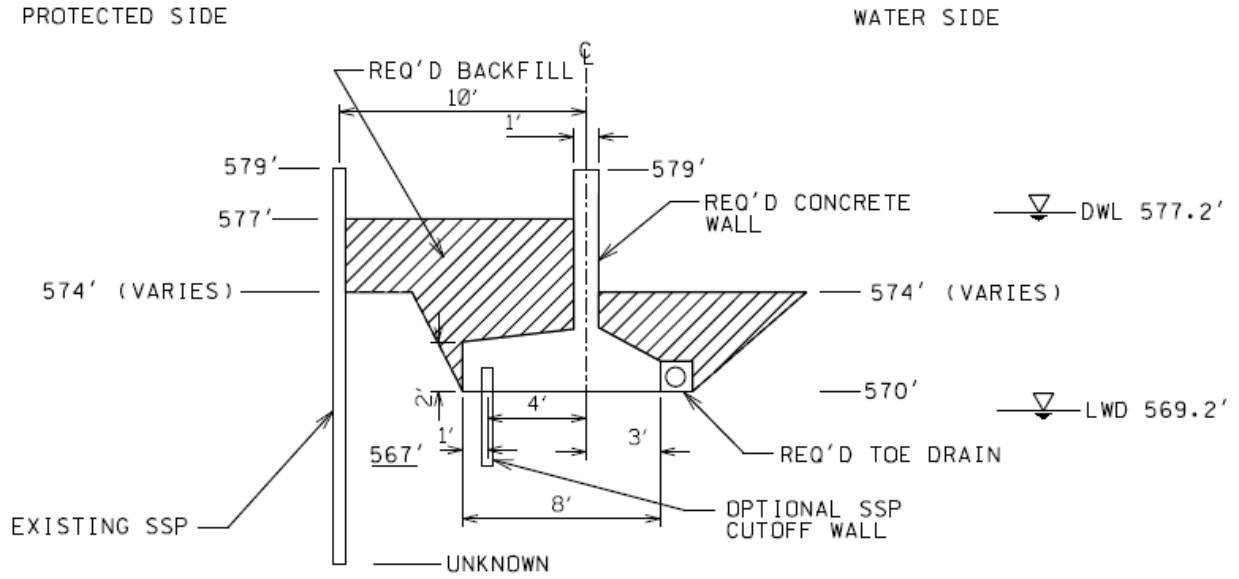


Figure 15. Proposed North Tie-Back Wall Conversion for 1200 Feet (typical section).

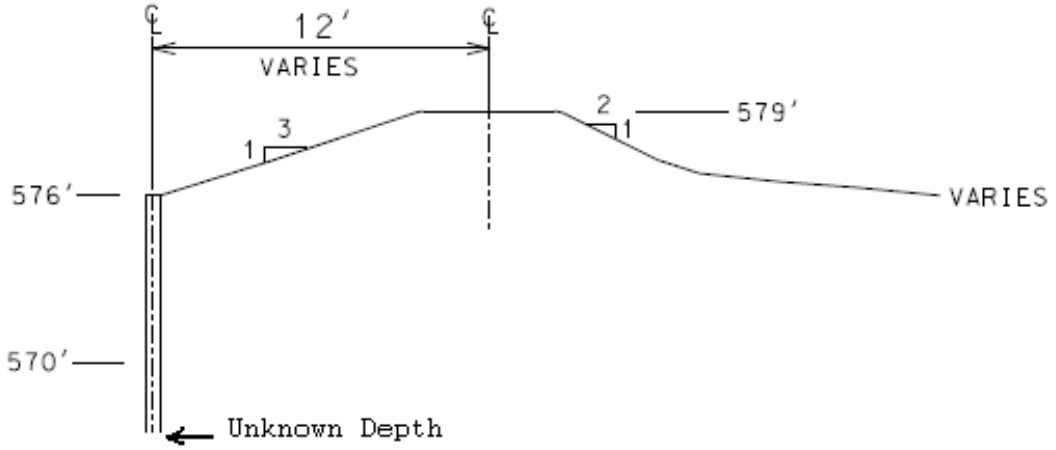


Figure 16. Existing South Tie-Back Dike (typical section at location of proposed wall).

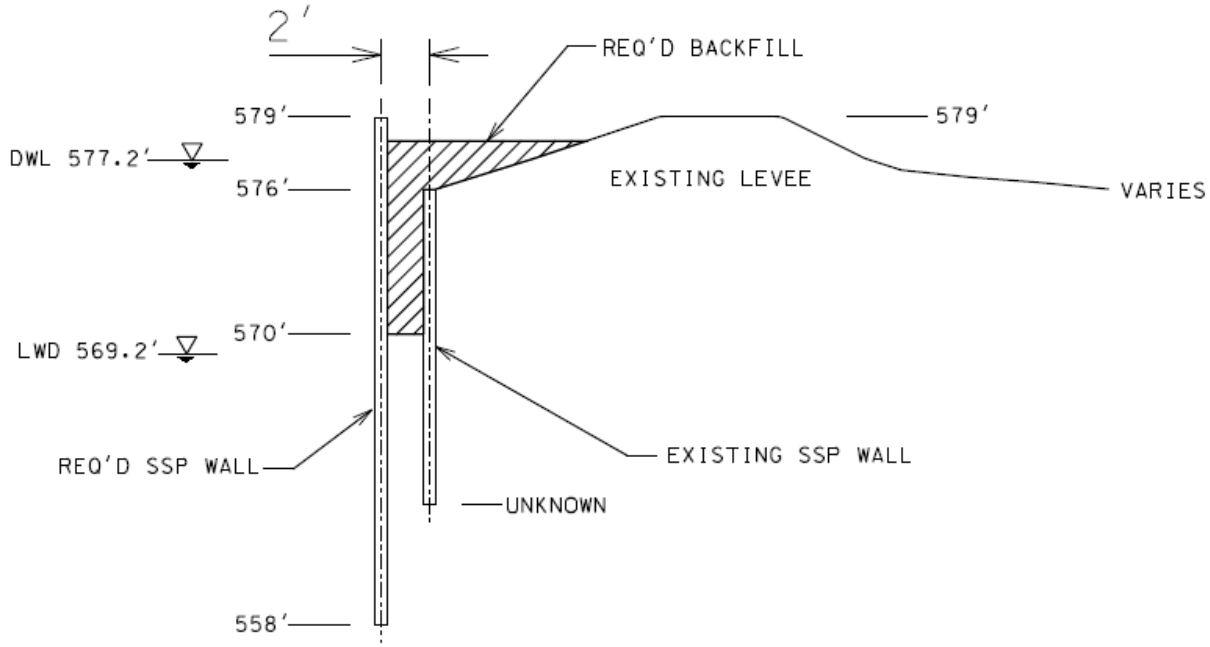


Figure 17. Proposed New Wall Along 450 Feet (approx.) of South Tie-Back Dike.

3.8 Along Lake Erie, steel H-Piles would be driven 10 feet apart to a depth of 25-30 feet or to bedrock, whichever is shallower. A 2 to 3-foot deep trench would be excavated between the piles for setting the concrete panels. Reinforced concrete panels approximately 10 feet wide and 6 inches thick would be placed vertically in the H-pile grooves and stacked/trimmed to design height. Toe-protection stone (riprap) would be replenished/upgraded, re-using suitable existing stone and supplementing with stone brought in from an approved source. Backfill of clay and stone would be provided landward, and a reconfiguration of the diked catchment area behind the flood protection wall would be constructed to drain more efficiently. Larger direct-drain tubes would be installed that would drain to the side of the reconfigured catchment area. Any direct-drain components would be fitted with a new ice-resistant flapper gate design.

3.9 New stone would be added to the existing stone along Sandy Creek for bank protection and to protect the stormwater pumping station. The clay dikes along Sandy Creek, which were constructed in the 1950's, would be rehabilitated to the design elevation. As described above, approximately 1200 feet of the north tie-back dike would be converted to wall and 450 feet of the south tie-back dike would require a new wall because of limited access space.

3.10 Project construction likely would be completed using both marine-based and land-based equipment. While land-based construction is permitted, it is limited in some areas of the project site because of space restrictions. Use of floating plant would be coordinated and conducted to ensure minimal interference with navigation. Work in the water may include, for example, barges to install piling or deliver and install riprap and other materials and equipment. Equipment may also be operated on the near-shore lake bottom.

3.11 Miscellaneous Project Details: The proposed action may require the construction of one or more temporary structures or temporary placement of clean construction material, upland or in-water (but not to exceed ½-acre of lake bottom). Placement of temporary structures or fill material would be at USACE-approved locations, outside of any wetlands, areas containing Federal or state protected species or their critical habitat, or properties listed on or eligible for listing on the National Register of Historic Places or state-listed properties. Temporary activities will include appropriate precautionary measures to prevent erosion and sedimentation or other undesirable environmental impacts.

3.12 The type and location of temporary structures and/or construction materials cannot be determined at this time, since they would be incidental to the work being performed. Examples are mooring facilities, dolphins, turnarounds, work and storage areas, access roads, and office facilities. These construction aids would be within project boundaries or rights-of-way and would be removed when no longer needed. Temporary sites would be restored upon project completion.

3.13 Some variation from the project as described may occur with respect to sequence of activities, method of operation, or design details as a result of unanticipated design improvements, site conditions, or cost-saving measures. Any variations that would result in significant changes to either the overall project design or environmental impact would be further evaluated under the National Environmental Policy Act.

4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

4.1 Environmental review of the proposed Detroit Beach flood protection project indicates that it would not result in significant adverse environmental effects. Nor would it be expected to result in any significant cumulative or long-term adverse environmental effects. Adverse effects would be minor, including short-term noise and air emissions from equipment operation; temporary turbidity from riprap placement; temporary displacement of fish; and possible destruction of any bottom-dwelling organisms in the immediate work area. Fish would return upon completion of construction and the area eventually would be re-colonized by bottom-dwelling organisms. Riprap placed along the lake bottom in front of the flood wall provides additional support to the wall, minimizes scour in front of the wall, dissipates some wave energy, and provides aquatic habitat. Except for minimal encroachments water-ward of the existing protection, necessary for project construction, project effects would be temporary. The completed project would help provide reliable flood protection for Detroit Beach.

Terrestrial Habitat/Wetlands

4.2 Detroit Beach is located on the west shore of Lake Erie in Monroe County, Michigan (Figure 1). Monroe County lies entirely in the Erie-Huron lowland, a relatively flat clay plain that was once the post-glacial floor of receding western Lake Erie. The modern mean lake elevation is 571 feet (IGLD 1985). The elevation of the Detroit Beach community is above 585 feet on the western edge along Dixie Highway, but drops below 575 feet in the eastern half of the community.

4.3 Terrestrial habitat at the site consists of urban landscapes fringed by wooded wetlands on the north, Lake Erie on the east, and Sandy Creek on the south. Wildlife typical of urban areas would be common, but because of the proximity of wetlands, wooded areas, and the lakeshore, a variety of other species are also present in the area. To the northeast of the Detroit Beach community is a Michigan Department of Environmental Quality (MDEQ) conservation easement. The north tie-back dike is actually within the conservation easement. The rest of the conservation easement is mostly wooded wetlands with some created open water/marsh areas.

4.4 The MDEQ conservation easement would not be adversely affected because all work to convert the north tie-back dike to a wall would be completed from within the footprint of the existing dike. No equipment would operate on the ground surface of the conservation easement outside the toe of the existing dike. Saplings and shrubs that have become established on the slopes of the dike would be removed, but no trees or shrubs outside the toe of the existing dike would be removed, though some branches may be trimmed to provide construction clearance for the new wall.

4.5 The proposed flood control project would not be expected to result in significant adverse effects on terrestrial habitat. Post-project habitat value would be similar to pre-project habitat. Also some of the south tie-back dike that is currently heavily overgrown, would be opened up by required vegetation removals for restoration of the flood control capability of the dikes.

Aquatic Habitat/Wetlands

4.6 Coastal wetlands exist around the inner mouth of Sandy Creek (Figure 18) and south along the Lake Erie Shore. These coastal wetlands are dominated by cattails, arrowhead, American lotus, water lily, bulrush and several species of pondweed. Phragmites, an invasive species, is also present in the wetlands. Of note is the large amount of American lotus present, which is listed as "threatened" by the State of Michigan. The American lotus has become abundant in southeast Michigan in recent years, providing fishery and water quality benefits.

Figure 18. Wetlands by Inner Mouth of Sandy Creek.

4.7 Coastal wetlands and other coastal fish habitat have been declining in extent and quality since European settlement in the region in the 1800's. Drainage, shoreline modification, filling and armoring of the shoreline and inlets for agricultural, commercial, and recreational purposes are factors which have contributed to the population decline of wetland and coastal marsh/inlet dependant species in western Lake Erie. One estimate indicates that only 10% of the original coastal marshes remain along the Lake Erie shoreline.[1]

1 Herdendorf, C.E. 1987. The ecology of the coastal marshes of western Lake Erie: a community profile. US Fish and Wildlife Service, Biological Report 85(7.9).

4.8 Coastal wetlands provide habitat for feeding and resting for migratory waterfowl in the spring, particularly for mallards, teal, wood ducks, Canada geese and ring necks. The coastal wetlands provide nesting areas for red winged-blackbirds and a variety of song birds. The emergent wetlands are resting and feeding areas for waterfowl and members of the heron family during the summer and fall migration. Small mammals such as muskrats, skunks, opossums, fox and birds such as pheasants and raptors use the wetlands for habitat and feeding.

4.9 The project would have negligible effects on coastal wetlands. The new wall and backfill along Sandy Creek (Figure 19) would occupy a small amount of river bottom approximately 2 feet wide and 450 feet long, as well as a small amount of riverbank between the two existing wall sections in this reach, for a total in-water fill area of approximately 0.02 acre. This would eliminate a minor amount of bank vegetation and in-water plants and would be insignificant because of the abundance of aquatic vegetation in the area.

Figure 19. Section (approx. 450 feet) along Sandy Creek that Requires New Wall.

4.10 Other aquatic habitat along the Lake Erie shore at Detroit Beach includes the remnants of stone/rubble shore protection and the adjacent lake bottom. Much of the existing stone is either buried or has been washed away by storms. The remaining stone provides some aquatic habitat in an area that, because of high wave energy, would have limited aquatic habitat. Richer aquatic habitat would likely occur in Sandy Creek, though the area with stone shore protection would be more disturbed because it is open to the forces of Lake Erie storms.

4.11 Existing habitat at the site would be disrupted during construction. Fish and wildlife would temporarily avoid the site because of the noise, turbidity, and activity. Bottom-dwelling organisms present in the immediate construction area would be impacted, but such organisms would be expected to re-colonize the site after the project is completed. The new stone shore protection would replenish/upgrade the original stone protection, providing aquatic habitat for various macro-invertebrates and fish. Birds would find temporary resting habitat on the stone during lower water levels, when the stone would be exposed, and could feed on fish attracted to the area. Long term stability of the completed new flood control project would help preclude catastrophic failure of the existing dilapidated flood control structures and associated erosion and sedimentation of the waterway.

Fisheries

4.12 In 2005 the Michigan Department of Natural Resources (MDNR) sampled four coastal marshes in the lower Detroit River and western Lake Erie and documented 47 species (from 15 families) of fish in the catch from all sites combined. [2] Bluegill, pumpkinseeds and gizzard shad were some of the species collected most commonly among the sites. In addition, another 18% of the catch was made up of shiners and minnows and are forage fish. Game fish species comprised 26% of the catch including bluegill, pumpkinseed, large and small mouth bass and yellow perch. A total of 25% of the catch was comprised of species tolerant of turbidity including gizzard shad, carp and goldfish. While coastal marshes are important to various life stages of fish, many species use the marshes only on a seasonal basis. Adult largemouth bass, smallmouth bass, northern pike, walleye, carp and yellow perch are found in these emergent wetlands during portions of the year. Project effects on fisheries are minor and temporary. Fish would temporarily avoid the immediate work area because of the noise, turbidity, and activity, but have plenty of other available habitat in the project vicinity.

Federally listed Species

4.13 Federal listings under the Endangered Species Act for Monroe County, Michigan, include Indiana bat ("endangered"), Karner blue butterfly ("endangered"), northern riffleshell mussel ("endangered"), rayed bean mussel ("candidate for listing"), and eastern prairie fringed orchid ("threatened"). Habitat for the Indiana bat does not occur within the area of potential effects for the proposed flood control project. Suitable nesting trees for Indiana bat have not been observed on the site. The project site also does not include habitat suitable to the Karner blue butterfly or the eastern prairie fringed orchid. In water habitat is potentially suitable for either mussel species; however, these mussels are not known to occur at Detroit Beach. Therefore, the project would have no effect on Federally Listed species. The US Fish and Wildlife service has also reviewed the project for Federally listed species and concluded that "listed species or potential habitat would not be impacted" (see Section 5.0, below, "Preliminary Agency Review").

2 Francis, J. and J Boase. A Fisheries Survey of Selected Lake Erie Coastal Marshes in Michigan, 2005. Michigan Department of Natural Resources, March 1, 2007.

Water Quality

4.14 Reports indicate that Lake Erie was heavily polluted and damaged until changes attributable to the 1972 Great Lakes Water Quality Agreement were implemented. Since then, improvements have been implemented at sewage treatment plants, factories, and other point sources of pollution, along with improved farming practices aimed at curbing erosion and limiting nutrient runoff from fertilizers. Lake Erie water quality is much better today.

4.15 The proposed flood control project will have a positive effect on water quality because it will help preclude catastrophic failure of the existing dilapidated flood control structures, especially the wall along Lake Erie. Failure of the existing structures during a storm event could result in large scale erosion and sedimentation into the waterway. The positive effects outweigh the minor temporary construction-induced turbidity, which is limited because fill placement will mostly occur behind the new flood wall. An evaluation of project effects regarding placement of materials in the waters of the United States, pursuant to Section 404 of the Clean Water Act, is included as Attachment C.

4.16 Installation of the new wall approximately 2 feet water-ward of the existing wall minimizes potential interference from the existing structures during construction, avoids further encroaching the already restrictive space, and it minimizes the environmental effects of construction by enclosing the work site, thereby limiting soil exposure to the waterway as partial removal of the old structures and backfilling would be done behind the new wall.

4.17 No significant adverse effects on water quality are anticipated to occur from construction activities. Standard erosion control measures would be used, as necessary, to prevent soil releases into the waterway during construction. Sediments in the proposed in-water work area along the Lake Erie shore are generally sandy with sediments along the protected reach on Sandy Creek being more fine grained. Disturbances by wall construction activities would be limited to the immediate work area. Any turbidity generated would be minimal and short term.

Hazardous, Toxic, and Radiological wastes

4.18 A review of the U.S. Environmental Protection Agency EnviroMapper data, which includes Superfund, toxic release, water dischargers, air emissions, and hazardous wastes, indicates no sites that would be a concern for hazardous, toxic, and radiological wastes (HTRW) at the Detroit Beach project site. The only sites listed on the map are a petroleum company and auto service center on Dixie Highway, both on the north side of the Detroit Beach community, and the Detroit Beach Boat Club along Sandy Creek. These sites are listed as hazardous waste handlers with no toxic releases reported. No HTRW contamination sites are known to be in the project area. Therefore, it is unlikely that project construction would encounter any contaminated materials. As a precaution, the construction contract contains standard language on procedures to follow in the event of discovered contaminated materials to help ensure that there are no releases and that the materials are properly remediated where applicable.

Cultural Resources

4.19 The earliest known inhabitants of the western Lake Erie shoreline area were Native Americans. French missionaries came to this western Lake Erie shoreline territory as early as 1634. The first settlement was called Frenchtown when about 100 French families came here from Detroit and Canada. Frenchtown was later named the City of Monroe in honor of President James Monroe.

4.20 The flood control project would not impact any known historic properties, as none are known to be in the area of potential effects, and because the project site is previously disturbed from construction of the original flood control project. The one area where the new wall deviates from the original floodwall is on the lake shore; since this is eroding shoreline, artifacts are not anticipated.

Recreation

4.21 Sterling State Park, which is the only Michigan State Park on Lake Erie, is south of Detroit Beach, across Sandy Creek (Figure 2). The park occupies approximately 1300 acres along the Lake Erie shore and offers a variety of recreational opportunities including camping, hiking, boating, and fishing. The project has no direct effect on Sterling State Park. Project effects on the State park would be minor, consisting of mild noise and visual effects from construction. These effects are temporary and likely would not be in excess of typical noise and visual effects occurring in the area.

4.22 Recreation within the Detroit Beach community includes several open mowed park areas. Some beach areas exist outside the floodwall during periods of lower lake levels (Figure 20). These areas are part of the lakebed and, when exposed by low water levels, would provide limited beach oriented recreational opportunities. Project effects on recreation at the Detroit Beach community include temporary restrictions on recreational activity in the construction zone. Stone placed along the new floodwall would cover the lake bottom for a distance up to approximately 30 feet out from the existing floodwall.

Air Quality

4.23 Effects on air quality would arise from emissions of equipment used to construct the proposed project and minor amounts of dust arising from construction operations. Dust would be limited by wetting areas prone to dust generation during construction. All construction equipment would be required to meet emission standards and emissions are expected to be minor. Construction of the proposed project would be short term. Thus, the proposed project would be exempted as *de minimis* (Latin for ‘of minimal importance’) and meet the Conformity Requirements under Section 176(c) of the Clean Air Act, as amended, and 40 C.F.R. 93.153.

Figure 20. Some Areas of Beach Exist During Periods of Low Lake Levels.

Floodplains

4.24 The project is located within the 100-year floodplain. The project would not have significant adverse effects on the floodplain, since it is replacing existing, failing flood control structures, and it would not cause floodplain development, but would help protect an existing developed community. The proposed action complies with the Federal Executive Order on Flood Plain Management (E.O. 11988) because there is no practicable alternative to construction in the flood plain.

Coastal Zone

4.25 The proposed project is in the coastal zone (as defined by the Michigan Coastal Management Program). The proposed actions would not adversely affect the coastal zone, but would replace failing flood control structures. Without the project, the eventual failure of the existing flood control structures could adversely affect the coastal zone. Therefore, the project is "consistent to the maximum extent practicable" (as defined in 16 U.S.C. 1456, Coastal Zone Management Act) with the Michigan Coastal Management Program.

Cumulative Effects

4.26 The proposed flood control project would not result in significant cumulative impacts. The project replaces an existing, failing flood control project. Some minor deviations in the project

from the existing flood protection include minor encroachment into the Lake Erie for construction of the new wall approximately 2 feet lakeward of the existing wall, addition of more stone on the shoreline along the new wall, and added encroachment (for construction, maintenance, emergency) access along approximately 200 feet of wall, averaging around 15 feet lakeward of the existing wall.

4.27 Cumulatively with other projects around the western Lake Erie shoreline, these minor encroachments would not result in significant adverse impacts. The proposed project provides the benefit of preventing eventual failure of the existing flood control project and associated impacts of such failure, such as uncontrolled erosion and sedimentation at the time of failure, which typically would occur during a storm event.

Other Resources

4.28 The flood control project would not be expected to have a significant adverse impact on community cohesion, desirable community growth, tax revenues, property values, public facilities, public services, regional growth, employment or the labor force, business and industrial activity, recreation, or man-made resources. Nor would the project be expected to cause displacement of people, or to have significant adverse effects upon aesthetics or farmlands.

Future Maintenance and Repair

4.29 In-kind, in-place maintenance and repair activities may occur periodically following completion of the shoreline protection project. The impacts of maintenance would be similar to those expected for the entire project, but of significantly smaller magnitude, since maintenance and repair activities would be of a smaller scale.

5.0 PRELIMINARY AGENCY REVIEW

5.1 The U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, the Michigan Department of Environmental Quality, the Michigan State Historic Preservation Office, and various Indian tribes, groups and interests were provided preliminary project information early in 2008 for review and comment. Comments received are discussed in this section.

State Historic Preservation Office

5.2 The State Historic Preservation Office (SHPO) has reviewed the proposed flood control project their opinion that, based on the information provided for their review, "**no historic properties are affected**" within the area of potential effects for the project (correspondence, April 23, 2008, Attachment 1). The SHPO also indicated that the views of the public and appropriate Indian tribes or interests need to be involved in the review process pursuant to 36 CFR 800.2 of the Historic Preservation Act.

5.3 Cultural resource identification and evaluation efforts are discussed in this Environmental Assessment, which will be made available to Federal, State, and local agencies, Native American Indian tribes and groups, and the general public for review and comment.

U.S. Fish and Wildlife Service

5.4 The U.S. Fish and Wildlife Service (USFWS) noted that the project occurs within the potential range of some Federally listed species, but that none are indicated in their records as occurring in or near the proposed flood control project, and concluded that "listed species or potential habitat would not be impacted" (correspondence, May 12, 2008, Attachment 2). They advise consulting listings of State protected species and re-evaluation of Federal listings periodically as conditions change over time.

5.5 The project information has been provided to the State for their review, which includes consideration of State protected species.

U.S. Environmental Protection Agency

5.6 The U.S. Environmental Protection Agency provided comments by electronic mail (April 10, 2008, Attachment 3):

5.7 COMMENT: "The EA should discuss the ACE's rationale for selecting the preferred alternative. What factors will guarantee the preferred alternative will provide better flood protection and be able to withstand the abuse of flooding events?"

5.8 RESPONSE: The selected alternative is the lowest cost, environmentally acceptable alternative. The proposed floodwall will be designed to withstand the forces present at the site for a minimum 50-year project life, and with proper maintenance and repair can last significantly longer. The project will provide better flood control because the existing flood control works was a temporary design and is now dilapidated and failing.

5.9 COMMENT: "The EA should discuss whether the flood wall can be moved inward from the proposed location and tie into higher ground with less backfill. This scenario would likely reduce the project cost as well."

5.10 RESPONSE: Moving the flood wall inland is not an option because of the topography. The Detroit Beach community is virtually flat from the shoreline to approximately 1500 feet inland. The cost for property buyouts to relocate the wall farther inland would far exceed any savings on backfill.

Michigan Department of Environmental Quality

5.11 The Michigan Department of Environmental Quality (MDEQ) had no formal comments at this time. A representative of the MDEQ was on site (along with a representative of the USFWS) in October 2008 and had no objections to the project as currently proposed.

Saginaw Chippewa Indian Tribe

5.12 The Saginaw Chippewa Indian Tribe, Curator for the Ziibiwing Center of Anishinabe Culture & Lifeways, noted, "**The proposed area of concern is close to an area in which we have information indicating the presence of and Indian traditional cultural property**" (correspondence, April 15, 2008, Attachment 4). They note the availability of their office to assist if there is a discovery of Native American human remains or burial objects.

5.13 Since the project area is previously disturbed, such resources are not expected to be present in the area of construction effects. As a precautionary measure, the project construction specifications will include a clause protective of cultural resources discovered during construction. These provisions include the cessation of work in the immediate area of a discovered cultural resource until the situation is properly evaluated and the immediate verbal and written notification of the Corps of Engineers. If such a discovery were made during construction, the SHPO and the Ziibiwing Center of Anishinabe Culture & Lifeways would be notified and consulted on appropriate measures to evaluate and treat the resource.

6.0 MAJOR FINDINGS AND CONCLUSIONS

6.1 The proposed flood control project at the Detroit Beach community, Monroe County, Michigan has been reviewed pursuant to the following Acts and Executive Orders: Fish and Wildlife Act of 1956; Fish and Wildlife Coordination Act of 1958; National Historic Preservation Act of 1966; National Environmental Policy Act of 1969; Clean Air Act of 1970; Executive Order 11593, Protection and Enhancement of the Cultural Environment, May 1971; Coastal Zone Management Act of 1972; Endangered Species Act of 1973; Clean Water Act of 1977; Executive Order 11988, Flood Plain Management, May 1977; and Executive Order 11990, Wetland Protection, May 1977. The proposed flood protection project has been found to be in compliance with these acts and executive orders for this phase of the study.

6.2 The project site is located within the 100-year floodplain; however, the project would not encourage floodplain development, nor would it impact flood stages. The proposed actions comply with the Federal Executive Order on Flood Plain Management (E.O. 11988) because there is no practicable alternative to construction in the flood plain.

6.3 The project is within the coastal zone and is "consistent to the maximum extent practicable" (as defined in 16 U.S.C. 1456, Coastal Zone Management Act) with the Michigan Coastal Management Program.

6.4 Pursuant to the Clean Water Act (CWA), a Section 404(b)(1) evaluation of the environmental effects of the discharge of fill material into waters of the U.S. has been prepared (Attachment C). The Section 404(b)(1) Evaluation concludes with the determination that "the proposed action is in compliance with Section 404 of the Clean Water Act." A Section 401 (CWA) water quality certification, or waiver thereof, would be obtained from the state for this project.

6.5 This Environmental Assessment has been prepared in accordance with the National Environmental Policy Act (NEPA); the Council on Environmental Quality, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR Parts 1500-1508); and the Corps of Engineers, *Policy and Procedure for Implementing NEPA* (33 CFR Part 230).

6.6 This Environmental Assessment concludes that 1) there are no significant cumulative or long-term adverse environmental impacts associated with the flood protection project; 2) the benefits outweigh the minor, temporary impacts that may result; and 3) the project does not constitute a major Federal action significantly affecting the human environment.

7.0 PUBLIC REVIEW

7.1 This Environmental Assessment will be made available to the public for a 30-day review period. Following this period and a review of the comments received, a final determination will be made by the District Engineer regarding the necessity of preparing an Environmental Impact Statement (EIS) for the proposed flood protection project, Detroit Beach community, Monroe County, Michigan.

7.2 Based on the conclusions of this Environmental Assessment, it appears that preparation of an EIS will not be required. Therefore, a Preliminary Finding of No Significant Impact (FONSI) is provided as a separate document following this Environmental Assessment. If the District Engineer (Detroit District, Corps of Engineers) determines that an EIS is not necessary, the Preliminary FONSI would be finalized.

JENNIFER GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF HISTORY, ARTS AND LIBRARIES
LANSING

DR. WILLIAM ANDERSON
DIRECTOR

April 23, 2008

KAREN KREPPS
DETROIT DISTRICT CORPS OF ENGINEERS
PO BOX 1027
DETROIT MI 48231-1027

RE: ER99-283 Detroit Beach, Frenchtown Township Flood Protection, T6S, R9E, Frenchtown Township, Monroe County (COE)

Dear Dr. Krepps:

Under the authority of Section 106 of the National Historic Preservation Act of 1966, as amended, we have reviewed the above-cited undertaking at the location noted above. Based on the information provided for our review, it is the opinion of the State Historic Preservation Officer (SHPO) that **no historic properties are affected** within the area of potential effects of this undertaking.

The views of the public are essential to informed decision making in the Section 106 process. Federal Agency Officials or their delegated authorities must plan to involve the public in a manner that reflects the nature and complexity of the undertaking, its effects on historic properties and other provisions per 36 CFR § 800.2(d). We remind you that Federal Agency Officials or their delegated authorities are required to consult with the appropriate Indian tribe and/or Tribal Historic Preservation Officer (THPO) when the undertaking may occur on or affect any historic properties on tribal lands. **In all cases**, whether the project occurs on tribal lands or not, Federal Agency Officials or their delegated authorities are also required to make a reasonable and good faith effort to identify any Indian tribes or Native Hawaiian organizations that might attach religious and cultural significance to historic properties in the area of potential effects and invite them to be consulting parties per 36 CFR § 800.2(c-f).

This letter evidences the Corps of Engineer's compliance with 36 CFR § 800.4 "Identification of historic properties", and the fulfillment of the Corps of Engineer's responsibility to notify the SHPO, as a consulting party in the Section 106 process, under 36 CFR § 800.4(d)(1) "No historic properties affected".

The State Historic Preservation Office is not the office of record for this undertaking. You are therefore asked to maintain a copy of this letter with your environmental review record for this undertaking. If the scope of work changes in any way, or if artifacts or bones are discovered, please notify this office immediately.

If you have any questions, please contact Brian Grennell, Environmental Review Specialist, at (517) 335-2721 or by email at ER@michigan.gov. **Please reference our project number in all communication with this office regarding this undertaking.** Thank you for this opportunity to review and comment, and for your cooperation.

Sincerely,

Martha MacFarlane Faes
Environmental Review Coordinator

for Brian D. Conway
State Historic Preservation Officer

MMF:JRH:ROC

ATTACHMENT 1

United States Department of the Interior

FISH AND WILDLIFE SERVICE
East Lansing Field Office (ES)
2651 Coolidge Road, Suite 101
East Lansing, Michigan 48823-6316

IN REPLY REFER TO:

May 12, 2008

Lt. Colonel William J. Leady
District Engineer-Detroit District
U.S. Army Corps of Engineers
P.O. Box 1027
Detroit, Michigan 48231-1027

Attn: Environmental Analysis Branch

Dear Col. Leady:

Thank you for your March 31, 2008 request for information regarding federally listed and proposed threatened and endangered species, candidate species, or critical habitat near the proposed Frenchtown flood control rehabilitation project. Your request and this response are made pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act). Under this project, the Corps of Engineers is proposing 6 Alternatives to rehabilitate the flood control project first initiated in the 1950's.

Your proposed project occurs within the potential range of some federally listed species. However, our records do not indicate the presence of listed species or critical habitat in or near the project. Although our records for some listed species are incomplete, your description of the project location and features indicate that listed species or potential habitat will not be impacted. This precludes the need for further action on this project as required by the Act. If, however, more than six months pass, project plans change, or new information becomes available that indicates listed species or proposed species may be affected, you should conduct further consultation with this office.

Please refer to the Michigan Department of Natural Resources Endangered Species Assessment website, *www.mcgi.state.mi.us/esa* and contact Ms. Lori Sargent at *SargenL2@michigan.gov* for information regarding the protection of threatened and endangered species under State law. State law may require a permit in advance of any work that could potentially damage, destroy or displace state-listed species.

For future endangered and threatened species list requests and consultations with the U.S. Fish and Wildlife Service, we advise you to continue using our regional endangered species and technical assistance website, located at *http://www.fws.gov/midwest/endangered/section7/s7process/index.htm*. In some cases, you may be able to conclude the Endangered Species Act review process without contacting this office.

ATTACHMENT 2

Of the 6 Alternatives, it appears at this point that Alternatives 5 and 6 are likely to have the least impact on fish or wildlife or their habitats since no or little habitat modification is anticipated. For these reasons, we would prefer these Alternatives be the first to be considered as your NEPA process continues.

We appreciate your concern for endangered and threatened species. Please notify Bob Kavetsky, of this office, at (517)351-5293 of any decisions regarding our recommendations and of any changes in the project plans.

Sincerely,

for Craig A. Czarnecki
Field Supervisor

cc: MDEQ, Land and Water Management Division, Lansing, MI (Attn:Tom Graf)
MDNR-Wildlife Division, Lansing, MI (Attn: Lori Sargent)

From: Kowal.Kathleen@epamail.epa.gov
To: Allerding, Paul H LRE;
Subject: US EPA Scoping Comments: Frenchtown Township, MI, Flood Protection
Date: Thursday, April 10, 2008 9:54:06 AM

Paul,

Pursuant to our conversation on Wednesday, 4/9/08, I have the following scoping comments on the Frenchtown Township project.

Rationale for Selection of the Preferred Alternative
- The EA should discuss the ACE's rationale for selecting the preferred alternative. What factors will guarantee the preferred alternative will provide better flood protection and be able to withstand the abuse of flooding events?

Location of Flood Wall
- The EA should discuss whether the flood wall can be moved inward from the proposed location and tie into higher ground with less backfill. This scenario would likely reduce the project cost as well.

Feel free to call me if you have any questions regarding this email. US EPA appreciates the opportunity to offer comments at this stage in the project. We look forward to receiving the EA.
Kathy

Kathleen R. Kowal
Life Scientist
Office of Science, Ecosystems & Communities
NEPA Implementation Section
US Environmental Protection Agency
77 West Jackson Blvd.
Mailcode: E-19J
Chicago, IL 60604
312/353-5206
312/353-5374 (FAX)

ATTACHMENT 3

ZIIBIWING CENTER
of Anishinabe Culture & Lifeways

THE SAGINAW CHIPPEWA INDIAN TRIBE
6650 E. Broadway • Mt. Pleasant, Michigan 48858

Mr. Les E. Weigum
Chief, Environmental Analysis Branch
Department of the Army
Detroit District, Corp of Engineers

April 15, 2008

Re: Detroit Beach, Frenchtown Township, Monroe County

Dear Mr. Weigum,

This letter is in regards to the above referenced project.

The proposed area of concern is close to an area in which we have information indicating the presence of an Indian traditional cultural property.

This office will be available to assist you in the future or during the course of the project if there is discovery of Native American human remains or burial objects. I have enclosed an Information Letter and a Site Reference Form for your use if such an instance occurs.

Feel free to call my office if you have any questions or requests at 989-775-4730.
We thank you for including this Tribe in your plans.

Sincerely,
William Johnson /elh
Curator
Ziibiwing Center of Anishinabe Culture & Lifeways
Saginaw Chippewa Indian Tribe of Michigan

ATTACHMENT 4

SECTION 404(b)(1) EVALUATION
Of the Effects of Placing Fill Material into the Waters of the United States
Pursuant to the Clean Water Act

FLOOD PROTECTION
DETROIT BEACH, FRENCHTOWN TOWNSHIP
MONROE COUNTY, MICHIGAN

I. PROJECT DESCRIPTION

a. Location: The U.S. Army Corps of Engineers, Detroit District, proposes to replace temporary flood protection at the Detroit Beach community, a residential association in Frenchtown Township, Monroe County, Michigan. The Detroit Beach community is located on the west shore of Lake Erie, about three miles east of Monroe Michigan; to the north of Detroit Beach is the Woodland Beach community; to the south, and separated by Sandy Creek, is Sterling State Park.

b. Authority: The proposed action is authorized by Section 205 of the Federal Flood Control Act of 1948 (Public Law 858), as amended. This Act authorizes the construction of small flood control projects.

c. General Description:

i. Construct new flood protection along Lake Erie shore of the Detroit Beach community, including restoration of flanking tie-back levees. In-water parts of this project involve installation of new concrete panel/H-pile flood wall, approximately 2 feet lakeward of the existing floodwall (with one exception described below) and place stone on lakebed along base of new wall; replenish/upgrade stone shore protection along Lake Erie shore and north bank of Sandy Creek, and install a floodwall along 450 feet of sandy creek approximately 2 feet out from the existing wall. Floodwalls would be backfilled.

ii. The new wall along the Lake Erie shore would deviate from the path of the existing structures by more than two feet on either side of a house that projects the flood control structures lakeward, located about midway along the Lake Erie shore of Detroit Beach. The purpose of this deviation is to allow for construction, maintenance, and emergency flood fighting access. The maximum deviation is approximately 15 feet from the existing wall on the southwest and 30 feet on the northeast.

d. Description of Fill Material: Only clean stone and clean granular fill from active commercial sources, and clean construction materials (H-piles, concrete panels, etc.), would be

placed in the water as part of the flood protection. New walls would be installed prior to cutting existing walls off below grade and backfilling. The stone placed along the lake bottom in front of the flood wall provides additional support to the wall, minimizes scour in front of the wall, dissipates some wave energy, and provides aquatic habitat.

f. Description of Construction:

i. Project construction likely would be completed using both marine-based and land-based equipment. While land-based construction is permitted, it is limited in some areas because of space limitations. Use of floating plant would be coordinated and conducted to ensure minimal interference with navigation. Work in the water may include, for example, barges to install piling or deliver and install riprap and other materials and equipment. Equipment may also be operated on the near shore lake bottom. The proposed action may require the construction of one or more temporary structures or temporary placement of clean construction material, upland or in-water (but not to exceed ½-acre of lake bottom).

ii. Riprap would be removed along the Lake Erie shoreline to allow for driving of the H-piles and trenching/setting of the concrete wall panels lakeward of the existing temporary wall. Removed and supplemental stone along Sandy Creek and along Lake Erie would be temporarily stockpiled in-water, adjacent to the shore and re-used in project reconstruction.

iii. Along Lake Erie, steel H-Piles would be driven 10 feet apart to a depth of 25-30 feet or to bedrock, whichever is shallower. A 2 to 3-foot deep trench would be excavated between the piles for setting the concrete panels. Reinforced concrete panels approximately 10 feet wide and 6 inches thick would be placed vertically in the H-pile grooves and stacked/trimmed to design height. Toe-protection stone (riprap) would be replenished/upgraded, re-using suitable existing stone and supplementing with stone brought in from an approved source. Backfill of clay and stone would be placed landward of the new wall. New stone also would be added to the existing stone along Sandy Creek for bank protection and to protect the stormwater pumping station.

iv. The new wall and backfill along Sandy Creek would occupy a small amount of river bottom approximately 2 feet wide and 450 feet long, as well as a small amount of riverbank between the two existing wall sections in this reach, for a total in-water fill area of approximately 0.02 acre. This would eliminate some bank vegetation and in-water plants and would be insignificant because of the abundance of aquatic vegetation in the area.

v. Standard erosion control measures would be used, as necessary, to prevent soil releases into the waterway during construction. Sand displaced during site prep (removal of existing toe stone), driving of H- piles, trenching and setting of concrete wall panels, and placement of stone on lake bottom in front of the new wall would be similar to, but of a smaller magnitude than, sand displacement that typically occurs during storms. This sand is coarse grained and uncontaminated, and thus would not have an adverse effect on water quality.

II. FACTUAL DETERMINATIONS

a. Water Circulation, Fluctuation, and Salinity Determinations: During the project operation, minor short-term changes in water clarity, dissolved gases, and nutrient levels may occur as a result of disturbance to the bottom sediments. No eutrophication of the waters at the project site would be expected. No significant, long-term changes in salinity, water chemistry, color, odor, or taste would be expected to occur. No significant adverse changes in current patterns, flow, stratification, water velocities, or the hydrologic regime would be expected. No specific actions would be required to minimize impacts. Stone would extend into Lake Erie, but is expected to have no significant adverse effect on flood flow capacity.

b. Suspended Particulate/Turbidity Determinations: No significant adverse effects are expected. Project operations would cause temporary turbidity from excavation and fill placement due to disturbance of the lake bottom. Turbidity effects would dissipate over time and distance from the work area and would not have significant long-term effects. Most of the in-water work is in sandy areas where turbidity dissipates quickly. Backfilling would be behind the new wall and so would not cause turbidity.

c. Contaminant Determinations: No significant adverse water quality effects are expected. Only clean materials would be used.

d. Aquatic Ecosystem and Organism Determinations: No significant adverse effects are expected. Construction would disrupt existing habitat at the site. Fish would avoid the area because of the noise and activity. Bottom-dwelling organisms within the immediate construction and fill area would be destroyed, but these sites would be re-colonized after project completion. The riprap along the shore would provide habitat for fish and aquatic invertebrates. No impacts would be expected to occur on special aquatic sites such as sanctuaries, refuges, wetlands, mud flats, or riffle and pool complexes, as none are known to exist in the vicinity of the flood protection site. Minor encroachment (approximately 0.02 acre) of the vegetated shallow water area would occur for placement of the new wall along 450 feet of riverbank along Sand Creek; this would be insignificant because of the abundance of aquatic vegetation in the area.

e. Federally Listed Species: According to the U.S. Fish and Wildlife Service, “there are no listed or proposed species occurring within the area of the project”. Therefore, the flood protection project is not likely to impact any Federally listed Threatened or Endangered Species.

f. Determination of Cumulative and Secondary Effects on the Aquatic Ecosystem: No significant adverse cumulative or secondary impacts are expected.

III. FINDINGS OF COMPLIANCE WITH THE RESTRICTION OF DISCHARGE

No significant adaptations of the guidelines were made relative to this evaluation. The proposed alternative is to construct new flood protection and restore existing flanking flood protection at the Detroit Beach community in Monroe County, Michigan. The flood protection project would not violate applicable water quality standards. The project would not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, wildlife, and special aquatic sites. Life stages of aquatic or other wildlife species would not be adversely affected. Significant adverse effects to the aquatic ecosystem in terms of diversity, productivity, stability, recreation, aesthetic, and economic values would not occur. Coordination with the U.S. Fish and Wildlife Service indicates that the project would have no effect on species Federally listed as "threatened" or "endangered." Appropriate steps taken to minimize adverse effects on the aquatic ecosystem include erosion control measures, as necessary, and placement of the new wall in front of the existing wall to limit exposure of the work area to the waterway. The completed project would help protect Detroit Beach, a residential community in Frenchtown Township, Monroe County, Michigan, from flooding. On the basis of the Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR part 230), it has been determined that the proposed action is in compliance with Section 404 of the Clean Water Act.

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
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IN REPLY REFER TO:

Planning Office
Environmental Analysis Branch

PRELIMINARY FINDING OF NO SIGNIFICANT IMPACT

The U.S. Army Corps of Engineers, Detroit District, proposes to construct flood protection at Detroit Beach, a residential community in Frenchtown Township, Monroe County, Michigan. The existing temporary flood protection, which consists of a steel sheet pile bulkhead (floodwall), dikes, and riprap, is dilapidated and no longer retains structural integrity.

Alternatives considered include 1) No Action, 2) Rehabilitate the Existing Flood Protection Wall, 3-7) Replace Existing Flood Wall With New Floodwall (5 wall type options), 8) Remove Existing Wall and Armor Existing Lakeside Dike, 9) Install Flood Warning System, and 10) Property Buyouts. The No Action alternative also serves as a baseline for evaluating the impacts of the proposed action. The proposed action is Alternative 3 – "Replace Existing Flood Wall with New Floodwall." The proposed wall is an H-pile/concrete panel design along the Lake Erie shore. The project also requires placement of riprap toe protection along the new wall, upgrading of riprap along the north bank of Sandy Creek, and restoration of the tie-back dikes on the north and south flanks of the community, including a new wall section along approximately 450 feet of the south tie-back dike and conversion of the north tie-back dike to a wall.

Review of the proposed project indicates it would not result in significant adverse environmental effects. Nor would it be expected to result in any significant cumulative or long-term adverse environmental effects. Adverse effects would be minor, including short-term noise and air emissions from equipment operation; temporary turbidity from riprap placement; temporary displacement of fish; and possible destruction of any bottom-dwelling organisms in the immediate work area. Fish would return upon completion of construction and the area eventually would be re-colonized by bottom-dwelling organisms. Riprap placed along the lake bottom in front of the flood wall provides additional support to the wall, minimizes scour in front of the wall, dissipates some wave energy, and provides aquatic habitat. Except for minimal encroachments water-ward of the existing protection, necessary for project construction, project effects would be temporary. The completed project would help provide reliable flood protection for Detroit Beach.

The project is within the 100-year floodplain; however, the project would not encourage floodplain development, nor would it impact flood stages. The proposed action complies with the Federal Executive Order 11988, Flood Plain Management, because there is no practicable alternative to construction in the flood plain. The project is within the coastal zone and is

"consistent to the maximum extent practicable" (as defined in 16 U.S.C. 1456, Coastal Zone Management Act) with the Michigan Coastal Management Program.

Pursuant to the Clean Water Act (CWA), a Section 404(b)(1) evaluation of the environmental effects of the fill material into the waters of the United States has been prepared. The Section 404(b)(1) Evaluation concludes that the proposed flood protection is in compliance with Section 404 of the Clean Water Act. Pursuant to Section 401 of the Clean Water Act, the State of Michigan has indicated that the project would comply with State water quality standards

The EA and Section 404(b)(1) evaluation, along with a review of comments received during public review of the EA, indicates that the proposed flood protection project at Detroit Beach, a residential community in Frenchtown Township, Monroe County, Michigan, does not constitute a major Federal action significantly affecting the human environment; therefore, an Environmental Impact Statement will not be prepared.

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James B. Davis
Lieutenant Colonel, U.S. Army
District Engineer