Flood Risk Management Feasibility Study

Peckman River Basin New Jersey

Final Integrated Feasibility Report and Environmental Assessment

Appendix A: Environmental



February 2020

Flood Risk Management Feasibility Study

Peckman River Basin New Jersey

Integrated Feasibility Report and Environmental Assessment

Appendix A1: Environmental Resources



February 2020

Figure 1 Water Resources Within Project Area





Figure 2 Pertinent Environmental Resources





Figure 3 Wetland Delineation Conducted by Town of Little Falls



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Figure 4 New Jersey Department of Fish & Wildlife Northern Pike Stocking Locations



Figure 5

Green Acres and Recreational Areas within the Project Area





Flood Risk Management Feasibility Study

Peckman River Basin New Jersey

Integrated Feasibility Report and Environmental Assessment

Appendix A2: Locations of 2010 Surveys Conducted by the District



US Army Corps of Engineers® New York District

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Figure 1 2010 Stream Assessment Locations



:GIS/Projects/CNY100/mxd/Report/Figure2

Figure 2 2010 Fish Survey Locations



:GIS/Projects/CNY100/mxd/Report/Figure

Figures 3-5 2010 Aquatic Macroinvertebrate Survey Locations







Flood Risk Management Feasibility Study

Peckman River Basin

New Jersey

Integrated Feasibility Report and Environmental Assessment

Appendix A3: Section 404(b)(1) Evaluation



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I. INTRODUCTION

This document presents the Section 404(b)(1) guidelines evaluation for the construction of a flood risk management project and associated compensatory mitigation to address fluvial flooding of the Peckman River located in in the Town of Little Falls and the Borough of Woodland Park, Passaic County. This evaluation is based on the regulations presented in 40 CFR 230, Section 404(b)(1): Guidelines for Specification of Disposal Sites for Dredged or Fill Material. The regulations implement Sections 404(b) and 401(1) of the Clean Water Act, which govern disposal of dredged and fill material inside the territorial seas baseline [§230.2(b)].

As stated in Section 230.10(a)(4): For actions subject to the National Environmental Policy Act (NEPA), where the United States Corps of Engineers (Corps) is the permitting agency, the analysis of alternatives required for NEPA environmental documents, including supplemental Corps NEPA documents, will in most cases provide the information for the evaluation of alternatives under these Guidelines. The Integrated Feasibility Report/Environmental Assessment (IFR/EA), to which this evaluation is an appendix, provides the documentation necessary to attest that the project is fully in compliance with the Section 404(b)(1) guidelines. The IFR/EA provides a full project description and location, description of existing conditions, full alternatives analysis, and description of potential impacts as a result of the project and the project's construction. The analysis provided within the IFR/EA documents that the implementation of this flood risk management project will not cause or contribute to significant degradation of the waters of the United States, as is demonstrated in the following sections.

II. PROJECT DESCRIPTION

- a. Location: Town of Little Falls and Borough of Woodland Park Passaic County, New Jersey.
- b. General Description: The proposed action is comprised of the following: a) construction of a 1,500 ft long, 40ft diameter double box diversion culvert that will discharge into the Passaic River. The inlet at the Peckman River includes two weirs to manage flow and create a pool near the inlet; b) construction of 2,107 linear ft of levees and/or floodwalls upstream and downstream of the ponding weir; c) 1,207 linear ft of levees and/or floodwalls in the vicinity of the Little Falls High School; d) approximately 1,848 ft of channel modification within the Peckman River in the form of creating a trapezoidal channel armored with riprap; and e) treatment of approximately 58 structures located within the 10-yr floodplain with nonstructural measures in the Town of Little Falls; and g) compensatory mitigation for to 1,848 linear ft of freshwater riverine habitat equaling to 1.70 acres of open habitat in the form of three bendway weir fields and 0.85 acres of streambank restoration with native vegetation. Included in the riverine compensatory mitigation is 0.77 acres of riparian habitat.
- c. Authority and Purpose: The study was authorized by the U.S. House of Representatives Resolution Docket 2644, dated June 21, 2000. The purpose of the study is to provide flood risk management to communities within the Peckman River watershed.

General Description of Fill Material

a. Characteristics of Material: Material to be used to construct the project includes the following: a) Clay fill to create an impervious inner core and embankment fill to construct the levee along the Peckman River; b) stone bedding and riprap; and c) general fill soil.

For the compensatory river channel mitigation, fill material in the form of reclaimed channel substrate, bedding stone and riprap to construct the bendway weirs and organic materials such as fill dirt, and topsoil may be used.

- b. Quantity of Material: Approximately 23,000 cubic yards of riprap/riprap subbase for the channel modification stabilization, 200 cubic yards of a combination of embankment and fill material will be deposited in the forested wetlands to construct the levee along the Peckman River. The diversion culvert will in the Peckman River will consist of a 100 ft x 11 ft concrete culvert.
- c. Source of Material: Fill that meets the construction specifications for the levee and rip rap to be used within the Peckman River and Passaic River will be obtained from a state approved and permitted commercial source. The concrete weir to be placed in the Peckman River will be obtained from a reputable and licensed manufacturer.

Description of the Proposed Discharge Sites

- a. Location: The discharge site is located within the following areas: a) Approximately 1,848 linear feet totaling 1.70 acres of the Peckman River a freshwater river and tributary to the Passaic River; c) 100 linear feet of the Passaic River, a large freshwater river; and d) a 12 acre tract of land consisting of a combination of upland and wetland forest.
- b. Size: The channel modification length is 1,848 linear ft and involves creating a trapezoidal channel with a 40ft wide bottom and 3H:1V side slopes. The height of the levees/floodwalls will be constructed at a height of +145 NAVD88. Levees will have an average top width of 10ft, and a base width of 110 ft. 3,696 linear ft equaling to 0.85 acres of streambank will be stabilized with native vegetation.

The concrete weir proposed in the Peckman River to divert flood flows into the diversion culvert is 100 ft long and 11 ft high. The riprap apron proposed in the Passaic River the discharge location of the diversion culvert is approximately 100 ft long by 50 ft wide.

- c. Type of Site: The proposed action is located within freshwater rivernine systems in an urbanized setting comprised of residential, business and industrial land uses.
- d. Types of Habitat: The floodwalls along the Peckman are located in disturbed riparian habitat. The proposed levee along the Peckman River is located in a relatively undisturbed forested upland and wetland area comprised of multiple tracts that are both municipally and privately owned. The concrete weir associated with the diversion culvert is located in the Peckman River, a second order freshwater river. The Passaic River is a third order freshwater river. The Peckman and Passaic Rivers are designated as FW2-NT(non-trout) by the New Jersey Department of Environmental Protection.
- e. Time and Duration of Disposal: Construction is scheduled to start in late 2024 and end in 2027. The total construction duration is estimated at approximately 2.5 years.

All in-water activities will be restricted between 1 May and 31 July to comply with the NJDEP fish spawning window. The window may extended to April 1 through 31 July if pickerel are present.

f. Description of Disposal Method: Land based construction equipment will be used to construct the project. The project will also be sequenced to minimize in water work to the extent possible.

III.FACTUAL DETERMINATION

a. Physical Substrate Determinations

 Substrate Evaluation, Sediment Type and Slope: The substrate of the Peckman River within the area of the proposed action is predominantly comprised of cobble and gravel interspersed with riprap/boulder placed for bank and toe of slope stabilization purposes. The slope of the river is moderately steep. River banks in this location range from approximately 1.5V:1H to 2.5:1H. The substrate of the Passaic River consists predominantly of cobble/gravel. River banks slope are moderately steep at an approximately angle of 1.5V:1H.

The substrate of the Passaic River consists of cobble and gravel. River banks in the location of the proposed diversion culvert discharge location are steep.

- 2) Dredged/Fill Material Movement: The excavation and placement of fill in the form of soil and riprap will result in the impact of approximately 1,848 linear feet of the Peckman River. The levee along the Peckman River will result in the excavation and placement of fill in approximately 0.48 acres of wetlands. An additional 0.71 acres of forested wetlands will experience temporary impacts during construction. The installation of the stilling basin will involve the placement of riprap to 100 linear ft of the Passaic River.
- 3) Physical Effects on Stream Bottom: A total of approximately 1,848 ft of the Peckman River will be modified through channel improvements related to the installation of the diversion culvert weir and stabilized with riprap. In total, up to approximately 1.70 acres of open water within the Peckman River will be impacted. Approximately 100 ft for a total of 0.16 acres, of substrate of the Passaic River will be modified as a result of the installation of rip rap at the discharge location of the diversion culvert. The bendway weirs proposed as compensatory mitigation will help create more heterogeneous substrate.
- 4) Other Effects: N/A
- 5) Actions Taken to Minimize Impacts: Measures to be implemented to minimize adverse impacts to substrate include: a) implementation of erosion and sediment control best management practices; b) on-site restoration of temporary work spaces; c) installation of two ft high by six ft wide orifice within the weir to maintain base flows within the Peckman River; d) Compensatory mitigation through either the purchase of mitigation credits from a New Jersey State approved mitigation bank and/or stream restoration actions such as streambank stabilization with native vegetation; and e) on-site restoration of temporary wetland impacts upon completing construction of the flood risk management structures.



Section 404(b)(1) Appendix

b. Water Circulation, Fluctuation and Salinity Determinations

1) Water, Consider Effects on:

- a. Salinity: No effect
- b. Water Chemistry: There may be minor changes to water chemistry as a result of suspended sediment during construction. Long term changes to water chemistry is not expected. Rock material to be used for the channel modification and bendway weirs is expected to come from local sources with similar geology. Therefore, chemistry changes to the water resulting from the rock is not expected.
- c. Clarity: Water clarity within the Peckman River may be slightly to moderately impacted during construction of the diversion culvert weir and channel modifications. However, no long-term effect is anticipated. Due to the size of the Passaic River when compared to the area of disturbance, no impacts to water clarity are anticipated.
- d. Color: Minor impacts associated with turbidity may affect water color during construction. Erosion and sediment control best management practices including the installation of turbidity barriers implemented during construction to minimize suspension of sediment that could cause discoloration.
- e. Odor: Excavation and dewatering of excavated sediment from the stream and wetland areas to construct the levee may emit a foul odor as it dries out. This is expected to be temporary. No long term effects are anticipated.
- f. Taste: The Passaic River is used as water supply for the region. However, the water is withdrawn approximately 0.60 miles upstream from the discharge point of the proposed diversion culvert. Therefore, the proposed action will not an adverse impact on taste. The Peckman River is used as water supply so this policy does not apply.
- g. Dissolved Gas Levels: Dissolved oxygen levels may be reduced to some degree during construction, but this will be a temporary effect. The installation of erosion and sediment controls will reduce sedimentation and pollutant runoff which can have detrimental impacts to dissolved oxygen levels.
- h. Nutrients: Nutrient load to the Peckman River may increase during construction as a result of resuspension of sediments during construction of the weir and channel modifications. Erosion and sediment control best management practices will be implemented during construction to minimize the suspension of nutrient laden sediment during construction. Due to the size of the Passaic River in comparison to the size of the area of the disturbance of the proposed action, a significant increase in nutrient loading is not expected. This is also the case during storm events as the volume of water being discharged into the Passaic River is the same as existing conditions.
- i. Eutrophication: Eutrophication is not expected to occur during construction due the implementation of erosion and sediment control best management practices.
- j. Others as Appropriate: No other adverse impacts are anticipated from the project.



2) Current Patterns and Circulation:

- a. Current Patterns and Flow: The proposed diversion culvert will redirect flow from the Peckman River to the Passaic River during flood events. An orifice in the weir will allow normal river current patterns or flow during typical flow conditions. There will be no significant changes to the current patters and flow to the Passaic River as a result of the implementation the diversion culvert. The bendway weir fields proposed for the compensatory mitigation will alter river flow by redirecting flows away from the river banks. The purpose of this is to reduce erosion.
- b. Velocity: Normal velocities are not expected to appreciably increase or decrease as a result of the proposed action. During flood events, velocities within the Peckman will increase due to the constraint posed by the floodwalls. The installation of riprap will prevent scouring and erosion of the Peckman riverbanks during these flood events. Estimated discharge velocities of the diversion culvert is 15 feet per second. The proposed stilling basin will be lined with riprap to prevent scouring of the Passaic River bank and riverbed.

The compensatory riverine habitat mitigation will include in channel modifications and structures such as bendway weirs to reduce velocities and direct flows away from river banks to prevent erosion.

- c. Stratification: The project will not impact stratification.
- d. Hydrologic Regime: The proposed action will not change normal daily or seasonal water level fluctuations.
- 3) Normal Water Level Fluctuations:

Based on HEC-RAS modeling, the proposed action will not have any permanent adverse impacts on normal baseflows within the Peckman River. During flood events, the proposed action will divert flows from the Peckman River and discharge the flows approximately 0.6 miles upstream from its natural confluence with the Passaic River. The project will not have any permanent adverse impacts on normal water level fluctuations within the Passaic River. The proposed mitigation measures involving stream restoration are not expected to significantly affect normal water fluctuations.

- 4) Salinity Gradients: Not applicable.
- 5) Actions Taken to Minimize Impacts: Measures to be implemented to minimize adverse impacts include: a) implementation of erosion and sediment control best management practices; b) installation of two ft high by six ft wide orifice within the weir to maintain base flows within the Peckman River to maintain fish passage and baseflows.; c) adhering to an in-water work restriction from 1 May 31 July to protect spawning fish species; e) compensatory mitigation of open water habitat through the restoration/enhancement of 1,848 linear ft equaling to 1.70 acres of the Peckman River through the installation of bendway weir fields, river bank stabilization, riparian corridor enhancement/restoration and in-channel enhancements; f) compensatory wetland mitigation bank or through off-site wetland creation/restoration of 0.96 acres forested wetland utilizing a Passaic County owned park.



c. Suspended Particulate/Turbidity Determinations

1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Sites:

Minor increases in particle suspension and turbidity during construction of the weir and channel modifications within the Peckman River, and during installation of the rip rap apron at the discharge point of the diversion culvert in the Passaic River.

- 2) Effects on Chemical/Physical Properties of the Water Column:
 - a. Light Penetration: Minor adverse impacts may occur within the project area during construction of the channel modifications and compensatory mitigation within the Peckman River due to turbid conditions. There are no expected impacts to the Passaic River.
 - b. Dissolved Oxygen: Dissolved oxygen levels may be reduced during construction.
 - c. Toxic Metals and Organics: There is a slight potential that construction activities may disturb sediments contaminated with organics. Erosion and sediment controls such as silt fence, turbidity curtains, will be employed during construction to minimize the risk.
 - d. Pathogens: Given the urban nature of the Peckman and Passaic Rivers there is a potential that the sediments within these waterbodies could contain pathogens such as E. coli that could be transported downstream during construction. This potential will be minimized through the implementation of erosion and sediment control practices.
 - e. Aesthetics: Re-suspension of sediment during construction activities may have a temporary negative impact to aquatic aesthetics. However, the implementation of erosion and sediment control best management practices will limit this impact to the immediate project area, which is located in areas where the land use consists of business/industrial development. No adverse impacts to aesthetics will occur once construction is completed.
 - f. Others as Appropriate: Not applicable
- 3) Effects on Biota:
 - a. Primary Production, Photosynthesis: Removal of vegetation along river banks can reduce the amount of organic material within the river that aquatic species use for food/cover/spawning. This could likely occur within Peckman River, given that there is a modest riparian zone. However, the overall impact on the river system will be minor. Impacts on primary production within the Passaic River are also expected to be negligible due to the size of the river in relation to the area of impact resulting from the stilling basin.
 - b. Suspension/ Filter Feeders: Construction activities could create turbid conditions that would temporarily impact suspension/filter feeders. Erosion and sediment control best management practices will be implemented during construction to reduce sedimentation to the portion Peckman River downstream of the project area. No permanent adverse impact is expected.

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Section 404(b)(1) Appendix

- c. Sight Feeders: There may be temporary adverse impacts to sight feeders during the construction of the levee and wetland/open water mitigation. These impacts will be minimized through implementation of erosion and sediment control practices during construction.
- d. Actions Taken to Minimize Impacts: Measures to be implemented to minimize adverse impacts include: a) implementation of erosion and sediment control best management practices; b) installation of two ft high by six ft wide orifice within the weir to maintain base flows within the Peckman River to maintain fish passage and baseflows.; c) adhering to an in-water work restriction from 1 May 31 July to protect spawning fish species; e) compensatory mitigation of open water habitat through the restoration/enhancement of 1,848 linear ft equaling 1.70 acres of the Peckman River through the installation of bendway weir fields, river bank stabilization, and riparian corridor enhancement/restoration and in-channel enhancements; f) compensatory wetland mitigation through either the purchase of wetland credits from a New Jersey State approved mitigation bank or through off-site wetland creation/restoration of 0.96 acres forested wetland utilizing a Passaic County owned park.

d. Contaminant Determinations

There are no issues with contaminant issues within the study area. All fill material will be clean and will not pose a risk.

e. Aquatic Ecosystem and Organism Determinations

- 1) Effects on Plankton: An increase in sedimentation/nutrients during construction may increase some plankton species such as algae. Erosion and sediment control best management practices will be implemented to reduce this potential.
- 2) Effects on Benthos: Mortality of benthic species within the immediate footprints of the weir and armoring of the Peckman River, and installation of the stilling basin within the Passaic River is expected during construction activities. However, this impact is expected to be temporary as recruitment of benthic species from undisturbed areas of the Peckman River is expected to occur subsequent of construction. Any offsite open water and riparian mitigation will be designed in a manner to provide similar or better habitat than existing conditions in order to provide long term benefits to benthic species.
- 3) Effects on Nekton: Mobile aquatic life will move from area during construction.
- 4) Effects on Aquatic Food Web: The project will have temporary adverse impacts on the food web as a result of turbidity, and the modification of 1,848 linear feet of the Peckman River. Permanent significant adverse impacts are not expected from implementation of the project. Due to the size of the Passaic River in relation to the proposed stilling basin, no adverse temporary or permanent impacts are expected.

f. Effects on Special Aquatic Sites:

1) Sanctuaries and Refuges: Not applicable



- 2) Wetlands Approximately 0.48 acres of forested wetlands will be permanently impacted by construction of the levee and the channel modification. Approximately 0.71 acres of forested wetlands will be temporarily impacted as a result of levee construction.
- 3) Mudflats: Not applicable
- 4) Vegetated Shallows: Not applicable
- 5) Coral Reefs: Not applicable
- 6) Riffle and Pool Complexes: The portion of the Peckman River in the vicinity of where the weir is proposed is relatively uniform with no distinct riffle and pool complexes. The armoring of the approximately 1,848 ft will initially create a uniform flow. However, it is expected that the river may form natural pools as it recovers from the disturbance.

The District is proposing to compensate for riverine system impacts through the restoration and/or enhancement of 2,860 linear ft of the Peckman River. Included in the restoration/enhancement proposal is the creation of riffle and pool complexes via excavation and/or installation of specific structures such as rock vanes.

The stilling basin proposed along the Passaic River will not have any adverse impacts to any pool and riffle complexes.

g. Threatened and Endangered Species

The proposed action may remove potential summer roosting habitat for the federally and state endangered Indiana bat and federally threatened northern long-eared bat.

h. Other Wildlife

The project will mainly have temporary adverse impacts to wildlife. Minor adverse temporal impacts to wildlife will occur as a result of the removal of mature vegetation that is used for nesting, shelter and foraging. These impacts will be minimized through replanting of vegetation and the use of tree stock ranging from 8-14 ft in height as opposed to saplings in the replanting efforts. A shrub and tree clearing restriction from 1 April through 31 August will be implemented to comply with the Migratory Bird Treaty Act will protect these species.

i. Actions to Minimize Impacts

Measures to be implemented to minimize adverse impacts include: a) implementation of erosion and sediment control best management practices; b) installation of two ft high by six ft wide orifice within the weir to maintain base flows within the Peckman River to maintain fish passage and baseflows.; c) adhering to shrub and tree clearing restrictions from 1 April through 30 September to protect federal endangered and threatened bat species as well as migratory bird species; d) adhering to an in-water work restriction from 1 May – 31 July to protect spawning fish species; e) The District is proposing to compensate for riverine system impacts through the restoration and/or enhancement of 2,860 linear ft of the Peckman River; f) compensatory mitigation of riparian buffer through restoration/enhancement and/or the riparian mitigation credits from a New Jersey State approved mitigation bank; and g) compensatory mitigation of wetland impacts through the purchase of credits at a state approved mitigation bank or off-site wetland creation/restoration of 0.96 acres of forested wetland habitat.

Temporary impacts to wetlands will be accomplished on site with minor grading and replanting after construction of the flood risk management structures are completed.



j. Proposed Disposal Site Determinations

- 1) Mixing Zone: Not applicable
- 2) Determination of Compliance with Applicable Water Quality Standards: All fill used to construct the project will be comprised of clean material that meets water quality standards and comes from a state approved and permitted source.

k. Potential Effects on Human Use Characteristic

- 1) Municipal and Private Water Supply: The Peckman River is not used as a water supply for the region. The Passaic River is used for water supply. There is an intake system in Totowa and treats the water at the Alan C. Levine Little Falls Water Treatment Plant The intake is approximately 0.50 miles upstream of the diversion culvert discharge location. Therefore, there will be no significant adverse impacts to the water supply.
- 2) Recreational and Commercial Fisheries: The Peckman River does not support any recreational or commercial fisheries. In addition, there are no access points for recreational fishing with the proposed footprint of the diversion culvert weir and channel modifications. The Passaic River is stocked with northern pike, a recreational fish species, within the vicinity of the discharge location of the diversion culvert. However, there are no access points for recreational fishing within the proposed discharge location.

Therefore, significant adverse impacts to recreational and/or commercial fisheries is not expected.

- 3) Water Related Recreation: The Peckman River does not support any water based recreation within the project area. The Passaic River is supportive of water based recreation such as canoeing or kayaking. A boat launch is located along the Passaic River approximately 1.5 miles upstream of the discharge location of the proposed diversion culvert. However, the Beattie Dam serves as a barrier preventing boaters from traversing downstream towards the project area. Therefore, the proposed action will not significant adverse impacts on water related recreation.
- 4) Aesthetics: The aesthetics of the project area will be adversely impacted during construction activities due to the presence of construction equipment and clearing and excavation activities. However, the majority of the proposed action is located in areas comprised of business and industrial land use. The levee and floodwalls along the Peckman River will be inset off the river and should be mostly obscured by mature vegetation. The portion of levee and floodwalls will along the Passaic Valley High School will be the most visible to school occupants and residents in nearby homes. The side slopes of the levee be maintained lawn and esthetic enhancements such as stamped concrete and paint can be applied to the floodwalls to reduce visual impacts.

The diversion culvert will be underground. Therefore, once construction is completed, the area will be restored to previous conditions. The proposed weir within the Peckman River is located in an area where the land use consists of a car dealer parking lot and the Little Falls municipal department of public works yard.

The portion of the Passaic River bank where the rip rap stilling basin is proposed is located near a parking lot. The viewshed of the stilling basin from the opposite bank is obscured by mature vegetation along the opposite bank as well as a vegetated a gravel bar that has



formed in the river. In addition, there are no structures located on the opposite bank that could potentially see the stilling basin. Therefore, no significant impacts to aesthetics are expected.

The proposed compensatory open water and riparian mitigation will enhance the aesthetics of the project area by replacing invasive vegetative species with native species and reducing streambank erosion.

Park, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves:

The alignment of proposed diversion culvert is located within existing tennis courts and a baseball field that are part of the Town of Little Falls Recreation Center. These recreational amenities will be unavailable for use during construction. A cut and cover method will be employed, therefore the baseball field and tennis courts will be restored once construction is completed. The Great Falls National Park is located approximately 1.5 miles downstream of the discharge location of the diversion culvert. However, due to the size of the Passaic River in comparison to the amount of volume of water being discharged from the Peckman River, no impacts to the National Park will occur. There are no National and Historical monuments, seashores, wilderness areas are research sites within the immediate project area.

I. Determination of Cumulative Effects on the Aquatic Ecosystem

The proposed action will have negligible cumulative impacts on the aquatic ecosystem. Mitigation measures proposed in the above sections will minimize cumulative impacts.

m. Determination of Secondary Effects on the Aquatic Ecosystem

No secondary effects on the aquatic ecosystem are expected from this project.

IV.FINDINGS OF COMPLIANCE OR NON-COMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE

- a. No significant adaptation of the Section 404(b)(1) guidelines was made relative to this evaluation.
- b. The objective of flood risk management necessitates the construction of a diversion culvert and levees and floodwalls along the Peckman River.
- c. The proposed activity will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.
- d. The proposed disposal operations will not harm any endangered species or their critical habitats under the Endangered Species Act of 1973.
- e. The proposed discharge of fill material will not result in significant adverse effects on human health and welfare, including municipal and private waters supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic life and other wildlife will not be significantly affected.

f. Appropriate steps to minimize potential adverse impacts of the discharge of fill material include the implementation of an erosion and sediment control plan and judicious engineering practices.

Flood Risk Management Feasibility Study

Peckman River Basin New Jersey

Integrated Feasibility Report and Environmental Assessment

Appendix A4: USFWS Coordination



February 2020

List of Attachments

- 1. January 22, 2020 USACE Email to USFWS
- 2. January 22, 2020 USFWS Email to USACE
- 3. October 2019 Official Threatened and Endangered Species List
- 4. April 2019 Correspondence
- 5. October 30, 2018 Final FWCAR
- 6. February 2018 Correspondence
- 7. July 2014 Draft FWCAR
- 8. January 2005 Planning Aid Letter
Peckman River Basin, New Jersey Flood Risk Management Feasibility Study

January 22, 2020 USACE Email to USFWS

From:	Rightler, Kimberly CIV USARMY CENAN (USA)
То:	Popolizio, Carlo
Cc:	Popowski, Ron
Subject:	RE: [Non-DoD Source] Fwd: [EXTERNAL] Peckman River - Revised Draft Feasibility Report/Environmental Assessment
Date:	Wednesday, January 22, 2020 2:34:00 PM

We received comments from NJDEP as a whole, including NJDFW back in June and then updated comments in November. The only Divisions that offered updated comments were Green Acres and Division of Land Use. The conditional Water Quality Certification was issued by NJDEP on December 5, 2019 so all NJDEP coordination is complete.

Kim

-----Original Message-----From: Popolizio, Carlo [mailto:carlo_popolizio@fws.gov] Sent: Wednesday, January 22, 2020 2:20 PM To: Rightler, Kimberly CIV USARMY CENAN (USA) <Kimberly.A.Rightler@usace.army.mil> Cc: Popowski, Ron <ron_popowski@fws.gov> Subject: Re: [Non-DoD Source] Fwd: [EXTERNAL] Peckman River - Revised Draft Feasibility Report/Environmental Assessment

How about the coordination with NJDFW?

On Wed, Jan 22, 2020 at 2:04 PM Rightler, Kimberly CIV USARMY CENAN (USA) <Kimberly.A.Rightler@usace.army.mil <<u>mailto:Kimberly.A.Rightler@usace.army.mil</u>> > wrote:

Hi Carlo,

Thank you for the email and quick turnaround.

Kim

-----Original Message-----

From: Popolizio, Carlo [mailto:carlo_popolizio@fws.gov <mailto:carlo_popolizio@fws.gov>] Sent: Wednesday, January 22, 2020 1:22 PM

To: Rightler, Kimberly CIV USARMY CENAN (USA) <Kimberly.A.Rightler@usace.army.mil <<u>mailto:Kimberly.A.Rightler@usace.army.mil</u>>>; Popowski, Ron <ron_popowski@fws.gov

<<u>mailto:ron_popowski@fws.gov</u>>>; Davis, Kelly <Kelly.Davis@dep.nj.gov <<u>mailto:Kelly.Davis@dep.nj.gov</u>>>

Subject: [Non-DoD Source] Fwd: [EXTERNAL] Peckman River - Revised Draft Feasibility Report/Environmental Assessment

Good afternoon Kim,

The USFWS has no objection to the proposed modifications highlighted in the link and attachments of your email. The USFWS appreciates the commitment by USACE to implement a seasonal restriction on tree removal from April 1 to September 30 fore the protection Indiana and northern long-eared bats.

Pursuant the Fish and Wildlife Coordination Act, the modifications must be reviewed by the New Jersey Division of Fish and Wildlife (NJDFW) (attn: Kelly.Davis@dep.nj.gov < <u>mailto:Kelly.Davis@dep.nj.gov</u> > < < <u>mailto:Kelly.Davis@dep.nj.gov</u> > < < <u>mailto:Kelly.Davis@dep.nj.gov</u> > < < <u>mailto:Kelly.Davis@dep.nj.gov</u> > < < <u>mailto:Kelly.Davis@dep.nj.gov</u>

Thank you Kim; if you need anything else, please let us know, Carlo

Peckman River Basin, New Jersey Flood Risk Management Feasibility Study

January 22, 2020 USFWS Email to USACE

Good afternoon Kim,

The USFWS has no objection to the proposed modifications highlighted in the link and attachments of your e-mail. The USFWS appreciates the commitment by USACE to implement a seasonal restriction on tree removal from April 1 to September 30 fore the protection Indiana and northern long-eared bats.

Pursuant the Fish and Wildlife Coordination Act, the modifications must be reviewed by the New Jersey Division of Fish and Wildlife (NJDFW) (attn: Kelly.Davis@dep.nj.gov <<u>mailto:Kelly.Davis@dep.nj.gov</u>> - cc:d on this correspondence). Please indicate whether USACE will coordinate directly with the NJDFW on the proposed modifications.

Thank you Kim; if you need anything else, please let us know, Carlo

------ Forwarded message ------From: Popowski, Ron <ron_popowski@fws.gov <<u>mailto:ron_popowski@fws.gov</u>>> Date: Wed, Jan 22, 2020 at 7:25 AM Subject: Fwd: [EXTERNAL] Peckman River - Revised Draft Feasibility Report/Environmental Assessment To: Carlo Popolizio <carlo_popolizio@fws.gov <<u>mailto:carlo_popolizio@fws.gov</u>>>

Hi Carlo,

Please take the lead.

Thanks,

----- Forwarded message ------

From: Rightler, Kimberly CIV USARMY CENAN (USA) <Kimberly.A.Rightler@usace.army.mil <<u>mailto:Kimberly.A.Rightler@usace.army.mil</u>>>

Date: Thu, Jan 16, 2020 at 3:44 PM

Subject: [EXTERNAL] Peckman River - Revised Draft Feasibility Report/Environmental Assessment To: Popowski, Ron <ron_popowski@fws.gov <<u>mailto:ron_popowski@fws.gov</u>>>

Cc: Scarpa, Carissa A CIV USARMY CENAN (USA) <Carissa.A.Scarpa@usace.army.mil <<u>mailto:Carissa.A.Scarpa@usace.army.mil</u>>>, Weppler, Peter M CIV USARMY CENAN (US)

<Peter.M.Weppler@usace.army.mil <<u>mailto:Peter.M.Weppler@usace.army.mil</u>>>

Good Afternoon Ron,

I hope all is well with you. Back in October, we sent you a Notice of Availability for a revised Draft Feasibility Report/ EA for Peckman River (1st attachment) We had previously coordinated last April about the changes being made to the plan and that you would review the Draft FR/EA (2nd attachment).

Our regional Division is currently reviewing the final report and has asked that we request an email from you confirming that you reviewed the report and have no comment and that Feasibility level ESA coordination is completed. As reminder, the project area does have habitat supportive of Indiana bat and northern long-eared bat so

a tree clearing restriction from 1 April through 30 September is proposed.

If you could please provide such and email to me at your earliest convenience, I would greatly appreciate it.

Conversely, if you have any questions or concerns, please feel free to contact me.

For your reference, the draft report and appendices are located at: Blockedhttps://www.nan.usace.army.mil/Missions/Civil-Works/Projects-in-New-Jersey/Peckman-River-Basin/

Thank you, Kim

--

Ron Popowski Endangered Species/Conservation Planning Assistance Supervisor

North Atlantic-Appalachian Region

New Jersey Field Office U.S. Fish and Wildlife Service 4 E. Jimmie Leeds Road, Suite 4 Galloway, New Jersey 08205 609.385-4515

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Carlo Popolizio, Biologist U.S. Fish and Wildlife Service New Jersey Field Office 4 East Jimmie Leeds Road, Suite 4 Galloway, New Jersey 08205-4465 Phone (609) 382-5271 Fax (609) 646-0352

The warbling of birds and the grandeur and the beauties of the forest, the majestic clouds, the golden tints of a summer evening sky, and all the changes of nature combine to furnish ample matter for reflection to the contemplating youth.

Francis Assikinack (Blackbird) Ottawa

Peckman River Basin, New Jersey Flood Risk Management Feasibility Study

October 8, 2019 Official Threatened and Endangered Species List



United States Department of the Interior

FISH AND WILDLIFE SERVICE New Jersey Ecological Services Field Office 4 E. Jimmie Leeds Road, Suite 4 Galloway, NJ 08205 Phone: (609) 646-9310 Fax: (609) 646-0352 http://www.fws.gov/northeast/njfieldoffice/Endangered/consultation.html



In Reply Refer To: October 08, 2019 Consultation Code: 05E2NJ00-2018-SLI-0245 Event Code: 05E2NJ00-2020-E-00060 Project Name: Peckman River Basin Flood Risk Managment Feasibility Study

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species that may occur in your proposed action area and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*)

If the enclosed list indicates that any listed species may be present in your action area, please visit the New Jersey Field Office consultation web page as the next step in evaluating potential project impacts: <u>http://www.fws.gov/northeast/njfieldoffice/Endangered/consultation.html</u>

On the New Jersey Field Office consultation web page you will find:

- habitat descriptions, survey protocols, and recommended best management practices for listed species;
- recommended procedures for submitting information to this office; and
- links to other Federal and State agencies, the Section 7 Consultation Handbook, the Service's wind energy guidelines, communication tower recommendations, the National Bald Eagle Management Guidelines, and other resources and recommendations for protecting wildlife resources.

The enclosed list may change as new information about listed species becomes available. As per Federal regulations at 50 CFR 402.12(e), the enclosed list is only valid for 90 days. Please return to the ECOS-IPaC website at regular intervals during project planning and implementation to obtain an updated species list. When using ECOS-IPaC, be careful about drawing the boundary of your Project Location. Remember that your action area under the ESA is not limited to just the footprint of the project. The action area also includes all areas that may be indirectly affected

through impacts such as noise, visual disturbance, erosion, sedimentation, hydrologic change, chemical exposure, reduced availability or access to food resources, barriers to movement, increased human intrusions or access, and all areas affected by reasonably forseeable future that would not occur without ("but for") the project that is currently being proposed.

We appreciate your concern for threatened and endangered species. The Service encourages Federal and non-Federal project proponents to consider listed, proposed, and candidate species early in the planning process. Feel free to contact this office if you would like more information or assistance evaluating potential project impacts to federally listed species or other wildlife resources. Please include the Consultation Tracking Number in the header of this letter with any correspondence about your project.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New Jersey Ecological Services Field Office

4 E. Jimmie Leeds Road, Suite 4 Galloway, NJ 08205 (609) 646-9310

Project Summary

Consultation Code:	05E2NJ00-2018-SLI-0245
Event Code:	05E2NJ00-2020-E-00060
Project Name:	Peckman River Basin Flood Risk Managment Feasibility Study
Project Type:	LAND - FLOODING
Project Description:	Study evaluating the feasibility of implementing nonstructural and structural flood risk management measures. Structural flood risk management measures include channel modification, a diversion culvert and levees and floodwalls.

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/40.87658182287704N74.21834668065875W</u>



Counties: Essex, NJ | Passaic, NJ

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat.	Endangered
Species profile: https://ecos.fws.gov/ecp/species/5949 Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described <u>below</u>.

- 1. The <u>Migratory Birds Treaty Act</u> of 1918.
- 2. The <u>Bald and Golden Eagle Protection Act</u> of 1940.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the <u>USFWS</u> <u>Birds of Conservation Concern</u> (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ <u>below</u>. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the <u>E-bird data</u> <u>mapping tool</u> (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found <u>below</u>.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <u>https://ecos.fws.gov/ecp/species/1626</u>	Breeds Sep 1 to Jul 31
Blue-winged Warbler <i>Vermivora pinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30

NAME	BREEDING SEASON
Cerulean Warbler <i>Dendroica cerulea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/2974</u>	Breeds Apr 28 to Jul 20
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere
Kentucky Warbler <i>Oporornis formosus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Long-eared Owl asio otus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds elsewhere
Prairie Warbler <i>Dendroica discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

- 1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
- 2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
- 3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (=)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

				prob	ability of	f presenc	e 📕 br	eeding se	eason	survey e	effort -	– no data
	70.01						1			OCT	NOV	
SPECIES Bald Eagle								AUG +++ ∎				
Blue-winged Warbler BCC - BCR	++++	++++	++++	+++	↓ ↓↓	++++	++++	+###	₽₽₽₽	++++	++++	++++
Cerulean Warbler BCC Rangewide (CON)	++++	++++	++++	+++	∳ ∳∳∔	++++	++++	++++	++++	++++	++++	++++
Eastern Whip-poor- will BCC Rangewide (CON)	++++	++++	++++	┼┼╪┼	<u> </u>	++++	++++	++++	++++	++++	++++	++++
Golden Eagle Non-BCC Vulnerable	++++	++++	++++	++++++	++++	++++	++++	++++	++++	++		++++
Kentucky Warbler BCC Rangewide (CON)	++++	++++	++++	++ <mark>+</mark> ++	 ∳+	++++	++++	++++	++++	++++	++++	++++
Long-eared Owl BCC Rangewide (CON)	++++	++++	++++	• +++	++++	++++	++++	++++	++++	++++	++++	++++
Prairie Warbler BCC Rangewide (CON)	++++	++++	++++	###	₿₿₿₽₽	++++	$\left \right \left \right $	┼┼╪╪	┼╪╪║	++++	++++	++++
Prothonotary Warbler BCC Bangewide (CON)	++++	++++	++++	$\left\{ \left\{ \right\} \right\}$	╋╫╫╫	++++	┼┼┼ ║	++++	++++	++++	++++	++++
Red-headed Woodpecker BCC Rangewide (CON)	# +++	┼╪╪┼	++++	∎¦¦∳	┿ ╄┼┼	∎∔∔∔	++++	$\left \right \left \right $	<mark>┼∳</mark> ┼∳	++++	┼빠┼┼	++++
Rusty Blackbird BCC Rangewide (CON)	++++	++++	┼╪╪╟	UUU	• +++	++++	++++	++++	++++	+++#	** **	++++
Wood Thrush BCC Rangewide (CON)	++++	++++	++++	┼┼┿║							++++	++++

Additional information can be found using the following links:

- Birds of Conservation Concern <u>http://www.fws.gov/birds/management/managed-species/</u> <u>birds-of-conservation-concern.php</u>
- Measures for avoiding and minimizing impacts to birds <u>http://www.fws.gov/birds/</u> <u>management/project-assessment-tools-and-guidance/</u> <u>conservation-measures.php</u>
- Nationwide conservation measures for birds <u>http://www.fws.gov/migratorybirds/pdf/</u> management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

<u>Nationwide Conservation Measures</u> describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. <u>Additional measures</u> and/or <u>permits</u> may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS <u>Birds of Conservation Concern</u> (<u>BCC</u>) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the <u>Avian</u> <u>Knowledge Network (AKN)</u>. The AKN data is based on a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science datasets</u> and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (<u>Eagle Act</u> requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the <u>AKN Phenology Tool</u>.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the <u>Avian Knowledge Network (AKN)</u>. This data is derived from a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science datasets</u>.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: <u>The Cornell Lab</u> <u>of Ornithology All About Birds Bird Guide</u>, or (if you are unsuccessful in locating the bird of interest there), the <u>Cornell Lab of Ornithology Neotropical Birds guide</u>. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

- 1. "BCC Rangewide" birds are <u>Birds of Conservation Concern</u> (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
- 2. "BCC BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
- 3. "Non-BCC Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the <u>Eagle Act</u> requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the <u>Northeast Ocean Data Portal</u>. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the <u>NOAA NCCOS Integrative Statistical</u> <u>Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic</u> <u>Outer Continental Shelf</u> project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the <u>Diving Bird Study</u> and the <u>nanotag studies</u> or contact <u>Caleb Spiegel</u> or <u>Pam Loring</u>.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to <u>obtain a permit</u> to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of Engineers District</u>.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- <u>PEM1B</u>
- <u>PEM1C</u>
- PEM1Ex

FRESHWATER FORESTED/SHRUB WETLAND

- <u>PFO1C</u>
- <u>PFO1E</u>
- PSS1C
- PFO1A
- PFO1Ed
- PFO1Ex
- <u>PSS1E</u>
- <u>PFO1B</u>
- PSS1Ax
- PFO1D
- PFO1Ad
- <u>PFO1Ax</u>
- PSS1/EM1A

FRESHWATER POND

- <u>PUBHh</u>
- <u>PUBH</u>
- PUBFx
- <u>PUBHx</u>

LAKE

• <u>L1UBHh</u>

Peckman River Basin, New Jersey Flood Risk Management Feasibility Study

April 2019 Correspondence

From:	Popolizio, Carlo
To:	Rightler, Kimberly CIV USARMY CENAN (USA); Popowski, Ron
Subject:	Fwd: [Non-DoD Source] Re: [EXTERNAL] Peckman River Flood Risk Management Study
Date:	Tuesday, April 16, 2019 1:04:41 PM

For some reason, my April 8 e-mail below bounced back. Carlo

----- Forwarded message ------

From: Popolizio, Carlo <carlo_popolizio@fws.gov <<u>mailto:carlo_popolizio@fws.gov</u>>> Date: Mon, Apr 8, 2019 at 12:47 PM Subject: Re: [Non-DoD Source] Re: [EXTERNAL] Peckman River Flood Risk Management Study To: Rightler, Kimberly CIV USARMY CENAN (USA) <Kimberly.A.Rightler@usace.army.mil <<u>mailto:Kimberly.A.Rightler@usace.army.mil</u>>>, Popowski, Ron <ron_popowski@fws.gov <<u>mailto:ron_popowski@fws.gov</u>>>

Kim,

Ron Popowski and I agree that no additional funding or SOW modification are needed. We will provide our formal comments on the project modification once we receive the updated EA.

Enjoy your day, Carlo

On Mon, Apr 8, 2019 at 11:24 AM Rightler, Kimberly CIV USARMY CENAN (USA) <Kimberly.A.Rightler@usace.army.mil <<u>mailto:Kimberly.A.Rightler@usace.army.mil</u>> > wrote:

Good Morning Carlo,

We would certainly provide you with the draft report when it goes out. It's just a question of how formal you wanted to be and whether a scope of work and funds would be required.

I guess if you could confirm that you are not requesting for us to develop a SOW and provide funds, I would appreciate it.

Thanks, Kim

-----Original Message-----

From: Popolizio, Carlo [mailto:carlo_popolizio@fws.gov <mailto:carlo_popolizio@fws.gov>] Sent: Monday, April 8, 2019 10:32 AM

To: Popowski, Ron <ron_popowski@fws.gov <<u>mailto:ron_popowski@fws.gov</u>>>; Rightler, Kimberly CIV USARMY CENAN (USA) <Kimberly.A.Rightler@usace.army.mil <<u>mailto:Kimberly.A.Rightler@usace.army.mil</u>> >

Subject: [Non-DoD Source] Re: [EXTERNAL] Peckman River Flood Risk Management Study

Good morning Kim,

Ron Popowski has asked me to reply to your request. We do not see the need for a new PAL but, before preparing a letter of response, would it not be appropriate to wait for the updated EA to be released for public input? By the way, I have reached out to the NJDFW (Kelly Davis - Kelly.Davis@dep.nj.gov <<u>mailto:Kelly.Davis@dep.nj.gov</u>> (mailto:Kelly.Davis@dep.nj.gov >>) regarding the proposed project modification, but I have not heard back yet.

Thanks, Carlo

<u>On Mon, Apr 1, 2019 at 10:11 AM Popowski, Ron <ron_popowski@fws.gov</u> <<u>mailto:ron_popowski@fws.gov</u>> <<u>mailto:ron_popowski@fws.gov</u>>>> wrote:

Hi Carlo,

As discussed on phone earlier this morning, let me know how we should approach this: 1) Preparing a PAL or 2) just one-pager.

----- Forwarded message ------

From: Rightler, Kimberly CIV USARMY CENAN (USA) <Kimberly.A.Rightler@usace.army.mil <mailto:Kimberly.A.Rightler@usace.army.mil> <mailto:Kimberly.A.Rightler@usace.army.mil>>> Date: Mon, Mar 25, 2019 at 2:14 PM

Subject: [EXTERNAL] Peckman River Flood Risk Management Study

<u>To: Popowski, Ron <ron_popowski@fws.gov <mailto:ron_popowski@fws.gov</u>>>>

<u>Cc: Weppler, Peter M CIV USARMY CENAN (US) <Peter.M.Weppler@usace.army.mil</u> <<u>mailto:Peter.M.Weppler@usace.army.mil</u>> <<u>mailto:Peter.M.Weppler@usace.army.mil</u>>>, Scarpa, Carissa A <u>CIV USARMY USACE (US) <Carissa.A.Scarpa@usace.army.mil <mailto:Carissa.A.Scarpa@usace.army.mil></u> <<u>mailto:Carissa.A.Scarpa@usace.army.mil>>></u>

_____ Hi Ron.

I hope you are doing well. I have a bit a situation on Peckman that I would appreciate your input on. Your office provided a Final FWCAR based on the Draft Feasibility Report/EA back on October 30, 2018. Last August, a storm hit the Little Falls area (you probably saw the flooding on the news) that caused our Engineering Division to conduct an additional analysis on the Tentatively Selected Plan and determine that the proposed levee needs to be extended by another approximately 1,800 ft in an area that wasn't assessed as part of the EA.

The first attachment shows the levee extension. I denoted with a yellow line the segment of levee that was presented in the Draft FR/EA.

In looking at the NWI mapper (2nd attachment) and NJ Geoweb (3rd and 4th attachments), there are potentially two forested wetlands and what appears to be a ditch that may be partially impacted by the levee extension.

The Project Delivery Team is currently assessing additional study funding needs and schedule modifications to account for this change. We have determined that the length of the extension will require us rerelease the Draft Feasibility Report/EA for another 30 day public and agency review, of which your agency would receive a copy.

What I would appreciate from you is a determination as to whether a supplement to the Final FWCAR in the form of a PAL is required.

If you have any questions, please don't hesitate to contact me.

Thanks,

Kim

- ____
- ____

Peckman River Basin, New Jersey Flood Risk Management Feasibility Study

USFWS Final Fish and Wildlife Coordination Act Report October 30, 2018 FISH AND WILDLIFE COORDINATION ACT DRAFT SECTION 2(b) REPORT

Peckman River Basin, Essex and Passaic Counties New Jersey Final Flood Risk Management Feasibility Study



Prepared by:

U.S. Fish and Wildlife Service Ecological Services, Region 5 New Jersey Field Office Galloway, New Jersey 08205 October 2018



In Reply Refer To: 18-CPA-0269a

United States Department of the Interior

FISH AND WILDLIFE SERVICE New Jersey Field Office 4 East Jimmie Leeds Road, Suite 4 Galloway, New Jersey 08205 Tel: 609/646 9310 http://www.fws.gov/northeast/njfieldoffice



Peter Weppler, Chief Environmental Analysis Branch, New York District U.S. Army Corps of Engineers Jacob K. Javits Federal Building New York, New York 10278-0090 Attn: Aleksander.J.Petersen@usace.army.mil

OCT 3 0 2018

Dear Mr. Weppler:

In response to your letter dated September 26, 2018, the U.S. Fish and Wildlife Service (Service) provides the enclosed final Section 2(b) report pursuant to the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 *et seq.*) (FWCA), addressing potential environmental impacts to fish and wildlife resources from the U.S. Army Corps of Engineers, New York District (Corps) *Draft Peckman River Basin New Jersey, Flood Risk Management Feasibility Study - Draft Feasibility Report and Environmental Assessment.*

The purpose of this Corps feasibility study is to investigate storm damage reduction for West Orange, Verona and Cedar Grove Townships, Essex County; and Little Falls Township and Woodland Park Borough, Passaic County, New Jersey. The study area includes Great Notch Brook in Little Falls Township and Woodland Park Borough. The Corps' planning objectives are to reduce flood risk and provide associated ecosystem restoration, if feasible (U.S. Army Corps of Engineers 2018).

This final report is provided in accordance with our Fiscal Year 2018-19 modified scope of work agreement and is based on information provided by the Corps (2018). The Service (2014) also provided the Corps a draft FWCA Section 2(b) Report on a previous study proposal.

The information presented in this final report is also provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA), ensuring protection of federally listed threatened and endangered species and the Migratory Bird Treaty Act of 1918 (40 Stat. 755, as amended; 16 U.S.C. 703-712). The following comments do not preclude separate review by the Service pursuant to the December 22, 1993 Memorandum of

Agreement among the U.S. Environmental Protection Agency, New Jersey Department of Environmental Protection (NJDEP), and the Service, if project implementation requires a permit from the NJDEP pursuant to the New Jersey Freshwater Wetlands Protection Act (N.J.S.A. 13:9B *et seq.*); nor do they preclude separate review and comments by the Service on any forthcoming environmental documents pursuant to the National Environmental Policy Act of 1969 (83 Stat. 852; 42 U.S.C. 4321 *et seq.*).

Federally Listed Threatened and Endangered Species

The study area is located within the summer foraging range of the federally listed (endangered) Indiana bat (Myotis sodalis). Indiana bats hibernate in caves and abandoned mine shafts from October through April. Between April and August, Indiana bats inhabit floodplain, riparian, and upland forests, roosting under loose tree bark during the day, and foraging for flying insects in and around the tree canopy at night. A variety of upland and wetland habitats are used as foraging areas, including floodplain, riparian, and upland forests; pastures; clearings with early successional vegetation; cropland borders; and wooded fencerows. Preferred foraging areas are streams, associated flood plain forests, ponds, and reservoirs (U.S. Fish and Wildlife Service 2007). During these summer months, numerous females roost together in maternity colonies. Maternity colonies use multiple roosts in both living and dead trees. From late August to mid-November, Indiana bats congregate in the vicinity of their hibernacula, building up fat reserves for hibernation (Harvey 1992). Protection of Indiana bats during all phases of their annual life cycle is essential to preserving this species. Threats to the Indiana bat include disturbance or killing of hibernating and maternity colonies; vandalism and improper gating of hibernacula; fragmentation, degradation, and destruction of forested summer habitats; and exposure to pesticides and other environmental contaminants.

The Service notes that the project area also occurs within the potential summer habitat range of the federally listed (threatened) northern long-eared bat (*Myotis septentrionalis*). The northern long-eared bat is a medium-sized bat found across much of the eastern and north-central United States that predominantly overwinters in hibernacula that include caves and abandoned mines. During the summer, this species typically roosts singly or in colonies underneath bark or in cavities or crevices of both live trees and snags. Northern long-eared bats are also known to roost in human-made structures. Threats to the northern long-eared bat include disease due to the emergence of white-nose syndrome, improper closure at hibernacula, degradation and destruction of summer habitat, and exposure to pesticides. All recommended conservation measures for the Indiana bat would also protect the northern long-eared bat.

Both Indiana and northern long-eared bats are assumed to be present within or in the vicinity of the study area between April 1 and September 30 each year. Many areas of New Jersey, including the project sites, have not been thoroughly surveyed for endangered and threatened plant and animal species. Tree clearing could adversely affect these species by killing, injuring or disturbing breeding or roosting bats. Therefore, to avoid adverse effects to the Indiana and northern long-eared bats, tree removal activities should be prohibited between April 1 and September 30. According to the Corps (2018), the tree clearing restriction will be implemented.

If tree clearing becomes necessary during the restricted season, further consultation pursuant to Section 7 of the ESA will be required.

Other Federally Listed Species or Species Proposed for Listing

No other federally listed threatened or endangered flora or fauna under Service jurisdiction are known to occur within the study areas. If additional information on federally listed species becomes available, or if project plans change, this determination may be reconsidered.

Under three categories of review (*i.e.*, 90-Day Findings, 12-Month Findings, and Discretionary Status Reviews) the Service is evaluating the species noted in Appendix II, which are known to occur in New Jersey, to determine if listing under the ESA is warranted (U.S. Fish and Wildlife Service 2018).

In this report, the Service also provides recommendations for the protection of State-listed species, species of special concern, and nesting migratory birds. Moreover, we support the Corps' proposals on habitat enhancements for bats, pollinators, and the monarch butterfly (*Danaus plexippus*). Finally, the report includes coordination requirements with the New Jersey Division of Fish and Wildlife.

On a final note, the Service wishes to highlight our concern with the Corps response provided in the September 28, 2018 letter. Specifically, we refer your attention to Recommendation 7 within Section VI – Conclusions and Summary of Recommendations – in the attached final FWCA Section 2(b) report.

Any questions regarding this report should be directed to Carlo Popolizio at (609) 382-5271. The Service looks forward to continued cooperation with the Corps to ensure the successful implementation of the proposed project.

Sinceret

Eric Schrading Field Supervisor

Enclosure

Literature Cited

Harvey, M. J. 1992. Bats of the United States. Arkansas Game and Fish Commission, Little Rock, Arkansas. 46 pp.

- U.S. Army Corps of Engineers. 2018. Peckman River Basin, New Jersey. Flood Risk Management Feasibility Study Draft Integrated Feasibility Report and Environmental Assessment. Planning Division, New York District, North Atlantic Division, New York District, New York; in partnership with the New Jersey Department of Environmental Protection, Trenton, New Jersey.
- U.S. Fish and Wildlife Service. 2007. Indiana bat (*Myotis sodalis*) draft recovery plan: first revision. U.S. Department of the Interior, Fish and Wildlife Service, Great Lakes-Big Rivers Region Region 3, Fort Snelling, Minnesota. 260 pp.
- . 2014. Peckman River Flood Risk Management Study, Town of Little Falls, Essex County and Borough of Woodland Park, Passaic County, New Jersey. Draft Fish and Wildlife Coordination Act Section 2(b) Report. Pleasantville, New Jersey.
- _____. 2018. New Jersey species being evaluated for possible listing under the Endangered Species Act. Available at: https://www.fws.gov/northeast/njfieldoffice/pdf/Evaluated_Species.pdf.

cc: Kelly.Davis@dep.nj.gov Kimberly.A.Rightler@usace.army.mil

NJFO:ES:cpopolizio:RP:ES:cap: 10/9/18

P:/Shared/Carlo/18-CPA-0269a

FISH AND WILDLIFE COORDINATION ACT FINAL SECTION 2(b) REPORT

Peckman River Basin, Essex and Passaic Counties New Jersey Draft Flood Risk Management Feasibility Study

Prepared for:

U.S. Army Corps of Engineers New York District New York, New York 10278-0090

Prepared by:

U.S. Fish and Wildlife Service Ecological Services, Region 5 New Jersey Field Office Galloway, New Jersey 08205

Preparers: Carlo Popolizio Assistant Supervisor: Ron Popowski Field Supervisor: Eric Schrading

October 2018

EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers, New York District (Corps), in their draft Feasibility Study (2018), has investigated solutions to riverine flooding from the Peckman River within West Orange, Verona and Cedar Grove Townships, Essex County; and Little Falls Township and Woodland Park Borough, Passaic County, New Jersey. The Corps (2018) has assessed that most of the flooding risk within the study area is in the communities of Little Falls and Woodland Park because of their relative high density of development (project reach).

The Corps has selected Alternative 10b [Tentatively Selected Plan (TSP)] that would involve:

- Construction of a 1,500-foot long, 35-foot wide, and 15-foot high culvert approximately
 550 feet upstream of the Route 46 bridge to divert flood waters from the Peckman River
 to the Passaic River using a "cut-and-cover" approach. The culvert inlet consists of a
 weir (100-foot long by 11-foot high) that would divert the flow from the Peckman River
 into the culvert, discharging it into the Passaic River. The weir would have a 6-foot wide
 by 2-foot high low flow opening in order to maintain base flow.
- Construction of approximately 3,000 feet of levees and/or floodwalls to contain the discharge of Great Notch Brook, including levees and/or floodwalls downstream of the ponding weir to the Route 46 Bridge with added pump stations.
- Modification of channels with riprap and articulated concrete blocks.
- Construction of seven ringwalls around and up to 47 non-residential structures in Little Falls.
- Implementation of nonstructural measures by elevating or flood-proofing up to 71 structures in Little Falls that are located in the ten percent floodplain near the Peckman River. No buy-outs are proposed in the TSP.

The U.S. Fish and Wildlife Service provides recommendations for the protection of federally listed species and species proposed for listing pursuant to the Endangered Species Act. The Service further provides lists of mammals, fish, migratory birds, reptiles, amphibians, and plants, highlighting Federal and State-listed threatened or endangered species, and other species of special concern. Finally, the Service supports habitat enhancements for declining populations of pollinators, including the monarch butterfly (*Danaus plexippus*).

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I. INTRODUCTION

The United States Army Corps of Engineers, New York District (Corps), has evaluated flood risk management within the Peckman River Basin, which includes the Great Notch Brook (Corps 2018) and has assessed the structural and nonstructural measures that can be used to manage risks from riverine flooding in the lower portions of the river and tributary. The study was authorized in a resolution of the Committee on Transportation and Infrastructure of the U.S. House of Representatives, Docket 2644, which was adopted on June 21, 2000. The study is also conducted pursuant to the National Environmental Policy Act (NEPA) (83 Stat. 852:42 U.S.C. 4321 *et seq.*); the Council on Environmental Quality on NEPA regulations; and the Corps' Procedures for Implementing NEPA (Engineering Regulation 200-2-2). The New Jersey Department of Environmental Protection (NJDEP) is the non-Federal sponsor; the cost share is pursuant to Section 103 of the Water Resources Development Act of 1986 as amended (Public Law 99-662; 33 U.S. Code 2213).

A request from the NJDEP for implementation of a Locally Preferred Plan (LPP) caused a pause and re-assessment of the study between November 2014 and August 2017. However, implementation of the LPP is no longer under consideration at this time.

The U.S. Fish and Wildlife Service (Service) provided to the Corps a draft Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 *et seq.*) (FWCA) Section 2(b) Report dated July 25, 2014 in accordance with our Fiscal Year 2011 scope of work (SOW) agreement entitled *Peckman River Flood Risk Management Study, Town of Little Falls, Essex County and Borough of Woodland Park, Passaic County, New Jersey.* The SOW was modified on January 13, 2014 (Rightler, pers. comm. 2014). Between 2014 and 2018, the study went through a number of modifications, including additional flood control measures proposed by the non-Federal sponsor and local entities that were withdrawn from consideration at a later date. Therefore, a new SOW was jointly approved by the Corps and the Service on February 20, 2018 for new draft and final FWCA Section 2(b) reports for Fiscal Years 2018-19. The Service provided the draft FWCA Section 2(b) report to the Corps on August 6, 2018.

In this final report, the Service provides information regarding fish and wildlife resources, including federally and State-listed threatened and endangered species; identifies ecologically sensitive sites in the study area; identifies fish and wildlife species within or in the vicinity of the study area and discusses potential impacts on these species that may result from implementation of flood control measures; identifies opportunities for fish and wildlife habitat improvements; and updates the current state of knowledge concerning the proposed activities and their potential adverse impacts on fish and wildlife resources.

The information in this report is based primarily on the Service's evaluation of the Corps' *Draft Peckman River Basin New Jersey, Flood Risk Management Feasibility Study - Draft Feasibility Report and Environmental Assessment* (Corps 2018) in which flooding risk is evaluated for the Townships of West Orange, Verona and Cedar Grove, Essex County; and Little Falls Township and Woodland Park Borough, Passaic County, New Jersey. In this final report, the Service also addresses the specific responses of the Corps provided in the September 26, 2018 letter to the Service's recommendations listed in Section VI of the draft FWCA Section 2(b) report.

II. DESCRIPTION OF THE PROPOSED ACTION

The Corps (2018) has assessed that most of the flooding risk within the study area is in the communities of Little Falls and Woodland Park because of their relative high density of development (project reach). The Corps' Alternative 10b [Tentatively Selected Plan (TSP)] would provide construction of a 1,500-foot long, 35-foot wide, and 15-foot high culvert approximately 550 feet upstream of the Route 46 bridge to divert flood waters from the Peckman River to the Passaic River using a "cut-and-cover" approach. The culvert inlet consists of a weir (100-foot long by 11-foot high) that would divert the flow from the Peckman River into the culvert, discharging it into the Passaic River. The weir would have a 6-foot wide by 2-foot high low flow opening in order to maintain base flow. According to the Corps (2018), the diversion culvert would significantly reduce downstream flash flooding and flood damages mostly in the Borough of Woodland Park. The culvert would not reduce backwater or overbank flooding from the Passaic River.

The Corps (2018) proposes constructing approximately 3,000 feet of levees and/or floodwalls to contain the discharge of Great Notch Brook, which would extend to its confluence with the Peckman River. The Corps also proposes building levees and/or floodwalls downstream of the ponding weir to the Route 46 Bridge. Pump stations would be needed to ensure sufficient interior drainage of areas behind levees and/or floodwalls.

The Corps (2018) has assessed that, because of the high water velocities of the Peckman River and unstable streambanks, channel modification are necessary in the form of riprap and articulated concrete blocks. Moreover, the Corps (2018) proposes constructing seven ringwalls around and up to 47 non-residential structures in Little Falls. The ringwalls would provide flood risk management to these structures by preventing inundation from flood waters. Finally, the Corps (2018) proposes implementing nonstructural measures by elevating or flood-proofing up to 71 structures in Little Falls that are located in the ten percent floodplain near the Peckman River. The main objective of the nonstructural measures is to reduce flood damages through modifications of the existing structures. No buy-outs are proposed in the TSP.

III. STUDY AREA

The Peckman River Basin is within New Jersey Watershed Management Area 4: Lower Passaic and Saddle, Northeast Water Region (New Jersey Department of Environmental Protection 2007). It is one of the major sub-watersheds of the Passaic River, encompassing a drainage area of approximately 9.8 square miles in Essex and Passaic Counties. The Peckman River's headwaters are located in the Town of West Orange. The river then flows northeasterly through the Borough of Verona, the Township of Cedar Grove, the Township of Little Falls, and the Borough of Woodland Park to its confluence with the Passaic River. Great Notch Brook is a major tributary to the Peckman River, draining lands on the eastern side of the sub-watershed in Woodland Park. Great Notch Brook is subject to extremely rapid runoff from higher elevations. Frequent flooding events cause significant physical damages to properties within the Peckman River floodplain and loss of economic activity in the area. A map of the study area is presented in Appendix I. Development activities throughout the Peckman River Basin are likely related to the loss and degradation of fish and wildlife resources and their supporting ecosystems. An estimated 71% of the land in the Peckman River watershed is urbanized (Corps 2002) and flooding is mostly related to urban impacts to the watershed.

An evaluation of biological integrity assessed water and habitat quality within four reaches of the Peckman River study area (Corps 2010a). The project reach, as previously defined under Section II of this draft report, is described as representative of typical stream habitat within the Peckman River Basin. This portion of the river is composed of a series of riffles and glides, and a deep lateral scour pool segment. The substrate consists largely of gravel and cobble, with lesser amounts of sand. Approximately 75% of the substrate is covered by filamentous algae. Human bank alterations occur in the form of stone and concrete walls. The surrounding land-use throughout the Peckman River Basin is predominately residential and commercial; however, the project reach each has a relatively wide riparian corridor on the east bank.

Physicochemical assessment of instream and riparian water/habitat quality determined that all surveyed reaches of the Peckman River were representative of "suboptimal" conditions (Corps 2010a). Two biological assessment methods were utilized to measure habitat and water quality. Using benthic macroinvertebrate taxonomic richness as an indicator of water quality, the New Jersey Impairment Score determined water quality at the Project site to be "moderately impaired" (Corps 2010b). Using organic pollution tolerances of benthic macroinvertebrates, the Hilsenhoff Biotic Index determined water quality as "fair" and indicative of "fairly significant organic pollution" (Mandaville 2002, Corps 2010b).

Due to the highly developed nature of the Peckman River Basin, wildlife resources are limited to a narrow strip of vegetation along the river corridor, supplemented by remnant palustrine forested/scrub-shrub wetland within the floodplain. Human alterations, such as areas of channelization or stream banks modified by hard structures, are evident at several locations along the river, but especially along several small unnamed feeder streams, where runoff from rain events is carried quickly to the Peckman River, contributing greatly to flash flood problems. Stream bank erosion is also a problem at several locations, leading to losses of riparian vegetation as well as increased streambed sedimentation that negatively impacts aquatic habitat.

IV. METHODS AND PROCEDURES

This final FWCA, Section 2(b) report incorporates information compiled from searches of the Service's New Jersey Field Office library and office files, information provided by the Corps, personal communications, the New Jersey Landscape Project, New Jersey Division of Fish and Wildlife (NJDFW) (2017), and the internet.
V. EXISTING CONDITIONS

A. FEDERALLY LISTED SPECIES

1. Indiana Bat

The Indiana bat (*Myotis sodalis*) is a temperate, insectivorous, migratory bat that hibernates in mines and caves in the winter and summers in wooded areas where females gather in maternity colonies to give birth and raise their pups. The species is currently listed as endangered pursuant to the Endangered Species Act (ESA) (87 Stat. 884; 16 U.S.C. 1531 et seq.). Potential summer habitat for the Indiana bat is present throughout the study area. Indiana bats hibernate in caves and abandoned mine shafts from October through April. Between April and August, Indiana bats inhabit floodplain, riparian, and upland forests, roosting under loose tree bark during the day, and foraging for flying insects in and around the tree canopy at night. A variety of upland and wetland habitats are used as foraging areas, including floodplain, riparian, and upland forests; pastures; clearings with early successional vegetation; cropland borders; and wooded fencerows. Preferred foraging areas are streams, associated flood plain forests, ponds, and reservoirs (U.S. Fish and Wildlife Service 2007). During these summer months, numerous females roost together in maternity colonies. Maternity colonies use multiple roosts in both living and dead trees. From late August to mid-November, Indiana bats congregate in the vicinity of their hibernacula, building up fat reserves for hibernation (Harvey 1992). Protection of Indiana bats during all phases of their annual life cycle is essential to preserving this species. Threats to the Indiana bat include disturbance or killing of hibernating and maternity colonies; vandalism and improper gating of hibernacula; fragmentation, degradation, and destruction of forested summer habitats; and exposure to pesticides and other environmental contaminants.

Hibernacula are located approximately 15 miles from the study area and maternity colonies have been identified within ten miles from the project reach. Indiana bats are to be assumed present within or in the vicinity of the entire study area between April 1 and September 30 each year. Many areas of New Jersey, including the project site, have not been thoroughly surveyed for endangered and threatened plant and animal species. Therefore, Indiana bats may be present on sites of suitable habitat during summer months. Tree clearing could adversely affect this species by killing, injuring or disturbing breeding or roosting bats. Therefore, to avoid adverse effects to the Indiana bat, the Corps (2018) will avoid tree removal activities between April 1 and September 30. The Corps has determined that the project as proposed is not likely to adversely affect the Indiana bat. The Service concurs with the Corps' determination. If tree clearing is proposed during the restricted season, further consultation pursuant to Section 7 of the ESA will be required.

2. Northern Long-eared Bat

The northern long-eared bat (*Myotis septentrionalis*) is a medium-sized bat found across much of the eastern and north-central United States and is one of the species of bats most impacted by the disease white-nose syndrome. The northern long-eared bat predominantly overwinters in hibernacula that include caves and abandoned mines. During the summer, this species typically roosts singly or in colonies underneath bark or in cavities or crevices of both live trees and snags.

Northern long-eared bats are also known to roost in human-made structures. Threats to the northern long-eared bat include disease due to the emergence of white-nose syndrome, improper closure at hibernacula, degradation and destruction of summer habitat, and exposure to pesticides.

Due to declines caused by white-nose syndrome and continued spread of the disease, the northern long-eared bat was listed by the Service as threatened under the ESA on April 2, 2015. The Service also developed a final 4(d) rule, which published in the Federal Register on January 14, 2016. The 4(d) rule specifically defines the "take" prohibitions. All measures taken to protect the Indiana bat will also be protective of the northern long-eared bat. Moreover, the study area is over four miles away from any known maternity colony or hibernacula. Therefore, the Service concurs with the Corps determination that the project as proposed is not likely to adversely affect the northern long-eared bat. No further consultation pursuant to Section 7 of the ESA will be required by the Service for the northern long-eared bat.

3. Rusty Patched Bumble Bee

The listing of the rusty patched bumble bee (Bombus affinis) as endangered under the ESA became effective on March 21, 2017. The species is considered extirpated in New Jersey, but further field studies are necessary to confirm this preliminary assessment. According to the habitat description presented below, it is very unlikely that the rusty patched bumble bee occurs in the study area. Rusty patched bumble bees live in colonies that include a single queen and female workers. Rusty patched bumble bees once occupied grasslands and tallgrass prairies of the Upper Midwest and Northeast, but most grasslands and prairies have been lost, degraded, or fragmented by conversion to other uses. Bumble bees need areas that provide nectar and pollen from flowers, nesting sites (underground and abandoned rodent cavities or clumps of grasses), and overwintering sites for hibernating queens (undisturbed soil). Rusty patched bumble bee colonies have an annual cycle. In spring, solitary queens emerge and find nest sites, collect nectar and pollen from flowers and begin laying eggs, which are fertilized by sperm stored since mating the previous fall. Workers hatch from these first eggs and colonies grow as workers collect food, defend the colony, and care for young. Queens remain within the nests and continue laving eggs. In late summer, new queens and males also hatch from eggs. Males disperse to mate with new queens from other colonies. In fall, founding queens, workers and males die. Only new queens go into diapause (a form of hibernation) over winter and the cycle begins again in spring.

According to the Service (2017), pesticides and herbicides widely used in agricultural, urban and even natural areas have the most potential to harm bumble bees: insecticides because they are specifically designed to kill insects and herbicides because their use can reduce or eliminate available flowers that bumble bees need for pollen and nectar. Neonicotinoids are a class of insecticides used to target pests of agricultural crops, forests, turf, gardens and pets. Neonicotinoids are of particular concern because they are systemic chemicals, meaning that the plant takes up the chemical and incorporates it throughout, including in leaf tissue, nectar and pollen. The use of neonicotinoids rapidly increased when suppliers began selling pre-treated seeds. The chemical remains in pre-treated seeds and is taken up by the developing plants and

becomes present throughout the plant. Pollinators foraging on treated plants are exposed to the chemicals directly.

As the rusty patched bumble bee is presumed extirpated in New Jersey, the Service has determined that project activities will have no effect on the species. If through surveys, occurrences of the rusty patched bumble bee are discovered in New Jersey, this determination may be reconsidered.

4. Other Federally Listed Species

Except for Indiana bat and northern long-eared bat, no other federally listed or proposed threatened or endangered flora or fauna are known to occur in the vicinity of the project site. If additional information on federally listed endangered or threatened species becomes available, this determination may be reconsidered.

5. Species under Review for Federal Listing

The Service is evaluating the species noted in Appendix II, which are known to occur in New Jersey, to determine if listing under the ESA is warranted (U.S. Fish and Wildlife Service 2018a). The three categories of review are:

- 90-Day Findings: The Service has received a petition for which the 90-day finding is still pending. If substantial information exists indicating listing may be warranted) then the subsequent status review and 12-month finding will be prioritized and scheduled accordingly.
- 12-Month Findings: The Service has received petitions to list species under the ESA. For each of these species, the Service has issued a positive "90-day" finding, which is our determination that substantial information exists in the petition and our files indicating that listing may be warranted. The next step will be a status review for each species.
- Discretionary Status Reviews: In addition to the petitioned actions listed above, the Service evaluates species to determine if listing under the ESA is warranted. These species are also included in the 7-year Workplan (U.S. Fish and Wildlife Service 2018b).

These species do not currently receive any substantive or procedural protection under the ESA, and the Service has not yet determined if listing of any of these species is warranted. However, the Corps and other Federal action agencies should be aware that these species are being evaluated for possible listing and may wish to include them in future field surveys and/or impact assessments, particularly for projects with long planning horizons and/or long operational lives.

B. OTHER FISH AND WILDLIFE RESOURCES

1. Mammals

A list of mammals known to occur within or in the vicinity of the study area is presented in Appendix III. The list was adapted from the Cedar Grove Environmental Commission (2017). No federally listed, State-listed, or species of special concern other than the Indiana bat and

northern long-eared bat have been documented in or nearby the study area. Bats are protected under the New Jersey Endangered and Nongame Species Conservation Act (N.J.S.A. 23:2A *et seq.*), making it illegal to hunt, capture, or kill them. These include the big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*), red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), eastern small-footed bat (*Myotis leibii*), little brown bat (*Myotis lucifugus*), and tri-colored bat (*Perimyotis subflavus*).

2. Fish

The Peckman River supports several freshwater fish species (New Jersey Division of Water Monitoring and Standards 2013), which are listed in Appendix IV along with their respective abundance. Electrofishing surveys of the Peckman River were also conducted by the NJDFW in 1999 and by Tetra Tech, Incorporated, which was contracted by the Corps in 2010 (Corps 2018). Species composition in the project reach was found to be comparable in those surveys (Corps 2010c), with white sucker (*Catostomus commersonii*), blacknose dace (*Rhinichthys atratulus*), and creek chub (*Semotilus atromaculatus*) dominating the catch in both sampling events. Species present in the 1999 survey, but absent from the 2010 survey included brown trout (*Salmo trutta*), pumpkinseed sunfish (*Lepomis gibbosus*), and brown bullhead (*Ameiurus nebulosus*). In contrast, species present in the 2010 survey and absent in the 1999 survey included American eel (*Anguilla rostrata*), longnose dace (*Rhinichthys cataractae*), tessellated darter (*Etheostoma olmstedi*), and smallmouth bass (*Micropterus dolomieu*). Results of these earlier surveys have also been incorporated in the Appendix IV fish list. The ranking of abundance for the fish list was derived from the New Jersey Division of Water Monitoring and Standards (2013).

The Fish Index of Biological Integrity (FIBI) is an ecologically based method for identifying and classifying water pollution levels through an assessment of fish assemblages. The FIBI assessment focuses on the dynamics and composition of fish population, evaluating metrics that include species richness, trophic level, and tolerance to changing environmental conditions (Barbour *et al.* 1999). The calculated FIBI score from 2010 data determined the Project Reach to be impaired (*i.e.*, "poor") (Corps 2010c). Population data were estimated for some species during the 1999 NJDFW survey, precluding any comparative FIBI assessment between the 2010 and 1999 surveys.

The Peckman River is classified by NJDFW as FW2 Non Trout Waters (New Jersey Division of Fish and Wildlife 2005). Approximately 2000 trout per year are stocked in Verona Pond, an impoundment on the Peckman River approximately four miles upstream from the project reach and probably account for any trout collected in surveys.

3. Migratory Birds

According to the NJDFW (2008), the general timing restriction to protect nesting migratory birds from tree or shrub/scrub removal is March 15 to July 31. Please be advised that the NJDFW and the Service informally agreed to modify the general timing restriction to April 1-August 31. Failure to implement the seasonal restriction may result in the destruction of nests with eggs or unfledged chicks. However, raptors begin nesting around March 1, with the exception of bald eagle (*Haliaeetus leucocephalus*) (December 15 to July 31).

Migratory birds at or near the vicinity of the study area are listed in Appendix V, which includes State-listed and State species of special concern. The list includes bird species that have been observed either breeding or transiting through the study area. The list was obtained from the Cedar Grove Environmental Commission (2017) and the NJDFW (2017). The Service recommends that the Corps conduct surveys in coordination with the NJDEP's Endangered and Nongame Species Program (ENSP) to document nests of breeding raptors within the project reach. If nests are found, the seasonal restriction on vegetation removal should be extended from March 1 to August 31 (New Jersey Division of Fish and Wildlife 2008). Please be aware that the American kestrel (*Falco sparverius*) is a cavity nester. Please refer to the Service (2013) for a complete list of migratory birds in the United States.

The Corps (2018) reported the findings by Smith and Clark (2017) of an active bald eagle nest in Paterson which is approximately 2.5 miles from the study area. The nest remains active and productive with one chick hatching in 2018 (Smith pers. comm. 2018). The bald eagles have been seen occasionally flying over the study area.

The Service removed the bald eagle from the Federal List of Endangered and Threatened Wildlife effective August 8, 2007. The bald eagle continues to be protected under the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250; 16 U.S.C. 668-668d) and the Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703-712). The Corps (2018) agreed to conduct project activities in accordance with the National Bald Eagle Management Guidelines (guidelines). Links to the guidelines are available on the Service's NJFO web site at http://www.fws.gov/northeast/njfieldoffice/Endangered.

The Cedar Grove Environmental Commission (2017) reported sightings of transiting golden eagles (*Aquila chrysaetos*) over the study area. Golden eagles are also protected under the BGEPA and MBTA. Golden eagles are seen in New Jersey only occasionally.

4. Reptiles and Amphibians

Reptiles and amphibians that may be found within or in the vicinity of the Peckman River study area are listed in Appendix VI. The list was adapted by the Cedar Grove Environmental Commission (2017). Please note that reptiles include the State-listed (threatened) wood turtle (*Clemmys insculpta*). In coordination with the NJDFW, the Corps has determined that the wood turtle does not occur within the project reach; therefore, surveys are not required.

5. Vegetation

The Service (2014) and the Corps (2018) presented a succinct list of shrubs and trees found in the project area. Comprehensive plant species lists were compiled by the Verona Environmental Commission (1999) (222 species subdivided by wetland/upland habitats) and Cedar Grove Environmental Commission (2017) (Attachment A of the Environmental Resources Inventory, 214 species).

The NJDFW's Landscape Project (2017) lists the following endangered plant species as occurring or having occurred within the study area:

- Lemna valdiviana (pale duckweed)
- *Myriophyllum verticillatum* (whorled water milfoil presumed extirpated in New Jersey)
- Wolffiella gladiata (sword bog mat)

The NJDFW's Landscape Project (2017) lists the following plant species of concern as occurring within the study area:

- Lemna trisulca [star duckweed imperiled in New Jersey and protected by the Highlands Water Protection and Planning Act (N.J.S.A. 13:20-1 et seq.)]
- *Myriophyllum heterophyllum* [variable-leaf water milfoil imperiled in New Jersey and protected by the Highlands Water Protection and Planning Act (N.J.S.A. 13:20-1 et seq.)]
- Obolaria virginica (Virginia pennywort rare in New Jersey with 21 to 100 occurrences)

The Verona Environmental Commission (1999) also lists the following species as occurring in the study area and being imperiled in New Jersey:

- *Alisma triviale* (large water-plantain State endangered)
- *Ranunculus pusillus* var. *pusillus* [low spearwort -imperiled in New Jersey because of rarity (6 to 20 occurrences)]
- Salix lucida subsp. lucida [shining willow critically imperiled in New Jersey because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres)]

The Service recommends that the Corps identify those localities within the project reach where the State endangered pale duckweed, sword bog mat, and large water-plantain may occur and apply conservation measures in coordination with the New Jersey Natural Heritage Program. Protective measures should also be applied to the other species listed in this subsection.

C. WETLANDS

From upstream to downstream within the study area, the Service's National Wetland Inventory Mapping Convention delineated the following wetland types:

- PFO1E: palustrine, forested, broad-leaved deciduous, seasonally flooded/saturated;
- R3UBH: riverine, upper perennial, unconsolidated bottom, permanently flooded;
- PUBHh: palustrine, unconsolidated bottom, permanently flooded diked/impounded;
- R2UBHx: riverine, lower perennial, unconsolidated bottom, permanently flooded excavated;
- PUBHx: palustrine, unconsolidated bottom, permanently flooded excavated;
- · PFO1A: palustrine, forested, broad-leaved deciduous, temporarily flooded;
- PSS1/EM1A: palustrine, scrub-shrub, broad-leaved deciduous / emergent, persistent, temporarily flooded;
- PEM1C: palustrine, emergent, persistent, seasonally flooded;
- R2UBH: riverine, lower perennial, unconsolidated bottom, permanently flooded; and
- PFO1C: palustrine, forested, broad-leaved deciduous, seasonally flooded.

The Corps (2018) proposes to impact 0.5 to 4.0 acres of forested wetlands for levee construction. The Service recommends that the Corps delineate all wetlands it proposes to impact and request a Letter of Interpretation (LOI) from the NJDEP. The Service further recommends avoiding or

minimizing wetland impacts to the extent practicable; and including in any proposed mitigation the plantings of tree species suitable to bat species for roosting, as listed in Appendix VII.

D. VERNAL POOLS

One vernal pool verified by the NJDFW is located in Cedar Grove Township at the intersection of the Peckman River with the electric transmission right-of-way. Although in the study area, it is outside the project reach; therefore, adverse impacts from project implementation are not expected. Vernal pools are confined depressions (natural or man-made) without a permanently flowing outlet, ponded for at least two continuous months between March and September of a normal rainfall year, and devoid of breeding fish populations. These temporary wetlands provide habitats for many species of amphibians [several of which breed exclusively in vernal pools (*i.e.*, obligates)], as well as a multitude of reptiles, insects, plants, and other wildlife. Vernal pools are protected pursuant to the New Jersey Freshwater Wetlands Protection Act, which applies to all General Permit Authorizations [N.J.A.C. 7:7A-4.3(b)(16)].

E. MITIGATION

The Corps (2018) proposes to mitigate permanent impacts to forested wetlands and riparian habitat through the use of either mitigation banks or the use of the existing Peckman Preserve, if found to be in accordance with the Preserve's master plan. For any temporary impacts to wetland resources during construction, the Corps proposes to mitigate through on-site restoration by re-establishment of native vegetation supportive of pollinator species (*e.g.*, bees, monarch butterfly), and restoration of topography to maintain the hydrology of the site. The Service appreciates the Corps' decision to provide much needed habitat for pollinator species. The Service believes that Corps flood control projects may provide significant contributions to the conservation and recovery of pollinator species. Wild Ones (2015) provides a comprehensive native plant list beneficial to pollinators.

While regional (*e.g.*, Mid-Atlantic) pollinator seed mixes are commercially available and contain several native herbaceous species, the Service recommends initiating coordination among the Corps, the Service, and the U. S. Department of Agriculture, Natural Resources Conservation Service's (NRCS) Cape May Plant Material Center to develop a source of pollinator plants most genetically suitable for New Jersey. For both woody and herbaceous vegetation, the Service recommends obtaining, native, local genotypes. When undertaking ecological restoration, plant materials must be sourced with care to avoid the negative genetic consequences of introducing genotypes into local plant populations that are not adapted to the region. Some well-documented consequences of translocating maladapted non-local genetic plant materials into restoration sites include founder effects, genetic swamping and outbreeding depression (Hufford and Mazer 2003). Contracting for native plant material under the current paradigm delays the initiation of procurement and production of plants, and results in compromised material selection, variety, and source. The Service can assist the Corps in developing a strategy that will meet the needs for providing sufficient quantities of genetically diverse native plant material for all Corps' related resilience and flood control projects in New Jersey.

The Service recommends that the Corps delineate all wetlands it proposes to impact and request a LOI from the NJDEP. The Service requests the Corps' mitigation plan for review and comment. For upland vegetation, the Service recommends a 1:1 ratio for creation/restoration or enhancement of degraded forest. Please see Appendix VII for a list of tree species suitable to bats for roosting. The Service concurs with the Corps' intent to monitor the success of compensatory mitigation projects for five years.

F. PROTECTED AREAS

Verona Park is located in the Township of Verona and is managed by the Essex County Department of Parks, Recreation, and Cultural Affairs (ECDPRCA). It is a 54.3-acre park with a lake bordered by Lakeside and Bloomfield Avenues in the southern part of Verona. Additional information is available at: https://www.essexcountyparks.org/parks/verona-park.

The Hilltop Reservation is a nature preserve also managed by the ECDPRCA and is located on the Second Watchung Mountain in the host communities of Cedar Grove, North Caldwell and Verona. It is composed of lands formerly included in the grounds of the Essex County Hospital Center. The land, total to 284.2 acres, was designated a Conservation Easement in 2001 by the NJDEP, permanently dedicating it for conservation and recreation purposes, and thereby protecting it from any future development. The Hilltop Conservancy works to restore wildlife habitat on former demolition sites and parts of the Reservation have now been certified by the National Wildlife Federation as a wildlife habitat. The Service's Partners for Fish and Wildlife Program did a restoration project at Hilltop Reservation. Additional information is available at: https://www.essexcountyparks.org/parks/hilltop-reservation/about and https://www.hilltopconservancy.org/about/mission-statement/.

The West Essex Trail is just less than three miles long on the former rail bed of the Caldwell Branch on the old Erie-Lackawanna Railroad. The trail runs between the Essex–Passaic County line in Little Falls and Arnold Way in Verona. The trail crosses a trestle over the Peckman River. Although situated in a heavily urbanized area, the trail passes through sections of woodland. The West Essex Trail is also managed by the ECDPRCA. It was acquired in 1985 with funding from the State's Green Acres Program. Additional information is available at: https://www.essexcountyparks.org/parks/west-essex-trail/about.

The Peckman Preserve (also known as the Alfieri Tract) is a 12-acre passive preserve that is located off Wilmore Road in Little Falls, adjacent to the filled bed of the Morris Canal. The preserve is managed by Passaic County. Open space areas were transitioned to meadows that minimize disturbance to wetlands and wildlife, and are inclusive of river access pathways. Additional information is available at:

http://www.passaiccountynj.org/passaic_county_park_system/parks/peckman_preserve.php. The Service recommends that the Corps consider the aforementioned protected areas as potential mitigation sites.

VI. CONCLUSIONS AND SUMMARY OF RECOMMENDATIONS

In the FWCA draft 2(b) report, the Service requested that the Corps incorporate the following recommendations into the TSP to optimize benefits for and minimize potential adverse effects on federally listed species and adverse impacts on existing fish and wildlife resources within the study area. The Corps responses provided in the September 26, 2018 letter are included below.

- 1. The Corps agrees to implement a timing restriction on tree removal from April 1 to September 30 to avoid adverse effects on the Indiana bat. This timing restriction would also protect the northern long-eared bat. The Corps agrees to request further consultation pursuant to Section 7 of the ESA if vegetation removal cannot be accomplished outside the aforementioned timing restriction, and conduct mist net surveys for listed bats, if necessary.
- 2. The Corps is aware of species under review for Federal listing under the ESA. These species will be included in the final Feasibility Report/Environmental Assessment and the Corps will assess any potential effects resulting from implementation of the TSP.
- 3. The Corps has agreed to implement a seasonal restriction on vegetation removal from March 1 to August 31 to protect raptors and other nesting migratory birds.
- 4. Please be aware that the American kestrel is a cavity nester. Dead snags also provide roosting habitat for bats and should be retained unless they represent a danger to public safety. The Corps agrees to preserve such habitat to the extent it does not interfere with the function of flood risk management structures.
- 5. The Service recommended that the Corps contact the NJDFW to determine whether the wood turtle occurs within the project reach and whether surveys should be required. The Corps coordinated with the NJDFW and received information indicating that the wood turtle occurs approximately 3.5 miles upstream of the TSP project and will not be adversely affected by TSP implementation. The Corps proposes to conduct additional coordination with the NJDFW during the Pre-Construction Engineering and Design Phase.
- 6. The Corps agrees to refer to the comprehensive lists of plant species documented as occurring in the study area by the Verona Environmental Commission (1999) and Cedar Grove Environmental Commission (2017) and use the lists to identify suitable plant species for compensatory mitigation and restoration purposes.
- 7. The Service recommended that the Corps identify those localities within the project reach where the State endangered pale duckweed, sword bog mat, and large water-plantain may occur, and apply conservation measures in coordination with the New Jersey Natural Heritage Program; and apply conservation measures to all imperiled species documented as occurring in the study area according to information the Service obtained from the 2017 New Jersey's Landscape Project. The Corps responded by noting that these species were not recognized as occurring within the project reach according to the New Jersey Geoweb (New Jersey Department of Environmental Protection 2015) and the New Jersey

Office of Permit Review. The Corps proposes to contact the New Jersey Natural Heritage Program once the project is authorized and take the appropriate measures to protect these species by assuming that they are not present, unless conditions change in a way that would allow them to populate the project reach.

New Jersey Geoweb does not provide localities of Federal or State-listed species, but these layers are available to the Service in the 2017 New Jersey's Landscape Project. The Service recommends that the Corps be proactive and employ the services of a botanist qualified in the proper identification of aquatic and wetland plants to conduct a survey prior to implementing the TSP project.

- 8. The Service supports the Corps' proposal to re-establish native vegetation supportive of pollinator species. Please see Wild Ones (2015) for a comprehensive native plant list beneficial to pollinators. The Corps notes the comment.
- 9. While regional pollinator seed mixes are commercially available and contain several native herbaceous species, the Service recommended initiating coordination among the Corps, the Service, and the NRCS' Cape May Plant Material Center to develop a source of pollinator plants most genetically suitable for New Jersey. For both woody and herbaceous vegetation, the Service recommended obtaining, native, local genotypes. Plant materials must be sourced with care to avoid the negative genetic consequences of introducing genotypes into local plant populations that are not adapted to the region.

The Corps agrees to include language requiring the contractor to obtain planting material from nurseries within a 50-mile radius from the project reach, ensuring acquisition of regionally native planting stock. Upon project authorization, the Corps will consider coordinating with the NRCS Cape May Plant Material Center and the Service to identify and/or develop a source for plants genetically suitable to New Jersey.

 The Service recommended that the Corps delineate all wetlands it proposes to impact and request a LOI from the NJDEP. The Service requested the Corps' mitigation plan for review and comment. For upland vegetation, the Service recommended a 1:1 ratio for creation, restoration, or enhancement of degraded forest.

The Corps agrees to present a conceptual mitigation plan based on a functional value assessment and incremental cost analysis in the Final Feasibility Report/Environmental Assessment. The Corps will provide a copy to the Service. Should the project be authorized for construction, the corps will perform wetland delineations during the Preconstruction Engineering and Design (PED) Phase and finalize the mitigation plan. The Corps will update the mitigation plans as necessary in the PED Phase and will coordinate the plans with the Service.

11. Provide in-kind mitigation: forested wetland for forested wetland, upland for upland and riparian zone for riparian zone. The Corps concurs.

- 12. Plant native trees that provide suitable roosts for Indiana bats and northern long-eared bats (Appendix VII) to mitigate for tree removal. The Corps concurs.
- The Service recommended that the Corps consider the following protected areas as potential mitigation sites: Verona Park, Hilltop Reservation, West Essex Trail, as well as the proposed Peckman Preserve. The Corps concurs.
- 15. The Service recommended that the Corps incorporate the comments and recommendations provided in the letter dated June 5, 2018 from the NJDEP Office of Permit Coordination and Environmental Review. The letter was included in Appendix IX of the Service's draft FWCA Section 2(b) report. The Corps concurs.

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APPENDIX I

Study Area



Figure 1. Approximate study area.

APPENDIX II

Species under Review for Federal Listing

Scientific Name	Common Name	Evaluation
		90-Day Finding
Perimyotis subflavus	Tricolored bat	
		12-Month Finding
Alasmidonta varicosa	Brook floater	
Boltonia montana	Doll's daisy	
Bombus terricola	Yellow-banded bumble bee	
Catharus bicknelli	Bicknell's thrush	
Cicindela marginipennis	Cobblestone tiger beetle	
Clemmys guttata	Spotted turtle	
Danaus plexippus plexippus	Monarch butterfly	
Glyptemys insculpta	Wood turtle	
Gomphus septima	Clubtail dragonfly (Septima's clubtail)	
Lasmigona subviridus	Green floater	
Laterallus jamaicensis	Black rail	
Lepidostoma morsei	Morse's little plain brown sedge caddisfly	
Lobelia boykinii	Boykin's lobelia	
Pseudemys rubriventris	Red-bellied turtle	
Speyeria idalia	Regal fritillary	
Vermivora chrysoptera	Golden-winged warbler	
		Discretionary Status Review
Ammodramus caudacutus	Salt marsh sharp-tailed sparrow	
Atrytone arogos arogos	Eastern beard grass (arogos) skipper	
Callophrys irus	Frosted elfin	
Myotis lucifugus	Little brown bat	
Pyrgus centaureae wyandot	Appalachian grizzled skipper	

APPENDIX III

Mammals of the Study Area

Scientific Name	Common Name	Status
Artiodactyla (Even-toed Hoofed Mammals)		
Odocoileus virginianus	White-tailed deer	
Carnivora (Carnivores)		
Canis latrans	Covote	
Mephitis mephitis	Striped skunk	
Mustela frenata	Long-tailed weasel	
Procyon lotor	Common raccoon	
Ursus americanus	Black bear (transient)	
Vulpes vulpes	Red fox	
Chiroptera (Bats)		
Eptesicus fuscus	Big brown bat	
Lasiomycteris noctivagans	Silver-haired bat	
Lasiurus borealis	Red bat	
Lasiurus cinereus	Hoary bat	
Myotis leibii	Eastern small-footed bat	
Myotis lucifugus	Little brown myotis	
Myotis septentrionalis	Northern long-eared bat	Т
Myotis sodalis	Indiana bat	E
Perimyotis subflavus	Tri-colored bat	
Didelphimorphia (Marsupials)		
Didelphis virginiana	Virginia opossum	
Eulipotyphila (Shrews & Moles)	<u> </u>	
Blarina brevicauda	Northern short-tailed shrew	
Scalopus aquaticus	Eastern mole	
Sorex cinereus	Masked shrew	
Lagomorpha (Rabbits)		
Sylvilagus floridanus	Eastern cottontail	
Rodentia (Rodents)		
Glaucomys volans	Southern flying squirrel	
Marmota monax	Woodchuck	
Microtus pinetorum	Woodland vole	
Mus musculus	House mouse (non-native)	
Peromyscus leucopus	White-footed mouse	
Rattus norvegicus	Norway rat (non-native)	
Sciurus carolinensis	Eastern gray squirrel	
Tamias striatus	Eastern chipmunk	

T: federally listed as threatened E: federally listed as endangered

APPENDIX IV

Fish of the Peckman River and Tributaries

Scientific Name	Common Name	Abundanca	
Ameiurus natalis	Yellow bullhead	Low	
Ameiurus nebulosus	Brown bullhead	Low	
Anguilla rostrata	American eel	Low	
Carassius auratus	Goldfish	Low	
Catostomus commersoni	White sucker	Madium	
Cyprinus carpio	Common carp	Low	
Etheostoma olmstedi	Tessellated darter	Medium	
Fundulus diaphanous	Banded killifish	Low	
Gambusia affinis	Western mosquitofish	Low	
Hybognathus regius	Eastern slivery minnow	Medium	-
Lepomis auritus	Redbreast sunfish	Medium	_
Lepomis cyanellus	Green sunfish	Low	-
Lepomis gibbosus	Pumpkinseed	Medium	_
Lepomis macrochirus	Bluegill	Low	_
Micropterus dolomieu	Smallmouth bass	Low	_
Micropterus salmoides	Largemouth bass	Low	_
Rhinichthys atratulus	Blacknose dace	Madium	_
Rhinichthys cataractae	Longnose dace	High	_
Salmo trutta	Brown trout	2	-
Semotilus atromaculatus	Creek chub	Low	-

APPENDIX V

Migratory Birds of the Study Area

SCIENTIFIC NAME	COMMON NAME	STATUS
Accipiter cooperii	Cooper's hawk	State special concern
Accipiter gentilis	Northern goshawk	State endangered
Accipiter striatus	Sharp-shinned hawk	State special concern
Actitis macularius	Spotted sandpiper	State special concern
Aegolius acadicus	Northern saw-whet owl	State special concern
Agelaius phoeniceus	Red-winged blackbird	
Aix sponsa	Wood duck	
Anas platytrhyncos	Mallard	
Anas rubripes	American black duck	
Aquila chrysaetos	Golden eagle	Endorally, mastereted
Archilochus colubris	Ruby-throated humminghird	redefaily protected
Ardea herodias	Great blue heron	State anasial
Asio otus	Long-eared owl	State special concrn
Baelophus bicolor	Tuffed titmouse	State threatened
Bombycilla cedrorum	Cedar waxwing	
Branta canadensis	Canada goose	
Bubo virginianus	Great horned owl	
Buteo jamaicensis	Red-tailed hawk	
Buteo lineatus	Red-shouldered howk	
Buteo platypterus	Broad-winged hawk	G
Butorides virescens	Green beron	State special concern
Caprimulgus vociferus	Whip-poor will	
Cardinalis cardinalis	Northern cardinal	
Carduelis pinus	Pine siskin	
Carpodacus mexicanus	House finch	
Carpodacus nurnureus	Purple finch	
Cathartes aura	Turkey valture	
Catharus fuscescens	Voorv	
Catharus guttatus	Hormait through	State special concern
Catharus ustulatus	Sweingen's the st	
Certhia americana	Swainson's thrush	
Chaetura pelagica	Brown creeper	
Charadrius vocifarus	Kille	
Chardeiles minor	Killdeer	
Circus cyanaus	Common nighthawk	State special concern
Coccothraustas vasportinus	Northern harrier	State endangered
Coccurrus amaricamus	Evening grosbeak	
Coccyzus americanus	Yellow-billed cuckoo	
Coloptas augstus	Black-billed cuckoo	State special concern
Colupies auralus	Northern flicker	
Contours Virginianus	Northern bobwhite	
Contopus viewe	Olive-sided flycatcher	
Comopus virens	Eastern wood pewee	
Corvus brachyrhynchos	American crow	
Corvus corax	Common raven	

Corvus ossifragus	Fish crow	
Cyanocitta cristata	Blue jay	
Dendroica caerulea	Cerulean warbler	State special concern
Dendroica caerulescens	Black-throated blue warbler	State special concern
Dendroica castanea	Bay-breasted warbler	State special concern
Dendroica coronata	Yellow-rumped warbler	
Dendroica fusca	Blackburnian warbler	State - 1
Dendroica magnolia	Magnolia warbler	State special concern
Dendroica palmarum	Palm warbler	
Dendroica pensylvanica	Chestnut-sided warbler	
Dendroica petechia	Vellow warbler	
Dendroica striata	Blackpoll warbler	
Dendroica tigrina	Cane May warbler	
Dendroica virens	Black-throated groop worklor	St. i I
Dryocopus pileatus	Pileated woodpecker	State special concern
Dumetella carolinensis	Gray cathird	
Egretta caerulea	Little blue beron	
Empidonax flaviventris	Vellow-bellied flyostabas	State special concern
Empidonax minimus	Least flycatcher	
Empidonax traillii	Willow flycatcher	
Falco sparverius	American kestral	
Geothypis trichas	Common vellowthroat	State threatened
Haliaeetus leucocephalus	Bald eagle	P 1 11
Helmitheros vermiyorus	Dala cagic	Federally protected
Hirundo rustica	Barn swallow	State special concern
Hylocichla mustelina	Wood thrush	
Icterus galhula	Baltimore (northerm) ericle	State special concern
Icterus spurius	Orchard oriolo	
Junco hvemalis	Dark aved junco	
Leuconotopicus villosus	Haim woodpooler	
Megaceryle alcyon	Relted kinefisher	
Megascons asio	Faster anash and	
Melanernes carolinus	Pad balliad woodreeler	
Melanernes ervthrocenhalus	Red-berlied woodpecker	
Melospiza melodia	Song sporrous	State threatened
Mimus polyglottos	Northern modelinghind	
Mniotolta varia	Richard white we hit	
Molothrus ater	Brown headed and it	
Myiarchus crinitus	Great areated float 1	
Nycticorax nycticorax	Black aroumed sight 1	
Oporornis agilis	Connectiont worklass	State threatened
Oporornis formosus	Kontucleur warbler	0
Oporornis philadelphia	Nentucky Warbler	State special concern
Otus asio	Factors and a line line line line line line line line	
Parus hicolor	Eastern screech-owl	
	i unted titmouse	

Passerella iliaca	Fox sparrow	
Passerina cyanea	Indigo bunting	
Pheucticus ludovicianus	Rose-breasted grosbeak	
Picoides pubescens	Downy woodnecker	
Pipilo erythrophthalmus	Bufous-sided towhee	
Piranga olivacea	Scarlet tanager	
Poecile atricapillus	Black-canned abiekedes	
Polioptila caerulea	Blue-gray gnatoatabar	
Progne subis	Purple martin	
Quiscalus quiscula	Common grackle	
Regulus calendula	Ruby-crowned kinglet	
Sayornis phoebe	Fastern phoshs	
Scolopax minor	American woodoook	
Seiurus aurocanilla	Ovenhird	
Seiurus motacilla	Louisiana watarthmath	
Setophaga discolor	Prairie washlas	
Setophaga ruticilla	American redetart	
Sitta carolinensis	White breasted with the	
Spinus tristis	A mariaan goldEngl	
Sphyrapicus varius	Vallow ballied see 1	
Spizella passerina	Chinning anomaly	
Stelgidonteryx serrinennis	Northarm revel	
Sturnella magna	Fostom modewhel	
Tachycineta hicolor		State special concern
Thryothorus Iudovicianus	Careline	
Toxostoma rufum	Drouge the l	
Troglodytes gedon	Brown inrasher	State special concern
Troglodytes hiemalis	House wren	
Troglodytes troglodytas	winter wren	State special concern
Turdus migratorius	winter wren	State special concern
Turannus turannus	American robin	
Vermivora celata	Eastern Kingbird	
Vermivora chrycontona	Orange-crowned warbler	
Vermivora curysopiera	Golden-winged warbler	State endangered
Vermivora cyanopiera	Blue-winged warbler	
Vermivora peregrina	l'ennessee warbler	
Virao flavifrons	Nashville warbler	State special concern
Vireo gibus	Yellow-throated vireo	
Vireo glivas	Warbling vireo	
Vireo philadolphi	Red-eyed vireo	
Virao solitaria	Philadelphia vireo	
Wilconig and i	Solitary vireo	
Wilsonia canadensis	Canada warbler	State special concern
wilsonia ciirina Wilsonia and il	Hooded warbler	State special concern
wiisonia pusilla	Wilson's warbler	
Lenaida macroura	Mourning dove	

Zonotrichia albicollis	White-throated sparrow	
Zonorichia leucophrys	White-crowned sparrow	

APPENDIX VI

Reptiles and Amphibians of the Study Area

1

Scientific Name	Common Name	Status
Out To V	CLASS REPTILIA	
Order: Testudines (Turtles)		
Clemmys insculpta	Wood turtle	State thread 1
Terrapene carolina carolina	Eastern box turtle	State threatened
Order: Squamata (Lizards and Snakes)	Subtern box turtle	
Coluber constrictor	Northern black racer	
Diadophis punctatus edwardsi	Northern ringneck snake	
Elaphe obsoleta obsoleta	Black rat snake	
Lampropeltis triangulum triangulum	Eastern milk snake	
Storeria dekayi dekayi	Northern brown snake	
Thamnophis sirtalis sirtalis	Eastern garter snake	
	CLASS AMPHIBIA	
Order: Caudata (Salamanders)		
Desmognathus fuscus	Northern dusky salamander	
Eurycea bislineata	Northern two-lined salamander	
Plethodon cinereus	Red-backed salamander	
Plethodon glutinosus	Slimy salamander	
Order: Anura (Frogs and Toads)	samp suumander	
Bufo americanus	American toad	
Rana clamitans	Green frog	
Order: Urodela (Newts)	Siter nog	
Notophthalmus viridescens	Eastern newt	

APPENDIX VII

Preferred Roost Trees for Indiana and Northern Long-Eared Bats

Scientific Name	Common Name	
Acer rubrum	Red maple	
Acer saccharinum	Silver maple*	
Acer saccharum	Sugar maple *	
Betula alleghaniensis	Yellow birch	
Betula populifolia	Gray birch	
Carya cordiformis	Bitternut hickory	
Carya ovalis	Sweet pignut hickory	
Carya ovata	Shagbark hickory *	
Fraxinus americana	White ash	
Fraxinus pennsylvanica	Green ash*	
Pinus strobus	White pine	
Populus deltoids	Eastern cottonwood*	
Quercus alba	White oak*	
Quercus palustris	Pin oak	
Quercus rubra	Northern red oak	
Quercus stellate	Post oak	
Ulmus americana	American elm*	
Ulmus rubra	Slippery elm	

* preferred roost tree species

APPENDIX VIII

Corps Response to the Service's Recommendations



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT JACOB K. JAVITS FEDERAL BUILDING 26 FEDERAL PLAZA NEW YORK NEW YORK 10278-0090

Environmental Analysis Branch

September 26, 2018

Mr. Eric Schrading Field Supervisor U.S. Fish and Wildlife Service New Jersey Field Office 4 East Jimmie Leeds Road, Unit 4 Galloway, New Jersey 08205-4465

This letter serves as follow as a response to your 6 August 2018 Draft Fish and Wildlife Coordination Act Report (DFWCAR) (Encl. 1) prepared for the Tentatively Selected Plan (TSP) as described in the *Draft Integrated Feasibility Report/Environmental Impact Statement, Peckman River Basin Flood Risk Management Feasibility Study* (DIFR/EA). The following are specific responses to your recommendations:

1) Recommendation #1: Further consultation pursuant to Section 7 of the ESA will be required if vegetation removal cannot be accomplished outside of the April 1 to September 30 timing restriction.

The District concurs. The tree clearing restriction will be included within the construction specifications. Should it be determined during construction that clearing must occur within the tree clearing restriction period, the District will coordinate with your office to determine if a mist net survey to verify the presence/absence of Indiana bat and northern long-eared bat will be required.

 Recommendation #2: The Corps should be aware of species under review for Federal listing under the ESA and include them in future field surveys and impact assessments for project with long planning horizons and/or long operational lives.

The District concurs. The Final Feasibility Report/Environmental Assessment will be updated to include species under review and will take into consideration any potential positive and/or negative effects the TSP will have on these species.

3) Recommendation #3: The Service recommends that the Corps survey the project reach to identify locations of raptors' nests. If raptors' nests are found, the Service recommends that the Corps extend the seasonal restriction of vegetation removal from March 1 to August 31.

The District concurs. A tree clearing restriction from March 1 to August 31 will be included in the construction specifications to protect raptor species along with other species protected under the Migratory Bird Treaty Act.

4) Recommendation #4: Please be aware that American kestrel is a cavity nester. Dead snags also provide roosting habitat for bats and should be retained unless they represent a danger to public safety.

The District will preserve such habitat to the extent practicable and to the extent that it does not interfere with the function of the flood risk management structures.

5) Recommendation #5: The Service recommends that the Corps contact the NJDFW to determine whether the wood turtle occurs within the project reach and whether surveys should be required.

The NJDFW had the opportunity to review the DIFR/EA and noted that no known populations of endangered and threatened species within the TSP project area. Wood turtle was noted in Verona which is approximately 3.5 miles upstream of the TSP project. Should the project be authorized for construction, additional coordination with the office will occur during the Pre-construction Engineering and Design Phase.

6) Recommendation #6: Please refer to the Verona Environmental Commission (1999) and Cedar Grove Environmental Commission (2017) for comprehensive list of plant species that were documented as occurring in the study area.

The District concurs. These resources will be consulted to identify suitable native species during the preparation of conceptual compensatory mitigation and site restoration plans.

7) Recommendation #7: The Service recommends that the Corps identify localities within the project reach where the State endangered pale duckweed, sword bog mat and large water-plantain may occur and apply conservation measures in coordination with the New Jersey Natural Heritage Program.

The District consulted the NJDFW's Landscape Project mapping resources through the New Jersey Geoweb during preparation of the DIFR/EA and none of these resources were indicated within the project area. In addition, comments received from the NJ Office of Permit Review did not indicate the potential presence of these species within the project area.

Should the project be authorized and appropriated for construction, Natural Heritage Program will be consulted the when permit applications are prepared. If conditions within the project area change in a manner that these species become potentially present, the District will take the appropriate measures in coordination with the NJDFW to protect these species. In addition, if the District proposes any compensatory habitat mitigation measures outside of the project area, the District will ensure that any measures do not adversely affect these species.

8) Recommendation #8: The Service supports the Corps proposal to re-establish native vegetation supportive of pollinator species.

Comment noted.

9) Recommendation #9: The Service recommends initiating coordination among the Corps, the Service, and the NRCS' Cape May Plant Material Center to develop a source of pollinator plants most genetically suitable for New Jersey. For both woody and herbaceous vegetation, the Service recommends obtaining native local genotypes.

As part of the construction specifications, the District includes language requiring the contractor to obtain planting material from nurseries within a 50-mile radius from the project area to ensure regionally native planting stock. Should the project be authorized for construction, the District will consider coordinating with the NRCS Cape May Plant Material Center and the Service to identify and/or develop a source for plants genetically suitable for New Jersey.

10) Recommendation #10: The Service recommends that the Corps delineate all wetlands it proposes to impact and request a LOI from NDJEP. The Service requests the Corps' mitigation plan for review and comment. For upland vegetation, the Service recommends a 1:1 ratio for creation, restoration, or enhancement of degraded forest.

The District concurs. A conceptual mitigation plan based on a functional value assessment and incremental cost analysis will be presented in the Final Feasibility Report/Environmental Assessment. The USFWS will be provided a copy of the Final FR/EA.

Should the project be authorized for construction, the District will perform wetland delineations during the Preconstruction Engineering and Design Phase and finalize the mitigation plan. The District will update the mitigation plans as necessary in the PED Phase and will coordinate the plans with the Service.

11) Recommendation #11: Provide in-kind mitigation

The District concurs. In-kind mitigation based on the results of the functional value assessment and incremental analysis is anticipated to be proposed in the Final FR/EA. The in-kind mitigation may occur either through the purchase of credits from a state approved mitigation bank, if available, or through off-site habitat creation, restoration and/or enhancement within the Peckman River watershed. As indicated in the Draft FR/EA, the Peckman Preserve will be evaluated as a potential compensatory habitat mitigation site.

12) Recommendation #12: Plant trees that provide suitable roosts for Indiana bat and northern long-eared bat to mitigate for tree removal.

The District concurs. The District will include tree species that serve as suitable roost for endangered and threatened bat species will be included in compensatory mitigation and overall site restoration plans.

13) Recommendation #13: The Service recommends that the Corps consider the following protected areas as potential mitigation sites: Verona Park, Hilltop Reservation, West Essex Trail, as well as the proposed Peckman Preserve.

The District concurs. As indicated in the Draft FR/EA, the Peckman Preserve will be evaluated as a potential compensatory habitat mitigation site. Additional sites may be evaluated depending on the amount of acreage needed for off-site compensatory habitat mitigation. Should it be determined that additional off-site areas are required, the District will evaluate those recommended by the Service.

14) Recommendation #14: The Service recommends that the Corps incorporate the comments and recommendations provided in the letter dated June 5, 2018 from NJDEP Office of Permit Coordination and Environmental Review.

The District concurs. Recommendations from the NJDEP Office of Permit Coordination and Environmental Review will be addressed and incorporated into the TSP as appropriate within the Final FR/EA.

The District will continue to coordinate with your agency closely to assist in your preparation of the Final Fish and Wildlife Coordination Act Report. Should any questions arise, or additional information is needed, please contact Ms. Kimberly Rightler at (917) 790-8722.

Sincerely,

WEPPLER.PETER Digitally signed by WEPPLER.PETER.M.1228647353 DN: c=US, o=U.S. Government, .M.1228647353 ou=DoD, ou=PKI, ou=USA, cn=WEPPLER.PETER.M.1228647353

Date: 2018.09.26 08:42:43 -04'00'

Peter Weppler Chief, Environmental Analysis Branch

Enclosure

APPENDIX IX

Comments and Recommendations Provided by the NJDEP

Division of Fish and Wildlife


State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHRIS CHRISTIE Governor

KIM GUADAGNO Lt. Governor NATURAL & HISTORIC RESOURCES DIVISION OF FISH & WILDLIFE P.O. Box 420; Mail Code: 501-03 Trenton, NJ 08625-0420 TEL. (609) 292-2965 FAX. (609) 984-1414 VISIT OUR WEBSITE WWW.NJFISHANDWILDLIFE.COM

BOB MARTIN Commissioner

August 22, 2018

Mr. Eric Schrading, Field Supervisor United States Fish & Wildlife Service 4 E. Jimmie Leeds Road, Unit 4 Galloway, NJ 08205

Dear Mr. Schrading:

The NJ Division of Fish & Wildlife (DFW) agrees with the conclusions and recommendations found in U.S. Fish and Wildlife Service's (Service) draft Fish and Wildlife Coordination Act report entitled *Draft Peckman River Basin New Jersey, Flood Risk Management Feasibility Study- Draft Feasibility Report and Environmental Assessment.*

For section B, Other Fish & Wildlife Resources, under 1. Mammals, and the Table "Mammals of the Study Area" in Appendix III, the Service should include, Eastern Small-footed (*Myotis leibii*), Tri-colored (*Perimyotis subflavus*), and Silver-haired (*Lasionycteris noctivagans*) under bats, also protected by ENSCA.

If there are any questions concerning these comments, please feel free to contact Kelly Davis of my staff (908-236-2118). We hope this information is of service to you.

Sincerely,

Larry Herrighty, Director

NJ Division of Fish & Wildlife

Peckman River Basin, New Jersey Flood Risk Management Feasibility Study

USACE New York District Correspondence February 8, 2018



DEPARTMENT OF THE ARMY NEW YORK DISTRICT, CORPS OF ENGINEERS JACOB K. JAVITS FEDERAL BUILDING NEW YORK, N.Y. 10278-0090

REPLY TO ATTENTION OF Environmental Analysis Branch

8 February 2018

Mr. Eric Schrading Field Supervisor U.S. Fish and Wildlife Service New Jersey Field Office 4 East Jimmie Leeds Road, Unit 4 Galloway, New Jersey 08205-4465

Dear Mr. Schrading:

This letter serves as follow up to 5 October 2017 letter (Encl. 1) sent to your office by the Army Corps of Engineers (Corps), New York District (District) regarding the Peckman River Flood Risk Management Study in the Township of Little Falls and the Borough of Woodland Park, Passaic County, New Jersey.

The District received the Scope of Work (SOW) dated 29 November 2017 between the U.S. fish and Wildlife Service (Service) and the District to prepare Supplemental and final Fish and Wildlife Coordination Act (FWCA) reports for the NED Plan and a Locally Preferred Plan (LPP) study (Encl. 2).

The District was recently informed by the non-federal sponsor that they no longer support the LPP and have requested the District to move forward with the NED Plan. Enclosed (Encl. 3) is a revised SOW to reflect the removal of the LPP and to prepare a Supplemental and final FWCA reports for the NED Plan.

In addition, the alignment and some of the features of the NED Plan are currently undergoing minor modifications. The 29 November 2017 SOW submitted by your agency to the District honored an agreement to utilize two days charged under the previous Government Order for finalizing the FWCA for the NED Plan. However, due to the minor modifications, the Service may want to evaluate if additional funds may be needed to prepare the Supplemental and final FWCA reports for the NED Plan.

The District will be preparing a Draft Feasibility Report and Environmental Assessment focusing on the NED Plan and is anticipating releasing it for public and agency review in April 2018. The Draft FR/EA will be used as the primary coordination vehicle for the preparation for Supplemental FWCA 2(b) Report. In the meantime, the District response to the July 2014 Draft FWCA 2(b) report is included with this letter (Encls. 4 and 5).

The District will continue to coordinate with your agency closely to assist in your preparation of the Supplement 2(b) Final FWCA reports. Should any questions arise, or additional information is needed, please contact Ms. Kimberly Rightler at (917) 790-8722.

Sincerely, Peter Weppler

Chief, Environmental Analysis Branch

Enclosures



DEPARTMENT OF THE ARMY NEW YORK DISTRICT, CORPS OF ENGINEERS JACOB K. JAVITS FEDERAL BUILDING NEW YORK, N.Y. 10278-0090

REPLY TO ATTENTION OF Environmental Analysis Branch

5 October 2017

Mr. Eric Schrading Field Supervisor U.S. Fish and Wildlife Service New Jersey Field Office 4 East Jimmie Leeds Road, Unit 4 Galloway, New Jersey 08205-4465

Dear Mr. Schrading:

The Army Corps of Engineers (Corps), New York District (District) has been conducting a Feasibility Study to implement flood risk management measures within the Peckman River in the Township of Little Falls and the Borough of Woodland Park, Passaic County, New Jersey.

The National Economic Plan consisting of non-structural measures within the 10-yr floodplain in the Township of Little Falls, and a diversion culvert and floodwalls along Great Notch Brook in the Borough of Woodland Park was identified in 2014. A draft Fish and Wildlife Coordination Act Report (FWCAR) focusing on the NED Plan was submitted to the District on 25 July 2014 (Enclosure 1). A Final FWCAR for the NED Plan was never finalized due to the non-Federal sponsor requesting a Locally Preferred Plan and then the subsequent suspension of the study by Corps Headquarters.

The study has been reinitiated and the District will be evaluating both the NED Plan and the LPP. There have been no changes to the NED Plan. The LPP consists of channel modifications and levees and floodwalls along the Peckman River in the Township of Little Falls, the diversion culvert, and floodwalls along the Great Notch Brook (Enclosure 2). As a result, the District is requesting an updated FWCAR that finalizes recommendations on the NED Plan and provides recommendations on the LPP be prepared.

Please note that Government Order to develop the FWCAR for the NED Plan was fully charged. Based on a conversation between Ms. Kimberly Rightler from the District and Mr. Ron Popowski from your agency on 28 September 2016, it was agreed that that the two days allotted for drafting the Final FWCAR for the NED Plan would go towards (Enclosure 3).

Due to the budget constraints for this study, the District is requesting that your agency maintain this agreement towards the effort related to updating the FWCAR.

Please review the SOW (Enclosure 4) and provide a time and cost estimate for your services. The District will coordinate with your agency closely, to assist in your preparation of the report. Should any questions arise, or additional information is needed, please contact Ms. Kimberly Rightler at (917) 790-8722.

Sincerely, Peter Weppler

Chief, Environmental Analysis Branch

Enclosures



In Reply Refer To:

2018-CPA-0021

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Jersey Field Office Ecological Services 4. E. Jimmie Leeds Road, Suite 4 Galloway New Jersey 08205 Tel: 609/646 9310 http://www.fws.gov/northeast/njfieldoffice/



NOV 2 9 2017

Peter Weppler, Chief Environmental Analysis Branch, U.S. Army Corps of Engineers, New York District Jacob K. Javits Federal Building 26 Federal Plaza New York, New York 10278-0090

Dear Mr. Weppler:

Enclosed is a Fiscal Year 2018 (FY-2018) scope of work (SOW) between the U.S. Fish and Wildlife Service (Service) and the New York District, U.S. Army Corps of Engineers (Corps) for the Peckman River Flood Risk Management Feasibility Study, Township of Little Falls and Borough of Woodland Park, Passaic County, New Jersey.

SOW TASKS

The Service and Corps have a long history of interagency cooperation to protect listed species and Federal trust resources within the Corps New York District areas. A draft report pursuant to the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401; 16 U.S.C. 661 *et seq.*) was submitted to you on July 25, 2014. Key Service roles in this SOW for FY-2018 are to prepare FWCA Supplement 2(b) to include evaluation of Locally Preferred Plan, and final 2(b) reports.

ADDITIONAL COORDINATION

In the development of the Supplement 2(b), and final FWCA 2(b) reports, the Service will coordinate with the New Jersey's Department of Environmental Protection, including Division of Fish and Wildlife to ensure that the plans address all federally and State-listed species (both plant and animal) and Federal trust resources occurring project area.

SUMMARY

This SOW, along with an estimate of cost for services, is being forwarded for your approval. The total cost for the Service to perform the above work in FY-2018 is \$6,444.00 If you are in agreement with the SOW and the estimated cost for services, please prepare the appropriate transfer funding agreement and send via e-mail in pdf format to Laura_Perlick@fws.gov. Please note the procedural change to forward the transfer funding agreement directly to the Field Office, rather than to our Regional Office for final processing.

The Service commends the Corps' past and ongoing efforts and looks forward to continued multi-agency cooperation and partnership to protect federally and State-listed species, and Federal trust resources. If you have any questions regarding the above cost estimate or any other aspect of this SOW, please contact Ron Popowski at Ron Popowski@fws.gov.

Sincerely, Eric Schrading Field Supervisor

Enclosure

cc: NJFO (2): Perlick USACE, New York District: Rightler

DRAFT SCOPE OF WORK

FISCAL YEAR 2018 U.S. FISH AND WILDLIFE SERVICE/U.S. ARMY CORPS OF ENGINEERS PECKMAN RIVER FLOOD RISK MANAGEMENT STUDY TOWNSHIP OF LITTLE FALLS AND BOROUGH OF WOODLAND PARK PASSAIC COUNTY, NEW JERSEY

A. SUBJECT:

The scope of work (SOW) between the U.S. Fish and Wildlife Service (Service)'s New Jersey Field Office (Service) and the U.S. Army Corps of Engineers, New York District (Corps) to prepare a Supplement 2(b) and final 2(b) reports pursuant to Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, 16 U.S.C. *et seq.*) for the Corps' Peckman River Flood Risk Management Feasibility Study, Township of Little Falls and Borough of Woodland Park, Passaic County, New Jersey. Transfer funding from the Corps to the Service is authorized pursuant to the Economy Act (96 Stat. 933; 31 U.S.C. 1535).

Agency Financial Information

Service: DUNS: 151157950 Tax ID: 53-0201504 Agency Locator Code: 14160006

Corps:

DUNS: 068112791 Tax ID: 62-1642142 Agency Locator Code: 00008736 Business Event Type Code: DISB Treasury Account Symbol: To be determined

If the Corps cancels the agreement, the Service may collect costs incurred prior to the cancellation of the agreement plus any termination costs.

B. PROJECT NAME:

Peckman River Flood Risk Management Feasibility Study

C. CORPS DISTRICT AND CONTACTS:

U.S. Army Corps of Engineers New York District, 26 Federal Plaza New York, New York, 10278-0090

Chief, Watershed Section:	Nancy Brighton	Nancy.Brighton@usace.army.mil
Project Biologist:	Kimberly Rightler	Kimberly.A.Rightler@usace.army.mil
Financial Point of Contact:	Robert Greco	Robert.Greco@usace.army.mil

D. SERVICE OFFICE AND CONTACTS:

U.S. Fish and Wildlife Service New Jersey Field Office Ecological Services 4 E. Jimmie Leeds Road, Suite 4 Galloway, New Jersey 08205

Field Supervisor	Eric Schrading	Eric_Schrading@fws.gov
Project Biologist	Carlo Popolizio	Carlo_Popolizio@fws.gov
Financial Point of Contact	Laura Perlick	Laura_Perlick@fws.gov

E. DESCRIPTION OF PROJECT:

The proposed study involves formulating and evaluating the feasibility of implementing flood risk management measures within the Peckman River Basin in the Township of Little Falls and Borough of Woodland Park.

Alternatives to be evaluated include the following:1) No Action2) Alternative #9 Levees/Floodwalls above Rt 46 and Diversion Culvert

3) Alternative #10b Diversion Culvert and 10-yr nonstructural above Rt. 46

F. STATUS OF STUDY:

The Corps is conducting a feasibility study to evaluate Federal participation in flood risk management in the Peckman River Basin, New Jersey as authorized under U.S. House of Representatives Resolution Docket 2644, dated June 21, 2000. The alternative analysis was completed in 2014, and non-structural improvements located within the 10 year floodplain within the Township of Little Falls with a bypass culvert designed to mitigate the flood risk from the Peckman River and floodwalls along the Great Notch Brook in Woodland Park was identified as the NED Plan. The NJDEP as the non-Federal sponsor requested a Locally Preferred Plan (LPP) that consists of a levee/floodwall system in the Little Falls along with the bypass culvert for the Peckman River and floodwalls along Great Notch brook. The LPP will be designed to protect Little Falls and Woodland Park from the 1% annual chance exceedance (100-yr) event from the Peckman River.

G. COORDINATING AND SCOPING:

The Corps and the Service will coordinate routinely as necessary.

H. DATA AND INFORMATION NEEDED FROM THE CORPS:

- 1. Signed SOW
- 2. Completed and signed transfer funding agreement via Military interdepartmental Purchase Request (MIPR).

I. SPECIFIC WORK TO BE ACCOMPLISHED BY THE SERVICE:

- 1. Review District responses to the 25 July 2014 Draft FWCA 2(b) report on the NED Plan.
- 2. Review the conceptual plan of the LPP and any other supplemental information provided by the Corps.
- 3. Provide Corps with information on fish and wildlife resources (including endangered and threatened species) in the Project Area.
- 4. Coordinate with the Corps and the New Jersey Department of Environmental Protection (NJDEP), including New Jersey Division of Fish and Wildlife (NJDFW), and other agencies/organizations regarding project area resources, project related impacts, and means and measures that should be adopted to prevent the loss of or damage to fish and wildlife resources, as well as to provide for the development and improvement of such resources.
- 5. Conduct a technical review of the preliminary alternatives that have been developed to date to evaluate impacts of the alternatives on fish and wildlife resources.
- 6. For any alternatives proposed by the Service that deviate significantly from the proposed plan or include experimental techniques, the Service shall provide a discussion of benefits gained by the proposed alternative, along with case studies, photographs and/or typical details in order to assist the Corps in considering incorporation of the alternative into the overall alternative evaluation process.
- 7. Provide a supplement 2(b) report addressing the overall potential impacts to fish and wildlife resources from the LPP, including recommended measures that should be adopted to prevent the loss or damage to those resources.
- 8. Provide a final FWCA 2(b) reports addressing and incorporating comments received from the Corps, NJDEP, and NJDFW on the draft FWCA 2(b) report.

J. CORPS INPUT TO SERVICE:

The Corps will provide project documents and technical information developed during the course of study, secure and provide other existing Corps documents that the Service may request, and coordinate routinely as project plans are refined.

The Corps will provide comments or concurrence with the Service's written products within 30 days of submission. Once any comments are addressed and the Corps provides concurrence, Service products will become public documents available to outside parties upon request.

K. SERVICE INPUT TO CORPS:

Service submits Supplement 2(b) report January 2018

Service submits Final FWCA 2(b) report April 2018

L. CORPS AND SERVICE SUBMISSION SCHEDULE:

	Target Date
Corps provides current plans, documents and information; and transmits funding.	Within 7 days after receipt of MIPR.
Service submits supplement 2(b) report to the Corps, NJDEP and NJDFW.	Within 60 days after receipt of project plans.
Corps, NJDEP and NJDFW provide comments on supplement 2(b) report.	Within 30 days after receipt of draft Supplement 2(b) report
Service addresses Corps, NJDEP, and NJDFW comments and submits final FWCA 2(b)	Within 20 days after receipt of Corps, NJDEP, and NJDFW comments.

M. SERVICE EFFORTS AND COSTS

Service Effort	Task Days
Investigate fish and wildlife resources within the vicinity of the project area, including review of available literature and coordination with the NJDEP and NJDFW	1
Provide Section 7 consultation pursuant to the Endangered Species Act (87 Stat.884; 15 U.S.C. 1551 et seq.) (not charged to project transfer funds	
Conduct technical review of the LPP (Alternative #9)	2
Prepare Supplement 2(b) report	4
Prepare final FWCA 2(b) report	2

Total Service Task Days	9*
*Biologist Day Rate (\$519) x Overhead Rate (38%) = \$716.00	
9 Service Task Days x \$716	\$6,444.00
Total:	

Fiscal Year 2018 Draft Scope of Work US Fish and Wildlife Service / U.S. Army Corps of Engineers Peckman River Flood Risk Management Study Township of Little Falls and Borough of Woodland Park, Passaic County, New Jersey

I. SUBJECT:

The scope of work (SOW) between the U.S. Fish and Wildlife Service (Service)'s New Jersey Field Office (Service) and the U.S. Army Corps of Engineers, New York District (Corps) to prepare a draft and final 2(b) reports pursuant to Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401; 16 U.S.C. *et seq.*) for the Corps' Peckman River Flood Risk Management Feasibility Study (FRM), Township of Little Falls and Borough of Woodland Park Passaic County; (Study Area). Transfer funding from the Corps to the Service is authorized pursuant to the Economy Act (96 Stat. 933; 31 U.S.C. 1535).

Agency Financial Information

Service: DUNS: 151157950 Tax ID: 53-0201504 Agency Locator Code: 14160006

Corps:

DUNS: 068112791 Tax ID: 62-1642142 Agency Locator Code: 00008736 Business Event Type Code: DISB Treasury Account Symbol: To be determined

If the Corps cancels the agreement, the Service may collect costs incurred prior to the cancellation of the agreement plus any termination costs.

II. PROJECT NAME:

Peckman River Flood Risk Management Feasibility Study (FRM)

III. CORPS DISTRICT AND CONTACTS:

U.S. Army Corps of Engineers New York District, 26 Federal Plaza New York, New York, 10278-0090

Chief, Watershed Section:	Nancy Brighton	Nancy.Brighton@usace.army.mil
Project Biologist:	Kimberly Rightler	Kimberly.A.Rightler@usace.army.mil
Financial Point of Contact:	Robert Greco	Robert.Greco@usace.army.mil

IV. SERVICE OFFICE AND CONTACTS:

U.S. Fish and Wildlife Service New Jersey Field Office Ecological Services 4 E. Jimmie Leeds Road, Suite 4 Galloway, New Jersey 08205

Field Supervisor	Eric Schrading	Eric_Schrading@fws.gov
Project Biologist	To Be Determined	
Financial Point of Contact	Laura Perlick	Laura_Perlick@fws.gov

V. DESCRIPTION OF PROJECT:

The proposed study involves formulating and evaluating the feasibility of implementing flood risk management measures within the Peckman River Basin in the Township of Little Falls and Borough of Woodland Park, Passaic County, NJ.

Alternatives to be evaluated include the following:1) No Action2) Alternative #10b Diversion Culvert and 10-yr nonstructural above Rt. 46

VI. STATUS OF STUDY:

The Corps is conducting a feasibility study to evaluate Federal participation in flood risk management in the Peckman River Basin, New Jersey as authorized under U.S. House of Representatives Resolution Docket 2644, dated June 21, 2000. The alternative analysis was completed in 2014, and non-structural improvements located within the 10 year floodplain within the Township of Little Falls, N.J with a bypass culvert designed to mitigate the flood risk from the Peckman River and floodwalls along the Great Notch Brook in Woodland Park was identified as the NED Plan.

VII. COORDINATING AND SCOPING:

The Corps and the Service will coordinate routinely as necessary.

VIII. DATA AND INFORMATION NEEDED FROM THE CORPS:

- 1. Signed SOW
- 2. Completed and signed transfer funding agreement via Military interdepartmental Purchase Request (MIPR).

IX. SPECIFIC WORK TO BE ACCOMPLISHED BY THE SERVICE:

- 1. Review District responses to the 25 July 2014 Draft FWCAR on the NED Plan.
- 2. Provide Corps with information on fish and wildlife resources (including endangered and threatened species) in the Project Area.
- 3. Coordinate with the Corps and the New Jersey Department of Environmental Protection (NJDEP), including New Jersey Division of Fish and Wildlife (NJDFW), and other agencies/organizations regarding project area resources, project related impacts, and means and measures that should be adopted to prevent the loss of or damage to fish and wildlife resources, as well as to provide for the development and improvement of such resources.
- 4. Provide a Supplemental FWCA 2(b) report addressing the overall potential impacts to fish and wildlife resources from the NED Plan, including recommended measures that should be adopted to prevent the loss or damage to those resources.
- 5. Provide a final FWCA 2(b) reports addressing and incorporating comments received from Corps, NJDEP, and NJDFW on the draft FWCA 2(b) report.

X. CORPS INPUT TO SERVICE:

The Corps will provide project documents and technical information developed during the course of study, secure and provide other existing Corps documents that the Service may request, and coordinate routinely as project plans are refined.

The Corps will provide comments or concurrence with the Service's written products within 30 days of submission. Once any comments are addressed and the Corps provides concurrence, Service products will become public documents available to outside parties upon request.

XI. SERVICE INPUT TO CORPS:

Service submits Draft Supplemental FWCA 2(b) report June 2018

Service submits Final Supplemental FWCA 2(b) report August 2018

XII. CORPS AND SERVICE SUBMISSION SCHEDULE:

	Target Date
Corps provides current plans, documents and	Within 7 days after receipt of
information; and transmits funding.	MIPR.
Service submits draft FWCA 2(b) report to the	Within 60 days after receipt of
Corps, NJDEP and NJDFW.	project plans.
Corps, NJDEP and NJDFW provide comments	Within 15 days after receipt of
on draft FWCA 2(b) report.	draft FWCA 2(b) report
Service addresses Corps, NJDEP, and NJDFW	Within 20 days after receipt of

comments and submits final FWCA 2(b)	Corps, NJDEP, and NJDFW
report.	comments.

XIII. SERVICE EFFORTS AND COSTS

Prepare final FWCA 2(b) report

Total Service Task Days

*Biologist Day Rate (\$629) x Overhead Rate (38% or \$239) 21 Service Task Days x \$868

Total:

Enclosure 4: District Response to 25 July 2014 Draft Fish and Wildlife Coordination Act Report for the Diversion culvert

1) Diversion Tunnel and Levees and Floodwalls Recommendation #1 "Evaluate downstream effects to the Passaic River. Include consideration of climate change projections."

Analysis of downstream impacts is included in the Hydrologic and Hydraulic (H&H) modeling. The analysis will also take into account climate change projections for the region.

Discussion of the H&H modeling will be included in the Draft Integrated Feasibility Report/National Environmental Policy Act (NEPA) Document.

2) Diversion Tunnel and Levees and Floodwalls Recommendation #2: "Use best management practices and timing restrictions during construction to avoid adverse impacts to fish and wildlife species":

The District will implement the following restrictions during construction: a) a tree clearing restriction from 1 April through 30 September to protect Indiana bat and northern long eared bat; b) a tree clearing restriction from 1 April through 30 August to protect species protected under the Migratory Bird Treaty Act; and c) an in-water work restriction from May 1 through July 31 as required by the New Jersey Flood Hazard Area Control Act to protect fish species.

These restrictions will be included in the Draft Feasibility Report/NEPA Document and in the construction specifications when they are developed in the Preconstruction Engineering and Design (PED) Phase.

Any other restrictions identified by the Service and other environmental resource agencies during the public/agency comment period of the Draft Integrated Feasibility Report/NEPA document will be considered for inclusion in the construction specifications.

3) Diversion Tunnel and Levees and Floodwalls Recommendation #3: "*If adverse impacts to freshwater wetlands are unavoidable, develop a compensatory mitigation plan.*"

It is currently estimated that approximately 1-3 acres of freshwater forested wetlands may be permanently impacted by the construction of the floodwall/levee associated located along the forested tract in Little Falls along the Peckman River. No wetland impacts are expected from the construction of the floodwalls along Great Notch Brook. The District will include a conceptual plan for compensatory wetland mitigation within the Draft Integrated Feasibility Report/NEPA document. 4) Diversion Tunnel and Associated Levees and Floodwalls Recommendation #4 "Maintain mature trees to maximum extent possible. Any trees designated for removal should be surveyed in the appropriate season prior to the start of work for evidence of nesting by bird species of management concern."

Existing vegetation will be maintained to extent practicable. It is expected that vegetation removal will primarily be limited to the footprint the diversion culvert, the floodwall and levee and a 15 ft vegetation free zone (maintained lawn only) on either side of the floodwall and levee as required by Corps policy. The District will implement a shrub and tree clearing restriction period of 1 April - 30 August to minimize impacts to species protected under the Migratory Bird Treaty Act.

5) Diversion Tunnel and Associated Levees and Floodwall Recommendation #5 "Delineate the 50-yr floodplain. Future reports should state the rationale for using a flood control plan designed for a 50-yr event."

The 50-yr level of protection was used for comparing the costs and benefits of preliminary alternatives in order to identify the NED Plan, which is the alternative that has the highest net benefits. The NED Plan will be further optimized to determine which level of protection maximizes net benefits. Therefore, the ultimate level of protection provided by the NED Plan may be higher or lower than the 50-yr event.

Figures showing the Existing Without Project Conditions vs Future With Project Conditions during flood events will be included in the Draft and Final Feasibility Report/NEPA Document.

6) Diversion Tunnel and Levees and Floodwalls Recommendation #6 "Construct the inlet to retain bank full flows and divert only higher out of bank flows"

The District concurs. A weir will be installed near the outlet to only direct flows into the diversion culvert during high flow events. The weir will be notched to maintain fish passage.

7) Diversion Tunnel and Levees and Floodwalls Recommendation #7 "Design the tunnel to allow passage of normal groundwater flow to and from any nearby wetlands. Minimize creation of additional impervious surface."

The location of the proposed diversion culvert has been previously disturbed by development activities and is predominantly characterized as maintained lawn, a dirt parking lot/storage area for the Little Falls DPW, asphalt and tennis courts that are part of the Little Falls Recreation Center. National Inventory Mapping and New Jersey wetland mapping resources do not identify any wetlands within or near the footprint of the diversion culvert.

A cut and cover method will be employed in installing the diversion culvert, with surrounding area to be restored to existing conditions (e.g. maintained lawn, restoration

of the tennis court) once the diversion culvert is installed. The creation of additional impervious surface will be minimized to the extent possible while maintaining the objective of flood risk management.

8) Diversion Tunnel and Levees and Floodwalls Recommendation #8 "Design the tunnel to avoid adverse impacts to the trees, including the supporting root systems."

The location of the diversion culvert was selected to optimize flood risk management while avoiding the need to remove existing structures and infrastructure. As stated in response #7, the area has been disturbed previously. There is a small pocket of mature vegetation that will be removed, but the removal is necessary to construct the culvert. Efforts will be made during the PED Phase to create construction access routes that avoid mature vegetation to the extent possible.

9) Diversion Tunnel and Levees and Floodwalls Recommendation #9: "Coat the interior of the diversion tunnel to obtain a smooth surface and to reduce abrasion to aquatic biota being diverted. Incorporate a low-flow design to allow any diverted aquatic biota to escape downstream when the amount of diverted water is slight or receding."

The District concurs and will evaluate the feasibility of implementing the recommended measures during optimization of the NED Plan.

10) Diversion Tunnel and Levees and Floodwalls Recommendation #10: "Locate the tunnel outlet to minimize removal of vegetation and adverse impacts on wetlands.

The District has minimized impacts to vegetation to the extent practicable. There will be a loss of some mature trees along the outlet, but given that the vegetation is located within the riparian zone as regulated by the New Jersey Flood Hazard Area Control Act Rules, the loss will be compensated through mitigation.

11) Diversion Tunnel and Levees and Floodwalls Recommendation #11: "Survey for the presence or absence of summering Indiana or northern long-eared bats if Project plans entail the clearing of any tracts of forest or removal of mature trees in riparian habitat."

As has been standard protocol, a tree clearing restriction from 1 April through 30 September will be implemented during construction. If the tree clearing restriction cannot be maintained, the District will coordinate with the Service to determine the need for presence or absence surveys.

12) Diversion Tunnel and Levees and Floodwalls Recommendation #12: "Provide the Service with an updated review of HTRW contamination sites within one quarter mile of the Project area using the most recent government records available."

The District is currently updating its review of identifying any potential contaminated sites within the project area. The Draft Integrated Feasibility Report/NEPA document

will include the results of the review and will be provided to the Service when it releases the report for public and agency review.

13) Diversion Tunnel and Levees and Floodwalls Recommendation #13: "Conduct further soil testing at the Little Falls DPW yard to determine the extent of Lead contamination at the site. Provide the Service with the results."

The District anticipates conducting sediment testing during the PED Phase. Results of any testing performed will be forwarded to the Service for review. It should be noted that any excavated material not used on-site will be disposed of at a facility that has been approved and permitted by the state to accept that specific type of material. The removal of HTRW impacted soils would be performed by the non-federal sponsor to the depth and grade required for construction of the alternative. This is based on the Corps ER 1165-2-132 guidance, specifically: (1) For cost-shared projects, the local sponsor shall be responsible for ensuring that the development and execution of Federal, state, and/or locally required HTRW response actions are accomplished at 100 percent non-project cost. No cost sharing credit will be given for the cost of response actions.

14) Stormwater Control and Protection of Fish &Wildlife (F&W) Resources: "Utilize creation of open space, property buyouts, and non-structural alternatives to reduce flash flooding and adverse impacts to fish and wildlife species".

The NED Plan was updated since the preparation of the DFWCAR to include nonstructural measures within the 10-yr floodplain in the Town of Little Falls. The District may evaluate the use of open space and any lots that were subject for buyouts from others for any wetland and/or riparian compensatory mitigation needs.

15) Stormwater Control and Protection of F&W Resources "Design in-stream and stream bank restoration plans based upon natural channel morphology and behavior".

The District concurs. Conceptual plans for any in-stream and streambank compensatory mitigation will be discussed in the Draft and Final Feasibility Report/NEPA document. Full design and any supplemental field investigations associated in –stream and stream bank compensatory mitigation will be conducted during the PED Phase.

16) Stormwater Control and Protection of F&W Resources: "Include Great Notch Brook in future hydrological studies if it has not been evaluated."

The Hydrologic and Hydraulic (H&H) modeling includes an analysis of Great Notch Brook.

Discussion of the H&H modeling will be included in the Draft Integrated Feasibility Report/National Environmental Policy Act (NEPA) Document.

17) Stormwater Control and Protection of F&W Resources: "Forward sediment contaminant test results to the Service when available. Include information on sediment sources and disposal sites."

The District anticipates conducting sediment testing during the PED Phase. Results of any testing performed will be forwarded to the Service for review. It should be noted that any excavated material not used on-site will be disposed of at a facility that has been approved and permitted by the state to accept that specific type of material. The removal of HTRW impacted soils would be performed by the non-federal sponsor to the depth and grade required for construction of the alternative. This is based on the Corps ER 1165-2-132 guidance, specifically: (1) For cost-shared projects, the local sponsor shall be responsible for ensuring that the development and execution of Federal, state, and/or locally required HTRW response actions are accomplished at 100 percent non-project cost. No cost sharing credit will be given for the cost of response actions.

18) Stormwater Control and Protection of F&W Resources: "Develop and implement a longterm management and monitoring plan that provides for adequate evaluation of success at each ecosystem restoration site."

At the request of the non-federal sponsor, ecosystem restoration is not included within the scope of the study. However, for any site where habitat enhancement, creation or restoration occurs as part of compensatory mitigation related to wetland, riparian and/or open water impacts from the flood risk management project, a Monitoring and Adaptive Management Plan will be prepared and executed. A draft Monitoring and Adaptive Management Plan will be included within the Draft Integrated Feasibility Report/NEPA document and will be provided to the Service for review when available for public and agency review.

19) Stormwater Control and Protection of F&W Resources: "Minimize the amount of time that construction equipment will be in the river channel. Also limit the amount of equipment that must be put into the water course. Consult the scientific literature and use the best available information when designing ecosystem restoration Projects."

The District concurs. The District will evaluate the use of cofferdams to minimize during the PED Phase.

The District will utilize best available scientific information when designing any compensatory mitigation related to wetland, riparian and/or open water impacts associated with the implementation of the NED Plan.

20) Stormwater Control and Protection of F&W Resources: "Consult with the Service's Partners for Fish and Wildlife program to facilitate cooperation and partnerships with private and municipal landowners when conducting habitat restoration."

The District concurs. The District will maintain coordination with the Service in all phases of the project.

21) Stormwater Control and Protection of F&W Resources: "Coordinate any clearing and snagging activities with the local municipalities. Coordinate with local governments to assess the condition of storm-water outfalls."

In general, storm water management is a local issue and not part of the Corps mission. However, the District will coordinate any other in-channel activities as part of overall operations and maintenance of the flood risk management project.

22) Stormwater Control and Protection of F&W Resources: "Use bioengineering techniques to stabilize stream banks in the Project area. Where hard structures are the only feasible alternative, use natural material."

The District will evaluate the use of bioengineering techniques natural hard material to stabilize stream banks during optimization of the NED Plan. However, the ability to utilize bioengineering techniques will be dictated by stream velocities during storm events and level of risk associated with how failure of this technique could adversely affect the function of the flood risk management project.

In addition, bioengineering techniques as part of streambank stabilization/habitat restoration may be considered as part of any open water compensatory mitigation that may be required as a result of any adverse impacts related to implementing the NED Plan.

23) Stormwater Control and Protection of F&W Resources: "Include in the long term management plans for the Peckman River measures to reduce illegal dumping on the stream banks."

Although illegal dumping is a local land owner/manager issue, the District can coordinate with local stakeholders on methods they can employ to deter illegal dumping as part of overall Operations and Maintenance of the flood risk management project since trash and debris could adversely impact the function of the diversion culvert.

24) Stormwater Control and Protection of F&W Resources: "Salvage large shade-producing trees with exposed roots along the river. Anchor them in place and install boulders near the exposed roots."

The District will include this recommendation as part of formulating and evaluating mitigation alternatives should compensatory mitigation be required as a result of implementing the NED Plan. However, the ability to utilize this technique will be dictated by stream velocities during storm events and level of risk associated with how failure of this technique could adversely affect the function of the flood risk management project.

25) Stormwater Control and Protection of F&W Resources: "Plant native trees and shrubs throughout degraded forest floors to improve understory cover. Eradicate or control exotic, invasive species, particularly Japanese knotweed, along the Peckman River and Great Notch Creek. Include measures to control invasive plants in all phases of construction."

The District concurs. Any planting as part of mitigating temporary or permanent impacts will include native tree and shrub species. As part of the construction specifications, the District includes language requiring the contractor to obtain planting material from nurseries within a 50-mile radius from the project area to ensure regionally native planting stock.

Regarding invasive species, the District will be preparing a mitigation plan that will include measures to minimize the dispersal and propagation of invasive species during and post construction. The mitigation plan will be included in the Draft and Final Integrated Feasibility Report/NEPA document and will be updated during the PED Phase.

Peckman River Basin, New Jersey Flood Risk Management Feasibility Study

USFWS Draft Fish and Wildlife Coordination Act Report July 25, 2014



United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Jersey Field Office Ecological Services 927 North Main Street, Building D Pleasantville, New Jersey 08232 Tel: 609/646 9310 Fax: 609/646 0352 http://www.fws.gov/northeast/njfieldoffice/

IN REPLY REFER TO: 2014-CPA-0183

Nancy Brighton, Acting Chief Environmental Analysis Branch U.S. Army Corps of Engineers 26 Federal Plaza, Jacob K. Javits Federal Building New York, New York 10278-0090 Attn: Kimberly Rightler

JUL 2 5 2014

Dear Ms. Brighton:

This letter submits the U.S. Fish and Wildlife Service's (Service) draft report on the potential environmental impacts to fish and wildlife resources of the U.S. Army Corps of Engineers, New York District (Corps) Peckman River Basin, New Jersey Feasibility Study for Flood Control and Ecosystem Restoration. The draft report was prepared pursuant to Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 *et seq.*) (FWCA). The information presented in this draft report is also provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA) to ensure protection of federally listed (threatened and endangered) species. These comments do not preclude separate review and comments by the Service on any forthcoming environmental documents pursuant to the National Environmental Policy Act of 1969 (83 Stat. 852 as amended; 42 U.S.C. 4321 *et seq.*). This draft report is provided pursuant to a Fiscal-Year 2011 interagency agreement.

The Service will prepare a final FWCA report in coordination with the New Jersey Department of Environmental Protection's Division of Fish and Wildlife, incorporating Corps comments to the draft FWCA.

If you have any additional questions or concerns regarding this consultation, please contact Dennis Hamlin at (609) 383-3938 x14 or dennis_hamlin@fws.gov.

Eric Schrading Field Supervisor

Enclosure

bcc: NJFO (2)

cc:

pdf by email: Corps (NY), Kimberly.A.Rightler@usace.army.mil ENSP, davejenkins@dep.state.nj.us NJDFW /BFF, mark.boriek@earthlink.net Service, ARD ES

DRAFT FISH AND WILDLIFE COORDINATION ACT SECTION 2(b) REPORT

PECKMAN RIVER FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION FEASIBILITY STUDY

ESSEX AND PASSAIC COUNTIES, NEW JERSEY



Prepared by:

U.S. Fish and Wildlife Service Ecological Services, Region 5 New Jersey Field Office Pleasantville, New Jersey 08232

July 2014

INTRODUCTION

This constitutes the U.S. Fish and Wildlife Service's (Service) draft Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*), Section 2(b) report describing the fish and wildlife resources and supporting ecosystems in the area of the U.S. Army Corps of Engineers New York District's (Corps) proposed Peckman River Basin Flood Risk Management Feasibility Study. The information presented in this report documents the fish and wildlife resources in the area, identifies potential beneficial and adverse impacts to those resources, provides recommendations to minimize adverse impacts, and identifies additional opportunities for habitat enhancement. This report is provided in accordance with a Fiscal Year-2011 scope-of-work agreement between the Service and the Corps, amended by a January 13, 2014 email from the Corps (Rightler, pers. comm. 2014). The Service will prepare a final FWCA report in coordination with the New Jersey Department of Environmental Protection's (NJDEP) Division of Fish and Wildlife (NJDFW), incorporating Corps comments to the draft FWCA.

AUTHORITY

The following comments are provided pursuant to Section 2(b) of the FWCA. Comments are also provided under the authority of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq.*) and the Migratory Bird Treaty Act of 1918 (MBTA) (40 Stat. 775, as amended; 16 U.S.C. 703-712), and are consistent with the intent of the Service's Mitigation Policy (Federal Resister, Vol. 46, No. 15, Jan. 23, 1981).

PROJECT DESCRIPTION

The Corps is engaged in a flood control project (Project) for the Peckman River Basin, located in the northeastern New Jersey counties of Essex and Passaic. Reaches of the Peckman River, especially within the Township of Little Falls and the Borough of Woodland Park (formerly the Borough of West Paterson), are subject to frequent flash flooding from rapid runoff from heavy rainfall events in the Peckman River watershed.

In response to flooding events, degraded ecosystem integrity, and environmental concerns, the Corps, in partnership with the NJDEP, is conducting a feasibility study for flood protection and ecosystem restoration within the Peckman River Basin. As presented in the Corp's Section 905(b) Water Resources Development Act (WRDA) Preliminary Analysis (Corps 2002), the objectives of flood control and ecosystem restoration measures are:

- To reduce the flood hazard and associated urban flood damages in the Basin;
- To preserve, maintain and, to the extent possible, enhance the resources of the existing natural environment in the Project area;
- To preserve to the extent possible, existing open space areas and associated recreational opportunities in the Project area;
- To provide protection to hospitals, municipal buildings, emergency response facilities and transportation corridors and thus improve public health and safety during any future flood disasters; and

To provide a plan that is compatible with future flood control and economic development opportunities.

The Corps evaluated several proposed flood protection measures throughout the length of the Peckman River, but has focused on the most flood prone areas of Little Falls and Woodland Park. Due to the significant commercial nature of these areas, the Corps considers only structural plans as feasible solutions (Rightler, pers. comm. 2014). However the Corps provided no evidence that non-structural solutions are not feasible. The structural alternatives originally considered to increase drainage capacity included the diversion of flood water from the Peckman River to the Passaic River; the construction of 12,800 feet of levees and floodwalls; and/or extensive channel modification of 1.5 miles of the Peckman River.

The plan being currently being analyzed by the Corps combines the diversion option with elements of the levee/floodwall plan (Figure 1). Above channel flood water would be diverted from the Peckman River to the Passaic River through a 1450-foot-long, 30-foot-wide by 10-foot-high closed culvert located approximately 550 feet upstream of the Route 46 bridge. The culvert would be constructed using a "cut and cover" method to a maximum above grade depth of 20 feet. The diversion culvert would be located on the western bank of the Peckman River and incorporate a side-channel inlet structure constructed at the level of full channel flow. A retaining wall will extend short distances both upstream and downstream from the inlet structure along the west bank of the river and a corresponding flood wall approximately 650 feet in length will be constructed along the east bank. Both the retaining wall and the floodwall will terminate at the site of a weir approximately 100 feet downstream of the culvert inlet structure. This weir, of yet undetermined configuration, will direct flood water into the culvert and be designed to allow both upstream and downstream passage of fish (Rightler, pers. comm. 2014).

A combination levee/floodwall system approximately 1800 feet in length would be constructed extending east from the Peckman River, adjacent to parking lots along the border of an approximately 20 acre forested area located behind Passaic Area High School. To decrease this system's footprint and reduce encroachment on a wetland located within the forested area, approximately 550 feet in the center section of this system will be constructed as a floodwall instead of a wider based levee. The west end of this levee would tie into the flood wall on the east bank of the Peckman River opposite the culvert inlet structure. The current and historic drainage pattern of the forested area (including the entire wetland) is to the north into an unnamed tributary of Great Notch Creek, with a much smaller area along the Peckman River draining into the river. Drainage structures will be included in the levee/floodwall system to maintain the wetland's hydrologic connections.

Retaining walls would be constructed along the channel of Great Notch Brook, extending approximately 1650 feet upstream from its confluence with the Peckman River just north of Route 46. A levee approximately 475 feet long will extend further upstream, south the Route 46 crossing. This entire section of Great Notch Brook runs through a commercial area and has long been channelized and diverted from its original course.



Figure 1. Proposed structural flood protection measures for the Peckman River and Great Notch Creek in Little Falls Township and the Borough of Woodland Park, Passaic County, NJ.

METHODS

Service and Corps representatives conducted a site visit on November 2, 2004, and noted dominant vegetation and general conditions of the Peckman River and its riparian area at various locations accessible by vehicle and foot. The Service also coordinated this review with the NJDFW, including the Bureau of Freshwater Fisheries (BFF). The Service has reviewed the following Project materials provided by the Corps:

- Section 905(b) WRDA 86 Preliminary Analysis, January 2002 (Corps 2002)
- Scoping Document, January 2004 (Corps 2004a)
- Data Gap Report, January 2004 (Corps 2004b)
- Environmental Resource Inventory (Corps 2004c)
- Wetland delineation, riparian corridor characterization, and restoration opportunity identification: Peckman River Basin, New Jersey (Corps 2009)
- Stream Assessment Report, September 2010 (Corps 2010a)
- Invertebrate Survey Report, October 2010 (Corps 2010b)
- Final Fish Survey Report, November 2010 (Corps 2010c)

The Corps has also provided the Service with amended aerial depictions of proposed diversion culvert, levee, and floodwall locations, as of December 2013.

Further, we have searched our Geographic Information System (GIS) database for known locations of federally listed species, wetlands, and other important habitat types within or near the study area. We also searched for State-listed species in the area using available GIS database information.

NATURAL RESOURCES

The Peckman River Basin

The Peckman River Basin is within New Jersey Watershed Management Area 4: Lower Passaic and Saddle, Northeast Water Region (NJDEP 2007). It is one of the major sub-watersheds of the Passaic River, encompassing a drainage area of approximately 9.8 square miles in Passaic and Essex Counties. The Peckman River's headwaters are located in the Town of West Orange and it flows northeasterly through the Borough of Verona, the Township of Cedar Grove, the Township of Little Falls, and the Borough of Woodland Park to its confluence with the Passaic River. Great Notch Brook is a major tributary to the Peckman River, draining lands on the eastern side of the watershed, joining the Peckman in Woodland Park. Great Notch Brook is subject to extremely rapid runoff from higher elevations. Frequent flooding events cause significant physical damages to properties within the Peckman River floodplain and loss of economic activity in the area.

Development activities throughout the Peckman River Basin are likely related to the loss and degradation of fish and wildlife resources and their supporting ecosystems. An estimated 71% of the land in the Peckman River watershed is urbanized (Corps 2002) and flooding is likely related to urban impacts to the watershed.

An evaluation of biological integrity assessed water and habitat quality within four reaches of the Peckman River (Corps 2010a). The reaches included an approximately 750-foot-long reach immediately upstream from the diversion inlet (Project Reach) and three other reaches ranging to 2.5 miles upstream of the Project Reach.

The Project Reach is described as representative of typical stream habitat within the Peckman River Basin. This portion of the river is composed of a series of riffles and glides, and a deep lateral scour pool segment. The substrate consists largely of gravel and cobble, with lesser amounts of sand. Approximately 75% of the substrate is covered by filamentous algae. Human bank alterations, in the form of stone and concrete walls, were noted. The surrounding land-use throughout the Peckman River Basin is predominately residential and commercial; however the Project Reach each has a relatively wide riparian corridor on the east bank. The dominant vegetation within the Project Reach's riparian corridor consists of large deciduous trees with an understory dominated by invasive Japanese knotweed (*Polygonum cuspidatum*) adjacent to the bank.

Physicochemical assessment of instream and riparian water/habitat quality determined that all surveyed reaches of the Peckman River were representative of "suboptimal" conditions (Corps 2010a). Two biological assessment methods were utilized to measure habitat and water quality. Using benthic macroinvertebrate taxonomic richness as an indicator of water quality, the New Jersey Impairment Score determined water quality at the Project site to be "moderately impaired" (Corps 2010b). Using organic pollution tolerances of benthic macroinvertebrates, the Hilsenhoff Biotic Index determined water quality as "fair" and indicative of "fairly significant organic pollution" (Corps 2010b, Mandaville 2002).

Due to the highly developed nature of the Peckman River Basin, wildlife resources are limited to a narrow strip of vegetation along the river corridor, supplemented by remnant palustrine forested/scrub-shrub wetland within the floodplain. Human alterations, such as areas of channelization or stream banks modified by hard structures, are evident at several locations along the river. Channelization is most evident on several small unnamed feeder streams, where runoff from rain events is carried quickly to the Peckman, contributing greatly to the flash flood flow problems. Stream bank erosion is a problem at several locations, leading to losses of riparian vegetation as well as increased streambed sedimentation that negatively impacts aquatic habitat.

Wetlands and Vernal Pools

A NJDEP-mapped 8.54-acre palustrine forested deciduous wetland lies within an approximately 20 acre wooded area on the east side of the Peckman River immediately upstream and opposite of the proposed diversion inlet. The wooded area is bordered by auto dealership parking lots on the north, a shopping center parking lot to the east, Passaic Area High School athletic fields to the south, and the Peckman River to the west. The Corps' assessment of the hydrology, vegetation, and soil within approximately three acres of the mapped wetland delineated approximately 0.7 acres as regulated wetlands. The assessment was confined to an area within 100 feet of the east and north borders of the wooded area. Regulated wetlands and vernal pools were noted to extend south of the assessment area, but were deemed outside the Project's direct impact area and not surveyed (Corps 2009).

Three vernal pools were identified within the assessment area and all were located in the delineated wetland (Corps 2009). Vernal pools are unique ecological systems supporting distinctive plant and animal species. Typically inundated in the spring and dry during the summer, vernal pools provide safe habitat for amphibian and insect species unable to tolerate competition or predation by fish.

The canopy of the surveyed wetland is dominated by red maple (*Acer rubrum*) and green ash (*Fraxinus pennsylvanica*), but also includes black gum (*Nyssa silvatica*), American elm (*Ulmus americana*), bitternut hickory (*Carya cordiformis*), black walnut (*Juglans nigra*), sugar maple (*Acer saccharum*), silver maple (*Acer saccharinum*), and sycamore (*Platanus occidentalis*). The shrub layer consists of Japanese knotweed, spice bush (*Lindera benzoin*), and black haw (*Viburnum prunifolium*). The herbaceous plants observed include royal fern (*Osmunda regalis*), skunk cabbage (*Symplocarpus foetidus*), dotted smartweed (*Polygonum punctatum*), clearweed (*Pilea pumila*), jack-in-the-pulpit (*Arisaema triphyllum*), sensitive fern (*Onoclea sensibilis*), Oriental bittersweet (*Celastrus orbiculatus*), and poison ivy (*Toxicodendron radicans*) (Corps 2009). Japanese knotweed and Oriental bittersweet are considered noxious invasive species.

Fish

The Peckman River supports several freshwater fish species, such as American eel (Anguilla rostrata), banded killifish (Fundulus diaphanous), blacknose dace (Rhinichthys atratulus), bluegill (Lepomis macrochirus), common carp (Cyprinus carpio), creek chub (Semotilus atromaculatus), green sunfish (Lepomis cyanellus), largemouth bass (Micropterus salmoides), longnose dace (Rhinichthys cataractae), smallmouth bass (Micropterus dolomieu), tessellated darter (Etheostoma olmstedi), and white sucker (Catostomus commersoni).

Electrofishing surveys of the Peckman River were conducted by NJDFW in 1999 and by Corps' contracted Tetra Tech, Inc. biologists in 2010. Species composition in the Project Reach was found to be comparable in those surveys (Corps 2010c), with white sucker, blacknose dace, and creek chub dominating the catch in both sampling events. Species present in the 1999 NJDEP survey, but absent from the 2010 survey included brown trout (*Salmo trutta*), pumpkinseed sunfish (*Lepomis gibbosus*), and brown bullhead (*Ameiurus nebulosus*). In contrast, species present in the 2010 survey and absent in the 1999 NJDFW survey included American eel, longnose dace, tessellated darter, and smallmouth bass.

The Fish Index of Biological Integrity (FIBI) is an ecologically based method for identifying and classifying water pollution levels through assessment of fish assemblages. The FIBI assessment focuses on the dynamics and composition of fish population, evaluating metrics that include species richness, trophic level, and tolerance to changing environmental conditions (Barbour *et al.* 1999). The calculated FIBI score from 2010 data determined the Project Reach to be impaired (*i.e.* "poor") (Corps 2010c). Population data were estimated for some species during the 1999 NJDFW survey, precluding any comparative FIBI assessment between the 2010 and 1999 surveys.

The Peckman River is classified by NJDFW as FW2 Non Trout Waters (NJDFW 2005). Approximately 2000 trout per year are stocked in Verona Pond, an impoundment on the Peckman River approximately four miles upstream from the Project area and probably account for any trout collected in surveys.
Environmental Contaminants

A preliminary Hazardous, Toxic, and Radioactive Waste (HTRW) Assessment identified several sites adjacent to the Project that should be considered as low concern for HTRW (Corps 2002). HTRW sites near the Project area include:

- A vacant industrial building at 24 Ryle Avenue is listed on the Emergency Response Notification System database list;
- The Little Falls Recreation Center at 160 Patterson Avenue is listed in the Leaking Underground Storage Tank database with a No Further Action status. Also, several spills have occurred within this area of Patterson Avenue;
- The Little Falls Township New Jersey State Police laboratory is listed in the State Hazardous Waste Site database with an open status;
- An industrial Park is located between Peckman River and the Recreation Center along Patterson Avenue. Several spills are listed within this industrial park especially between 5 and 8 Peckman Road. Fred Heyrion at 3 Peckman Road is listed with an Underground Storage Tank and several spills have been reported.

A review of the NJDEP Site Remediation Program contaminated site lists revealed six properties in the Project Area with confirmed contamination (NJDEP 2012). Pending sites with confirmed contamination include:

- Passaic County Regional High School at 100 E Main Street (property at proposed Peckman River levee/floodwall)
- Little Falls Laboratory, at 1103 RT 46 (property adjacent to, and upgrade of, the proposed Great Notch Creek retaining wall)

Active sites with confirmed contamination include:

- Fred Heyrich Industrial Services at 3 Peckman Rd (property adjacent to proposed diversion inlet)
- Bob Ciasulli Toyota Toyota Universe at 1485 RT 46 (property at proposed Peckman River levee/floodwall)
- Conoco Phillips Mobil #2635060 at 1455 RT 46 (property at proposed Peckman River levee/floodwall)
- Lukoil #573001500 at RT 46 W (property at proposed Great Notch Creek floodwall)

Given that several of these confirmed contamination sites were not identified in the Corp's 2002 HTRW Assessment, an updated review with the most recent government records search available is advised.

Sub-surface soil samples were obtained from borings to depths of 25 feet (or bedrock) at 23 various locations along the Peckman River and Great Notch Creek stream banks and analyzed for volatile organic compounds (VOC)+15, semi-volatile organic compounds (SVOC)+25, pesticides, polychlorinated biphenyls (PCBs), and Resource Conservation and Recovery Act (RCRA)-8 metals. A summary of the analysis report provided to the Service by the Corps (Dabal, pers. comm. 2012) indicated that detectable levels were found at six locations. The summary indicated that Isophorone (VO+15) was found at levels exceeding NJDEP guidelines in

a sample collected at the Little Falls Township Department of Public Works (DPW) yard (adjacent to, and part of, the diversion culvert inlet site), but its presence was "not an issue" and only standard accepted protocols for excavations were applicable. The SVO compounds Benzo(a)anthracene, Benzo(b)flouranthene, and Indeno(1,2,3-cd)pyrene were detected at five locations, with Benzo(a)pyrene levels exceeding NJDEP guidelines at each site, but deemed as "not excessive". No pesticides or PCBs were detected in any sample. The analysis detected the RCRA-8 metals Arsenic at one location and Lead at two locations. The Arsenic level (22 ppm) was just above NJDEP guideline (20 ppm), but considered "not an issue" due to its depth and location. The Service concurs that the detected contaminant levels of VOCs, SVOCs, and Arsenic, especially given their depth of occurrence, do not pose a significant risk to fish and wildlife resources. The summary indicated that Lead was detected at 681 ppm (above the NJDEP guideline of 400 ppm) in the sample collected at the DPW yard. The diversion culvert inlet structure is planned to be located on the DPW yard and extensive excavation is planned at this site. Environmental exposure to lead contaminated soil at this location could pose a threat to fish and wildlife resources and to human health. The Service agrees with the summary's recommendation that additional drilling and sub-surface sampling will have to be conducted to determine the extent of the lead contamination and that any work conducted in that area will require additional planning beyond general excavation protocols.

Federally Listed Species

Indiana Bat

The Project site is located within the summer breeding range of the federally listed (endangered) Indiana bat (*Myotis sodalis*) and is approximately 16 miles from a known hibernaculum. Indiana bats hibernate in caves and abandoned mine shafts from October through April. Between April and August, Indiana bats inhabit floodplain, riparian, and upland forests, roosting under loose tree bark during the day, and foraging for flying insects in and around the tree canopy at night. During these summer months, numerous females roost together in maternity colonies. Maternity colonies use multiple roosts in both living and dead trees. From late August to mid-November, Indiana bats congregate in the vicinity of their hibernacula, building up fat reserves for hibernation. Protection of Indiana bats during all phases of their annual life cycle is essential to the long term conservation of this species. Threats to the Indiana bat include disturbance or killing of hibernating and maternity colonies; vandalism and improper gating of hibernacula; fragmentation, degradation, and destruction of forested summer habitats; and use of pesticides and other environmental contaminants.

Section 9 of the ESA prohibits unauthorized "take" of federally listed wildlife by killing, wounding, harming, or harassing a species. Harm includes significant habitat modification or degradation; harass includes an intentional or negligent act or omission that significantly disrupts normal behavioral patterns such as breeding, feeding, or sheltering.

Species Proposed for Federal Listing

Northern Long-eared Bat

The Project site is located within the summer breeding range of the federally proposed (endangered) northern long-eared bat (*Myotis septentrionalis*) and is approximately four miles

from a known maternity colony. On October 2, 2013, a proposed rule to list the northern longeared bat as an endangered species was published in the Federal Register. A final determination to list the long-eared bat will be made by September 2014. Northern long-eared bats are known to utilize trees as roosts, but information regarding the biological needs of the species is not sufficiently well known to permit identification of areas as critical habitat at this time. The Service is seeking more information regarding its specific winter and summer habitat features and requirements, and will make a determination on critical habitat no later than 1 year following any final listing.

Species under Review for Federal Listing

The Service is evaluating the little brown bat (*Myotis lucifugus*), tri-colored bat (*Perimyotis subflavus*), and American eel to determine if listing under the ESA is warranted. The bat species may be present, and the American eel is known to be present, in the Project area. These species do not currently receive any substantive or procedural protection under the ESA, and the Service has not yet determined if listing of any of these species is warranted. However, the Corps and other Federal action agencies should be aware that these species are being evaluated for possible listing and may wish to include them in field surveys and/or impact assessments, particularly for projects with long planning horizons and/or long operational lives.

Except for the above mentioned species, no other federally listed or proposed threatened or endangered flora or fauna under Service jurisdiction are known to occur in the vicinity of the property. If additional information on federally listed species becomes available, or if Project plans change, this determination may be reconsidered.

Migratory Birds

Common bird species in the Project area include American robin (*Turdus migratorius*), northern cardinal (*Cardinalis cardinalis*), tufted titmouse (*Baeolophus bicolor*), gray catbird (*Dumetella carolinensis*), and American crow (*Corvus brachyrhynchos*).

Migratory birds are a Federal trust resource responsibility of the Service pursuant to the MBTA. Many species of migratory birds have experienced population declines in recent decades, largely due to direct and indirect destruction and fragmentation of their habitats (Dunne 1989).

The MBTA prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. Unlike the ESA, neither the MBTA nor its implementing regulations at 50 CFR Part 21 provide for permitting of "incidental take" of migratory birds. In New Jersey, the appropriate timing restriction to protect nesting migratory birds from tree and shrub-scrub removal is March 15 to July 31 (NJDFW 2006).

SERVICE RECOMMENDATIONS

The first objective of Corp's Section 905(b) Water Resources Development Act (WRDA) Preliminary Analysis (Corps 2002) is "To reduce the flood hazard and associated urban flood damages in the [Peckman River] Basin". Management of stormwater in urban watersheds requires plans that are designed as a system, integrating structural and nonstructural measures, and incorporating watershed goals (National Research Council 2008). Improving on-site stormwater retention, creating open space, and replacing hard surfaces with permeable ones are activities that enhance storage capacity and infiltration into the soil, promoting a stronger subsurface hydrologic connection to waterways that decreases the peak flows and resultant flooding (National Research Council 2008).

The Service strongly believes that nonstructural components are integral in the development and implementation of any long-term flood control plan for the Peckman River Basin. We recommend that the Corps reexamine their decision to remove non-structural elements from their analysis. The creation of open space through property buyouts, utilizing permeable pavements where practical, and increasing on-site stormwater storage capacity of residential and commercial properties with the installation of cisterns, rain gardens and/or dry swales, are all feasible measures that can be employed to reduce the flood hazard currently experienced in the Basin.

In an effort to reduce flash flooding in the Basin, some communities in the Basin are partnering with non-government and conservation organizations to promote and implement non-structural stormwater management measures (Kadosh 2014). The Service recommends that the Corp's encourage, support, and assist concerned communities, organizations and residents to expand on such activities, many of which require little capital investment and provide long-term benefits.

The Service recommends that the Corps assess the effects of the Project on area hydrology. Such an assessment should include anticipated changes in sheet flows, stream flows, and groundwater flows into any floodplain wetlands, and any effects from flood waters that would rise in wetlands located behind proposed flood control structures during storm events. Possible effects downstream of the confluence with the Passaic River should also be evaluated.

In addition, the Corp's assessment analysis should be completed with consideration of future effects of climate change. The Sustainable Jersey Climate Change Adaptation Task Force (CATF) identifies that average annual precipitation is expected to increase in the region by up to 5% by the 2020's and up to 10% by the 2050's (CATF 2011).

In general, the Service recommends timing restrictions on construction activities and use of best management practices (*e.g.*, hay bales, silt curtains, coffer dams) during construction to avoid adverse impacts to terrestrial and aquatic species at any proposed restoration sites and flood control locations.

Project plans should be designed to avoid any adverse impacts to freshwater wetlands. If adverse impacts to freshwater wetlands are unavoidable, we recommend that the Corps develop a compensatory mitigation plan.

Mature trees are important components to riparian ecosystem and should be maintained to the maximum extent possible. Shade produced by mature trees along the stream is critical to maintaining water temperature and dissolved oxygen favorable to aquatic organisms. In addition, the vertical structure and canopy provided by mature trees are a critical component of habitat for migratory birds and bats. If any trees must be removed, preferential protection should be afforded to large, native, mast or fruit producing species. The Service also advocates salvaging native extant shrubs and small trees during any flood control construction phase.

Salvaged trees and shrubs should then be replanted at appropriate sites along the river or within the watershed.

Preferred Indiana bat foraging areas and roost locations are strongly associated with riparian and wetland habitats (Kitchell 2008; Watrous *et al.* 2006). Several species of preferred roost trees, including American elm, green ash, sugar maple, silver maple, bitternut hickory, and red maple were identified along the Peckman River corridor and in the wetland adjacent to the Project site (Corps 2009). Based on a site visit, Service personnel identified potential roosting trees for the Indiana bat and foraging habitat within the Project area and determined that tree clearing could adversely affect this species. The Service, therefore, recommends a seasonal restriction on the clearing of trees 5 inches or greater in diameter at breast height during the summer foraging period of April 1 through September 30. Trees may be felled from October 1 to March 31. If Project plans entail the clearing of trees during the foraging season, the Service recommends a survey be conducted for the presence or absence of summering Indiana bats. All survey plans should be submitted to the Service's New Jersey Field Office for review prior to implementation.

DIVERSION

The proposed location for the diversion tunnel would impact a heavily eroded and degraded bank which contains a patch of Japanese knotweed, ailanthus (*Ailanthus altissima*), Tartarian honeysuckle (*Lonicera tatarica*), and a few shrubs and tree saplings. Japanese knotweed, ailanthus, and Tartarian honeysuckle are exotic, invasive species; thus, the Service would anticipate few adverse impacts to the use of this site.

The design plans incorporate a levee/floodwall/retaining wall system extending east of the Peckman River, opposite the diversion culvert. These levees and floodwalls have the potential to alter drainage patterns to the area, which includes approximately 20 forested acres (containing wetlands and vernal pools) and adjacent athletic fields behind Passaic County Regional High School. The majority of this area appears to drain northward into a channelized tributary of Great Notch Creek. The levee/floodwall may restrict or block drainage into the tributary and cause ponding within the forested area.

1. Inlet

- Construct the inlet to retain bank full flows and divert only higher out-of-bank flows. Bank flows are necessary to maintain channel formation (*e.g.*, removal of sediment buildup, channel clearing of debris).
- Forward a copy of the design plans for the levee system and channel constriction to the Service for review to ensure that such designs do not adversely impact palustrine forested wetlands along the eastern bank across from the inlet structure or aquatic resources downstream of the channel constriction. Generally, the Service and NJDFW (Didun, pers. comm. 2004) do not advocate the use of in-stream blockages to divert flows. However, if a diversion is constructed, the Service recommends using natural, soft material, such as clean soil, rock, and stone for levee construction. The levee could then be vegetated. Additionally, the levee would need to be constructed to ensure that fish are unimpeded traveling upstream and downstream of the Peckman River.

2. Tunnel

- Design the tunnel to allow passage of normal groundwater flow to and from any nearby wetlands and avoid impeding the Peckman River's full range of modal flows through all seasons. Minimize the creation of additional impervious surface.
- Retain large trees to protect habitats for migratory birds. A line of large mature trees closely borders the proposed corridor between Harrison Street and McBride Avenue. Given the size of the trees and the scarcity of such trees within the watershed, the Service advises moving the path of the diversion tunnel between Harrison Street and McBride Avenue slightly south to avoid adverse impacts to these trees, including the supporting root systems.
- Coat the interior of the diversion tunnel to obtain a smooth surface and reduce abrasion to aquatic biota being diverted (*e.g.*, reduce de-scaling fish). Incorporate a low flow design to concentrate flows in a narrower section of the culvert bottom (*e.g.*, concave-shaped bottom) to allow any diverted aquatic biota to escape downstream when the amount of diverted water is slight or receding.

3. Outlet

- Locate the outlet for the diversion tunnel to minimize removal of trees and shrubs. Palustrine forested wetlands exist as an island within the Passaic River and as a finger of low floodplains immediately opposite and immediately upstream, respectively, of the proposed outlet location. The Service recommends placing the outlet to minimize adverse impacts on these wetlands.
- Investigate potential hydrologic alterations created by floodwaters exiting the outlet to determine if these forested wetlands would be adversely impacted.

4. Levee/Floodwall

- Design the levee/floodwall extending east from the Peckman River opposite the diversion culvert inlet along the northern border of the forested area on the east side of the river so that it maintains current drainage patterns.
- Include at least two stormwater features: one at near the midpoint of the floodwall allowing drainage into the Great Notch Creek tributary; and one near the bank of the Peckman River allowing drainage into the Peckman River.
- Conduct regular inspections of levee/floodwall stormwater features to clear any blockages that could alter hydrologic conditions by ponding water within the forested area and associated wetlands and vernal pools.

ECOSYSTEM RESTORATION

The Service and NJDFW support Corps efforts to restore fish and wildlife habitats along the Peckman River. We concur with the Corps (2002) statement that habitat availability is very limited in this highly developed area. Although ecosystem restoration is no longer a primary component to the Peckman River Basin Flood Risk Management Feasibility Study (Rightler, pers. comm. 2014), we recommend that the Corps to continue to coordinate with the Service, local municipalities, and interested conservation organizations at all stages of planning and construction to incorporate measures that reduce inputs of stormwater and sedimentation into the River. The Service also recommends that the Corps explore opportunities for creating open space and removing impermeable surfaces to the extent possible. Such actions will promote ecosystem integrity and provide substantial benefits to fish and wildlife resources.

GENERAL RECOMMENDATIONS

1. Project Planning

- Base designs for all in-stream and stream bank restoration plans upon natural channel morphology and behavior to the extent feasible. Data needed include topography, cross sections, and hydrodynamics of the proposed aquatic restoration sites. Planning must ensure that any recommended structures would not cause adverse impacts to the river system downstream. Such planning should include projections associated with climate change.
- Utilize a comprehensive model for flood hazard reduction that maximizes to the extent possible stormwater control methods that reduce direct flow into Basin waterways, including elements such as buyouts of property, creation of open space, decreasing the amount of impermeable surfaces, and the promotion of systems that increase infiltration to groundwater.
- Forward results of sediment testing to the Service for review. The Service understands that contaminants testing will be conducted on Project site sediments once plans have been finalized. According to current plans, it appears that at least 12 properties in the Project area where soils are to be disturbed have been identified as contaminated sites. The Service recommends that future design phases include information on sediment sources and disposal sites where fill or excavation may be required.
- Develop and implement a long-term management and monitoring plan for the Project. The plan should provide adequate evaluation of habitat restoration success. Information obtained will contribute to the science of in-stream and riparian habitat restoration, particularly in urban settings. The plan should include contingencies that would provide for further Corps action during post-construction monitoring, if necessary, as part of an adaptive management strategy to be implemented in coordination with affected municipalities and private landowners. Corps interventions may include regrading, replanting, or other actions to correct for unexpected conditions, including deposition, erosion, failure of vegetation establishment, and/or re-invasion of undesirable species such as Japanese knotweed.

- Minimize the amount of time that construction equipment will be in the river channel. Also limit the amount of equipment that must be put into the water course. Where possible, conduct work from the top of the bank rather than from the river. Limiting disturbances will minimize any adverse effects on aquatic species and wetlands within the river.
- Consult the scientific literature and use the best available information regarding planting elevation, depth, soil type, and seasonal timing to ensure best results when revegetating sites. Include subsurface conditions such as soil and sediment geochemistry and physics, groundwater quantity and quality, and infauna when designing riparian, wetland, and instream restoration.

2. Coordination with local municipalities and land owners

- Coordinate with landowners on sites proposed for restoration. Consult with the Service's *Partners for Fish and Wildlife* program biologists to facilitate cooperation and partnerships with those private landowners when conducting habitat restoration. For additional information about the *Partners* program, contact the Service's New Jersey Field Office at (609) 646-9310 ext. 22, Attn: Brian Marsh.
- Coordinate with the local municipalities to assess the condition of stormwater outfalls. Opportunities may exist to reconfigure storm-water discharges during Project construction to limit erosion, slow storm-water flows, and improve water quality.
- Coordinate with the local municipalities, non-government organizations, and land owners to promote incorporation of "green infrastructure" stormwater management systems such as residential rain gardens and other stormwater retention measures that increase infiltration and recharge to groundwater, and reduce peak flows of stormwater runoff.
- Coordinate any clearing and snagging activities with the local municipalities. If the river has not been cleared, the Corps will need to coordinate with the local municipalities to ensure that such activities do not adversely affect the proposed ecosystem restoration or further degrade the riverine system.

3. Stream Banks

- Employ bioengineering techniques and soft structures, as described in the Corps' (2002) report to stabilize stream banks. Such techniques include regrading banks, using erosion control fabrics and biologs, and planting native trees and shrubs along the banks. Many feasible sites were identified in the Corps' (2002) report. The Service recommends bioengineering techniques to stabilize stream banks, as opposed to constructing hard structures, along as many eroded sites of the Peckman River as feasible. Where hard structures offer the only feasible alternative, the use of natural material (*e.g.*, stones, boulders) is recommended.
- Salvage as many large shade-producing trees as possible along the river. Large shadeproducing trees moderate water temperature in the stream during the summer months that benefits fish and aquatic invertebrates.

4. Riparian Buffers

- Plant native young trees and shrubs throughout degraded forest floors to improve understory cover. A healthy forest requires an understory to provide multiple canopy layers (thus increasing wildlife diversity), to provide replacement trees and shrubs as the forest matures and older trees die, and to reduce sunlight on the forest floor (which decreases chances for certain invasive species to become established). Recommended plantings should be largely comprised of species not palatable to deer.
- Eradicate or control exotic, invasive species, particularly Japanese knotweed, to enhance fish and wildlife habitat and improve stream bank stability and water storage capacity along the Peckman River. Control measures need to be included in all phases of restoration and flood control plans and should be implemented by all contractors to minimize reburial of Japanese knotweed and transportation of its rhizomes off-site from construction activities.

CONCLUSIONS AND SUMMARY OF RECOMMENDATIONS

The Service appreciates the Corps' consulting with us early in the planning stages. We request that the Corps continue to consult with this office to avoid adverse impacts to fish and wildlife resources and species of management concern within the study area. Specifically, please keep this office informed of Project meetings and schedules, environmental and wildlife investigations or studies, and formulation of Project alternatives. Additionally, please forward to this office for review the draft Project Management Plan (PMP) when it becomes available. The Service will review the PMP and comment with respect to fish and wildlife considerations and Service participation.

The Service also recommends that the Corps coordinate closely with the NJDFW/BFF during the formulation of early designs for the flood control measures and ecosystem restoration. Such coordination would require meetings on site with State biologists. Mr. Mark Boriek (Fisheries Biologist, NJDFW /BFF) is available to arrange coordination with the State. He may be contacted at (908) 236-2118.

The flowing summarizes the Service's general conclusions and recommendations for continued Project planning. As Project plans are refined, the Service will be making more specific recommendations.

Diversion Tunnel and Associated Levees and Floodwalls

- 1. Conduct a thorough and detailed assessment of the effects of each flood control measure on area hydrology. Evaluate downstream effects to the Passaic River. Include consideration of climate change projections.
- 2. Use best management practices and timing restrictions during construction to avoid adverse impacts to fish and wildlife species.
- 3. Avoid any adverse impacts to freshwater wetlands. If adverse impacts to freshwater wetlands are unavoidable, develop a compensatory mitigation plan.

- 4. Maintain mature trees to the maximum extent possible. Any trees designated for removal should be surveyed in the appropriate season prior to the start of work for evidence of nesting by bird species of management concern.
- 5. Delineate the anticipated 50-year floodplain. Future reports should state the rationale for using a flood control plan designed for a 50-year event.
- 6. Construct the diversion inlet to retain bank full flows and divert only higher out-of-bank flows. Forward a copy of the design plans for the levee system and channel constriction to the Service for review.
- 7. Design the tunnel to allow passage of normal groundwater flow to and from any nearby wetlands and avoid impeding the Peckman River's full range of modal flows through all seasons. Minimize the creation of additional impervious surface.
- 8. Design the tunnel to avoid adverse impacts to the trees, including the supporting root systems.
- 9. Coat the interior of the diversion tunnel to obtain a smooth surface and to reduce abrasion to aquatic biota being diverted. Incorporate a low-flow design to allow any diverted aquatic biota to escape downstream when the amount of diverted water is slight or receding.
- 10. Locate the tunnel outlet to minimize removal of vegetation and adverse impacts on wetlands.
- 11. Survey for the presence or absence of summering Indiana or northern long-eared bats if Project plans entail the clearing of any tracts of forest or removal of mature trees in riparian habitat.
- 12. Provide the Service with an updated review of HTRW contamination sites within one quarter mile of the Project area using the most recent government records available.
- 13. Conduct further soil testing at the Little Falls DPW yard to determine the extent of Lead contamination at the site. Provide the Service with the results.

Stormwater Control Measures and Protection of Fish and Wildlife Resources

- 1. Utilize creation of open space, property buyouts, and non-structural alternatives to reduce flash flooding and adverse impacts to fish and wildlife species.
- 2. Design in-stream and stream bank restoration plans based upon natural channel morphology and behavior.
- 3. Include Great Notch Brook in future hydrological studies if it has not been evaluated.
- 4. Forward sediment contaminant test results to the Service when available. Include information on sediment sources and disposal sites.
- 5. Develop and implement a long-term management and monitoring plan that provides for adequate evaluation of success at each ecosystem restoration site.

- 6. Minimize the amount of time that construction equipment will be in the river channel. Also limit the amount of equipment that must be put into the water course. Consult the scientific literature and use the best available information when designing ecosystem restoration Projects.
- 7. Consult with the Service's Partners for Fish and Wildlife program to facilitate cooperation and partnerships with private and municipal landowners when conducting habitat restoration.
- 8. Coordinate any clearing and snagging activities with the local municipalities. Coordinate with local governments to assess the condition of storm-water outfalls.
- 9. Use bioengineering techniques to stabilize stream banks in the Project area. Where hard structures are the only feasible alternative, use natural material.
- 10. Include in the long term management plans for the Peckman River measures to reduce illegal dumping on the stream banks.
- 11. Salvage large shade-producing trees with exposed roots along the river. Anchor them in place and install boulders near the exposed roots.
- 12. Plant native trees and shrubs throughout degraded forest floors to improve understory cover. Eradicate or control exotic, invasive species, particularly Japanese knotweed, along the Peckman River and Great Notch Creek. Include measures to control invasive plants in all phases of construction.

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USFWS Planning Aid Report January 2005

PECKMAN RIVER BASIN FLOOD CONTROL AND AQUATIC ECOSYSTEM RESTORATION PROJECT, PASSAIC AND ESSEX COUNTIES, NEW JERSEY

PLANNING AID REPORT

and the second



Prepared by:

U.S. Fish and Wildlife Service Ecological Services, Region 5 New Jersey Field Office Pleasantville, New Jersey 08232

January 2005

PECKMAN RIVER BASIN FLOOD CONTROL AND AQUATIC ECOSYSTEM RESTORATION PROJECT, PASSAIC AND ESSEX COUNTIES, NEW JERSEY

PLANNING AID REPORT

Prepared for:

U.S. Army Corps of Engineers New York District New York, New York 10278-0090

Prepared by:

U.S. Fish and Wildlife Service Ecological Services, Region 5 New Jersey Field Office Pleasantville, New Jersey 08232

Preparer: Robert V. Smith Assistant Project Leader: John C. Staples Project Leader: Clifford G. Day

January 2005

EXECUTIVE SUMMARY

The Peckman River Basin, New Jersey, Flood Control and Ecosystem Study area (study area) is located in Passaic and Essex Counties, New Jersey, in the Lower Passaic River Basin. The Peckman River's headwaters are located in the Town of West Orange, and its waters flow northeasterly through the Borough of Verona, the Township of Cedar Grove, the Township of Little Falls, and the Borough of West Paterson to its confluence with the Passaic River. As a result of residential, commercial, and industrial development within the floodplain, certain areas in the watershed have experienced significant flooding events and property damage. Development within the watershed has also resulted in the loss and degradation of fish and wildlife habitats.

In response to these flooding events and environmental concerns, the U.S. Army Corps of Engineers, New York District (Corps), in partnership with the New Jersey Department of Environmental Protection (NJDEP), is conducting a feasibility study for flood protection and ecosystem restoration. Three preliminary flood control alternatives and a number of potential restoration sites and restoration methods have been identified by the Corps.

Proposed flood control within the study area includes structural and, potentially, nonstructural alternatives. The structural measures identified by the Corps to date include a diversion tunnel and associated structures and levee system, a floodwall, and stream channelization. Nonstructural measures may be considered on a site-by-site basis, but have not been analyzed in detail by the Corps.

In this Planning Aid Report, the U.S. Fish and Wildlife Service (Service) identifies federally listed species and State-listed species of management concern within the study area and addresses potential adverse impacts or benefits from the proposed restorations and flood control alternatives. Preliminary recommendations are made for the sites identified by the Corps for restoration, additional sites are identified, and recommendations are discussed for future planning efforts.

At this stage of planning, the Service recommends greater overall consideration of nonstructural alternatives to reduce flood damage. In this regard, investigating the removal of impervious surfaces from the watershed and improving the amount and quality of vegetative cover upstream of flood-prone areas are also recommended. Of the structural alternatives considered, the Service would recommend developing the diversion alternative, with recommended modifications to reduce adverse impacts to fish and wildlife, over the floodwall and channelization alternatives. The Service also recommends minimizing loss of mature trees for any alternative selected. Additionally, a plan will need to be developed to compensate for unavoidable adverse impacts to wetlands and associated wildlife.

Recommendations for environmental restoration include: further consideration for work on Great Notch Brook; preference of bioengineering to hard structural techniques to stabilize stream banks; protection of large shade trees along the river; coordination of clearing and snagging activities with local municipalities; and development of a long-term monitoring plan for restored sites. As the conceptual designs for the priority restoration sites are developed, the Service will

provide more specific recommendations to help minimize and avoid adverse impacts to species of management concern; recommendations will be presented in future Planning Aid Letters and / or the forthcoming FWCA Section 2(b) report.

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I. INTRODUCTION

The Peckman River Basin, New Jersey, Flood Control and Ecosystem Study area (study area) is located in Passaic and Essex Counties, New Jersey, in the Lower Passaic River Basin. The Peckman River's headwaters are located in the Town of West Orange and its waters flow northeasterly through the Borough of Verona, the Township of Cedar Grove, the Township of Little Falls, and the Borough of West Paterson to its confluence with the Passaic River (appendix A). As a result of residential, commercial, and industrial development within the floodplain, certain areas within the watershed have experienced significant flooding events, which have led to physical damages to properties and loss of economic activity. These development activities have also resulted in the loss and degradation of fish and wildlife resources and their supporting ecosystems within the watershed.

In response to these flooding events and environmental concerns, the U.S. Army Corps of Engineers, New York District (Corps), in partnership with the New Jersey Department of Environmental Protection (NJDEP), is conducting a feasibility study for flood protection and ecosystem restoration measures. Three main preliminary flood control alternatives and a number of potential restoration sites and restoration methods were identified in the Corps' (2002) Section 905(b) Water Resources Development Act 1986 Preliminary Analysis report for the *Peckman River Basin, New Jersey, Feasibility Studies for Flood Control and Ecosystem Restoration*.

The proposed measures for flood control within the study area include structural and, potentially, nonstructural alternatives. The structural measures identified in the report include a diversion tunnel and associated structures and levee system, a floodwall, and stream channelization. Nonstructural measures may be considered on a site-by-site basis but were not analyzed in detail by the Corps (2002).

This U.S. Fish and Wildlife Service (Service) Planning Aid Report identifies federally listed species and State-listed species of management concern within the study area and addresses potential adverse impacts or benefits from the proposed restorations and flood control alternatives. Preliminary recommendations are made for the sites identified by the Corps (2002) for restoration, additional sites are identified, and recommendations are discussed for future planning efforts. As the conceptual designs for the priority restoration sites are developed, the Service will provide more specific recommendations to avoid adverse impacts to species of management concern; recommendations will be presented in future Planning Aid Letters and / or the forthcoming FWCA Section 2(b) report.

II. METHODS

Service and Corps representatives conducted a site visit on November 2, 2004 and noted dominant vegetation and general conditions of the Peckman River and its riparian area at various locations accessible by vehicle and foot. The Service also coordinated this preliminary review with the NJDEP's Division of Fish and Wildlife (NJDFW), including the Bureau of Freshwater Fisheries (BFF). The Service has reviewed the following project materials provided by the Corps:

- Section 905(b) WRDA 86 Preliminary Analysis, January 2002 (U.S. Army Corps of Engineers, 2002);
- Scoping Document, January 2004 (U.S. Army Corps of Engineers, 2004a);
- Data Gap Report, January 2004 (U.S. Army Corps of Engineers, 2004b); and the
- Environmental Resource Inventory (U.S. Army Corps of Engineers, 2004c).

Further, we have searched our Geographic Information System (GIS) database for known locations of federally listed species, wetlands, and other important habitat types within or near the study area. We also searched for State-listed species in the area using available GIS database information.

III. FISH AND WILDLIFE RESOURCES

A. COMMON SPECIES

A Service biologist visited the Peckman River with Corps staff on November 2, 2004 (as noted above) and identified common vegetative components of the riparian buffer: red maple (*Acer rubrum*), red oak (*Quercus rubra*), American sycamore (*Platanus occidentalis*), box elder (*Acer negundo*), black cherry (*Prunus serotina*), black gum (*Nyssa sylvatica*), raspberry (*Rubus idaeus*), wild grape (*Vitis spp.*), greenbriar (*Smilax spp.*), and Japanese knotweed (*Polygonum cuspidatum*). This list of vegetation was obtained from a cursory survey of select locations along the river. A more thorough vegetative survey would be warranted as construction and restoration sites become finalized.

According to the NJDFW/BFF (Papson, pers. comm., 2004), the Peckman River was sampled at 8 locations during 1998 and 1999. Fish species collected included: brook trout (*Salvelinus fontinalis*) (stocked), brown trout (*Salmo trutta*) (stocked), rainbow trout (*Oncorhynchus mykiss*) (stocked), creek chub (*Semotilus atromaculatus*), blacknose dace (*Rhinichthys atratulus*), white sucker (*Catostomus commersoni*), carp (*Cyprinus carpio*), bluegill (*Lepomis macrochirus*), green sunfish (*L. cyanellus*), pumpkinseed (*L. gibbosus*), brown bullhead (*Ameiurus nebulosus*), American eel (*Anguilla rostrata*), and satinfin shiner (*Cyprinella analostana*). Trout were not collected downstream of the Main Street Bridge. Based on these sampling surveys, the NJDFW proposed that Peckman River be upgraded to a "Trout Maintenance" classification from a point 1,300 feet upstream of the Ozone Avenue Bridge in Verona Township to the Main Street Bridge in Little Falls Township. The Corps (2002) states that "the presence of trout has been established upstream of Route 46 (p.11)." We recommend that future reports more accurately state that trout are established from 1,300 feet upstream of Ozone Avenue Bridge to the Main Street Bridge. The reclassification of the Peckman River is still under consideration by NJDEP.

B. FEDERALLY LISTED SPECIES

The federally listed (endangered) American burying beetle (*Nicrophorus americanus*) historically occurred within 1.5 miles of the project area. The American burying beetle is no longer found in New Jersey; therefore, the Service does not recommend any surveys or conservation measures for this species.

The federally listed (endangered) Indiana bat (*Myotis sodalis*) is known to hibernate in Morris County within 15 miles of the study area. Indiana bats from these hibernacula may summer or forage within the project area. Based on a site visit, Service personnel identified potential roosting trees for the Indiana bat, as well as foraging habitat (*i.e.*, large forest tracts) within the project area. The Service, therefore, recommends that trees 6 inches or greater in diameter at breast height (dbh) not be cleared between April 1 and September 30. If project plans entail the clearing of any tracts of forest, the Service recommends a survey be conducted for the presence or absence of summering Indiana bats.

Except for the above-mentioned species and an occasional transient bald eagle (*Haliaeetus leucocephalus*), no other federally listed or proposed endangered or threatened flora or fauna under Service jurisdiction are known to occur within the vicinity of the study area. If federally listed species or their habitats are documented in the study area during project planning, the Service will make recommendations to avoid adverse effects through the informal Section 7 consultation process. Current information regarding federally listed species occurring in New Jersey is enclosed (appendix B).

C. STATE-LISTED SPECIES

There is a known nest site of the peregrine falcon *(Falco peregrinus)* located within 4.2 miles of the project site. The peregrine falcon is listed as endangered by the State of New Jersey (N.J.S.A. 23:2A *et seq.*), and is found along the rivers and seacoasts of New Jersey. Peregrines using the nearby nest site may occasionally forage for prey on the project site.

In August 1999, the Service removed the peregrine falcon from the List of Endangered and Threatened Wildlife and Plants, removing all protections provided to the species under the ESA. Section 4(g)(1) of the ESA requires monitoring of de-listed species for a minimum of 5 years. The Service has decided to monitor the peregrine falcon for 13 years to provide data that will reflect the status of at least two generations of birds. If it becomes evident during this period that the peregrine falcon is not maintaining its recovered status, the species could be re-listed under the ESA. The peregrine falcon continues to be protected by the MBTA, which prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests except when specifically authorized by the Department of the Interior.

The State-listed (endangered) invertebrate Appalachian grizzled skipper (*Pyrgus Wyandot*) historically occurred within 1.5 miles of the project site. During project planning, the Service will coordinate with the NJDFW's Endangered and Nongame Species Program (ENSP) to determine if these or other State-listed species or species of concern may be present at potential flood control or ecosystem restoration sites. Surveys may be recommended. If any State-listed species are present, the Service will work with the ENSP to provide the Corps with conservation recommendations.

species considered "probably expirpated" (nature serve websit - great decline due to gypsy moth spraying. May want to find all gypsy moth spray history in area

IV. FLOOD CONTROL ALTERNATIVES

A. GENERAL RECOMMENDATIONS

The Service recommends that the Corps conduct a thorough and detailed assessment of the effects of each flood control alternative on area hydrology as project plans progress. Such an assessment should include anticipated changes in sheet flows, stream flows, and groundwater flows into any floodplain wetlands, and any effects from flood waters that would rise in wetlands located behind proposed flood control structures during storm events. Possible effects downstream of the confluence with the Passaic River should also be evaluated.

As project plans progress and as the results of the hydrological study are interpreted, the Corps should provide the acreage of freshwater wetlands and transition areas, if any, expected to be impacted by the flood control alternatives. Specifically, the Corps should distinguish wetlands maintained as lawn from other wetlands, differentiate any permanent freshwater wetland fill from other wetland impacts, such as vegetation clearing, and describe the extent of tree clearing for each flood control alternative.

In general, the Service recommends timing restrictions on construction activities and use of best management practices (*e.g.*, hay bales, silt curtains) during construction to avoid adverse impacts to terrestrial and aquatic species at any proposed restoration sites and flood control locations. As Corps project plans are refined, the Service will provide more specific recommendations for the protection of fish and wildlife resources. Recommendations will be presented in future Planning Aid Letters and / or the forthcoming draft FWCA Section 2(b) report.

Future plans should be designed to avoid any adverse impacts to freshwater wetlands. If adverse impacts to freshwater wetlands are unavoidable, we recommend that the Corps develop a compensatory mitigation plan in future reports.

Mature trees should be maintained to the maximum extent possible. Shade produced by mature trees along the stream is critical to maintaining water temperature and dissolved oxygen favorable to fishery resources. In addition, the vertical structure and canopy provided by mature trees is a critical component of habitat for migratory birds. If any trees must be removed, preferential protection should be afforded to large, native, mast or fruit producing species. The Service also advocates salvaging native extant shrubs and small trees during any construction phase of habitat restoration or flood control. Salvaged trees and shrubs should then be replanted at appropriate sites along the river or within the watershed.

Given the value of mature trees, final engineering plans should make detailed references to which trees will be preserved and which, if any, must be removed. These trees should be clearly marked in the field, and instructions regarding tree removal must be discussed with the contractor, prior to construction. In addition, any trees designated for removal should be surveyed in the appropriate season prior to the start of work for evidence of nesting by bird species of management concern (appendix C). If any such species are known to nest in an area targeted for clearing or selective tree removal, this office should be contacted to afford the Service, the Corps, and the contractor an opportunity to determine cooperatively if any

conservation measures are possible (*e.g.*, re-routing equipment access, re-planting, construction scheduling).

The Corps' (2002) report includes a delineation of the 100-year floodplain in Figure 2 although plans for flood control on the Peckman River will be designed for a 50-year storm event. Future reports should delineate the anticipated 50-year floodplain if control measures are designed for a 50-year storm event. Future reports should also state the rational for using a 50-year flood control plan as opposed to greater or lesser levels of protection.

B. NONSTRUCTURAL ALTERNATIVES

The Service understands that the Corps will consider the use of nonstructural measures on a building-by-building basis, during the feasibility study, in conjunction with structural flood control measures. The Service and NJDFW (Didun, pers. comm., 2004) support non-structural flood control alternatives such as floodplain acquisition and restoration, zoning restrictions, early flood warning systems, and flood-proofing buildings in preference to structural solutions to flood control. A buy-out of the properties located within the flood-prone areas of concern and the restoration of the floodplain to its pre-disturbance condition would undoubtedly improve habitat for fish and wildlife and flood storage capacity while offering recreational opportunities (*e.g.*, fishing and bird watching) for local residents.

Should the Corps select structural over nonstructural alternatives to control flood waters, such actions should be supported with a summary of economic findings. A compromise between structural and nonstructural alternatives may render nonstructural methods more economically feasible. The Corps should determine the stream corridor width that can function naturally if re-established or reclaimed (*i.e.*, natural stream channel and vegetated riparian corridor) in order to calculate the feasibility, for example, of buying out the 5-yr or 10-yr floodplain to serve as a functional stream conservation area while protecting the remainder of the floodplain with fewer infrastructures.

The Corps' (2002) report considered flood control measures within the flood-prone areas only. However, flooding can be significantly reduced by increasing the watershed's capacity to store flood waters. The Corps should investigate the extent to which removing impervious surfaces (*i.e.*, asphalt, buildings, and compacted soils) from the watershed and improving the amount and quality of vegetation upstream of the flood-prone areas would reduce the volume and velocity of surface storm waters. Taking such nonstructural measures outside the areas of concern (commercial areas) may reduce the extent to which measures within the flood-prone areas are needed. Further, nonstructural remedies above the immediate floodplain may reduce the cost of using nonstructural means if property upstream of the flood-prone areas is less costly to acquire.

C. FLOODWALL / STREAM CHANNELIZATION

The Service and NJDFW (Didun, pers. comm., 2004) do not recommend implementing the floodwall or stream channelization alternatives as currently proposed. Constructing a floodwall may be considered in the future if the length of the floodwall were minimized and located to significantly reduce or avoid impacts to the existing riparian buffer and wetlands. This may be

accomplished by constructing a floodwall only in flood-prone areas with existing impervious surface (*e.g.*, parking lots, sidewalks) and above the stream banks, away from existing riparian vegetation.

D. DIVERSION

The proposed location for the diversion tunnel would impact a heavily eroded and degraded bank which contains a patch of Japanese knotweed, ailanthus (*Ailanthus altissima*), Tartarian honeysuckle (*Lonicera tatarica*), and a few shrubs and tree saplings. Japanese knotweed, ailanthus, and Tartarian honeysuckle are exotic, invasive species; thus, the Service would anticipate few adverse impacts to the use of this site.

For the above reasons, the Service and the NJDFW recommend this alternative over the floodwall and the river channelization alternatives, provided nonstructural methods are proven infeasible and provided the following measures can be incorporated.

1. Inlet

- Construct the inlet to retain bank full flows and divert only higher out-of-bank flows. Bank flows are necessary to maintain channel formation (*e.g.*, removal of sediment build-up, channel clearing of debris).
- Forward a copy of the design plans for the levee system and channel constriction to the Service for review to ensure that such designs do not adversely impact palustrine forested wetlands along the eastern bank across from the inlet structure or aquatic resources downstream of the channel constriction. Generally, the Service and NJDFW (Didun, personal comm., 2004) do not advocate the use of in-stream blockages to divert flows. However, if a diversion is constructed, the Service recommends using natural, soft material, such as clean soil, rock, and stone for levee construction. The levee could then be vegetated. Additionally, the levee would need to be constructed to ensure that fish are unimpeded traveling upstream and downstream of the Peckman River.

2. Tunnel

- Design the tunnel to allow passage of normal groundwater flow to and from any nearby wetlands and avoid impeding the Peckman River's full range of modal flows through all seasons. Minimize the creation of additional impervious surface.
- Retain large trees to protect habitats for migratory birds. A line of large mature trees closely borders the proposed corridor between Harrison Street and McBride Avenue. Given the size of the trees and the scarcity of such trees within the watershed, the Service advises moving the path of the diversion tunnel between Harrison Street and McBride Avenue slightly south to avoid adverse impacts to these trees, including the supporting root systems.

Coat the interior of the diversion tunnel to obtain a smooth surface and reduce abrasion to aquatic biota being diverted (*e.g.*, reduce de-scaling fish). Incorporate a low flow design which concentrates flows in a narrower section of the culvert bottom (*e.g.*, concave-shaped bottom) and allows any diverted aquatic biota to escape downstream when the amount of diverted water is slight or receding.

3. Outlet

- Locate the outlet for the diversion tunnel to minimize removal of trees and shrubs. Palustrine forested wetlands exist as an island within the Passaic River and as a finger of low floodplains immediately opposite and immediately upstream, respectively, of the proposed outlet location. The Service recommends placing the outlet to minimize adverse impacts on these wetlands.
- Investigate potential hydrologic alterations created by floodwaters exiting the outlet to determine if these forested wetlands would be adversely impacted.

V. ECOSYSTEM RESTORATION

The Service and NJDFW support Corps efforts to restore fish and wildlife habitats along the Peckman River. We concur with the Corps (2002) statement that habitat availability is very limited in this highly developed area. Therefore, restoration would provide substantial benefits to fish and wildlife.

A. GENERAL RECOMMENDATIONS

1. **Project Planning**

- Base designs for all in-stream and stream bank restoration plans upon natural channel morphology and behavior to the extent feasible. Data needed include topography, cross sections, and hydrodynamics of the proposed aquatic restoration sites. Planning must ensure that any recommended structures would not cause adverse impacts to the river system downstream.
- Consider Great Notch Brook for restoration planning. The Corps (2002) identified Great Notch Brook as a major tributary of the Peckman River that empties into the river within the flood-prone area. The Corps (2002) did not state if hydrological studies to date investigated the magnitude of the tributary's contribution to flooding along the Peckman River. If <u>Great Notch Brook has not been evaluated</u>, the Service recommends the Corps include it in future hydrological studies and survey this tributary for potential ecosystem restoration.

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Forward results of sediment testing to the Service for review. The Service understands that contaminants testing will be conducted on project site sediments once plans have been finalized. Service comments regarding those results will be included in a future Planning Aid Letter and / or the Service's draft FWCA report. The Service also

recommends that future design phases include information on sediment sources and disposal sites where fill or excavation may be required to achieve target grades for restoration sites.

Develop and implement a long-term management and monitoring plan for the project. The plan should provide adequate evaluation of success at each ecosystem restoration site. Information obtained will contribute to the science of in-stream and riparian habitat restoration, particularly in urban settings. The plan should include contingencies that would provide for further Corps action during post-construction monitoring, if necessary, as part of an adaptive management strategy to be implemented in coordination with affected municipalities and private landowners. Corps interventions may include regrading, re-planting, or other actions to correct for unexpected conditions, including deposition, erosion, failure of vegetation establishment, and / or re-invasion of undesirable species such as Japanese knotweed.

• Minimize the amount of time that construction equipment will be in the river channel. Also limit the amount of equipment that must be put into the water course. Where possible, conduct work from the top of the bank rather than from the river. Limiting disturbances will minimize any adverse effects on aquatic species and wetlands within the river.

• Consult the scientific literature and use the best available information regarding planting elevation, depth, soil type, and seasonal timing to ensure best results when revegetating sites. Include subsurface conditions such as soil and sediment geochemistry and physics, groundwater quantity and quality, and infauna when designing riparian, wetland, and instream restoration.

2. Coordination

Coordinate with landowners on sites proposed for restoration. Consult with the Service's *Partners for Fish and Wildlife* program biologists to facilitate cooperation and partnerships with those private landowners when conducting habitat restoration. Information about the *Partners* program is enclosed (appendix D). For additional information, contact the Service's New Jersey Field Office at (609) 646-9310 ext. 46, Attn: Eric Schrading.

Coordinate with the local municipalities to assess the condition of storm-water outfalls. Within the project area limits the Service observed ditches and outlet structures that discharge storm water into the Peckman River which have degraded (*e.g.*, Township of Verona's Recycling Center, ball fields at the end of Hopson Avenue in Little Falls Township). Opportunities may exist to reconfigure storm-water discharges during project construction to limit erosion, slow storm-water flows, and improve water quality.

Coordinate any clearing and snagging activities with the local municipalities. It is not known to the Service or the NJDFW/BFF (Papson, pers. comm., 2004) if the Peckman River has been cleared of large debris and trees by the local municipalities (U.S. Army

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Corps of Engineers, 2002, pg. 8). If the river has not been cleared, the Corps will need to coordinate with the local municipalities to ensure that such activities do not adversely affect the proposed ecosystem restoration or further degrade the riverine system.

3. Stream Banks

Employ bioengineering techniques and soft structures, as described in the Corps' (2002) report to stabilize stream banks. Such techniques include regrading banks, using erosion control fabrics and biologs, and planting native trees and shrubs along the banks. Many feasible sites were identified in the Corps' (2002) report. The Service recommends bioengineering techniques to stabilize stream banks, as opposed to constructing hard structures, along as many eroded sites of the Peckman River as feasible. Areas not expressly identified in the Corps' (2002) report include but are not limited to the banks immediately upstream of the dam (Charles Street dam) at the intersection of Charles Street and Cedar Grove Road in Little Falls Township and the forested island (freshwater wetlands) at the confluence of the Peckman and Passaic Rivers. Where hard structures offer the only feasible alternative, the use of natural material (*e.g.*, stones, boulders) is recommended.

Include measures in the long-term management plans for the Peckman River to reduce illegal dumping. The Service noted along several public access points to the river that lawn clippings and woody debris are being dumped into the river and along its banks. Such actions exacerbate soil erosion by retarding vegetation growth on the banks. Measures that might be implemented with the local sponsor include creating an educational program (*e.g.*, pamphlets, signs) to deter disposal of lawn debris into the river, restricting public access to problem points, and improving law enforcement efforts.

Salvage as many large shade-producing trees as possible along the river. At many sites along the stream banks, soil erosion has exposed the roots of large, mature trees. It may be possible to prevent these trees from toppling by anchoring the trees with cable above the stream banks and by placing boulders near the exposed roots to deflect water velocities. Exposed root wads provide excellent refugia for fish and other aquatic species. In addition, large shade-producing trees moderate water temperature in the stream during the summer months, which benefits fish and aquatic invertebrates.

4. **Riparian Buffers**

Plant native young trees and shrubs throughout degraded forest floors to improve understory cover. The Service noted that some forest tracts along the river (*e.g.*, immediately downstream of the Ozone Avenue bridge) had very little understory, a problem occurring in many forests throughout New Jersey. Most likely the local deer (*Odocoileus virginianus*) population has exceeded the forest's carrying capacity, causing over-browsing of the understory vegetation. A healthy forest requires an understory to provide multiple canopy layers (thus increasing wildlife diversity), to provide replacement trees and shrubs as the forest matures and older trees die, and to reduce sunlight on the forest floor (which decreases chances for certain invasive species to

become established). Recommended plantings should be largely comprised of species not palatable to deer. Fencing is another method the Service advocates for controlling deer browse on certain tracts.

Eradicate or control exotic, invasive species, particularly Japanese knotweed (*Polygonum cuspidatum*), to enhance fish and wildlife habitat and improve stream bank stability and water storage capacity along the Peckman River and its tributaries. A site visit revealed that Japanese knotweed occurs in dense patches throughout the entire length of the Peckman River and its riparian buffer. Though not surveyed, tributaries to the Peckman River undoubtedly also are infested with this species. Control measures need to be included in all phases of restoration and flood control plans and should be implemented by all contractors to minimize reburial of Japanese knotweed and transportation of its rhizomes off-site from construction activities.

B. SITE-SPECIFIC RECOMMENDATIONS

1. Verona Lake

- Partner with the Township of Verona to develop a wildlife enhancement / management plan for Verona Lake Park. The Service recommends that the Corps work with the township to: (a) add nesting and perching structures in areas with limited nesting habitat for birds; (b) plant native grasses, shrubs, and trees in appropriate areas of the park, with special emphasis on landscape features that may benefit migratory birds; (c) establish a riparian buffer around the lake, river, and smaller tributaries in the park; and (d) expand the stream bank restoration sites recently created by the township around the entire margin of the lake, river, and feeder streams in the park. Impervious surfaces (*i.e.*, asphalt, rock gabions, and stone walls) should be removed from the banks and riparian buffers of the lake, river, and feeder streams of the park. The Service's *Partners for Fish and Wildlife* program can help facilitate cooperation with the park.
 - Coordinate habitat restoration with the Township of Verona and the NJDEP to ensure that any restoration or dam repair undertaken do not adversely impact stocking efforts by the State. According to the NJDFW/BFF (Papson, pers. comm., 2004), trout and channel catfish (*Ictalurus punctatus*) are stocked seasonally in Verona Lake. Apparently, the Township of Verona plans to perform work on the Verona Lake dam in the near future, which may require lowering water levels in the lake.
 - Re-evaluate the proposal to install a flexible weir structure on Verona Lake Dam to attenuate peak flows and augment low flow conditions in the river (U.S. Army Corps of Engineers, 2002). Further study is needed to determine if any beneficial effects would accrue from modifying flow rates.

2. Route 23

Avoid creating straight channels. In the Corps' (2002) report section entitled "Francisco Street to Rt. 23," the Corps recommends reducing stream sinuosity. Straightening or

channelizing a river reduces in-stream habitat and accelerates bank erosion downstream by increasing water velocity. However, creating meanders or bends within the stream channel will improve habitat for aquatic species and reduce water velocity, which in turn will decrease soil erosion downstream. The Service generally does not support straightening river channels; in fact, it encourages increasing or restoring the sinuosity of rivers as much as feasible, based on a natural channel design. Retain natural stream meanders.

Re-evaluate plans to remove boulders or other natural features and focus on the removal of man-made obstructions. The Corps (2002) suggests installing vegetated gabions and removing boulders and other large obstructions in the river to reduce bank erosion downstream of the Route 23 Bridge. The Service noted several sections of sidewalk material and a structure that appears to be a footing for an old bridge or retaining wall lying within the river immediately downstream of the Route 23 Bridge. Removing these concrete and brick obstructions would improve water quality (by reducing concrete leachates) and restore normal flow. The Service recommends removing such man-made obstructions wherever feasible; we also recommend that the Corps investigate using bioengineering techniques or other natural means to stabilize the sites. Natural boulders on site should not be removed, but rather may be repositioned along the river to reduce stream velocity and to provide natural in-stream structure for aquatic species.

3. Peckman Falls

Use bioengineering techniques wherever possible for stabilizing stream banks. The Corps (2002) recommends stabilizing the heavily eroded banks near Peckman Falls with hard structures, such as rock gabions. Future plans should clarify the extent to which hard structures would be used near Peckman Falls. When hard structures are the only feasible alternative, the Service recommends engineering those hard structures to mitigate the increased stream velocity downstream that would inevitably be caused by such structures. The Corps should investigate if structures could be installed along rock gabions to slow water velocity and create pools or areas with decreased stream flows to enhance fish habitat. As suggested by the Corps (2002), vegetation such as willow (*Salix* spp.) could be inserted into rock gabions as live whips or posts to improve habitat cover and to reduce water temperature at the site.

Investigate the need for fish passage. Step pools have been installed in the stream and the toes of both banks have been armored with boulders at Peckman Falls. If the current step pool design does not allow for upstream fish passage during low flows, these step pools should be redesigned.

4. Charles Street Dam

Modify the Charles Street Dam to allow fish passage upstream. The dam appears to have no current function. The Service recommends lowering the height of the dam to convert the impounded portion behind the dam from deep water to shallow water habitat (approximately 1-2 feet deep) for migratory birds. In general, a greater diversity of wildlife species use shallow water than deep water. Additionally, a lower spillway would simplify incorporation of fish passage at the dam, in which case a notch or stepping stone design may provide sufficient fish passage.

Revegetate the open field adjacent to the Charles Street dam to reduce habitat fragmentation along the river. The Service recommends planting a variety of native tree and shrub species to restore forest habitat to the site. If site conditions suggest that deer may over-browse the plants (*i.e.*, if little understory exists in surrounding forest), then plant species less palatable to deer and / or provide protection from deer using fencing or tree tubes. A typical planting density is about 300 trees and shrubs per acre if small containerized plants are used.

VI. CONCLUSIONS AND SUMMARY OF RECOMMENDATIONS

The Service appreciates the Corps' consulting with us early in the planning stages. We request that the Corps continue to consult with this office to avoid adverse impacts to fish and wildlife resources and species of management concern within the study area. Specifically, please keep this office informed of project meetings and schedules, environmental and wildlife investigations or studies, and formulation of project alternatives. Additionally, please forward to this office for review the draft Project Management Plan (PMP) when it becomes available. The Service will review the PMP and comment with respect to fish and wildlife considerations and Service participation.

The Service also recommends that the Corps coordinate closely with the NJDFW/BFF during the formulation of early designs for the flood control measures and ecosystem restoration. Such coordination would require meetings on site with State biologists. Mr. Robert Papson (Principal Fisheries Biologist, NJDFW/BFF) is available to arrange coordination with the State. He may be contacted at (908) 236-2118.

The following summarizes the Service's general conclusions and recommendations for the next phase of project planning. As project plans are refined, the Service will be making more specific recommendations for inclusion in the forthcoming FWCA Section 2(b) report.

A. FLOOD CONTROL ALTERNATIVES

- 1. Conduct a thorough and detailed assessment of the effects of each flood control alternative on area hydrology as project plans progress. Evaluate downstream effects to the Passaic River.
- 2. Use best management practices and timing restrictions during construction to avoid adverse impacts to fish and wildlife species.
- 3. Avoid any adverse impacts to freshwater wetlands. If adverse impacts to freshwater wetlands are unavoidable, develop a compensatory mitigation plan.

- 4. Maintain mature trees to the maximum extent possible. Any trees designated for removal should be surveyed in the appropriate season prior to the start of work for evidence of nesting by bird species of management concern.
- 5. Delineate the anticipated 50-year floodplain. Future reports should state the rationale for using a flood control plan designed for a 50-year event.
- 6. Use nonstructural flood control alternatives to the extent feasible. Support the selection of structural over nonstructural alternatives with a summary of economic findings. A compromise with structural alternatives may make nonstructural methods more feasible.
- 7. Investigate the extent to which removing impervious surfaces from the watershed and improving the amount and quality of vegetation upstream of the flood-prone areas would reduce the volume and velocity of surface storm waters.
- 8. Select the diversion alternative only if nonstructural methods are proven to be infeasible. The Service would prefer the diversion alternative over the floodwall or channelization alternatives if structural measures must be used.
- 9. Construct the diversion inlet to retain bank full flows and divert only higher out-of-bank flows. Forward a copy of the design plans for the levee system and channel constriction to the Service for review.
- 10. Design the tunnel to allow passage of normal groundwater flow to and from any nearby wetlands and avoid impeding the Peckman River's full range of modal flows through all seasons. Minimize the creation of additional impervious surface.
- 11. Move the path of the diversion tunnel between Harrison Street and McBride Avenue slightly south to avoid adverse impacts to the trees, including the supporting root systems.
- 12. Coat the interior of the diversion tunnel to obtain a smooth surface and to reduce abrasion to aquatic biota being diverted. Incorporate a low-flow design to allow any diverted aquatic biota to escape downstream when the amount of diverted water is slight or receding.
- 13. Locate the tunnel outlet to minimize removal of vegetation and adverse impacts on wetlands.
- 14. Survey for the presence or absence of summering Indiana bats if project plans entail the clearing of any tracts of forest.

B. ECOSYSTEM RESTORATION

- 1. Design in-stream and stream bank restoration plans based upon natural channel morphology and behavior. Retain natural meanders.
- 2. Include Great Notch Brook in future hydrological studies if it has not been evaluated, and survey this tributary for potential ecosystem restoration.
- 3. Forward sediment contaminant tests to the Service when available. Include information on sediment sources and disposal sites.
- 4. Develop and implement a long-term management and monitoring plan that provides for adequate evaluation of success at each ecosystem restoration site.
- 5. Minimize the amount of time that construction equipment will be in the river channel. Also limit the amount of equipment that must be put into the water course. Consult the scientific literature and use the best available information when designing ecosystem restoration projects.
- 6. Consult with the Service's *Partners for Fish and Wildlife* program to facilitate cooperation and partnerships with private and municipal landowners when conducting habitat restoration.
- 7. Coordinate any clearing and snagging activities with the local municipalities. Coordinate with local governments to assess the condition of storm-water outfalls.
- 8. Use bioengineering techniques to stabilize stream banks along as many eroded sites of the Peckman River as possible. Where hard structures are the only feasible alternative, use natural material.
- 9. Include in the long term management plans for the Peckman River measures to reduce illegal dumping on the stream banks.
- 10. Salvage large shade-producing trees with exposed roots along the river. Anchor them in place and install boulders near the exposed roots.
- 11. Plant native trees and shrubs throughout degraded forest floors to improve understory cover. Eradicate or control exotic, invasive species, particularly Japanese knotweed, along the Peckman River and its tributaries. Include measures to control invasive plants in all phases of construction and restoration.
- 12. Partner with the Township of Verona to develop a wildlife enhancement / management plan for Verona Lake Park. Ensure that repairs or restoration at the Verona Lake Dam do not adversely impact stocking fish by the NJDFW.

- 13. Avoid channelizing the river at the Route 23 restoration site. Re-evaluate plans to remove boulders or other natural features and focus on removal of manmade obstructions at the site.
- 14. Clarify the extent to which hard structures would be used near Peckman Falls. Redesign the step pools near Peckman Falls to pass fish upstream during low flows if needed.
- 15. Lower the height of the Charles Street dam to convert the impounded portion to shallow water habitat. Revegetate the open field adjacent to the dam with a variety of native trees and shrubs.

VII. REFERENCES

A. LITERATURE CITED

- U.S. Army Corps of Engineers. 2002. Section 905(b) WRDA 86 Preliminary Analysis. Peckman River Basin, New Jersey, Feasibility Studies for Flood Control and Ecosystem Restoration. U.S. Department of the Army, Corps of Engineers, New York District, New York, New York. 52 pp.
 - _____. 2004a. Scoping Document. Peckman River Basin, New Jersey, Flood Control and Ecosystem Restoration Feasibility Study. U.S. Department of the Army, Corps of Engineers, New York District, New York, New York. 14 + appendix.
 - ____. 2004b. Data Gap Report. Peckman River Basin, New Jersey, Flood Control and Ecosystem Restoration Project. U.S. Department of the Army, Corps of Engineers, New York District, New York, New York. 3 pp.
 - _. 2004c. Environmental Resource Inventory. Peckman River Basin, New Jersey, Flood Control and Ecosystem Restoration Feasibility Study. U.S. Department of the Army, Corps of Engineers, New York District, New York, New York. 8 pp.

B. PERSONAL COMMUNICATIONS

- Didun, A. 2004. Biologist. New Jersey Department of Environmental Protection, Division of Fish and Wildlife, Office of Environmental Review, Trenton, New Jersey.
- Papson, R. 2004. Principal Fisheries Biologist. New Jersey Department of Environmental Protection, Division of Fish and Wildlife, Bureau of Freshwater Fisheries, Lebanon, New Jersey.

Flood Risk Management Feasibility Study

Peckman River Basin New Jersey

Integrated Feasibility Report and Environmental Assessment

Appendix A5: Programmatic Agreement



February 2020

PROGRAMMATIC AGREEMENT AMONG THE U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT AND THE NEW JERSEY HISTORIC PRESERVATION OFFICE REGARDING THE PECKMAN RIVER BASIN FLOOD RISK MANAGEMENT PROJECT, TOWNSHIP OF CEDAR GROVE, ESSEX COUNTY, AND TOWNSHIP OF LITTLE FALLS AND BOROUGH OF WOODLAND PARK, PASSAIC COUNTY, NEW JERSEY

WHEREAS, the U.S. Army Corps of Engineers, New York District (District) is proposing to undertake a flood risk management project in the Township of Little Falls, Essex County, New Jersey, and has, in coordination with the New Jersey Department of Environmental Protection (NJDEP), developed a plan consisting of floodwalls, levees, channel modification, a diversion culvert, and non-structural measures, consisting of wet- and dry-floodproofing and elevations (Undertaking; Figure 2 in Appendix A); and

WHEREAS, the Peckman River Basin, New Jersey, Flood Risk Management Feasibility Study was authorized by a resolution of the US House of Representatives, Committee on Transportation and Infrastructure Resolution Docket 2644 adopted on June 21, 2000; and

WHEREAS, the Area of Potential Effect (APE) includes: the alignment of the diversion culvert between the Peckman River and the Passaic River; the alignment of the levees and floodwalls along the Peckman River and within the wooded area and ball fields of the Little Falls High School; channel modification along the Peckman River; the location of wiers; and the location of non-structural measures (see Figure 2 in Appendix A); and

WHEREAS, there are four known historic properties listed on or determined eligible for the New Jersey State and National Registers of Historic Places: the Morris Canal, the Little Falls Laundry, the Route 46 Bridge over the Passaic River and Riverside Drive, and the Jersey City Waterworks Valve Pipeline and Valve House; and

WHEREAS, an archaeological and architectural survey completed in 2013 has determined that the remains of the Marley Mill Dam, the Morris Canal Aqueduct, the Jersey City Waterworks Valve House, the Little Falls Laundry Weir and Headrace, and the Cedar Grove Railroad Overpass are also eligible for the New Jersey State and National Registers of Historic Places; and

WHEREAS, the 2013 survey also determined that of the 81 structures surveyed in the Township of Little Falls in the vicinity of the Peckman River, only the Little Falls Laundry met the criteria for the National Register of Historic Places; and

WHEREAS, the District has determined, pursuant to 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108), that the Undertaking will not have an effect on the remains of the Marley Mill Dam, the Cedar Grove Railroad Overpass, and the Jersey City Waterworks Valve House in the Township of Cedar Grove, or the Morris Canal Aqueduct in the Township of Little Falls; and

WHEREAS, the District has determined, pursuant to 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108), that the Undertaking has the potential to have an adverse effect on the Little Falls Laundry with the proposed non-structural measures that may include flood-proofing that would affect the buildings; and

WHEREAS, the District has determined, pursuant to 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108), that the Undertaking has the potential to have an adverse effect on intact archaeological sites and deposits located along the levee and floodwall alignment where testing has not yet been undertaken and the alignment of the diversion culvert at the Passaic River in the Township of Little Falls, Essex County (see Appendix A); and

WHEREAS, the District has notified the Advisory Council on Historic Preservation (Council) of the potential for the Undertaking to affect historic properties and that a programmatic agreement is being prepared; and

WHEREAS, the District is consulting with the New Jersey Historic Preservation Office (NJHPO), pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

WHEREAS, the District is consulting with the Delaware Tribe of Indians, the Delaware Nation, and the Little Falls Historical Society, and other appropriate consulting parties to define processes for taking into consideration the effects of the Undertaking upon historic properties; and

WHEREAS, the District has involved the general public through the National Environmental Policy Act (NEPA) process, which affords all persons, organizations, and government agencies the right to review and comment on proposed major federal actions that are evaluated by a NEPA document; and

NOW, THEREFORE, the District and the NJHPO agree that the Undertaking shall be implemented in accordance with the following stipulations in order to take into account the Undertaking's effects on historic properties.
STIPULATIONS

The District shall ensure that the following measures are carried out:

I. IDENTIFICATION AND EVALUATION

- A. During the Pre-Construction Engineering and Design (PED) phase, the District, in consultation with the NJHPO and consulting parties, will ensure the following actions area undertaken:
 - 1. <u>Non-Structural Measures</u>:
 - a. Review the plans for non-structural measures to determine if the Little Falls Laundry will be affected by the construction of these measures. If effects are identified and determined to be adverse, the District, in coordination with the NJHPO and consulting parties, will develop measures to avoid, minimize or mitigate them in accordance with Stipulation II below.
 - b. Determine, in coordination and consultation with the NJHPO and other relevant signatories and interested parties, if the other buildings and structures slated for non-structural measures are eligible for the National Register. As part of these investigations the District will carry out an intensive-level architectural survey in accordance with the New Jersey Guidelines for Architectural Survey (1999) and ensure the NJHPO structure survey form(s) is completed. As part of these investigations the District will determine if archaeological survey(s) area required. The District will document the results of each property's determination of eligibility.
 - c. Complete the NJHPO structure survey forms for the buildings included in the Phase I archaeological and architectural survey (2013).
 - d. If a property is determined to be eligible for the National Register, the District will consult with the NJHPO, relevant signatories and interested parties to resolve the adverse effects in accordance with Stipulation V below.
 - e. The District will ensure all survey reports are completed in accordance with *Guidelines for Architectural Survey: Guidelines for Historic and Architectural Surveys in New Jersey.*
 - 2. Levee Alignment:
 - a. The District will carry out a Phase I archaeological survey, in accordance with the *NJHPO Guidelines for Phase I Archaeological Investigations: Identification of Archaeological Resources,* of the area of the proposed levee and floodwall alignment currently planned for the wooded area between the Peckman River and Little Falls High School ball fields.
 - b. If sites are identified, the District, in coordination and consultation with the NJHPO, will complete a Phase II survey to evaluate the sites identified to determine if they meet the criteria for the National Register.
 - c. If any identified sites are determined to be eligible for the National Register, the District will determine if the sites will be affected by the construction of

the levee and, if the effect is determined to be adverse, will follow Stipulation II below.

- d. The District will ensure all survey reports will be completed in accordance with the *Guidelines for Preparing Cultural Resources Management Archaeological Reports* (NJHPO July 2000).
- 3. Diversion Culvert
 - a. During the Project Engineering and Design phase of the project the District will carry out mechanically assisted Phase I testing to determine if archaeological site(s) are buried beneath a portion of the alignment in the parking area in between 219 and 245 Paterson Avenue, Township of Little Falls. This work will be conducted in accordance with the *NJHPO Guidelines for Phase I Archaeological Investigations: Identification of Archaeological Resources*.
 - b. Should the investigations identify archaeological resources, the District, in coordination and consultation with the NJHPO, will complete a Phase II survey to evaluate the sites identified to determine if they meet the criteria for the National Register.
 - c. If any identified sites are determined to be eligible for the National Register, the District will determine if to what extent the sites will be affected by the construction of the culvert and, if the effect is determined to be adverse, will follow Stipulation II below.
 - d. The District will ensure all survey reports will be completed in accordance with the *Guidelines for Preparing Cultural Resources Management Archaeological Reports* (NJHPO July 2000).

II. RESOLUTION OF ADVERSE EFFECTS

- A. The District shall continue consultation with the NJHPO and other signatories and consulting parties, as appropriate, pursuant to 36 CFR Part 800.6 to avoid, minimize or mitigate adverse effects to historic properties.
- B. The District shall notify the NJHPO and other relevant signatories, property owners and consulting parties and provide documentation regarding the identification and evaluation of the historic properties. The District will work with the NJHPO, other relevant signatories, property owners, etc. to determine how best to resolve any adverse effects and document the proposed resolution.
- C. Once there is agreement on how the adverse effects will be resolved, the District shall prepare a treatment plan that will identify the activities to be implemented that will resolve the adverse effects. The treatment plan will be provided for review and comment prior to implementation.
- D. Should the District, NJHPO, and the relevant signatories disagree on how the adverse effects

will be resolved, the District shall seek to resolve such objection through consultation in accordance with procedures outlined in Stipulation VIII.C.

III. PUBLIC INVOLVEMENT AND OUTREACH

- A. The District shall inform the public of the existence of this PA and the District's plan for meeting the stipulations of the PA through the public review of the project's Environmental Assessment and continued coordination and consultation with the NJHPO and other interested parties as they are identified. Copies of this agreement and relevant documentation prepared pursuant to the terms of this PA shall be made available for public inspection as part of the project's Environmental Assessment and posting to the District's project website. Information regarding the specific locations of archaeological sites will be withheld in accordance with the Freedom of Information Act and National Register Bulletin No. 29, if it appears that this information could jeopardize archaeological sites. Any comments received from the public related to the activities identified by this PA shall be taken into account by the District.
- B. The District shall develop, in coordination with the NJHPO and other interested parties, publically accessible information about the cultural resources and historic properties investigations for the Undertaking in the form of brief publication(s), exhibit(s), or website.

IV. CURATION

- A. The District shall ensure that all collections resulting from the identification and evaluation of surveys, data recovery operations, or other investigations pursuant to this PA are maintained in accordance with 36 CFR Part 79 until the collection is turned over to the landowner or other entity. Minimally, the District will ensure that analysis is complete and the final report(s) are produced and accepted by the NJHPO.
- B. The District shall be responsible for consulting with landowners regarding the curation of collections resulting from archaeological surveys, data recovery operations, or other studies and activities pursuant to this agreement. The District shall coordinate the return of collections to non-federal landowners. If landowners wish to donate the collection, the District, in coordination with the NJHPO and others, shall consult to determine an appropriate entity to take control of the collection.
- C. The District shall be responsible for the preparation of federally-owned collections and the associated records and non-federal collections donated for curation in accordance with the standards of the curation facility.

V. UNANTICIPATED DISCOVERY

A. The following language shall be included in construction plans and specifications:

"When a previously unidentified cultural resource, including but not limited to archaeological sites and properties of traditional religious and cultural significance are discovered during the execution of the Project, the individual(s) who made the discovery shall immediately secure the vicinity and make a reasonable effort to avoid or minimize harm to the resource, and notify the Project's Contracting Officer's Representative (COR) and the District. All activities shall cease within a minimum of 50 feet from the inadvertent discovery (50-foot radius 'no work' buffer) until authorized by the District and the Project COR.

- B. If previously unidentified and unanticipated properties are discovered during Project activities, the District shall cease all work in the vicinity of the discovery until it can be evaluated in accordance with 36 CFR Part 800.13 "Post Review Discoveries". Upon notification of an unanticipated discovery, the District shall implement any additional reasonable measures to avoid or minimize effects to the resource. Any previously unidentified cultural resource will be treated as though it is eligible for the NRHP until such other determination may be made.
- C. The District shall immediately notify the NJHPO, the signatories, and additional interested or consulting parties as appropriate, within 48 hours of the finding and request consultation to resolve potential adverse effects.
 - 1. If the District, NJHPO, and the signatories agree that the cultural resource is not eligible for the NRHP, then the suspension of work in the area of the discovery will end.
 - 2. If the District, NJHPO, and the signatories agree that the cultural resource is eligible for the NRHP, then the suspension of work will continue, and the District, in consultation with the NJHPO and the signatories, will determine the actions to avoid, minimize, or mitigate adverse effects to the historic property and will ensure that the appropriate actions are carried out.
 - 3. If the District, the NJHPO and the signatories cannot agree on the appropriate course of action to address an unanticipated discovery or effects situation, then the District shall initiate the dispute resolution process set forth in Stipulation VIII.C below.

VI. DISCOVERY OF HUMAN REMAINS

 If any human remains and/or grave-associated artifacts are encountered during any of the investigations, including data recovery, the District will develop a treatment plan for human remains that is responsive to the Council's Policy Statement on Human Remains" (September 27, 1988), the Native American Graves Protection and Repatriation Act (PL 101-601) and , US Army Corps of Engineers, Policy Guidance Letter No. 57 (1998) Indian Sovereignty and Government-to-Government Relations with Indian Tribes. 2. The following language shall be included in the construction plans and specifications:

"When human remains, suspected human remains, or indications of a burial are discovered during the execution of a Project, the individual(s) who made the discovery shall immediately notify the local law enforcement, coroner/medical examiner, and the Project COR and the District, and make a reasonable effort to protect the remains from any harm. The human remains shall not be touched, moved or further disturbed. All activities shall cease within a minimum of 50 feet from the area of the find (50-foot radius 'no work' buffer) until authorized by the District.

VII. PROFESSIONAL QUALIFICATIONS AND STANDARDS

- A. The District shall ensure that qualified professionals meeting the National Park Service professional qualifications for the appropriate discipline [National Park Service Professional Qualification Standards, Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44738-39) and NJHPO Guidelines for Phase I Archaeological Investigations: Identification of Archaeological Resources] are used to complete all identification and evaluation plans related to this undertaking, to include remote sensing surveys, underwater investigations, historic structure inventory and documentation.
- B. All historic structures surveys carried out pursuant to this PA will be undertaken in accordance with the standards and guidelines of the NJHPO (*Guidelines for Architectural Survey: Guidelines for Historic and Architectural Surveys in New Jersey*) and the Secretary of the Interior's *Standards for the Treatment of Historic Properties*.
- C. All archaeological investigations carried out pursuant to this PA will be undertaken in accordance with the NJHPO *Guidelines for Phase I Archaeological Investigations: Identification of Archaeological Resources* and the *Guidelines for Preparing the Cultural Resources Management of Archaeological Reports* and the Council's Section 106 *Archaeology Guidance*.

VIII. ADMINISTRATIVE TERMS

A. REPORTING

- 1. Each year following the execution of this PA until it expires or is terminated, the District shall provide the NJHPO, all signatories, and interested parties a summary report detailing work undertaken pursuant to this PA. This report will include any scheduling changes, problems encountered, project work completed, PA activities completed, and any objections and/or disputes received by the District in its efforts to carry out the terms of this PA.
- 2. Following authorization and appropriation, the District shall coordinate a meeting or equivalent with the signatories to be held annually on a mutually agreed upon date to

evaluate the effectiveness of this PA and discuss activities carried out pursuant to this PA during the preceding year and activities scheduled for the upcoming year.

B. REVIEW PERIODS

- 1. The District shall ensure that all draft and final reports resulting from action pursuant to this PA will be provided to the NJHPO and, upon request, to other interested parties.
- 2. The NJHPO and any other interested party shall have 30 calendar days from the date of receipt to review and/or object to determinations, evaluations, plans, reports and other documents submitted to them by the District.
- 3. Any comments and/or objections resulting from a review of any District determination, evaluations, plans, reports and other documents must be provided in writing to the District.
- 4. If comments, objections, etc., are not received within 30 calendar days of receipt, the District will assume concurrence with the subject determination, evaluation, plan, report or other document submitted.

C. DISPUTE RESOLUTION

- 1. Should any signatory object in writing to the District object in writing to the District at any time to any actions proposed or the manner in which the terms of this PA are implemented, the District and the signatories shall attempt to resolve any disagreement arising from implementation of this PA.
- 2. If there is a determination that the disagreement cannot be resolved, the District shall forward all documentation relevant to the dispute to the Council and request the Council's recommendations or request the comments of the Council in accordance with 36 CFR Part 800.7(c).
- 3. The Council shall provide the District with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Any Council recommendations or comments provided in response will be considered in accordance with 36 CFR Part 800.7(c), with reference only to the subject of the dispute. The District shall respond to Council recommendations or comments indicating how the District has taken the Council's recommendations or comments into account and complied with the Council's recommendations or comments prior to proceeding with the Undertaking activities that are the subject to dispute. Responsibility to carry out all other actions under this PA that are not the subject of the dispute will remain unchanged.
- 4. If the Council does not provide its advice regarding the dispute within the thirty (30) calendar day time period, the District may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the District shall prepare a

written response that takes into account any timely comments regarding the dispute from the signatories to the PA, and provide them and the Council with a copy of such written response.

D. WITHDRAWAL AND TERMINATION

- 1. Any signatory may withdraw its participation in this PA by providing thirty (30) days advance written notification to all other signatories. In the event of withdrawal, any signatory to this PA may terminate it by providing 30 calendar days, written notice to the signatories. In the event of withdrawal, this PA will remain in effect for the remaining signatories.
- 2. This agreement may be terminated in accordance with 36 CFR Part 800, provided that the signatories consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. Any signatory requesting termination of this PA will provide thirty (30) days advance written notification to all other signatories.
- 3. In the event of termination, the District will comply with 36 CFR 800.4 through 800.6 with regard to individual undertakings covered by this Agreement.

E. DURATION AND SUNSET CLAUSE

- 1. This PA shall take effect upon execution by the District, the NJHPO, and the signatories with the date of the final signature.
- 2. This PA will continue in full force and effect until the construction of the Undertaking is complete and all terms of this PA are met, unless the Undertaking is terminated or authorization is rescinded or a period of five years from execution of the PA has passed, at which time the agreement may be extended as written provided all signatories concur.

F.AMENDMENT

- 1. This PA may be amended upon agreement in writing by all signatories. Within thirty (30) days of a written request to the District, the District will facilitate consultation between the signatories regarding the proposed amendment.
- 2. Any amendments will be in writing and will be in effect on the date the amended PA is filed with the Council.

G. ANTI-DEFICIENCY ACT

All requirements set forth in this PA requiring expenditure of funds by the District are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 U.S.C. 1341). No obligation undertaken by the District under the terms

of this PA shall require or be interpreted to require a commitment to extend funds not appropriated for a particular purpose. If the District cannot perform any obligation set forth in this PA because of unavailability of funds that obligation must be renegotiated among the District and the signatories as necessary.

Execution and implementation of this PA evidences that the District has satisfied its Section 106 responsibilities for all individual undertakings of the Project, and has afforded the NJHPO and the Council an opportunity to comment on the undertaking and its effects on historic properties.

PROGRAMMATIC AGREEMENT AMONG THE U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT AND THE NEW JERSEY HISTORIC PRESERVATION OFFICE REGARDING THE PECKMAN RIVER BASIN FLOOD RISK MANAGEMENT PROJECT, TOWNSHIP OF CEDAR GROVE, ESSEX COUNTY, AND TOWNSHIP OF LITTLE FALLS AND BOROUGH OF WOODLAND PARK, PASSAIC COUNTY, NEW JERSEY

Execution and implementation of this PA evidences that the District has satisfied its Section 106 responsibilities for all individual undertakings of the Project, and has afforded the NJSHPO and the ACHP an opportunity to comment on the undertaking and its effects on historic properties.

2019 1210 Date By Thomas D. Asbery

Colonel, U.S. Army District Engineer

PROGRAMMATIC AGREEMENT AMONG THE U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT AND THE NEW JERSEY HISTORIC PRESERVATION OFFICE REGARDING THE PECKMAN RIVER BASIN FLOOD RISK MANAGEMENT PROJECT, TOWNSHIP OF CEDAR GROVE, ESSEX COUNTY, AND TOWNSHIP OF LITTLE FALLS AND BOROUGH OF WOODLAND PARK, PASSAIC COUNTY, NEW JERSEY

Execution and implementation of this PA evidences that the District has satisfied its Section 106 responsibilities for all individual undertakings of the Project, and has afforded the NJSHPO and the ACHP an opportunity to comment on the undertaking and its effects on historic properties.

Bv: Date:

Katherine Marcopul Deputy State Historic Preservation Officer New Jersey State Historic Preservation Office

Appendix A

HISTORIC PROPERTIES SUMMARY

Peckman River Basin Flood Risk Management Feasibility Study Essex and Passaic Counties, New Jersey

Historic Properties Summary Peckman River Basin Flood Risk Management Feasibility Study Essex and Passaic Counties, New Jersey

Introduction

The US Army Corps of Engineers, New York District (Corps) is currently proceeding with the Peckman River Basin Flood Risk Management Feasibility Study (Peckman River), which was authorized by a resolution of the US House of Representatives, Committee on Transportation and Infrastructure Resolution Docket 2644 adopted on June 21, 2000. A Feasibility Cost Sharing Agreement was executed on October 2002 with the New Jersey Department of Environmental Protection (NJDEP) as the non-Federal sponsor.

The purpose of the study is to determine if there is a technically feasible, economically justified and environmentally acceptable recommendation for Federal participation in flood risk management for the Peckman River Basin. Following the authorization in 2000, a reconnaissance study was initiated to examine flooding in the Peckman River Basin. The report, completed in 2002, recommended a comprehensive basin-wide study to further examine the feasibility of Federal participation in a project that could provide flood risk management.

There are five municipalities within the Basin: West Orange, Verona, Cedar Grove in Essex County and Little Falls and Woodland Park in Passaic County (Figure 1). The narrow floodplain within West Orange, Verona and Cedar Grove has limited the number of structures affected by damages from flooding by the Peckman River. The communities of Little Falls and Woodland Park have a greater risk of flooding and have approximately 630 structures that are impacted by Peckman River flooding. Tropical Storm Floyd (1999) caused a fatality as well as an estimated \$12.1 million in damages with the Basin.

Project Description

An alternatives analysis completed for the project included various channel modification lengths and locations, varying lengths and locations for levees and floodwalls, the construction of a diversion culvert, and a variety of non-structural measures. The recommended plan consists of a 1,500 foot long, 40-foot wide diversion culvert constructed between the Peckman and Passaic Rivers, two weirs at the culvert inlet on the Peckman River, channel modification of the Peckman River upstream and downstream of the weir for approximately 1,800 linear feet, and 3,377 linear feet of levees and floodwalls along the right and left bank of the Peckman River and between a wooded area the ball fields of the Little Falls High School (Figure 2). In addition to these measures 58 structures would receive non-structural treatments. Non-structural treatments include elevation and wet and dry floodproofing. The features of the recommended plan are based on detailed designs however these plans are not final and are subject to change. The exact length of the features and the nonstructural measures will be determined during final design in the Project Engineering and Design (PED) phase of the project.

As a federal agency, the Corps has certain responsibilities for the identification, protection and preservation of cultural resources that may be located within the Area of Potential Effect (APE) associated with the proposed project. Present statutes and regulations governing the identification, protection and preservation of these resources include





the National Historic Preservation Act of 1966 (NHPA), as amended; the National Environmental Policy Act of 1969; Executive Order 11593; and the regulations implementing Section 106 of the NHPA (36 CFR Part 800, *Protection of Historic Properties*, August 2004). Significant cultural resources include any material remains of human activity eligible for inclusion on the National Register of Historic Places (NRHP). This work is done in coordination with the New Jersey Historic Preservation Office (NJHPO), federally-recognized Tribes and interested parties.

Existing Surveys

For the current study, a Phase I cultural resources investigation was completed that included a review of previous surveys including the 1982 survey of the Peckman River conducted by the US Army Corps of Engineers. The 1982 survey included documentary research and field investigations along an 8,400-foot long section of the Peckman River between Lackwanna Avenue and the Passaic/Essex County line. The survey identified 49 sites of historic and architectural interest within or close to the project area including the Morris Canal, eight standing buildings and 40 potential historical archaeological sites based on historic map documentation (Hunter et. al. 1982).

Additional surveys reviewed included a Phase I archaeological investigation that was conducted prior to the improvements to a sewage treatment plant and a 1,500-foot alignment under Sindle Avenue to the Passaic River. A total of 18 one-meter test units were excavated but no sites were identified (Archaeological Survey Consultants 1981).

Another survey that was reviewed was conducted in 1979 for the Peckman River Wastewater Management Site in Cedar Grove. The survey consisted of background research, interviews and surface reconnaissance. The survey concluded that the Peckman River channel has been modified and rechanneled as a result of a flood and subsequent rebuilding in 1945 (Kraft).

The Phase I investigation that was completed for the current study included a review of previous surveys mentioned above, documentary research, and an architectural survey of 81 structures and 80 shovel tests (Hartgen Archeological Associates 2013). The survey compiled a list of archaeological sites within two miles of the study area and of previously documented historic properties within the study area boundaries (Tables 1 and 2).

Known Archaeological and New Jersey State and National Register Sites

There are 26 previously recorded archaeological sites within a two mile radius of the study area (Table 1). None of the previously recorded sites are located within the study area. Most are located near the northern end along the Passaic River. Based on the existing site information and results of previous surveys, the study area is considered archaeologically sensitive for Native American sites, as well as sites related to the historic development of the region. However, some portions of the study area have undergone prior disturbance from historic and recent development as well as rechanneling of the river (Hartgen Archaeological Associates, 2013).

Four historic properties were identified that are listed on or determined eligible for the New Jersey State and National Registers of Historic Places within the study area (Figure 3). These properties include:

- <u>The Morris Canal (National Register-listed)</u>: A 102-mile long canal linking Phillipsburg to the west and Jersey City to the east dating to 1836-1920s. The canal crosses the Peckman River via an aqueduct about one-half mile south of Main Street.
- <u>The Little Falls Laundry (National Register-eligible)</u>: Began in 1912 as the Little Falls Washing Company, it became one of the largest and most modern commercial laundry facilities on the East Coast. It ceased operations in 1970. The complex consists of a main building built between 1917 and 1932, replacing the original 1912 building and two other buildings built in 1915 and 1925. The Laundry building is located at 101 Main Street along the Peckman River.
- <u>The Route 46 Bridge over the Passaic River and Riverside Drive (National Register-eligible):</u> The bridge is a 477 foot long concrete arch bridge built in 1949.
- <u>The Jersey City Water Works Pipeline (National Register-eligible)</u>: This property consists of an aqueduct that crosses the Peckman River within the APE just south of Lindsley Road and Francisco Avenue. In the vicinity of the APE, the pipeline consisted of a 72-inch diameter pipe. Gatehouses that controlled the flow of water were found along the waterline at the corner of Lindsley Road and Cedar Grove Road. The pipeline itself extends from Boonton to the west, which is the site of the Jersey City/Boonton Reservoir to Jersey City to the east.

Site No.	Site Identifier	Description	Proximity to Project Area (nearest point)
28-Pa-111	"26-1-6-6-1"	Precontact; no information	8500 ft. (2590 m) west
28-Pa-109	"26-1-6-4- 5,6"	Precontact; site findings include "arrowheads, spearheads, axes, pestles and potsherds."	9500 ft. west (2895 m) map has it on north side of river but description places it on south side of river
28-Pa-153	Van Der Kooy	Precontact; site findings include "arrowheads, axes, spears, knives, scrapers, hammerstones, broken bannerstones, and the usual chip materials. No pottery."	10,000 ft. (3048 m) west
28-Pa-110	"26-1-6-2-7"	Precontact; no information	8300 ft. (2530 m) west
28-Pa-108	"26-1-6-1-6"	Precontact; no information	9500 ft. (2895 m) northwest
28-Pa-105	"26-1-6-5-5"	Precontact; no information	8400 ft. (2560 m) west
28-Ex-58	Area 21 Santucci	Precontact: site finds include "broken pottery, arrowheads, fishspears, hammerstones, celt and axes."	11400 ft. (3475 m) west

Table 1. Archaeological Sites within Two Miles of the Study Area.

28- Pa-106	"26-1-6-5- 5,6"	Precontact; no information	8100 ft. (2469 m) west
28-Pa-107	"26-1-6-6-1"	Precontact; no information	5200 ft. (1585 m) west
28-Pa-154	Vreeland	Precontact; site findings include "turtle- back scrapers, blades of Coxsackie flint, and jasper chips. A few potsherds"	6000 ft. (1829 m) northwest
28-Pa-155	Vreeland Route 6	Precontact; site findings include "arrowheads, large spearheads, grooved axes, long pestles and other common artifacts, also the usual flake and chip material. Decorated pottery found"	5000 ft. (1524 m) northwest
28-Pa-57	Lower Preakness	Precontact; no information	9000 ft. (2743 m) northwest
28-Pa-114	"26-2-4-2- 8,9"	Precontact; no information	1500 ft. (457 m) north
28-Pa-116	"26-2-4-2- 5,6"	Precontact; no information	2500 ft. (762 m) north
28-Pa-115	"26-2-4-2-6"	Precontact; no information	3000 ft. (914 m) northeast
28-Pa-117	Little Falls	Precontact; ford across the Passaic	3500 ft. (1067 m) northeast
28-Pa-113	"26-2-4-5-3"	Precontact; no information	1000 ft. (304 m) northeast
28-Pa-169	Dowling	Precontact; Fishing camp with two nearby camps, a fish weir and an eel weir. Site findings from camps include: "fireplaces with a few arrowheads, drills and course pottery, a few flat net sinkers"	3800 ft. (1158 m) northeast
28-Pa-94	"26-2-4-3-6"	Precontact; ford across the Passaic	2500 ft. (762 m) east
28-Pa-101	"26-2-4-3-3"	Precontact; ford across the Passaic	5500 ft. (1676 m) northeast
28-Pa-44	"26-2-5-2-6"	Precontact; site findings include "hatchets, celts, arrowheads, spear points (large) etc. Black flint chips. No pottery."	9000 ft. (2743 m) northeast
28-Ex-120	New Hospital Center Locus A Site	Precontact; three chert flakes	6500 ft. (1981 m) southwest
28-Ex-121	New Hospital Center Locus B Site	Precontact; tertiary jasper flakes and late stage chert core	6000 ft.(1829 m) southwest
28-Ex-96	"26-2-4-7-9"	Precontact; no information	4000 ft. (1219 m) south
28-Ex-130	Van Reyper/Bond House	Historic: associated with late 19 th - early20th century extant house; items include nails, wood, glass.	7500 ft. (2286 m) southeast

		-		
NR or	Property	Status	Description	Location and
NJHPO	Name			Proximity to
Number				Project Area
2784	Morris Canal	NR	102-mile long canal extending between Phillipsburg and Jersey City. 1836-1920s. Crossed over the Peckman River via an aqueduct.	Crosses Peckman River and Project Area about ½ mile south of Main Street.
4384	Little Falls Laundry	NRE	Began as Little Falls Washing Co. in 1912 by Dutch immigrants. Grew to be one of the largest and most modern commercial laundry facilities on the East Coast. Ceased operations in 1970s.	101 Main Street, adjacent to Peckman River in Project Area.
3425	US Rte 46 bridge over Passaic River and Riverview Drive	NRE	477-ft long concrete arch bridge constructed in 1939	Approximately 1500 ft (457 m) northwest
3915	Jersey City Water Works Pipeline	NRE	Aqueduct	Extends from Boontown to Jersey City; crosses Peckman River in Project Area

Table 2. NR/NRE Properties within or in the Vicinity of the Project Area

Field Investigations

Field investigations carried out for this study resulted in the identification of five additional archaeological resources (see Figure 11):

- <u>Little Falls Laundry, Weir, and Headrace:</u> Recently damaged by the flood water, portions of the former weir which diverted water into the headrace still stand. The weir and headrace were likely built in the 1920s as part of the laundry's expansion after the Sindle and Van Ness mills were no longer operational to utilize the water for their mill ponds to power distant mills. The headrace, headwall, and sluice gate mechanisms are still intact (Figures 3 through 5).
- <u>Marley Mill Site</u>: This site consists of a stone dam and retaining wall (Figure 6). There is no evidence of the actual mill structure. The mill was built in 1896 and was destroyed in a fire prior to 1907 and not rebuilt. The dam has been breached and most of it has been damaged or destroyed. The retaining wall was likely a later feature built for the nearby roadway and is not part of the site proper. The actual mill site lies under a portion of the St. Vincent nursing facility and has likely been destroyed or deeply buried under fill.
- <u>Morris Canal Aqueduct</u>: The remains identified within the study area include the interior canal walls on the east side of the river (Figure 7). Additional canal walls were also found to the east outside of the study area. No evidence was found of the central pier or the aqueduct's abutment's or canal prism on the west side.
- <u>Seuchlung Slaughterhouse Bridge Abutment</u>: the abutment is located on the west side of the Peckman River (Figure 8). This features did not possess additional research potential archeologically.

• <u>Smalley Street Bridge</u>: A small concrete feature that crosses the Peckman River north of East Main Street (Figure 9). It likely served as a still feature to protect the abutments for this former bridge. There is no evidence of the abutments. This feature does not possess additional research potential archeologically, and it is not considered an archeological site.



Figure 3: The Little Falls Laundry, 101 East Main Street (Hartgen Archeological Associates 2013)



Figure 4: The concrete weir that helped channel water into the Little Falls Laundry. The central part of the weir was washed out during Hurricane Irene, after this picture was taken (Hartgen Archeological Associated 2013).



Figure 5: The Little Falls Laundry headrace's sluice gate and steel culvert (Hartgen Archeological Associates 2013).



Figure 6: Map of Marley Mill Dam Features (Hartgen Archeological Associates 2013).



Figure 7: Map Showing the Morris Canal Aqueduct Features (HAA 2013).



Figure 8: Concrete Abutment remains for the bridge associated with the Seuchlung Slaughter House (HAA 2013).



Figure 9: Concrete Structure Associated with the Former Smalley Street Bridge (HAA 2013).

Architectural Survey

The architectural survey consisted of a field inspection of 81 properties within the study area. All structures built before 1962 were evaluated using the National Register criteria for significance. The survey determined the Morris Canal Aqueduct, the Little Falls Laundry, and Jersey City Water Works Valve House have retained their integrity and remain listed on or eligible for listing on the New Jersey State and National Registers. The Cedar Grove Railroad Overpass (Figure 10), was identified by this survey as potentially eligible for the New Jersey State and National Registers.

Geotechnical Survey

The results of geotechnical testing in the study area identified varying stratigraphic profiles along the project corridor. The majority of the borings indicated organic silt and soil underlain by fill material. In other areas, particularly in the middle portion of the project area immediately along the Peckman, the borings noted deep deposits of riverine sands and silt, up to eight feet deep in some locations. The sands are likely recent in origin. One area at the western end of the diversion culvert alignment in the location of an extant parking lot between Patterson Avenue and the Passaic River appears to contain deep fill deposits. This area was recommended for further investigations.



Figure 10: Cedar Grove Railroad Overpass (HAA 2013).

The Area of Potential Effect

The Area of Potential Effect (APE) represents the physical extent of the undertaking within which direct and/or indirect effects of the construction, operation and maintenance of the project, could be caused to the character or use of a historic property. For this project, the APE consists of the locations of the levees, floodwalls, diversion culvert, weir, and structures for floodproofing (see Figure 2). Currently no staging areas have been identified but those areas would be considered part of the APE as well. In addition, if wetland or other required mitigation cannot be accomplished within the bounds of the current proposed project, the mitigation locations outside the project area will form an additional APE or expand the current APE.

Tentatively Selected Plan and Determination of Effects (see Figure 11)

As currently proposed, the recommended plan will have no effect on the Marley Mill Dam site and the New Jersey Waterworks Valve House as no structural and/or non-structural measures are currently proposed in the vicinity of those resources. In addition, the Morris Canal Aqueduct alignment and extant features would also not be effected by the proposed structural and/or non-structural measures. Non-structural measures are proposed for homes in the vicinity along Cedar Grove Road and Charles Street, however the Morris Canal Aqueduct will not be affected. The recommended plan will also have no adverse effect on the Route 46 Bridge.

The channel modification and installation of the proposed wier upstream of the Route 46 Bridge would not have an adverse effect on archaeological sites. The geotechnical survey indicated that this area has been extensively disturbed. The review of the borings indicated no potential to recover intact archaeological deposits within the streambed and bank.



Figure 11: Location of historic properties and additional archaeological testing and monitoring

The wooded area upstream of the Route 46 Bridge, adjacent to the shopping mall on the right bank of the Peckman River and west of the Little Falls High School were not included in the study area for the Phase I survey. As currently proposed, a levee/floodwall would be constructed in this area. Prior to any construction, a Phase I survey will be conducted in this area. If any potentially eligible archaeological sites are identified, a subsequent Phase II would be completed. Coordination with the NJHPO would be conducted to determine if any identified sites could be avoided or if avoidance was not possible, to minimize or mitigate any adverse effect.

Along the culvert alignment from the Peckman River to the Passaic River, the geotechnical survey and shovel tests indicated no potential to recover intact archaeological deposits. One location, however, near the Passaic River under an existing parking lot, was not surveyed. This area will be subject to mechanically assisted archaeological investigations during the pre-construction, engineering, and design phase to determine if intact archaeological deposits are present and to conduct additional testing as necessary.

As currently proposed, the Little Falls Laundry may be affected by the proposed non-structural measures. As part of the pre-construction, engineering and design, the nature of the proposed non-structural measures will be developed and continued coordination with the NJHPO will be conducted to avoid, minimize and/or mitigate potential adverse effects to the historic property.

Based on the Phase I survey, the houses and commercial structures included in the survey, with the exception of the Little Falls Laundry, are not eligible for the National Register of Historic Places. It is assumed that the survey, which focused on the Township of Little Falls, surveyed the buildings and structures proposed for non-structural measures. If any buildings and/or structures identified for non-structural measures were not included in the Phase I survey, additional surveys will be conducted in the PED phase to determine the affected buildings' eligibility and the effect, in coordination with the NJHPO, the proposed measure would have on any historic properties if identified.

Mitigation

In accordance with Section 106 of the NRHP and its implementing regulations (36 CFR 800) the District is addressing adverse effects to historic properties through a Programmatic Agreement (PA). A preliminary draft Programmatic Agreement for review and comment by the public has been prepared and is included in the DIFR/EA. The stipulations in the draft Programmatic Agreement are subject to revision and addition as a result of coordination with the NJHPO, the Little Falls Historical Society, and the public as well as consultation with the Delaware Nation and the Delaware Tribe of Indians. Requirements of the Programmatic Agreement currently include:

- Archaeological testing of the alignment of the levee, which was not included in the Phase I survey;
- Archaeological testing of the diversion culvert construction in the vicinity of the parking lot along the Passaic River;
- Determination of effect of non-structural measures at the Little Falls Laundry and efforts to avoid, minimize and/or mitigate any potential adverse effect;
- Additional archaeological and/or architectural investigations, as necessary, to identify and evaluate, if identified: 1) archaeological sites that might be affected by the construction of

the project including the elevation of homes and construction of access roads and staging areas; and 2) buildings and structures not included in the existing survey; and

• Continued coordination with, at a minimum, the NJHPO and identified interested parties.

The PA will guide the District through the Pre-Construction Engineering and Design and Construction phases of the project to ensure that impacts to historic properties are avoided, minimized or mitigated and that the work is carried out in consultation with the NJSHPO and other identified consulting parties.

References

Archaeological Survey Consultants

1981 A Phase I Cultural Resources Survey of the Proposed Little Falls Sewage Treatment Plan Improvements and the Sindle Ave. Alignments, Little Falls, Passaic County, New Jersey. On file at the New Jersey State Historic Preservation Office.

Hartgen Archeological Associates

2013 Phase I Archeological Investigation and Structure Inventory, Peckman River Flood Damage Reduction Project, Borough of Woodland Park (formerly West Paterson) and Townships of Little Falls and Cedar Grove, Passaic and Essex Counties, New Jersey.

Hunter, Richard W. et. al.

1982 Cultural Reconnaissance for the Peckman River, Little Falls Township and the Borough of West Paterson, Passaic County, New Jersey. On file at the New Jersey State Historic Preservation Office.

Kraft, Herbert C.

1979 Cultural Resources Survey of the Peckman River Wastewater Management Site, Cedar Grove, Essex County, NJ. On file at the New Jersey State Historic Preservation Office.

Flood Risk Management Feasibility Study

Peckman River Basin New Jersey

Integrated Feasibility Report and Environmental Assessment

Appendix A6: Record of Non-Applicability and Emissions Calculations



US Army Corps of Engineers® New York District

February 2020

September 16, 2019

Environmental Analysis Branch (CENAN-PL-E)

RECORD OF NON-APPLICABILITY (RONA)

Project Name: Peckman River Flood Risk Management Study Reference: Equipment list developed by New York District Cost Engineering

Project/Action Point of Contact: Kimberly Rightler, Project Biologist

Begin Date: October 2024

End Date: June 2027

- 1. The project described above has been evaluated for Section 176 of the Clean Air Act. Project related emissions associated with the federal action were estimated to evaluate the applicability of General Conformity regulations (40CFR§93 Subpart B).
- 2. The requirements of this rule do not apply because the total direct and indirect emissions from this project are significantly less than the 100 tons trigger levels for NO_x, CO, and PM_{2.5} and less than 50 tons for VOCs for each project year (40CFR§93.153(b)(1) & (2)). The estimated total annual NO_x emissions for the project is 51 tons, estimated total annual emissions for CO is 6.55 and the total annual emissions of VOC and PM_{2.5}, are all at or less than 3 tons per year for the project (see attached estimates).
- 3. The project is presumed to conform with the General Conformity requirements and is exempted from Subpart B under 40CFR§93.153(s)(1).

Peter Weppler Chief, Environmental Analysis Branch

Enclosure



Emissions have been estimated using project planning information developed by the New York District, consisting of anticipated equipment types and estimates of the horsepower and operating hours of the diesel engines powering the equipment. In addition to this planning information, conservative factors have been used to represent the average level of engine load of operating engines (load factors) and the average emissions of typical engines used to power the equipment (emission factors). The basic emission estimating equation is the following:

E = hrs x LF x EF

Where:

E = Emissions per period of time such as a year or the entire project.

hrs = Number of operating hours in the period of time (e.g., hours per year, hours per project).

LF = Load factor, an estimate of the average percentage of full load an engine is run at in its usual operating mode.

EF = Emission factor, an estimate of the amount of a pollutant (such as NO_x) that an engine emits while performing a defined amount of work.

In these estimates, the emission factors are in units of grams of pollutant per horsepower hour (g/hphr). For each piece of equipment, the number of horsepower hours (hphr) is calculated by multiplying the engine's horsepower by the load factor assigned to the type of equipment and the number of hours that piece of equipment is anticipated to work during the year or during the project. For example, a crane with a 250-horsepower engine would have a load factor of 0.43 (meaning on average the crane's engine operates at 43% of its maximum rated power output). If the crane were anticipated to operate 1,000 hours during the course of the project, the horsepower hours would be calculated by:

250 horsepower x 0.43 x 1,000 hours = 107,500 hphr

The emissions from diesel engines vary with the age of an engine and, most importantly, with when it was built. Newer engines of a given size and function typically emit lower levels of most pollutants than older engines. The emission factors used in these calculations assume that the equipment pre-dates most emission control requirements (known as Tier 0 engines in most cases), to provide a reasonable "upper bound" to the emission estimates. If newer engines are actually used in the work, then emissions will be lower than estimated for the same amount of work. In the example of the crane engine, a NO_x emission factor of 9.5 g/hphr would be used to estimate emissions from this crane on the project by the following equation:

$\frac{107,500 \text{ hphr } x 9.5 \text{ g NO}_x/\text{hphr}}{453.59 \text{ g/lb } x 2,000 \text{ lbs/ton}} = 1.1 \text{ tons of NO}_x$



US Army Corps of Engineers – New York District Peckman River FRM Study General Conformity Related Emission Estimates

As noted above, information on the equipment types, horsepower, and hours of operation associated with the project have been obtained from the project's plans and represent current best estimates of the equipment and work that will be required. Load factors have been obtained from various sources depending on the type of equipment. Land-side nonroad equipment load factors are from the documentation for EPA's NONROAD emission estimating model, "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling, EPA420-P-04-005, April 2004."

Emission factors have also been sourced from a variety of documents and other sources depending on engine type and pollutant. Nonroad equipment NOx and other emission factors have been derived from EPA emission standards and documentation. On-road vehicle emission factors have also been developed from the EPA model MOVES2014a run for 15-year-old single-unit short-haul trucks operating in CY 2017.

As noted above, the emission factors have been chosen to be moderately conservative so as not to underestimate project emissions. Actual project emissions will be estimated and tracked during the course of the project and will be based on the characteristics and operating hours of the specific equipment chosen by the contractor to do the work.

The following pages summarize the estimated emissions in sum for the project including the anticipated equipment and engine information developed by the New York District, the load factors and emission factors as discussed above, and the estimated emissions for the project.

U.S. Army Corps of Engineers Project : Peckman River FRM Feasibility Study - Alternative 10b General Conformity Related Emission Estimates

8/7/2019

Summary of Emissions											
		tons									
Pollutants:	Pollutants: NO _x VOC SO _x PM _{2.5} C										
Calendar Year											
2024	14.19	0.29	0.0	0.25	1.83						
2025	51.00	1.04	0.0	0.9	6.55						
2026	51.00	1.04	0.0	0.9	6.55						
2027	25.52	0.53	0.0	0.45	3.27						
Totals	141.8	2.9	0.1	2.5	18.2						

Off-Road Emission Sources

		Load			g/hphr							tons		
Category	Horsepower	Factor	Hours	hphrs	NO _x	VOC	SO _x	PM _{2.5}	CO	NO _x	VOC	SO _x	PM _{2.5}	CO
	(approx.)													
Rubber tired loader	300	0.59	1,949	344,973	9.5	0.19	0.0050	0.16	1.21	3.613	0.072	0.002	0.061	0.460
Other diesel engines	100	0.59	159	9,381	9.5	0.19	0.0050	0.16	1.21	0.098	0.002	0.000	0.002	0.013
Compactor	250	0.43	41,623	4,474,473	9.5	0.19	0.0050	0.16	1.21	46.857	0.937	0.025	0.789	5.968
Crane	300	0.43	0	0	9.5	0.19	0.0050	0.16	1.21	0.000	0.000	0.000	0.000	0.000
Excavator	300	0.59	79	13,983	9.5	0.19	0.0050	0.16	1.21	0.146	0.003	0.000	0.002	0.019
Excavator	500	0.59	21,318	6,288,810	9.5	0.19	0.0050	0.16	1.21	65.856	1.317	0.035	1.109	8.388
Skid Steer Loader	175	0.21	159	5,843	9.5	0.19	0.0050	0.16	1.21	0.061	0.001	0.000	0.001	0.008
Rubber tired loader	175	0.59	588	60,711	9.5	0.19	0.0050	0.16	1.21	0.636	0.013	0.000	0.011	0.081
Dozer	250	0.59	285	42,038	9.5	0.19	0.0050	0.16	1.21	0.440	0.009	0.000	0.007	0.056
Other diesel engines	50	0.59	173	5,104	9.5	0.19	0.0050	0.16	1.21	0.053	0.001	0.000	0.001	0.007
Other diesel engines	100	0.59	0	0	9.5	0.19	0.0050	0.16	1.21	0.000	0.000	0.000	0.000	0.000
Pump	50	0.43	8,311	178,687	9.5	0.19	0.0050	0.16	1.21	1.871	0.037	0.001	0.032	0.238
Dozer	300	0.59	285	50,445	9.5	0.19	0.0050	0.16	1.21	0.528	0.011	0.000	0.009	0.067
Rubber tired loader	110	0.59	23	1,493	9.5	0.19	0.0050	0.16	1.21	0.016	0.000	0.000	0.000	0.002
Off-road truck	100	0.59	105	6,195	9.5	0.19	0.0050	0.16	1.21	0.065	0.001	0.000	0.001	0.008
Generator	100	0.43	3,326	143,018	9.5	0.19	0.0050	0.16	1.21	1.498	0.030	0.001	0.025	0.191
Grader	135	0.59	80	6,372	9.5	0.19	0.0050	0.16	1.21	0.067	0.001	0.000	0.001	0.008
Rubber tired loader	300	0.59	0	0	9.5	0.19	0.0050	0.16	1.21	0.000	0.000	0.000	0.000	0.000
Off-road truck	250	0.59	21	3,098	9.5	0.19	0.0050	0.16	1.21	0.032	0.001	0.000	0.001	0.004
Compressor	75	0.43	1,595	51,439	9.5	0.19	0.0050	0.16	1.21	0.539	0.011	0.000	0.009	0.069
Compressor	100	0.43	24	1,032	9.5	0.19	0.0050	0.16	1.21	0.011	0.000	0.000	0.000	0.001
Compressor	125	0.43	387	20,801	9.5	0.19	0.0050	0.16	1.21	0.218	0.004	0.000	0.004	0.028
Compressor	75	0.43	47	1,516	9.5	0.19	0.0050	0.16	1.21	0.016	0.000	0.000	0.000	0.002
Other diesel engines	100	0.59	40	2,360	9.5	0.19	0.0050	0.16	1.21	0.025	0.000	0.000	0.000	0.003
Compactor	250	0.43	387	41.603	9.5	0.19	0.0050	0.16	1.21	0.436	0.009	0.000	0.007	0.055
Compactor	250	0.43	33	3.548	9.5	0.19	0.0050	0.16	1.21	0.037	0.001	0.000	0.001	0.005
Other diesel engines	225	0.59	1.595	211.736	9.5	0.19	0.0050	0.16	1.21	2.217	0.044	0.001	0.037	0.282
Crane	225	0.43	1.179	114.068	9.5	0.19	0.0050	0.16	1.21	1.195	0.024	0.001	0.020	0.152
Crane	300	0.43	9	1.161	9.5	0.19	0.0050	0.16	1.21	0.012	0.000	0.000	0.000	0.002
Crane	300	0.43	2.328	300.312	9.5	0.19	0.0050	0.16	1.21	3.145	0.063	0.002	0.053	0.401
Other diesel engines	225	0.59	1 179	156 512	9.5	0.19	0.0050	0.16	1.21	1 639	0.033	0.001	0.028	0.209
Other diesel engines	100	0.59	714	42,126	9.5	0.19	0.0050	0.16	1.21	0 441	0.009	0.000	0.007	0.056
Generator	100	0.43	1 663	71 509	9.5	0.19	0.0050	0.16	1.21	0.749	0.015	0.000	0.013	0.095
Excavator	300	0.19	115	20 355	9.5	0.19	0.0050	0.16	1.21	0.213	0.013	0.000	0.004	0.027
Skid Steer Loader	175	0.21	24	882	9.5	0.19	0.0050	0.16	1.21	0.009	0.000	0.000	0.000	0.001
Skid Steer Loader	175	0.21	40	1 470	9.5	0.19	0.0050	0.16	1.21	0.005	0.000	0.000	0.000	0.001
Bubber tired loader	175	0.21	274	28 291	9.5	0.19	0.0050	0.16	1.21	0.015	0.000	0.000	0.005	0.038
Rubber tired loader	250	0.59	274	3 098	9.5	0.19	0.0050	0.16	1.21	0.032	0.000	0.000	0.003	0.004
Rubber tired loader	110	0.59	5	325	9.5	0.19	0.0050	0.10	1.21	0.002	0.001	0.000	0.001	0.004
Other diesel operations	110	0.57	1 255	74 045).J	0.17	0.0050	0.10	1.21	0.005	0.000	0.000	0.000	0.000
Other diesel engines	100	0.59	1,233	63 307	9.5	0.19	0.0050	0.10	1.21	0.773	0.010	0.000	0.013	0.099
Dumo	100 50	0.39	1,075	5.006	9.5	0.19	0.0050	0.10	1.21	0.003	0.013	0.000	0.011	0.004
Pump	50 50	0.43	237 1 170	25 340	9.5	0.19	0.0050	0.10	1.21	0.033	0.001	0.000	0.001	0.007
Pump	50	0.43	1,179	25,549	9.3	0.19	0.0050	0.10	1.21	0.203	0.005	0.000	0.004	0.034
Pump	50 50	0.43	1,179	25,549	9.5	0.19	0.0050	0.10	1.21	0.265	0.005	0.000	0.004	0.034
Pump	50 150	0.43	1,179	25,549	9.5	0.19	0.0050	0.10	1.21	0.205	0.005	0.000	0.004	0.034
Other diesel engines	150	0.59	124	10,974	9.5	0.19	0.0050	0.16	1.21	0.115	0.002	0.000	0.002	0.015
Other diesel engines	250	0.59	0	0	9.5	0.19	0.0050	0.16	1.21	0.000	0.000	0.000	0.000	0.000
Other diesel engines	200	0.59	38	4,484	9.5	0.19	0.0050	0.16	1.21	0.047	0.001	0.000	0.001	0.006
Dozer	-/5	0.59	123	5,443	9.5	0.19	0.0050	0.16	1.21	0.057	0.001	0.000	0.001	0.007
Dozer	250	0.59	38	5,605	9.5	0.19	0.0050	0.16	1.21	0.059	0.001	0.000	0.001	0.007
Generator	7.5	0.43	652	2,103	9.5	0.19	0.0050	0.16	1.21	0.022	0.000	0.000	0.000	0.003
Other diesel engines	225	0.59	105	13,939	9.5	0.19	0.0050	0.16	1.21	0.146	0.003	0.000	0.002	0.019
Off-road truck	100	0.59	0	0	9.5	0.19	0.0050	0.16	1.21	0.000	0.000	0.000	0.000	0.000

U.S. Army Corps of Engineers Project : Peckman River Feasibility Study – Alternative 10b General Conformity Related Emission Estimates 8/7/2019

		Load					g/hphr				tons			
Category	Horsepower	Factor	Hours	hphrs	NO _x	VOC	SO _x	PM _{2.5}	СО	NO _x	VOC	SO _x	PM _{2.5}	CO
	(approx.)													
Compressor	100	0.43	329	14,147	9.5	0.19	0.0050	0.16	1.21	0.148	0.003	0.000	0.002	0.019
Compressor	75	0.43	657	21,188	9.5	0.19	0.0050	0.16	1.21	0.222	0.004	0.000	0.004	0.028
Other diesel engines	225	0.59	25	3,319	9.5	0.19	0.0050	0.16	1.21	0.035	0.001	0.000	0.001	0.004
Other diesel engines	225	0.59	38	5,045	9.5	0.19	0.0050	0.16	1.21	0.053	0.001	0.000	0.001	0.007
Crane	225	0.43	35	3,386	9.5	0.19	0.0050	0.16	1.21	0.035	0.001	0.000	0.001	0.005
Crane	225	0.43	209	20,221	9.5	0.19	0.0050	0.16	1.21	0.212	0.004	0.000	0.004	0.027
Crane	225	0.43	23	2,225	9.5	0.19	0.0050	0.16	1.21	0.023	0.000	0.000	0.000	0.003
Grader	138	0.59	20	1,628	9.5	0.19	0.0050	0.16	1.21	0.017	0.000	0.000	0.000	0.002
Excavator	300	0.59	139	24,603	9.5	0.19	0.0050	0.16	1.21	0.258	0.005	0.000	0.004	0.033
Excavator	400	0.59	348	82,128	9.5	0.19	0.0050	0.16	1.21	0.860	0.017	0.000	0.014	0.110
Excavator	300	0.59	348	61,596	9.5	0.19	0.0050	0.16	1.21	0.645	0.013	0.000	0.011	0.082
Skid Steer Loader	175	0.21	17	625	9.5	0.19	0.0050	0.16	1.21	0.007	0.000	0.000	0.000	0.001
Skid Steer Loader	175	0.21	497	18,265	9.5	0.19	0.0050	0.16	1.21	0.191	0.004	0.000	0.003	0.024
Rubber tired loader	175	0.59	514	53,071	9.5	0.19	0.0050	0.16	1.21	0.556	0.011	0.000	0.009	0.071
Rubber tired loader	175	0.59	348	35,931	9.5	0.19	0.0050	0.16	1.21	0.376	0.008	0.000	0.006	0.048
Rubber tired loader	250	0.59	77	11,358	9.5	0.19	0.0050	0.16	1.21	0.119	0.002	0.000	0.002	0.015
Rubber tired loader	110	0.59	81	5,257	9.5	0.19	0.0050	0.16	1.21	0.055	0.001	0.000	0.001	0.007
Rubber tired loader	110	0.59	1,133	73,532	9.5	0.19	0.0050	0.16	1.21	0.770	0.015	0.000	0.013	0.098
Other diesel engines	250	0.59	173	25,518	9.5	0.19	0.0050	0.16	1.21	0.267	0.005	0.000	0.005	0.034
Other diesel engines	150	0.59	25	2,213	9.5	0.19	0.0050	0.16	1.21	0.023	0.000	0.000	0.000	0.003
Other diesel engines	200	0.59	5	590	9.5	0.19	0.0050	0.16	1.21	0.006	0.000	0.000	0.000	0.001
Other diesel engines	150	0.59	25	2,213	9.5	0.19	0.0050	0.16	1.21	0.023	0.000	0.000	0.000	0.003
Other diesel engines	150	0.59	194	17,169	9.5	0.19	0.0050	0.16	1.21	0.180	0.004	0.000	0.003	0.023
Other diesel engines	200	0.59	20	2,360	9.5	0.19	0.0050	0.16	1.21	0.025	0.000	0.000	0.000	0.003
Dozer	250	0.59	329	48,528	9.5	0.19	0.0050	0.16	1.21	0.508	0.010	0.000	0.009	0.065
Dozer	340	0.59	20	4,012	9.5	0.19	0.0050	0.16	1.21	0.042	0.001	0.000	0.001	0.005
Totals										141.5	2.8	0.07	2.4	18.0

On-Road Emission Sources

		tons									
Category	Miles	NO _x	VOC	SO _x	PM _{2.5}	CO	NO _x	VOC	SO _x	PM _{2.5}	CO
Short-haul diesel truck	3,976	9.315	2.183	0.011	0.667	5.339	0.041	0.010	0.000	0.003	0.023
Short-haul diesel truck	3,976	9.315	2.183	0.011	0.667	5.339	0.041	0.010	0.000	0.003	0.023
Short-haul diesel truck	3,334	9.315	2.183	0.011	0.667	5.339	0.034	0.008	0.000	0.002	0.020
Short-haul diesel truck	80	9.315	2.183	0.011	0.667	5.339	0.001	0.000	0.000	0.000	0.000
Short-haul diesel truck	2,034	9.315	2.183	0.011	0.667	5.339	0.021	0.005	0.000	0.001	0.012
Short-haul diesel truck	52	9.315	2.183	0.011	0.667	5.339	0.001	0.000	0.000	0.000	0.000
Short-haul diesel truck	3,334	9.315	2.183	0.011	0.667	5.339	0.034	0.008	0.000	0.002	0.020
Short-haul diesel truck	2,114	9.315	2.183	0.011	0.667	5.339	0.022	0.005	0.000	0.002	0.012
Short-haul diesel truck	524	9.315	2.183	0.011	0.667	5.339	0.005	0.001	0.000	0.000	0.003
Short-haul diesel truck	337	9.315	2.183	0.011	0.667	5.339	0.003	0.001	0.000	0.000	0.002
Short-haul diesel truck	2,248	9.315	2.183	0.011	0.667	5.339	0.023	0.005	0.000	0.002	0.013
Short-haul diesel truck	2,248	9.315	2.183	0.011	0.667	5.339	0.023	0.005	0.000	0.002	0.013
Short-haul diesel truck	20	9.315	2.183	0.011	0.667	5.339	0.000	0.000	0.000	0.000	0.000
Short-haul diesel truck	662	9.315	2.183	0.011	0.667	5.339	0.007	0.002	0.000	0.000	0.004
Short-haul diesel truck	34	9.315	2.183	0.011	0.667	5.339	0.000	0.000	0.000	0.000	0.000
Short-haul diesel truck	20	9.315	2.183	0.011	0.667	5.339	0.000	0.000	0.000	0.000	0.000
Short-haul diesel truck	524	9.315	2.183	0.011	0.667	5.339	0.005	0.001	0.000	0.000	0.003
Totals							0.3	0.06	0.000	0.02	0.15

* Emission factors from MOVES2014 for 2017, Union Co. NJ. MY 2002 (15-year-old) single-unit short-haul truck

Flood Risk Management Feasibility Study

Peckman River Basin New Jersey

Integrated Feasibility Report and Environmental Assessment

Appendix A7: Environmental Compliance Coordination



US Army Corps of Engineers® New York District

February 2020

List of Attachments

- 1. NJDEP Conditional Water Quality Certification Email December 5, 2019
- 2. USACE Letter to NJDEP December 3, 2019
- 3. NJDEP Letter to USACE November 27, 2019
- 4. USACE Email Correspondence to NJDEP November 15, 2019
- 5. USACE Letter to NJDEP November 14, 2019
- 6. United States Environmental Protection Agency Letter June 15, 2018
- 7. New Jersey Department of Environmental Protection Letter June 5, 2018
- 8. EPA email to District December 19, 2017
- 9. New Jersey Department of Environmental Protection Letter December 27, 2017
- 10. Response from the Advisory Council on Historic Preservation December 10, 2019
- 11. Response from the New Jersey DEP, Historic Preservation Office 12 November, 2019
- 12. New Jersey DEP, Historic Preservation Office Letter October 7, 2019
- 13. Little Falls Historical Society Letter October 7, 2019
- 14. Delaware Nation Coordination Letter October 7, 2019
- 15. Delaware Tribe Coordination Letter October 7, 2019
- 16. Scoping Document from NJ Historic Preservation Office December 28, 2017
- 17. New Jersey DEP, Historic Preservation Letter December 30, 2010
- 18. New Jersey DEP, Historic Preservation Letter February 5, 2013
- 19. New Jersey DEP, Historic Preservation Letter August 29, 2012
- 20. New Jersey DEP, Historic Preservation Letter July 17, 2012

Attachment 1 NJDEP Conditional WQC to USACE – December 5, 2019
From:	Dow, Diane
То:	Rightler, Kimberly CIV USARMY CENAN (USA)
Cc:	Weppler, Peter M CIV USARMY CENAN (US); Foster, Ruth; Kopkash, Ginger; Rosenblatt, Dave; Moyle, John; Keller, Colleen; Ryan, Patrick; Mazzei, Vincent
Subject:	[Non-DoD Source] RE: 112719 NJDEP comment letter Draft Integrated Feasibility Report & Environmental Assessment (DIFR/EA) and Draft Finding of No Significant Impacts (FONSI) for the Peckman River Basin, New Jersey, Flood Risk Management Feasibility Study
Date:	Thursday, December 5, 2019 10:23:20 AM
Attachments:	Encl 1 27 Nov 19 DIFR and EA Peckman River NJDEP comment letter.pdf

Good morning Kimberly,

In the Department's November 27, 2019 comment letter (attached) we mistakenly referenced a Federal Consistency when, as Mr. Weppler pointed out in his Dec. 3rd letter, the Peckman River project does not require a Federal Consistency because the project is not located in the coastal zone. Instead, as stated in our letter, the project requires a Freshwater Wetland Individual permit and associated Water Quality Certificate (WQC) as well as a Flood Hazard Area Control Act Individual permit. Please be advised that the Division of Land Use Regulation (Division) will make a determination of water quality consistency if the project meets the Freshwater Wetland Protection Act rules. Therefore, the Division does not foresee any problems with issuance of a WQC, provided a Freshwater Wetland Individual permit is submitted for the final project design and provided the Department can confirm that the project is consistent with the Freshwater Wetland Protection Act and implementing rules. I hope this email satisfies the Corps' requirement under it's SMART Planning process. Please let me know if you have any questions.

Diane Dow, Director Division of Land Use Regulation 501 East State Street Mail Code 501-02A P.O. Box 420 Trenton, NJ 08625 Telephone (609) 984-3444

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-----Original Message-----

From: Rightler, Kimberly CIV USARMY CENAN (USA) <Kimberly.A.Rightler@usace.army.mil> Sent: Tuesday, December 3, 2019 4:41 PM

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To: Foster, Ruth <Ruth.Foster@dep.nj.gov>
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Cc: Corleto, Joseph <Joseph.Corleto@dep.nj.gov>; Davis, Kelly <Kelly.Davis@dep.nj.gov>; Khan, Faraz <Faraz.Khan@dep.nj.gov>; Madara, Dag CIV USARMY CENAN (USA) <Dag.Madara@usace.army.mil>; West-Rosenthal, Jesse <Jesse.West-Rosenthal@dep.nj.gov>; Martin-Torres, Chaneice <Chaneice.Martin-Torres@dep.nj.gov>; Dow, Diane <Diane.Dow@dep.nj.gov>; Anderson, Ryan <Ryan.Anderson@dep.nj.gov>; Opara, Valda <Valda.Opara@dep.nj.gov>; Taylor, Adam <Adam.Taylor@dep.nj.gov>; Moriarty, Sean <Sean.Moriarty@dep.nj.gov>; Ryan, Patrick <Patrick.Ryan@dep.nj.gov>; Mazzei, Vincent <Vincent.Mazzei@dep.nj.gov>; Schaffer, Cathryn <Cathryn.Schaffer@dep.nj.gov>; Weppler, Peter M CIV USARMY CENAN (US) <Peter.M.Weppler@usace.army.mil>; Scarpa, Carissa A CIV USARMY CENAN (USA) <Carissa.A.Scarpa@usace.army.mil>; Tommaso, Danielle M CIV USARMY CENAN (USA) <Danielle.M.Tommaso@usace.army.mil>; Cackler, Olivia CIV USARMY CENAN (USA) <Olivia.N.Cackler@usace.army.mil>; Moyle, John <John.Moyle@dep.nj.gov>; Slowinski, Tom <Tom.Slowinski@dep.nj.gov>; Rosenblatt, Dave <Dave.Rosenblatt@dep.nj.gov> Subject: [EXTERNAL] RE: 112719 NJDEP comment letter Draft Integrated Feasibility Report & Environmental Assessment (DIFR/EA) and Draft Finding of No Significant Impacts (FONSI) for the Peckman River Basin, New Jersey, Flood Risk Management Feasibility Study

Good Evening Ms. Foster,

Enclosed, please find our response with enclosures to your November 27, 2019 correspondence for the Subject project.

If you have any questions, please do not hesitate to contact me or Mr. Peter Weppler, Chief, Environmental Analysis Branch at 917-790-8634.

Thank you, Kimberly Rightler Project Biologist 917-790-8722

U.S. Army Corps of Engineers, New York District Planning Division c/o PSC Mail Center 26 Federal Plaza, New York, NY 10278

-----Original Message-----

From: Foster, Ruth [mailto:Ruth.Foster@dep.nj.gov]

Sent: Wednesday, November 27, 2019 12:45 PM

To: Khan, Faraz <Faraz.Khan@dep.nj.gov>; Madara, Dag CIV USARMY CENAN (USA)

<Dag.Madara@usace.army.mil>; Dow, Diane <Diane.Dow@dep.nj.gov>; Opara, Valda

<Valda.Opara@dep.nj.gov>; Martin-Torres, Chaneice <Chaneice.Martin-Torres@dep.nj.gov>

Cc: Corleto, Joseph <Joseph.Corleto@dep.nj.gov>; Davis, Kelly <Kelly.Davis@dep.nj.gov>; West-Rosenthal, Jesse

<Jesse.West-Rosenthal@dep.nj.gov>; Taylor, Adam <Adam.Taylor@dep.nj.gov>; Moriarty, Sean

<Sean.Moriarty@dep.nj.gov>; Ryan, Patrick <Patrick.Ryan@dep.nj.gov>; Mazzei, Vincent

<Vincent.Mazzei@dep.nj.gov>; Schaffer, Cathryn <Cathryn.Schaffer@dep.nj.gov>; Petersen, Aleksander J CIV

USARMY CENAN (US) <Aleksander.J.Petersen@usace.army.mil>; Weppler, Peter M CIV USARMY CENAN

(US) <Peter.M.Weppler@usace.army.mil>; Scarpa, Carissa A CIV USARMY CENAN (USA)

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<Tom.Slowinski@dep.nj.gov>; Patel, Kunal <Kunal.Patel@dep.nj.gov>; Montana, Carl

<Carl.Montana@dep.nj.gov>; Rosenblatt, Dave <Dave.Rosenblatt@dep.nj.gov>

Subject: [Non-DoD Source] 112719 NJDEP comment letter Draft Integrated Feasibility Report & Environmental Assessment (DIFR/EA) and Draft Finding of No Significant Impacts (FONSI) for the Peckman River Basin, New Jersey, Flood Risk Management Feasibility Study

Peter and Dag - The NJDEP respectfully offers the following comment on the Draft Integrated feasibility report and Environmental assessment for the Peckman River Basin Flood Risk Management Study.

Have a wonderful Thanksgiving

Ruth W. Foster, PhD., P.G., Director

New Jersey Department of Environmental Protection

Attachment 2 USACE Letter to NJDEP – December 3, 2019



Environmental Analysis Branch

December 3, 2019

Ruth Foster Director New Jersey Department of Environmental Protection Office of Permit Coordination and Environmental Review P.O. Box 420, Mail Code 401-07J Trenton, New Jersey 08625-0420

Dear Ms. Foster:

The U.S. Army Corps of Engineers (Corps), New York District (District), is in receipt of your November 27, 2019 letter (Enclosure 1) providing comment to the October 2019 Peckman River Basin, New Jersey, Flood Risk Management Feasibility Study, Revised Draft Integrated Feasibility Report and Environmental Assessment (October 2019 DIFR/EA).

The letter references the Locally Preferred Plan (LPP) consisting of a levee/floodwall system in Little Falls along with the bypass culvert for the Peckman River and floodwalls along the Great Notch Brook in Woodland Park. Please note that this was the original Tentatively Selected Plan (TSP). The previously identified TSP, Alternative 10b, was analyzed in a May 2018 Draft IFR/EA (May 2018 DIFR/EA) and was refined as a result of further feasibility-level design.

The revised TSP, now referred to as the optimized TSP plan - Alternative 10b-40 consists of a combination of a diversion culvert connecting the Peckman and Passaic Rivers; associated weirs; levees and floodwalls; channel modifications; and nonstructural measures within the ten percent floodplain upstream of Route 46. The optimized TSP plan will provide a minimum risk reduction for the two percent flood event. The optimized TSP was analyzed in the October 2019 DIFR/EA.

In addition, the letter provides as an enclosure, a letter dated December 27, 2017 submitted by your office to the District. This letter was submitted as part of the National Environmental Policy Act Scoping period that preceded the preparation of the May 2018 DIFR/EA. Your office provided comments to the May 2018 DIFR/EA via a letter dated June 5, 2018 (Enclosure 2).

Regarding potential impacts to the multiple Green Acres properties within the project area, the District offers the following responses:

• Peckman Preserve (Block 122, Lots 48, 57-64): The District was basing the ability to use the Preserve for wetland mitigation based on previous coordination with staff from the Green Acres Program and Passaic County and

the June 5, 2018 letter that notes that upland, wetland riparian mitigation would be allowable provided Passaic County goes through the Change in Use process.

The November 27, 2019 letter indicates a change in policy preventing the potential use of the Peckman Preserve for wetland mitigation. The October 2019 DIFR/EA states that the District will first pursue purchasing credits at a state approved wetland mitigation bank. If this option is unavailable at the time of permit application submission, the District will further coordinate with staff from the Division of Land Use Regulation and Green Acres program to receive further clarification on the policy change and/or identification of another site complies with Green Acres and Freshwater Wetland Rules and meets the objectives of wetland mitigation.

- Little Falls Recreation Center/Duva Field (Block 218 Lot 1): The comment regarding documenting the project providing watershed protection is noted. The District will provide all necessary documentation supporting this purpose when an application is made once the project is authorized and appropriated for construction.
- Old Morris Canal Way (Block 187, Lot 4): Based on the Revised TSP design, no floodwall is proposed in this location. Therefore, no impacts will occur to this parcel.
- Unnamed Park (Block 125, Lot 2): The parcel will now be partially impacted by the optimized TSP as a result of serving as a temporary access way to construct the proposed channel modifications. Further coordination between the District, The Town of Little Falls and the Green Acres Program regarding compliance with the Green Acre Rules will need to occur once the project has been authorized and appropriated for construction.

The November 27, 2019 letter mentions the issuance of a Federal Consistency determination decision. Please note that the project is located outside the jurisdiction of the Coastal Zone and as such, a determination is not required.

Concerning the submission of a complete Flood Hazard Area and Freshwater Individual Permit application to facilitate a review, the District acknowledges that more information will be required. As per the Corps' SMART Planning Civil Works Planning process. The level of design at the end of the feasibility study process is not intended to be either construction-ready or permit-ready; additional detail will be developed during the Preconstruction, Engineering and Design (PED) phase, after the project has been recommended for Congressional authorization for construction.

However, as part of the finalization of the FR/EA, the District needs documentation from your agency stating that it does not foresee any problems that would preclude issuance of the Water Quality Certificate (WQC). A letter explaining the Corps SMART Planning Civil Works policy and the need for a Conditional Water Quality Certification was sent to Ms. Diane Dow on November 14, 2019 (Enclosure 3) with additional follow up via a phone call between myself and her and an email (Enclosure 4) occurring on November 15, 2019.

The District respectfully requests the letter pertaining to the WQC by December 6, 2019. Should any questions arise during your review of the report, or if additional information is required, please contact Ms. Kimberly Rightler, Project Biologist at (917) 790-8722 or via email at kimberly.a.rightler@usace.army.mil.

Sincerely,

Peter Weppler Chief, Environmental Analysis Branch

Enclosures cc: Dow, Land Use Regulation Moyle, Dam Safety/Flood Engineering

Attachment 3 NJDEP Letter to USACE – November 27, 2019



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF PERMIT COORDINATION AND ENVIRONMENTAL REVIEW P.O. Box 420 Mail Code 401-07J Trenton, New Jersey 08625-0420 Phone Number (609) 292-3600 FAX NUMBER (609) 292-1921

PHILIP D. MURPHY Governor

SHEILA Y.YOUNG Lt. Governor CATHARINE R. MCCABE Commissioner

November 27, 2019

Mr. Peter Weppler Chief, Environmental Analysis Branch New York District Army Corps of Engineers-Planning 26 Federal Plaza-Room 2151 New York, NY 10278-0090

RE: Peckman River Basin Flood Risk Draft Integrated Feasibility Report And Environmental Assessment Cedar Grove, Little Falls, and Woodland Park Essex and Passaic Counties, New Jersey

Dear Mr. Weppler:

The New Jersey Department of Environmental Protection's (Department) Office of Permit Coordination and Environmental Review (PCER) distributed, for review and comment, the Flood Risk Management Draft Integrated Feasibility Report and Environmental Assessment (DIFR/EA) for the Peckman River Basin Project. The Locally Preferred Plan (LPP) consists of a levee/floodwall system in Little Falls along with the bypass culvert for the Peckman River and floodwalls along Great Notch Brook in Woodland Park. The Department provided the enclosed comment on December 27, 2017 on the Draft feasibility Report. Based on the information provided for review and in addition to comments presented in the enclosed December 27, 2017 letter, the Department offers the following comments for your consideration:

Green Acres

Having reviewed the US Army Corp's revised Draft Integrated Feasibility Report and Environmental Assessment posted on October 10, 2019, Green Acres has the following updated comments regarding **Peckman Preserve and the Little Falls Recreation Center / Duva Field**. Please note, the remainder of the comments remain unchanged.

Peckman Preserve Block 122, Lots 48, 57-64 – 12 acres

The report states that a review of the NJDEP Recreation and Open Space Inventory (ROSI) Database indicates that the Peckman Preserve in Little Falls Township is encumbered by the Green Acres Program. This is confirmed. Peckman Preserve consists of the above referenced parcels that were acquired by

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Passaic County in 2005 with financial assistance from Green Acres. Passaic County currently manages these parcels as an undeveloped park offering passive recreation. In recent conversations with Passaic County regarding these parcels, the County is working with the Town on constructing a pedestrian bridge bordering the very southern portion of the Preserve that would cross the Peckman River and act as a link in the Morris Canal Greenway. This is an allowed use as it's considered a park improvement.

Per the report's TSP, no structural or nonstructural measures will be implemented within or adjacent to the Peckman Preserve, but the site will be will evaluated as a potential upland, wetland and/or riparian mitigation site to - if required - compensate for impacts associated with the floodwalls and levee along the Peckman River and the outlet of the diversion culvert. The report continues, stating that the master plan developed by Passaic County for the Peckman Preserve focuses on passive recreation, including the creation/restoration of wetlands within the park to enhance such recreational opportunities. Under DEP's freshwater wetlands permitting rules (N.J.A.C. 7:7A-15.4(a)), permittees are not allowed to conduct freshwater wetlands mitigation on Green Acres funded parkland and there are limitations to which unfunded lands can qualify as mitigation sites. However, these restrictions do not apply to riparian corridor mitigation or T&E mitigation.

If the County wishes to use Green Acres funded parkland for riparian corridor mitigation or T&E mitigation, it will be necessary for the County to obtain the approval of Green Acres. Our review will focus on whether placing additional restrictions on these areas will interfere with any Green Acres funded park development project or any anticipated recreational uses of the parkland. If we approve the proposed mitigation area, the County must then go through the "change in use" process at N.J.A.C. 7:36-25.6 (a public notification and hearing process.) The County must also obtain our approval for any conservation easement to be placed on the mitigation area. Mitigation restrictions (freshwater wetlands, riparian corridor or T&E) may be placed on unfunded parkland held by the County without the prior approval of Green Acres but may also trigger a "change in use" hearing.

Little Falls Recreation Center / Duva Field Block 218 Lot 1 – 5.16 acres

In June 2018, Green Acres opined that the taking of a sub-surface easement on this parcel for a diversion culvert would under N.J.A.C. 7:36-25.2(c) constitute a diversion of Green Acres encumbered parkland, requiring prior Green Acres review as well as NJDEP Commissioner and State House Commission approval. However, recent review of the project and its scope has revealed the potential for significant conservation benefits at the watershed level as a result of the proposed work, including the diversion culvert.

The definition of "recreation and conservation purposes:" in the Green Acres statutes and rules, includes "watershed protection" as a permissible use of Green Acres encumbered parkland. If the Army Corps of Engineers can document that the diversion culvert is a component of a legitimate watershed protection strategy for the Peckman River Basin and associated watershed (as opposed to purely a flood control/property protection measure), then the project may not constitute a diversion of parkland. Please provide any and all relevant summaries or reports to my attention for review and determination.

Old Morris Canal Way Block 187 Lot 4 – 0.828 acres

This parcel is listed on the 2017 Little Falls ROSI and is referred to Old Morris Canal Way, with the note of *Bikeway*. The report's map titled 'Diversion Culvert Management Measures' shows a floodwall being placed near the northwestern corner of this parcel. Green Acres requests additional plans be forwarded for

review to ensure the proposed work would not encroach on this encumbered parcel and negatively impact the bikeway.

Unnamed Park Block 125 Lot 2 – 0.28 acres

According to tax records, the Township acquired the parcel in 1998 and held it as vacant land. The parcel then appears on the 2017 ROSI with the note 'Not part of any park donated and township built a flood berm'. With the maps submitted showing no structural or nonstructural measures being implemented within or adjacent to this parcel, Green Acres has no concerns on this encumbered parcel.

Woodland Park Borough

The project area as currently depicted in the report shows no structural or nonstructural measures being implemented within the Borough. Should the project area be altered to include structural measures within the Borough, Green Acres must review the updated plan to ensure no new encumbered parcels are present and potentially impacted.

Cedar Grove Township

The project area as currently depicted in the report shows no structural or nonstructural measures being implemented within the Township. Should the project area be altered to include structural measures within the Township, Green Acres must review the updated plan to ensure no new encumbered parcels are present and potentially impacted.

If you have any additional questions, please contact Adam Taylor (609) 984-0542.

Division of Land Use Regulation

For this proposed project, a Flood Hazard Area and Freshwater Wetlands Individual Permit applications are required for a review. The Division can provide further assistance prior to the submission of a complete application. The Division does not have any concern with the issuance of a Federal Consistency determination decision, provided that the ACOE submits a Federal Consistency request for the final selected project design and the Division can confirm that the proposed project is consistent with its Coastal Zone Management rules.

If you have any additional questions, please contact Faraz Khan at (609-984-6522 and Valda Opara at (609) 633-6442.

Thank you for giving the New Jersey Department of Environmental Protection the opportunity to comment on the DIFR/EA for the Peckman River Basin Project. Please contact me at (609) 292-3600 if you have any additional questions or concerns.

Sincerely,

Ruth W. Foster, PhD., P.G., Director Permit Coordination and Environmental Review

Enclosure

c. Dag Madera, USACE



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF PERMIT COORDINATION AND ENVIRONMENTAL REVIEW P.O. Box 420 Mail Code 401-07J Trenton, New Jersey 08625-0420 Phone Number (609) 292-3600 FAX NUMBER (609) 292-1921

CHRIS CHRISTIE Governor

KIM GUADAGNO Lt. Governor BOB MARTIN

December 27, 2017

Peter Weppler Chief, Environmental Analysis Branch New York District Army Corps of Engineers-Planning 26 Federal Plaza-Room 2151 New York, NY 10278-0090

RE: Peckman River Basin Flood Risk Management Feasibility Study Cedar Grove, Little Falls, and Woodland Park Essex and Passaic Counties, New Jersey

Dear Mr. Weppler:

The New Jersey Department of Environmental Protection's (Department) Office of Permit Coordination and Environmental Review (PCER) distributed, for review and comment, the Flood Risk Management Feasibility Report for the Peckman River Basin Project. The Peckman River Basin is prone to flooding mainly from two sources: flash flooding from rapid runoff and backwater flooding from the Passaic River. The proposed project will investigate the feasibility of implementing flood risk management measures along the Peckman River and its tributary, Great Notch Brook, located in Woodland Park and Little Falls in Passaic County, and Cedar Grove in Essex County. The Locally Preferred Plan (LPP) consists of a levee/floodwall system in Little Falls along with the bypass culvert for the Peckman River and floodwalls along. Great Notch Brook in Woodland Park. An Environmental Impact Statement (EIS) will be forthcoming from the U.S. Army Corps of Engineers, New York District.

Based on the information provided for review, the Department offers the following comments for your consideration:

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New Jersey Division of Fish and Wildlife

The NJ Division of Fish and Wildlife (DFW) offer the following comments:

Endangered and Nongame Species:

The Endangered and Nongame Species Program will not be reviewing or submitting comments regarding the above referenced project, as there are no populations of endangered, threatened or special concern wildlife species or significant nongame wildlife habitats in the project area.

Fisheries:

The Peckman River and tributaries are FW2-NT waters. A timing restriction from May 1st through July 31st would be recommended on any in-water and\or sediment generating activities in order to protect warm-water fish nest building and spawning; April 1st through July 31st if pickerel are also present.

Any changes to lake levels in the watershed would require a Water Lowering Permit which may include additional timing constraints, rates of lowering / refilling and fish / aquatic biota salvage requirements, if applicable, are found in this permit; preliminary consultation with the Bureau of Freshwater Fisheries is highly recommended to avoid delays or complications with a Water Lowering Permit.

If you have any general questions or concerns regarding the New Jersey Division of Fish and Wildlife, please contact Mr. Kelly Davis at (908) 236-2118 or <u>Kelly Davis@dep.nj.gov</u>.

Historic and Cultural Resources

According to the documentation submitted, the proposed undertaking requires consultation with the United States Department of the Army, Corps of Engineers (Corps), pursuant to their obligations under Section 106 of the National Historic Preservation Act of 1966, as amended, and it's implementing regulations, 36 CFR §800. Consultation between the Corps and the HPO is currently ongoing. The HPO looks forward to further consultation with the Corps for the identification, evaluation and treatment of historic properties within the project's area of potential effects. The HPO will notify the Office of Permit Coordination of any developments as consultation moves forward.

If additional consultation with the HPO is needed for this undertaking, please reference the HPO project number 11-0128 in any future calls, emails, submissions or written correspondence to help expedite your review and response.

If you have any additional questions, please contact Jesse West-Rosenthal at (609) 984-6019.

Green Acres

The Green Acres Program did not provided comments within the 30 day comment period. There may be Green Acres encumbered and DEP-owned within the project areas. For the Green Acres Program to do a detailed jurisdictional determination, they require an inventory of the parcels (by

Block and Lot) included in the project area and/or shapefiles of the proposed temporary and permanent easement areas.

Please consult with Sean Moriarty (609) 984-0622 for project locations in Essex County and Adam Taylor (609) 984-0542 for project locations in Passaic County.

Division of Land Use Regulation

- 1. Land Use met with representatives from USACE on 11/16/2016 to discuss options and advised that the NED plan appears to result in less environmental impact when compared to the LPP plan. However, the Division recognizes that all factors must be considered and a cost/benefit analysis will be conducted.
- 2. Based on the preliminary information presented, a Flood Hazard Area Verification and Individual Permit would be required for either option.
 - a. Engineering: The requirements set forth at N.J.A.C. 7:13-12.7, 12.12, and 12.13, must be addressed in detail. The proposed flood control project has the potential to adversely impact properties not owned by the applicant therefore, the requirements set forth at N.J.A.C. 7:13-12.1(f), (g) and (h) must be satisfied. In addition, the proposed project is exempt from the requirements set forth at N.J.A.C. 7:13-12.1(f), (g) and (h) must be satisfied. In addition, the proposed project is exempt from the requirements set forth at N.J.A.C. 7:13-11.4, provided the flood storage displacement is minimized, and a downstream impact analysis is provided. Please note that if the proposed regulated activity does not meet one or more of the requirements cited above the applicant may request for a hardship exception for an individual permit.
 - b. Environmental: Any permit application would need to address impacts to channels, riparian zones, and fishery resources. Disturbance to riparian zone vegetation is limited to 3,000 SF in a 50-foot riparian zone and 9.000 SF in a 150foot riparian zone for a flood control project, unless the applicant demonstrates that there is a compelling public need for the project and it cannot be accomplished without exceeding these limits. Riparian zone mitigation is required for impacts that exceed these limits.
- 3. Freshwater Wetlands: Based on the potential impacts stated for each plan, a Freshwater Wetland Individual Permit is likely required to address the construction of levees, stream cleaning, expansion/diversion of channels and stormwater outfalls and intake structures proposed. Wetland mitigation would be required for all impacts to wetlands under an Individual Permit. It may be useful to apply for a Letter of Interpretation-Line Verification for the project area to better assess the wetland impacts.
- 4. Based on the preliminary information, the project is above the head of tide and does not propose any dredging. Therefore, the Office of Dredging and Sediment Technology would not be involved.

The Division of Land Use Regulations recommends a pre-application meeting with Land Use once more specific information is available to discuss potential environmental impacts and specific application requirements as well as mitigation.

If you have any additional questions, please contact Stacey MacEwan at (609) 984-0143.

Air Compliance and Enforcement

Based on the information provided, the Division of Air Compliance and Enforcement offer the following comments:

<u>Construction Equipment:</u> Stationary construction equipment, may require air pollution permits. The applicant should review the requirements of NJAC 7:27-8.2(c) 1-21 for stationary permitting requirements.

<u>Fugitive Dust and Odors</u>: Dust emissions either windblown or generated from construction equipment or activities should be controlled to prevent offsite impacts. The applicant should be aware of potential offsite impacts of odors pursuant to NJAC 7:27-5.

<u>Idling Vehicles</u>: Any vehicles involved on the project must adhere to the idling standards (less than 3 minutes) in NJAC 7:27-14 and 15.

If you have any questions or concerns, please contact Jeffrey Meyer at (973)-656-4444.

Air Planning

The Bureau of Evaluation and Planning (BEP) has reviewed the USACE Scoping Document for the Peckman River Basin Flood Risk Management Feasibility Study and will not be submitting comments. The Scoping Document indicates that the USACE will be conducting a General Conformity Applicability Analysis for the project.

If you have any additional questions, please contact Angela Skowronek at (609) 984-0337.

Air Mobile Sources

Diesel exhaust contributes the highest cancer risk of all air toxics in New Jersey and is a major source of NOx within the state. Therefore, NJ DEP recommends that construction projects involving non-road diesel construction equipment operating in a small geographic area over an extended period of time implement the following measures to minimize the impact of diesel exhaust:

- All on-road vehicles and non-road construction equipment operating at, or visiting, the construction site shall comply with the three-minute idling limit, pursuant to N.J.A.C. 7:27-14 and N.J.A.C. 7:27-15. Consider purchasing "No Idling" signs to post at the site to remind contractors to comply with the idling limits. Signs are available for purchase from the Bureau of Mobile Sources at 609/292-7953 or <u>http://www.stopthesoot.org/sts-no-idle-sign.htm</u>.
- All non-road diesel construction equipment greater than 100 horsepower used on the project for more than ten days should have engines that meet the USEPA Tier 4 non-road emission standards, or the best available emission control technology that is technologically feasible for that application and is verified by the USEPA or the CARB as a diesel emission control strategy for reducing particulate matter and/or NOx emissions.

• All on-road diesel vehicles used to haul materials or traveling to and from the construction site should use designated truck routes that are designed to minimize impacts on residential areas and sensitive receptors such as hospitals, schools, daycare facilities, senior citizen housing, and convalescent facilities.

While entering and leaving the project area, trucks should avoid neighborhoods as much as possible.

If you have any additional questions, please contact Alina Nagtalon at (609) 633-2007.

NJDPES Discharge to Surface Water

If any part of the chosen alternative for this project involves dewatering from construction (i.e., during raising of buildings or barrier installation, etc.) that will be discharged to a surface water, a NJPDES Discharge to Surface Water Permit will be required.

Provided that the discharge is not contaminated, the appropriate discharge permit will be the B7-Short term De minimis permit (see <u>http://www.state.nj.us/dep/dwq/pdf/b7-rfa-</u> <u>checklist.pdf</u>). This is determined by running a pollutant scan as described in the application checklist where the data can be collected up to a year in advance of the discharge.

If, however, the discharge is contaminated (the analytical results demonstrate levels greater than the Appendix A standards as specified in the De minimis permit see

<u>http://www.state.nj.us/dep/dwq/pdf/b7-deminimis-final-permit-5-20-15.pdf</u>), the appropriate NJPDES discharge to surface water permit will be the BGR – General Remediation Cleanup permit (see <u>http://www.state.nj.us/dep/dwq/pdf/sw-gp-chklst.pdf</u>). The BGR permit can generally be processed in less than 30 days although a treatment works approval may be needed for any treatment.

If you have any questions or concerns, please contact Kelly Perez at (609) 292-4860.

Stormwater Management

Construction projects that disturb 1 acre or more of land, or less than 1 acre but are part of a larger common plan of development that is greater than 1 acre, are required to obtain coverage under the Stormwater construction general permit (5G3). Applicants must first obtain certification of their soil erosion and sediment control plan (251 plan) form their local soil conservation district office. Upon certification, the district office will provide the applicant with two codes process (SCD certification code and 251 identification code) for use in the DEPonline portal system application. Applicants must then become a registered user for the DEPonline system and complete the application for the Stormwater Construction General Authorization. Upon completion of the application the applicant will receive a temporary authorization which can be used to start construction immediately, if necessary. Within 3-5 business days the permittee contact identified in the application will receive an email including the application summary and final authorization.

If you have any additional questions, please contact Eleanor Krukowski at (609) 633-7021.

Thank you for giving the New Jersey Department of Environmental Protection the opportunity to comment on the Flood Risk Management Feasibility Report for the Peckman River Basin Project.. Please contact Katherine Nolan at (609) 292-3600 if you have any additional questions or concerns.

Sincerely,

DAVID PEPE FOR DR. Ruth Faster

Ruth W. Foster, PhD., P.G., Acting Director Permit Coordination and Environmental Review

John Gray, Deputy Chief of Staff Kelly Davis, New Jersey Division of Fish and Wildlife Jesse West-Rosenthal, NJDEP Historic Preservation Office Stacey MacEwan, NJDEP Division of Land Use Regulation Angela Skowronek, NJDEP Air Planning Jeffrey Meyer, NJDEP Air C&E Alina Nagtalon, NJDEP Bureau of Mobile Sources Sean Moriarty, NJDEP Green Acres Program Adam Taylor, NJDEP Green Acres Program Eleanor Krukowski, NJDEP Stormwater Kelly Perez, NJDEP DSW

c.

Attachment 4 USACE Email Correspondence to NJDEP – November 15, 2019

From: To: Cc:	Weppler, Peter M CIV USARMY CENAN (US) Diane.Dow@dep.nj.gov; Ryan.Anderson@dep.nj.gov Madara, Dag CIV USARMY CENAN (USA); Tumminello, Paul CIV USARMY CENAN (USA); Moyle, John
Subject	(John.Moyle@dep.nj.gov); Slowinski, Tom (Tom.Slowinski@dep.nj.gov); Patel, Kunal; Jones, Clifford S III CIV USARMY CENAN (USA); Scarpa, Carissa A CIV USARMY CENAN (USA); Rightler, Kimberly CIV USARMY CENAN (USA) RE: Water Quality Certificate Discussion - Peckman River
Date:	Friday, November 15, 2019 11:30:54 AM
Attachinents:	PB2018_01S.pdf

Diane/Ryan

Thank you for your time today as we work to complete Peckman River's Final Report Package – If possible, request to have correspondence from your office by 2 Dec 19 to keep the schedule.

* As you requested – (big file!) "A Guide to Coordination and Engagement with the Services" is attached and can be found here - <u>https://planning.erdc.dren.mil/toolbox/library/smart/SmartFeasibility_Guide_highres.pdf</u> <<u>https://planning.erdc.dren.mil/toolbox/library/smart/SmartFeasibility_Guide_highres.pdf</u>

* Please also reference page 5 of the second attachment within the box titled "To be completed before Final Report Package"

* For your reference on SMART Planning – here is the link to the entire Toolbox https://planning.erdc.dren.mil/toolbox/index.cfm <<u>https://planning.erdc.dren.mil/toolbox/index.cfm</u>> and specifically - <u>https://planning.erdc.dren.mil/toolbox/smart.cfm?Section=11&Part=1</u> <<u>https://planning.erdc.dren.mil/toolbox/smart.cfm?Section=11&Part=1</u>>

* And not to bombard you with info – some overall reference on SMART Planning – here is the link to the entire Toolbox - <u>https://planning.erdc.dren.mil/toolbox/index.cfm</u> and specifically - <u>https://planning.erdc.dren.mil/toolbox/smart.cfm?Section=11&Part=1</u>

If there is a need to answer questions, please reach out.

Thanks in advance,

Peter

Peter Weppler

Chief, Environmental Analysis Branch

U.S. Army Corps of Engineers - Planning (Room 17-420)

c/o PSC Mail Center

26 Federal Plaza

New York, NY 10278-0090

(T): 917-790-8634

(C): 917-620-2862

(F): 212-264-0961

-----Original Appointment-----From: Madara, Dag CIV USARMY CENAN (USA) Sent: Friday, November 15, 2019 9:22 AM To: Madara, Dag CIV USARMY CENAN (USA); Diane.Dow@dep.nj.gov; Moyle, John (John.Moyle@dep.nj.gov); Slowinski, Tom (Tom.Slowinski@dep.nj.gov); Patel, Kunal; Jones, Clifford S III CIV USARMY CENAN (USA); Weppler, Peter M CIV USARMY CENAN (US); Scarpa, Carissa A CIV USARMY CENAN (USA); Tumminello, Paul CIV USARMY CENAN (USA) Subject: Water Quality Certificate Discussion - Peckman River When: Friday, November 15, 2019 10:30 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada). Where: CENAN-Conf-17-416

The U.S. Army Corps of Engineers (USACE) New York District requests a teleconference to discuss conditional water quality certificates as they relate to the Peckman River Study and USACE projects in general.

Please use the following teleconference information:

(877) 873-8018

Access code: 7462374

Security code: 1234

Very respectfully,

Dag

Attachment 5 USACE Letter to NJDEP – November 14, 2019



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT JACOB K. JAVITS FEDERAL BUILDING 26 FEDERAL PLAZA NEW YORK, NEW YORK 10278-0090

Environmental Analysis Branch

November 14, 2019

Diane Dow Director New Jersey Department of Environmental Protection Division of Land Use Regulation Mail Code 501-02A P.O. Box 420 Trenton, New Jersey 08625

Dear Ms. Dow:

The U.S. Army Corps of Engineers (Corps), New York District (District), in cooperation with the New Jersey Department of Environmental Protection (NJDEP) is conducting a feasibility study to examine flood risk management measures along the within the Peckman River Basin.

Your office originally reviewed and provided comments to the Draft Integrated Feasibility Report/Environmental Assessment (DIFR/EA) via a letter dated June 15, 2018 (Enclosure 1). A revised DIFR/EA was recently prepared and underwent a 30 day public/agency review period that concluded on November 8, 2019. The Notice of Availability was provided to Ms. Ruth Foster and Ms. Megan Brunatti of the Office of Permit Coordination and Environmental Review via email on October 10, 2019 (Enclosure 2). The District's response to the June 15, 2018 letter are included in Appendix A.13 of the revised DIFR/EA. To date, the District has not receive any formal correspondence from your office related to the revised DIFR/EA.

The District is requesting an acceptable process by which to achieve and sustain compliance with statutes and regulations under your jurisdiction. Please note that the DIFR/EA was developed in adherence to the Corps' SMART Planning Civil Works Planning processes and schedules for Feasibility level studies. As such, the level of detail of some of the information (e.g. final designs, final compensatory mitigation plan) typically required by your agency to obtain permits is not developed until the Preconstruction Engineering Design Phase (PED) which occurs once a study has been authorized and appropriated for construction. Project permits are applied for and obtained during the PED Phase. Therefore, the District will be requesting the Federal a Section 401 Water Quality Certificate and any other applicable permits in the PED Phase.

However, as part of the finalization of the FR/EA, the District needs documentation from your agency stating that it does not foresee any problems that would preclude issuance of the Federal Consistency Determination/Water Quality Certificate. This letter serves as a request for such documentation.

The District will continue to coordinate with your office. Should any questions arise during your review of the report, or if additional information is required, please contact Ms. Kimberly Rightler, Project Biologist at (917) 790-8722 or via email at <u>kimberly.a.rightler@usace.army.mil</u>.

Sincerely,

Peter Weppler Chief, Environmental Analysis Branch

cc: Moyle, Dam Safety/Flood Engineering

Attachment 6 United States Environmental Protection Agency Letter – June 15, 2018



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 2 290 BROADWAY NEW YORK, NY 10007-1866

JUN 1 5 2018

Mr. Alek Petersen U.S. Army Corps of Engineers New York District Jacob J. Javits Federal Building, Room 2127 26 Federal Plaza New York, New York 10278-0090

Dear Mr. Petersen:

The U.S. Environmental Protection Agency (EPA), Region 2, has reviewed your Draft Integrated Feasibility Report and Environmental Assessment dated May 2018 for the Peckman River Basin, New Jersey, Flood Risk Management Feasibility Study. Based on the document, we understand that the primary water resources problem in the Peckman River Basin is flooding resulting mainly from two sources: flash flooding from rapid runoff in the Peckman River watershed and backwater flooding from the Passaic River. The U.S. Army Corps of Engineers (Corps), New York District (District), in partnership with the New Jersey Department of Environmental Protection (NJDEP) as the non-federal sponsor, is investigating the feasibility of implementing flood risk management measures to respond to this issue.

The Tentatively Selected Plan (TSP) includes a combination of a diversion culvert connecting the Peckman and Passaic Rivers; levees and floodwalls; channel modifications; ringwalls; and nonstructural measures within the ten percent floodplain upstream of Route 46. The project area includes the Township of Little Falls and Borough of Woodland Park, which are located in the northern part of New Jersey in Passaic County.

A 1,500-foot long, 35-foot diameter diversion culvert would be constructed between the Peckman and Passaic Rivers to divert floodwater from the Peckman into the Passaic River. The inlet at the Peckman River includes a weir to manage flow and create a pool near the inlet. Channel modifications would be constructed along the Peckman River near the inlet. Approximately 2,500 linear feet of levees and/or floodwalls would be built upstream and downstream of the ponding weir. In addition, 3,000 linear feet of levees and/or floodwalls would be constructed in the lower reach of Great Notch Brook to its confluence with the Peckman River. Seven permanent ringwalls would be constructed around 47 structures. Sixty-four structures would be elevated so that their main floor elevations would be to a final height of one foot above the base flood elevation. The plan also includes four structures to be wet floodproofed and three structures to be dry floodproofed. All nonstructural plan elements are situated within the ten percent floodplain. We had emailed comments dated December 19, 2017 and were unable to locate where in the current May 2018 document your response and/or inclusion of the above comments were. We recommend you still include them in this and any future documents. The comments were as follows; EPA encourages the incorporation of sustainability and green design into any potential future development/construction plans with this project. Please go to:

https://www.epa.gov/sustainability for information. The EA should include a separate sustainability section that address the ways in which this project incorporates sustainability in its planning, construction and operations phases.

During any phase of construction, project managers are encouraged to utilize local and recycled materials; to recycle materials generated onsite; and to utilize technologies and fuels that minimize greenhouse gas emissions. If concrete removal occurs during repair of the existing structures, recycling and/or reuse of construction and demolition (C&D) material or beneficial reuse of dredged materials should be considered in order to lessen the impacts of increasing disposal at solid waste facilities. If this is the case, EPA recommends applying these practices and identifying them in your future reports. You may find more detailed information about recycling of C&D waste at:

http://www.epa.gov/osw/conserve/imr/cdm/recycle.htm

EPA recommends implementing diesel controls, cleaner fuel, and cleaner construction practices for on-road and off-road equipment used for transportation, soil/sand movement, or other construction activities, including:

• Strategies and technologies that reduce unnecessary idling, including auxiliary power units, the use of electric equipment, and strict enforcement of idling limits; and

• Use of clean diesel through add-on control technologies like diesel particulate filters and diesel oxidation catalysts, repowers, or newer, cleaner equipment. For more information on diesel emission controls in construction projects, please see: <u>http://www.northeastdiesel.org/pdf/NEDC-Construction-Contract-Spec.pdf</u> http://www.epa.gov/cleandiesel/technologies/index.htm

Thank you for the opportunity to comment on the Draft Integrated Feasibility Report and Environmental Assessment. Our comments contained in this letter are intended to help provide useful information that will ultimately inform local, state and federal decision-making and review related to land and water resource use and impacts. Should you have any questions regarding the comments and concerns detailed in this letter, please feel free to contact Michael Poetzsch of my staff at 212-637-4147.

Sincerely,

Grace Musumeci, Chief Environmental Review Section

2

Attachment 7 NJDEP Letter – June 5, 2018



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF PERMIT COORDINATION AND ENVIRONMENTAL REVIEW P.O. Box 420 Mail Code 401-07J Trenton, New Jersey 08625-0420 Phone Number (609) 292-3600 FAX NUMBER (609) 292-1921

PHILIP D. MURPHY Governor

SHEILA Y. OLIVER Lt. Governor CATHERINE R. MCCABE Acting Commissioner

June 5, 2018

Alek Petersen U.S. Army Corps of Engineers New York District Jacob J. Javits Federal Building, Room 2127 26 Federal Plaza New York, New York 10278-0090

RE: Peckman River Basin Flood Risk Management Feasibility Study Little Falls, and Woodland Park Passaic Counties, New Jersey

Dear Mr. Petersen:

The New Jersey Department of Environmental Protection's (Department) Office of Permit Coordination and Environmental Review (PCER) distributed, for review and comment, the Draft Integrated Feasibility Report & Environmental Assessment (DIFR/EA) for the Peckman River Basin, Flood Risk Management Project. The proposed project investigates the feasibility of implementing flood risk management measures along the Peckman River and its tributary, Great Notch Brook, in the Township of Little Falls and the Borough of Woodland Park, in Passaic County, New Jersey. The DIRF/EA identifies Alternative 10b as the Tentatively Selected Plan (TSP). The TSP consists of a diversion culvert and associated works in combination with nonstructural measures and ringwalls to provide flood risk management to the affected municipalities.

Based on the information provided for review, the Department offers the following comments for your consideration:

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New Jersey Division of Fish and Wildlife

The NJ Division of Fish & Wildlife (DFW) agrees with the timing restrictions provided in in the mitigation sections of 5.9.1 Fishery Resources, 5.9.3 Birds, and 5.10.1 Federal Endangered, Threatened & Special Concern Species.

In section 5.1.2 Soils, the DFW agrees that an erosion and sediment control plan should be developed and submitted to the Hudson-Essex-Passaic Soil Conservation District for approval prior to the construction of the proposed project. DFW notes that the wording in Table 27 - Compliance with state laws suggests that the plan should be developed "during" the construction phase this needs to be changed to "prior to".

In section 5.9.1 Fishery Resources, the DFW notes recommendation by the USFWS, during optimization the District will evaluate the feasibility of coating the interior of the diversion culvert with a smooth surface to reduce potential abrasion to fins of the fish that may enter the culvert. The DFW recommends the incorporation of a low flow design which concentrates flows in a narrower section of the culvert bottom (e.g., concave-shaped bottom) and allows any diverted aquatic biota to escape downstream when the amount of diverted water is slight or receding.

In section 5.10.2 State Endangered, Threatened & Special Concern Species, the NJ Endangered and Non – Game Species program agrees that no known populations of endangered, threatened species are in the project area, but records exist for Wood Turtle up-stream in Verona Township.

In addition to the comments provided to the New York Army Corps Engineers (NYACOE) on 12/27/17, the NJ Division of Fish & Wildlife (DFW) concurs with the rest of the information provided in the Draft Feasibility Report and Environmental Assessment and the conclusions drawn.

If any additional environmental issues or concerns, that negatively affect unknown T/E resources, are discovered during the construction phase, please contact the Office of Environmental Review within the Division of Fish and Wildlife upon discovery at (609) 984-3859.

If you have any questions regarding the comments please contact Joseph Corleto (609)-984-3859 or by email at joseph.corleto@dep.nj.gov.

Historic and Cultural Resources

According to the documentation submitted, the proposed undertaking requires consultation with the United States Department of the Army, Corps of Engineers (Corps), pursuant to their obligations under Section 106 of the National Historic Preservation Act of 1966, as amended, and it's implementing regulations, 36 CFR §800. Consultation between the Corps and the HPO is currently ongoing. The HPO looks forward to further consultation with the Corps for the identification, evaluation and treatment of historic properties within the project's area of potential effects. The HPO will notify the Office of Permit Coordination of any developments as consultation moves forward.

If additional consultation with the HPO is needed for this undertaking, please reference the HPO project number 11-0128 in any future calls, emails, submissions or written correspondence to help expedite your review and response.

If you have any additional questions, please contact Jesse West-Rosenthal at (609) 984-6019.

Green Acres

Based on the Peckman River Basin Flood Risk Management Feasibility Study ("report"), the tentatively selected plan ("TSP") – alternative 10b – and project shapefiles provided by the Army Corp of Engineers, please see determinations regarding temporary and permanent easements and potential diversions as they relate to Green Acres encumbered parcels within the proposed project area.

Green Acres relies on the information provided by the local unit(s) in maintaining the accuracy of our database and because it is the responsibility of the local unit(s) to ensure compliance with Green Acres rules, it is strongly recommended that you confirm the information contained within with the local unit(s) involved.

Little Falls Township

Peckman Preserve

Block 122, Lots 48, 57-64 – 12 acres

The report states that a review of the NJDEP Recreation and Open Space Inventory (ROSI) Database indicates that the Peckman Preserve in Little Falls Township is encumbered by the Green Acres Program. This is confirmed. Peckman Preserve consists of the above referenced parcels that were acquired by Passaic County in 2005 with financial assistance from Green Acres. Passaic County currently manages these parcels as an undeveloped park offering passive recreation. In recent conversations with Passaic County regarding these parcels, the County is working with the Town on constructing a pedestrian bridge bordering the very southern portion of the Preserve that would cross the Peckman River and act as a link in the Morris Canal Greenway. This is an allowed use as it's considered a park improvement.

Per the report's TSP, no structural or nonstructural measures will be implemented within or adjacent to the Peckman Preserve, but the site will be will evaluated as a potential upland, wetland and/or riparian mitigation site to - if required - compensate for impacts associated with the floodwalls and levee along the Peckman River and the outlet of the diversion culvert. The report continues, stating that the master plan developed by Passaic County for the Peckman Preserve focuses on passive recreation, including the creation/restoration of wetlands within the park to enhance such recreational opportunities and, therefore, any compensatory mitigation conducted on this site of the project will be in conformance with the anticipated land use of the park and is not in conflict with the NJ Green Acre Rules. However, the placement of an ACOE easement on the mitigation area would require the County to follow the Change In Use public notification process as outlined in N.J.A.C. 7:36-25.6.

As referenced above, the use of funded, public parkland for upland, wetland and/or riparian mitigation is allowable, provided the County goes through the Change In Use process as detailed in N.J.A.C. 7:36-25.6(b)(3), which requires Green Acres to approve, in writing, any perpetual restriction on funded parkland. The County will need to submit plans to make sure it is consistent

with Green Acres restrictions and won't impact current / future use of the park (i.e. impact trails, public access, etc.) If approved, mitigation sites typically require that a conservation easement be placed on them after the work is completed. Green Acres can provide guidance and specific language for the easement should it be required.

The project as proposed, however, would not constitute a diversion on these specific Green Acres encumbered parcels.

Little Falls Recreation Center / Duva Field Block 218 Lot 1 – 5.16 acres

The report states that no other properties in the project area are encumbered by the Green Acres Program, but this is not the case. The on-line ROSI database referenced for the report's determination was last updated on 6/24/14. In 2017, Green Acres received an updated ROSI from Little Falls Township listing Block 218, Lot 1 (referred to as Duva Field) in its entirety as unfunded, encumbered parkland.

The report shows a diversion culvert to be located beneath existing tennis courts and a baseball field on this parcel and states that these recreational amenities will be **unavailable** for use during construction. Although the property will be restored once construction is completed, the taking of a sub-surface easement on this parcel would under N.J.A.C. 7:36-25.2(c) constitute a diversion of Green Acres encumbered parkland, requiring prior Green Acres review as well as NJDEP Commissioner and State House Commission approval. Depending on the footprint of the subsurface easement required, the diversion would be classified either as minor or major per the criteria detailed in N.J.A.C. 7:36-26.2.

The proposed diversion will need to satisfy the Green Acres' requirement that the project fulfill a compelling public need or yield a significant public benefit. Additionally, per N.J.A.C. 7:36-26.1(d)2 the Township would have to demonstrate through an alternatives analysis that there is no feasible, reasonable or available alternative to the diversion parkland. Additionally, the Township would need to provide adequate compensation in accordance with N.J.A.C. 7:36-26.10.

Old Morris Canal Way

Block 187 Lot 4 – 0.828 acres

This parcel is listed on the 2017 Little Falls ROSI and is referred to Old Morris Canal Way, with the note of *Bikeway*. The report's map titled 'Diversion Culvert Management Measures' shows a floodwall being placed near the northwestern corner of this parcel. Green Acres requests additional plans be forwarded for review to ensure the proposed work would not encroach on this encumbered parcel and negatively impact the bikeway.

Unnamed Park

Block 125 Lot 2 – 0.28 acres

According to tax records, the Township acquired the parcel in 1998 and held it as vacant land. The parcel then appears on the 2017 ROSI with the note 'Not part of any park donated and township built a flood berm'. With the maps submitted showing no structural or nonstructural measures being implemented within or adjacent to this parcel, Green Acres has no concerns on this encumbered parcel.

Woodland Park Borough

The project area as currently depicted in the report shows no structural or nonstructural measures being implemented within the Borough. Should the project area be altered to include structural measures within the Borough, Green Acres must review the updated plan to ensure no new encumbered parcels are present and potentially impacted.

Cedar Grove Township

The project area as currently depicted in the report shows no structural or nonstructural measures being implemented within the Township. Should the project area be altered to include structural measures within the Township, Green Acres must review the updated plan to ensure no new encumbered parcels are present and potentially impacted.

Please consult with Sean Moriarty (609) 984-0622 for project locations in Essex County and Adam Taylor (609) 984-0542 for project locations in Passaic County.

Division of Land Use Regulation

Based on the preliminary information presented, a Flood Hazard Area Verification and Individual Permit would be required for either options.

<u>Environmental</u>: A permit application must address impacts to channels, riparian zones, and fishery resources. Disturbance to riparian zone vegetation is limited to 3,000 SF in a 50-foot riparian zone and 9.000 SF in a 150-foot riparian zone for a flood control project, unless the applicant demonstrates that there is a compelling public need for the project and it cannot be accomplished without exceeding these limits. Riparian zone mitigation is required for impacts that exceed these limits.

Engineering: The requirements set forth at N.J.A.C. 7:13-12.7, 12.12, and 12.13, must be addressed in detail. The proposed flood control project has the potential to adversely impact properties not owned by the applicant therefore, the requirements set forth at N.J.A.C. 7:13-12.1(f), (g) and (h) must be satisfied. In addition, the proposed project is exempt from the requirements set forth at N.J.A.C. 7:13-11.4, provided the flood storage displacement is minimized, and a downstream impact analysis is provided. Please note that if the proposed regulated activity does not meet one or more of the requirements cited above the applicant may request for a hardship exception for an individual permit.

<u>Freshwater Wetlands</u>: Based on the potential impacts stated for each plan, a Freshwater Wetland Individual Permit is required to address the construction of levees, stream cleaning, expansion/diversion of channels and stormwater outfalls and intake structures proposed. Wetland mitigation is required for all impacts to wetlands under an Individual Permit. It may be useful to apply for a Letter of Interpretation (LOI)-Line Verification for the project area to assess the wetland impacts.

1. Based on the preliminary information, the project is above the head of tide and does not propose any dredging. Therefore, the Office of Dredging and Sediment Technology would <u>not</u> be involved.

The Division of Land Use Regulations recommends a pre-application meeting with Land Use once more specific information is available to discuss potential environmental impacts and specific application requirements as well as mitigation.

If you have any additional questions, please contact Faraz Khan at (609) 984-6522 or Valda Opara at (609) 633-6442.

Air Compliance and Enforcement

Based on the information provided, the Division of Air Compliance and Enforcement offer the following comments:

<u>Construction Equipment:</u> Stationary construction equipment, may require air pollution permits. The applicant should review the requirements of NJAC 7:27-8.2(c) 1-21 for stationary permitting requirements.

<u>Fugitive Dust and Odors</u>: Dust emissions either windblown or generated from construction equipment or activities should be controlled to prevent offsite impacts. The applicant should be aware of potential offsite impacts of odors pursuant to NJAC 7:27-5.

<u>Idling Vehicles</u>: Any vehicles involved on the project must adhere to the idling standards (less than 3 minutes) in NJAC 7:27-14 and 15.

If you have any questions or concerns, please contact Jeffrey Meyer at (973)-656-4444.

Air Mobile Sources

Diesel exhaust contributes the highest cancer risk of all air toxics in New Jersey and is a major source of NOx within the state. Therefore, NJ DEP recommends that construction projects involving non-road diesel construction equipment operating in a small geographic area over an extended period of time implement the following measures to minimize the impact of diesel exhaust:

- All on-road vehicles and non-road construction equipment operating at, or visiting, the construction site shall comply with the three-minute idling limit, pursuant to N.J.A.C. 7:27-14 and N.J.A.C. 7:27-15. Consider purchasing "No Idling" signs to post at the site to remind contractors to comply with the idling limits. Signs are available for purchase from the Bureau of Mobile Sources at 609/292-7953 or <u>http://www.stopthesoot.org/sts-no-idle-sign.htm</u>.
- All non-road diesel construction equipment greater than 100 horsepower used on the project for more than ten days should have engines that meet the USEPA Tier 4 non-road emission standards, or the best available emission control technology that is technologically feasible for that application and is verified by the USEPA or the CARB as a diesel emission control strategy for reducing particulate matter and/or NOx emissions.

• All on-road diesel vehicles used to haul materials or traveling to and from the construction site should use designated truck routes that are designed to minimize impacts on residential areas and sensitive receptors such as hospitals, schools, daycare facilities, senior citizen housing, and convalescent facilities.

trucks should avoid neighborhoods as much as possible while entering and leaving the project area, and, as always, enforce the No Idling Law.

If you have any additional questions, please contact Alina Nagtalon at (609) 633-2007.

NJDPES Discharge to Surface Water

Based on a review of the Draft Integrated Feasibility Report & Environmental Assessment for the proposed project, no new surface water discharges are anticipated from this project. However, if a surface water discharge becomes necessary during construction (i.e., dewatering), a NJPDES Discharge to Surface Water permit will be needed.

Provided that the discharge is not contaminated, the appropriate NJPDES discharge to surface water permit will be the B7 - Short Term De Minimis permit (see <u>http://www.nj.gov/dep/dwq/gp-b7.htm</u>). This is determined by running a pollutant scan as described in the application checklist where the data can be collected up to a year in advance of the discharge.

However, if the discharge is contaminated and the analytical results demonstrate levels greater than the limitations specified in Attachment 1 of the B7 permit (see <u>http://www.state.nj.us/dep/dwq/pdf/b7-deminimis-final-permit-5-20-15.pdf</u>), the appropriate NJPDES discharge to surface water permit will be the BGR – General Remediation Cleanup permit (see <u>http://www.nj.gov/dep/dwq/gp_bgr.htm</u>). The BGR permit can generally be processed in less than 30 days although a treatment works approval may be needed for any

If you have any questions or concerns, please contact Dwayne Kobesky at (609) 777-0285.

Stormwater Management

treatment.

Construction projects that disturb 1 acre or more of land, or less than 1 acre but are part of a larger common plan of development that is greater than 1 acre, are required to obtain coverage under the Stormwater construction general permit (5G3). Applicants must first obtain certification of their soil erosion and sediment control plan (251 plan) form their local soil conservation district office. Upon certification, the district office will provide the applicant with two codes process (SCD certification code and 251 identification code) for use in the DEPonline portal system application. Applicants must then become a registered user for the DEPonline system and complete the application for the Stormwater Construction General Authorization. Upon completion of the application the applicant will receive a temporary authorization which can be used to start construction immediately, if necessary. Within 3-5 business days the permittee contact identified in the application will receive an email including the application summary and final authorization.

If you have any additional questions, please contact Eleanor Krukowski at (609) 633-7021.

Thank you for giving the New Jersey Department of Environmental Protection the opportunity to comment on the Draft Integrated Feasibility Report & Environmental Assessment (DIFR/EA) for the Peckman River Basin, Flood Risk Management Project. Please contact Katherine Nolan at (609) 292-3600 if you have any additional questions or concerns.

Sincerely,

Ruth W. Foster, PhD., P.G., Asing Director Permit Coordination and Environmental Review

c.

Joseph Corleto, New Jersey Division of Fish and Wildlife Jesse West-Rosenthal, NJDEP Historic Preservation Office Faraz Khan, NJDEP Division of Land Use Regulation Valda Opara, NJDEP Division of Land Use Regulation Jeffrey Meyer, NJDEP Air C&E Alina Nagtalon, NJDEP Bureau of Mobile Sources Adam Taylor, NJDEP Green Acres Program Eleanor Krukowski, NJDEP Stormwater Dwayne Kobesky, NJDEP DSW Attachment 8 EPA Email to USACE- December 19, 2017
Rightler, Kimberly CIV USARMY CENAN (US)

From:	Weppler, Peter M CIV USARMY CENAN (US)
Sent:	Tuesday, December 19, 2017 9:19 AM
То:	Brighton, Nancy J CIV USARMY CENAN (US); Rightler, Kimberly CIV USARMY CENAN (US); Petersen, Aleksander J CIV USARMY CENAN (US); Greco, Robert M CIV CENAN CENAD (US)
Subject:	FW: 30 Day Scoping Period and Public Availability of the Scoping Document for the Peckman River Flood Risk Management Study

FYI

-----Original Message-----From: Poetzsch, Michael [mailto:Poetzsch.Michael@epa.gov] Sent: Tuesday, December 19, 2017 9:14 AM To: Weppler, Peter M CIV USARMY CENAN (US) <Peter.M.Weppler@usace.army.mil> Subject: [EXTERNAL] RE: 30 Day Scoping Period and Public Availability of the Scoping Document for the Peckman River Flood Risk Management Study

Dear Mr. Weppler:

The U.S. Environmental Protection Agency (EPA), Region 2, has reviewed your November 2017 scoping document for the Peckman River Basin, Flood Risk Management Feasibility Study, Essex and Passaic Counties, NJ.

The primary water resources problem in the Peckman River Basin is flooding resulting mainly from two sources: flash flooding from rapid runoff in the Peckman River watershed and backwater flooding from the Passaic River. The U.S. Army Corps of Engineers (Corps), New York District (District), in partnership with the New Jersey Department of Environmental Protection (NJDEP) as the non-federal sponsor, is investigating the feasibility of implementing flood risk management measures to respond to this issue.

The National Economic Development (NED) Plan was identified as Alternative #10b which consists of a combination of non-structural improvements located within the 10-year floodplain within Little Falls, New Jersey with a bypass culvert designed to mitigate the flood risk of Woodland Park from the Peckman River. A Locally Preferred Plan (LPP) was developed and comprises: a) the diversion culvert; b) approximately 19,000 feet of levees/floodwalls; c) approximately 5,000 feet of channel improvements; and d) potential buyouts of seven structures along the Peckman River to provide flood risk management upstream/downstream of US Route 46.

Please note that Table 2 which compares both alternatives does not list the diversion culvert as being part of the LPP. It should be made clear whether it is part of the LPP or not.

EPA encourages the incorporation of sustainability and green design into any potential future development/construction plans with this project. Please go to: Blockedhttps://www.epa.gov/sustainability for information. We recommend that the DEIS and future documents include a separate sustainability section that addresses the ways in which this project incorporates sustainability in its planning, construction and operations phases.

During any phase of construction, project managers are encouraged to utilize local and recycled materials; to recycle materials generated onsite; and to utilize technologies and fuels that minimize emissions. If concrete removal occurs during repair of the existing structures, recycling and/or reuse of construction and demolition (C&D) material or

beneficial reuse of dredged materials should be considered in order to lessen the impacts of increasing disposal at solid waste facilities. If this is the case, EPA recommends applying these practices and identifying them in your future reports. You may find more detailed information about recycling of C&D waste at: Blockedhttp://www.epa.gov/osw/conserve/imr/cdm/recycle.htm

EPA recommends implementing diesel controls, cleaner fuel, and cleaner construction practices for on-road and off-road equipment used for transportation, soil/sand movement, or other construction activities, including:

* Strategies and technologies that reduce unnecessary idling, including auxiliary power units, the use of electric equipment, and strict enforcement of idling limits; and

* Use of clean diesel through add-on control technologies like diesel particulate filters and diesel oxidation catalysts, repowers, or newer, cleaner equipment.

For more information on diesel emission controls in construction projects, please see:

Blockedhttp://www.northeastdiesel.org/pdf/NEDC-Construction-Contract-Spec.pdf

Blockedhttp://www.epa.gov/cleandiesel/technologies/index.htm

Thank you for the opportunity to comment on the scoping document for Peckman River Basin, Flood Risk Management Feasibility Study. Our comments contained in this letter are intended to help provide useful information that will ultimately inform local, state and federal decision-making and review related to land and water resource use and impacts. Should you have any questions regarding the comments and concerns detailed in this letter, please feel free to contact Michael Poetzsch of my staff at 212-637-4147.

Sincerely,

Grace Musumeci, Chief Environmental Review Section

-----Original Message-----

From: Weppler, Peter M CIV USARMY CENAN (US) [mailto:Peter.M.Weppler@usace.army.mil] Sent: Thursday, November 30, 2017 1:10 PM To: Poetzsch, Michael <Poetzsch.Michael@epa.gov>; Musumeci, Grace <Musumeci.Grace@epa.gov> Subject: FW: 30 Day Scoping Period and Public Availability of the Scoping Document for the Peckman River Flood Risk Management Study

No idea why it bounces back on group email!

-----Original Message-----

From: Weppler, Peter M CIV USARMY CENAN (US)

Sent: Thursday, November 30, 2017 1:06 PM

To: Rightler, Kimberly A NANO2 (Kimberly.A.Rightler@usace.army.mil) <Kimberly.A.Rightler@usace.army.mil> Cc: Brighton, Nancy J NANO2 (Nancy.J.Brighton@usace.army.mil) <Nancy.J.Brighton@usace.army.mil>; Greco, Robert M CIV CENAN CENAD (US) <Robert.M.GRECO@usace.army.mil>

Subject: RE: 30 Day Scoping Period and Public Availability of the Scoping Document for the Peckman River Flood Risk Management Study

All

Update for General Questions - Robert Greco is currently deployed in Austin, TX until 8 Jan 2018. Any general questions regarding the Peckman River Basin Flood Risk Management Feasibility Study please also copy Mr. Alek Petersen, Project Planner, Aleksander.J.Petersen@usace.army.mil, 917-790-8624.

Thank you,

Peter

Peter Weppler Chief, Environmental Analysis Branch U.S. Army Corps of Engineers - Planning 26 Federal Plaza - Room 2151 New York, NY 10278-0090 (T): 917-790-8634 (C): 917-620-2862 (F): 212-264-0961

-----Original Message-----From: Weppler, Peter M CIV USARMY CENAN (US) Sent: Thursday, November 30, 2017 11:39 AM To: Rightler, Kimberly A NAN02 (Kimberly.A.Rightler@usace.army.mil) <Kimberly.A.Rightler@usace.army.mil> Cc: Brighton, Nancy J NAN02 (Nancy.J.Brighton@usace.army.mil) <Nancy.J.Brighton@usace.army.mil>; Greco, Robert M CIV CENAN CENAD (US) <Robert.M.GRECO@usace.army.mil> Subject: 30 Day Scoping Period and Public Availability of the Scoping Document for the Peckman River Flood Risk Management Study

Good Morning All

The U.S. Army Corps of Engineers, New York District (District) announces the start of the 30 day Scoping Period and availability of the Peckman River Basin NEPA Scoping Document for the Peckman River Flood Risk Management Study. The District will be preparing an Environmental Impact Statement (EIS) and has initiate a formal 30 day Scoping Period to provide an opportunity for the public and agencies to comment on the scope of the environmental analysis in the EIS and to raise issues, concerns and ideas regarding potential impacts.

The Peckman River Basin NEPA Scoping Document has been prepared to assist interested parties and agencies in understanding the Feasibility Study history and alternatives to be scoped.

The NEPA Scoping Document is available on New York District's web site at: Blockedhttp://www.nan.usace.army.mil/Missions/Civil-Works/Projects-in-New-Jersey/Peckman-River-Basin-Flood-Risk-Management-Feasibility-Study/.

Comments should be submitted by email to Peckman.River@usace.army.mil.

General questions regarding the Peckman River Basin Flood Risk Management Feasibility Study can be directed to Mr. Robert Greco, Project Manager, Robert.M.Greco@usace.army.mil, 917-790-8394.

The District will be accepting comments, concerns and information related to the Scoping process through December 28, 2018

All written comments, including contact information, will be made a part of the administrative record, available to the public under the Freedom of Information Act (FOIA). The Administrative Record, or portions thereof, may also be posted on a Corps of Engineers' Internet website. Due to resource limitations, this office generally cannot acknowledge receipt of comments or respond to individual letters of comments.

Please do not hesitate to forward to those who may have interest.

v/r,

Peter

Peter Weppler Chief, Environmental Analysis Branch U.S. Army Corps of Engineers - Planning 26 Federal Plaza - Room 2151 New York, NY 10278-0090 (T): 917-790-8634 (C): 917-620-2862 (F): 212-264-0961 Attachment 9 NJDEP Letter – December 27, 2017



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF PERMIT COORDINATION AND ENVIRONMENTAL REVIEW P.O. Box 420 Mail Code 401-07J Trenton, New Jersey 08625-0420 Phone Number (609) 292-3600 FAX NUMBER (609) 292-1921

CHRIS CHRISTIE Governor

KIM GUADAGNO Lt. Governor BOB MARTIN Commissioner

December 27, 2017

Peter Weppler Chief, Environmental Analysis Branch New York District Army Corps of Engineers-Planning 26 Federal Plaza-Room 2151 New York, NY 10278-0090

RE: Peckman River Basin Flood Risk Management Feasibility Study Cedar Grove, Little Falls, and Woodland Park Essex and Passaic Counties, New Jersey

Dear Mr. Weppler:

The New Jersey Department of Environmental Protection's (Department) Office of Permit Coordination and Environmental Review (PCER) distributed, for review and comment, the Flood Risk Management Feasibility Report for the Peckman River Basin Project. The Peckman River Basin is prone to flooding mainly from two sources: flash flooding from rapid runoff and backwater flooding from the Passaic River. The proposed project will investigate the feasibility of implementing flood risk management measures along the Peckman River and its tributary, Great Notch Brook, located in Woodland Park and Little Falls in Passaic County, and Cedar Grove in Essex County. The Locally Preferred Plan (LPP) consists of a levee/floodwall system in Little Falls along with the bypass culvert for the Peckman River and floodwalls along Great Notch Brook in Woodland Park. An Environmental Impact Statement (EIS) will be forthcoming from the U.S. Army Corps of Engineers, New York District.

Based on the information provided for review, the Department offers the following comments for your consideration:

New Jersey Division of Fish and Wildlife

The NJ Division of Fish and Wildlife (DFW) offer the following comments:

Endangered and Nongame Species:

The Endangered and Nongame Species Program will not be reviewing or submitting comments regarding the above referenced project, as there are no populations of endangered, threatened or special concern wildlife species or significant nongame wildlife habitats in the project area.

Fisheries:

The Peckman River and tributaries are FW2-NT waters. A timing restriction from May 1st through July 31st would be recommended on any in-water and\or sediment generating activities in order to protect warm-water fish nest building and spawning; April 1st through July 31st if pickerel are also present.

Any changes to lake levels in the watershed would require a Water Lowering Permit which may include additional timing constraints, rates of lowering / refilling and fish / aquatic biota salvage requirements, if applicable, are found in this permit; preliminary consultation with the Bureau of Freshwater Fisheries is highly recommended to avoid delays or complications with a Water Lowering Permit.

If you have any general questions or concerns regarding the New Jersey Division of Fish and Wildlife, please contact Mr. Kelly Davis at (908) 236-2118 or Kelly.Davis@dep.nj.gov.

Historic and Cultural Resources

According to the documentation submitted, the proposed undertaking requires consultation with the United States Department of the Army, Corps of Engineers (Corps), pursuant to their obligations under Section 106 of the National Historic Preservation Act of 1966, as amended, and it's implementing regulations, 36 CFR §800. Consultation between the Corps and the HPO is currently ongoing. The HPO looks forward to further consultation with the Corps for the identification, evaluation and treatment of historic properties within the project's area of potential effects. The HPO will notify the Office of Permit Coordination of any developments as consultation moves forward.

If additional consultation with the HPO is needed for this undertaking, please reference the HPO project number 11-0128 in any future calls, emails, submissions or written correspondence to help expedite your review and response.

If you have any additional questions, please contact Jesse West-Rosenthal at (609) 984-6019.

Green Acres

The Green Acres Program did not provided comments within the 30 day comment period. There may be Green Acres encumbered and DEP-owned within the project areas. For the Green Acres Program to do a detailed jurisdictional determination, they require an inventory of the parcels (by

Block and Lot) included in the project area and/or shapefiles of the proposed temporary and permanent easement areas.

Please consult with Sean Moriarty (609) 984-0622 for project locations in Essex County and Adam Taylor (609) 984-0542 for project locations in Passaic County.

Division of Land Use Regulation

- 1. Land Use met with representatives from USACE on 11/16/2016 to discuss options and advised that the NED plan appears to result in less environmental impact when compared to the LPP plan. However, the Division recognizes that all factors must be considered and a cost/benefit analysis will be conducted.
- 2. Based on the preliminary information presented, a Flood Hazard Area Verification and Individual Permit would be required for either option.
 - a. Engineering: The requirements set forth at N.J.A.C. 7:13-12.7, 12.12, and 12.13, must be addressed in detail. The proposed flood control project has the potential to adversely impact properties not owned by the applicant therefore, the requirements set forth at N.J.A.C. 7:13-12.1(f), (g) and (h) must be satisfied. In addition, the proposed project is exempt from the requirements set forth at N.J.A.C. 7:13-11.4, provided the flood storage displacement is minimized, and a downstream impact analysis is provided. Please note that if the proposed regulated activity does not meet one or more of the requirements cited above the applicant may request for a hardship exception for an individual permit.
 - b. Environmental: Any permit application would need to address impacts to channels, riparian zones, and fishery resources. Disturbance to riparian zone vegetation is limited to 3,000 SF in a 50-foot riparian zone and 9.000 SF in a 150foot riparian zone for a flood control project, unless the applicant demonstrates that there is a compelling public need for the project and it cannot be accomplished without exceeding these limits. Riparian zone mitigation is required for impacts that exceed these limits.
- 3. Freshwater Wetlands: Based on the potential impacts stated for each plan, a Freshwater Wetland Individual Permit is likely required to address the construction of levees, stream cleaning, expansion/diversion of channels and stormwater outfalls and intake structures proposed. Wetland mitigation would be required for all impacts to wetlands under an Individual Permit. It may be useful to apply for a Letter of Interpretation-Line Verification for the project area to better assess the wetland impacts.
- 4. Based on the preliminary information, the project is above the head of tide and does not propose any dredging. Therefore, the Office of Dredging and Sediment Technology would <u>not</u> be involved.

The Division of Land Use Regulations recommends a pre-application meeting with Land Use once more specific information is available to discuss potential environmental impacts and specific application requirements as well as mitigation.

If you have any additional questions, please contact Stacey MacEwan at (609) 984-0143.

Air Compliance and Enforcement

Based on the information provided, the Division of Air Compliance and Enforcement offer the following comments:

<u>Construction Equipment:</u> Stationary construction equipment, may require air pollution permits. The applicant should review the requirements of NJAC 7:27-8.2(c) 1-21 for stationary permitting requirements.

<u>Fugitive Dust and Odors</u>: Dust emissions either windblown or generated from construction equipment or activities should be controlled to prevent offsite impacts. The applicant should be aware of potential offsite impacts of odors pursuant to NJAC 7:27-5.

<u>Idling Vehicles</u>: Any vehicles involved on the project must adhere to the idling standards (less than 3 minutes) in NJAC 7:27-14 and 15.

If you have any questions or concerns, please contact Jeffrey Meyer at (973)-656-4444.

Air Planning

The Bureau of Evaluation and Planning (BEP) has reviewed the USACE Scoping Document for the Peckman River Basin Flood Risk Management Feasibility Study and will not be submitting comments. The Scoping Document indicates that the USACE will be conducting a General Conformity Applicability Analysis for the project.

If you have any additional questions, please contact Angela Skowronek at (609) 984-0337.

Air Mobile Sources

Diesel exhaust contributes the highest cancer risk of all air toxics in New Jersey and is a major source of NOx within the state. Therefore, NJ DEP recommends that construction projects involving non-road diesel construction equipment operating in a small geographic area over an extended period of time implement the following measures to minimize the impact of diesel exhaust:

- All on-road vehicles and non-road construction equipment operating at, or visiting, the construction site shall comply with the three-minute idling limit, pursuant to N.J.A.C. 7:27-14 and N.J.A.C. 7:27-15. Consider purchasing "No Idling" signs to post at the site to remind contractors to comply with the idling limits. Signs are available for purchase from the Bureau of Mobile Sources at 609/292-7953 or http://www.stopthesoot.org/sts-no-idle-sign.htm.
- All non-road diesel construction equipment greater than 100 horsepower used on the project for more than ten days should have engines that meet the USEPA Tier 4 non-road emission standards, or the best available emission control technology that is technologically feasible for that application and is verified by the USEPA or the CARB as a diesel emission control strategy for reducing particulate matter and/or NOx emissions.

• All on-road diesel vehicles used to haul materials or traveling to and from the construction site should use designated truck routes that are designed to minimize impacts on residential areas and sensitive receptors such as hospitals, schools, daycare facilities, senior citizen housing, and convalescent facilities.

While entering and leaving the project area, trucks should avoid neighborhoods as much as possible.

If you have any additional questions, please contact Alina Nagtalon at (609) 633-2007.

NJDPES Discharge to Surface Water

If any part of the chosen alternative for this project involves dewatering from construction (i.e., during raising of buildings or barrier installation, etc.) that will be discharged to a surface water, a NJPDES Discharge to Surface Water Permit will be required.

Provided that the discharge is not contaminated, the appropriate discharge permit will be the B7-Short term De minimis permit (see <u>http://www.state.nj.us/dep/dwq/pdf/b7-rfa-</u> <u>checklist.pdf</u>). This is determined by running a pollutant scan as described in the application checklist where the data can be collected up to a year in advance of the discharge.

If, however, the discharge is contaminated (the analytical results demonstrate levels greater than the Appendix A standards as specified in the De minimis permit see <u>http://www.state.nj.us/dep/dwq/pdf/b7-deminimis-final-permit-5-20-15.pdf</u>), the appropriate NJPDES discharge to surface water permit will be the BGR – General Remediation Cleanup permit (see <u>http://www.state.nj.us/dep/dwq/pdf/sw-gp-chklst.pdf</u>). The BGR permit can generally be processed in less than 30 days although a treatment works approval may be needed for any treatment.

If you have any questions or concerns, please contact Kelly Perez at (609) 292-4860.

Stormwater Management

Construction projects that disturb 1 acre or more of land, or less than 1 acre but are part of a larger common plan of development that is greater than 1 acre, are required to obtain coverage under the Stormwater construction general permit (5G3). Applicants must first obtain certification of their soil erosion and sediment control plan (251 plan) form their local soil conservation district office. Upon certification, the district office will provide the applicant with two codes process (SCD certification code and 251 identification code) for use in the DEPonline portal system application. Applicants must then become a registered user for the DEPonline system and complete the application for the Stormwater Construction General Authorization. Upon completion of the application the applicant will receive a temporary authorization which can be used to start construction immediately, if necessary. Within 3-5 business days the permittee contact identified in the application will receive an email including the application summary and final authorization.

If you have any additional questions, please contact Eleanor Krukowski at (609) 633-7021.

Thank you for giving the New Jersey Department of Environmental Protection the opportunity to comment on the Flood Risk Management Feasibility Report for the Peckman River Basin Project.. Please contact Katherine Nolan at (609) 292-3600 if you have any additional questions or concerns.

Sincerely,

DAVID PEPE FOR DR. Ruth Faster

Ruth W. Foster, PhD., P.G., Acting Director Permit Coordination and Environmental Review

John Gray, Deputy Chief of Staff Kelly Davis, New Jersey Division of Fish and Wildlife Jesse West-Rosenthal, NJDEP Historic Preservation Office Stacey MacEwan, NJDEP Division of Land Use Regulation Angela Skowronek, NJDEP Air Planning Jeffrey Meyer, NJDEP Air C&E Alina Nagtalon, NJDEP Bureau of Mobile Sources Sean Moriarty, NJDEP Green Acres Program Adam Taylor, NJDEP Green Acres Program Eleanor Krukowski, NJDEP Stormwater Kelly Perez, NJDEP DSW

c.

Attachment 10 Response from Advisory Council for Historic Preservation – December 10, 2019



December 10, 2019

Mr. Peter Weppler Chief, Environmental Analysis Branch Department of the Army New York District, Corps of Engineers Jacob K. Javits Federal Building 26 Federal Plaza New York, New York 10278-00910

Ref: Proposed Peckman River Basin Flood Risk Management Feasibility Study Township of Little Falls, Essex County, New Jersey

Dear Mr. Weppler:

The Advisory Council on Historic Preservation (ACHP) has received your notification and supporting documentation regarding the adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information you provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer, affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and you determine that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Programmatic Agreement (PA), developed in consultation with the New Jersey State Historic Preservation Office (SHPO) and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the PA and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with your notification of adverse effect. If you have any questions or require further assistance, please contact Christopher Daniel at 202 517-0223 or via e-mail at cdaniel@achp.gov.

Sincerely,

Artisha Thompson Historic Preservation Technician Office of Federal Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION

Attachment 11 Response from New Jersey DEP, Historic Preservation Office – November 12, 2019



HPO Project # 11-0128-9 HPO-K2019-053 Page 1

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION NATURAL & HISTORIC RESOURCES HISTORIC PRESERVATION OFFICE MAIL CODE 501-04B P.O. BOX 420 TRENTON, NJ 08625-0420 TEL: # 609-984-0176 FAX: # 609-984-0578

CATHERINE R. McCABE Commissioner

PHILIP D. MURPHY Governor

SHEILA Y. OLIVER Lt. Governor

November 12, 2019

Peter M. Weppler Chief, Environmental Analysis Branch Department of the Army Corps of Engineers, New York District Jacob K. Javits Federal Building New York, NY 10278-0090

Dear Mr. Weppler:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register on December 12, 2000 (65 FR 77725-77739) and amended on July 6, 2004 (69 FR 40544-40555), I am providing continuing consultation comments for the following proposed undertaking:

Passaic County, Township of Little Falls and Borough of Woodland Park Updated Design and Draft Programmatic Agreement Peckman River Basin Flood Risk Management Project United States Department of the Army, Corps of Engineers

800.4 Identification of Historic Properties

Thank you for providing the Historic Preservation Office (HPO) with the opportunity to review and comment on the potential for the above-referenced undertaking to affect historic properties. According to the documentation submitted, United States Department of the Army, Corps of Engineers (Corps) is proposing updates to the undertaking's design, consisting of the same weir and diversion culvert alignments and channel modifications, the realignment of the levee south of U.S. Route 46 to extend further east in the vicinity of Little Falls High School, and the elimination of the floodwalls along Great Notch Brook. In light of these changes, the Corps is recommending a Phase I cultural resource investigation in the area of the new levee alignments as the undertaking proceeds. *The HPO concurs with these recommendations*.

800.14 Federal Agency Program Alternatives

Based on the nature of the proposed undertaking, the Corps recommends the execution of a Programmatic Agreement (PA) to govern the implementation of the proposed undertaking, as it relates to compliance with Section 106 of the National Historic Preservation Act, as amended. The draft PA has been updated to reflect the above-referenced changes. The following comments are in response to the draft PA for the Peckman River Basin Flood Risk Management Project, received at our office on October 15, 2019, for the above-referenced undertaking. Based on our review, the HPO finds the draft PA generally acceptable with the following comments:

- Stipulation V.A.
 - First sentence: Change "previously identified" to "previously unidentified."
- Stipulation V.C.
 - First sentence: Change "NJHP" to "NJHPO."
- Stipulation VIII.B(2)
 - "The NJHPO and any other interested party shall have 30 calendar days to review..." shall be revised to state, "The NJHPO and any other interested party shall have 30 calendar days from the date of receipt to review..."
 - "If comments, objection, etc., are not received within 30 calendar days..." shall be revised to states, "If comments, objection, etc., are not received within 30 calendar days of receipt..."

The HPO looks forward to further consultation with the Corps regarding the development and implementation of this agreement document.

Additional Comments

Thank you for providing the opportunity to review and comment on the potential for the abovereferenced project to affect historic properties. Please do not hesitate to contact Jesse West-Rosenthal of my staff at (609) 984-6019 with any questions regarding archaeology or Lindsay Thivierge (609) 292-4091 with questions regarding historic architecture. Please reference the HPO project number 11-0128, in any future calls, emails, or written correspondence to help expedite your review and response.

Sincerely,

Katherni marcome

Katherine J. Marcopul Deputy State Historic Preservation Officer

Cc: Carissa Scarpa, USACE

KJM/MMB/JWR

Attachment 12 NJDEP, Historic Preservation Office Letter – October 7, 2019



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT JACOB K. JAVITS FEDERAL BUILDING 26 FEDERAL PLAZA NEW YORK NEW YORK 10278-0090

October 7, 2019

Environmental Analysis Branch

Ms. Katherine Marcopul Administrator and Deputy State Historic Preservation Officer Historic Preservation Office Natural and Historic Resources New Jersey Department of Environmental Protection 501 East State Street Station Plaza Building 5 4th Floor Trenton, New Jersey 08625

RE: HPO-H2012-211 PROD 11-0128-3 Peckman River Flood Damage Reduction Project

Dear Ms. Marcopul;

Reference is made to correspondence with your office dated May 14 and June 13, 2018 regarding the Peckman River Basin Flood Risk Management Feasibility Study (Attachments 1 and 2). At this time the U.S. Army Corps of Engineers, New York District (District) wishes to provide you with an update on the status of the study and the draft Programmatic Agreement (PA). The District has updated their hydraulic modeling and existing and future without project conditions as a result of changed conditions observed during an August 2018 storm. The resulting refinements to the project design were extensive enough to require re-release of the draft Feasibility Report and Environmental Assessment this October.

The updated design consists of the same weir and diversion culvert alignment and channel modification but the floodwalls along Great Notch Brook have been removed from the design and the levee south of U.S. Route 46 has been realigned to extend further east in the vicinity of the Little Falls High School (Enclosure 3). A review of existing information and site files at your office identified no additional cultural resources within the revised APE, however, there is potential for previously undocumented historic properties to exist within the portion of the APE that has not yet been surveyed. Therefore, the District is recommending a Phase I investigation in the area of the new levee alignment as the project proceeds in the Project Engineering and Design (PED) phase. Additionally, in response to comments received from your office on June 13, 2018, the District plans to carry out mechanically assisted archaeological investigations of the area of the proposed culvert outlet where access was limited during the previous cultural resources survey. The draft PA has been updated to address these changes (Enclosure 4). Please review the enclosed draft PA and supporting documentation and provide Section 106 comments, pursuant to 36 CFR 800.5. If you or your staff require additional information or have any questions, please contact Carissa Scarpa, Project Archaeologist, at (917) 790-8612.

Sincerely,

Peter M. Weppler Chief, Environmental Analysis Branch

Enclosures

Attachment 13 Little Falls Historical Society Letter – October 7, 2019



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT JACOB K. JAVITS FEDERAL BUILDING 26 FEDERAL PLAZA NEW YORK NEW YORK 10278-0090

October 7, 2019

Environmental Analysis Branch

John J. Veteri, Esq. President, Little Falls Historical Society P.O. Box 1083 Little Falls, NJ 07424

Dear Mr. Veteri:

The U.S. Army Corps of Engineers, New York District (District) is undertaking the Peckman River Basin Flood Risk Management Feasibility Study in coordination with New Jersey Department of Environmental Protection, the Township of Little Falls and the Borough of Woodland Park in Passaic County and the Township of Cedar Grove in Essex County. The District has recommended a solution consisting of the construction of a diversion culvert, weir, levees, and floodwalls along the Peckman River in Little Falls. In addition, non-structural measures, including flood-proofing, have been proposed for structures in Little Falls (Enclosure 1).

As an agency of the federal government, the U.S. Army Corps of Engineers has certain responsibilities concerning the protection and preservation of historic properties. Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, the Advisory Council on Historic Preservation's "Procedures for the Protection of Historic and Cultural Properties" (36 CFR 800) and EO 11593 direct federal agencies to take into account the effect of an undertaking on historic properties included in or eligible for listing on the National Register of Historic Places (NRHP). In accordance with these guiding regulations, the District conducted a Phase I archaeological investigation and structure inventory. The survey included a review of previous cultural resources investigations, archaeological field investigations, an architectural survey, and an evaluation of geotechnical survey results. The observations and recommendations from that survey as well as an updated assessment of the potential for the recommended plan to impact historic properties is presented in the enclosed Historic Properties Summary (Enclosure 2).

The recommended plan has the potential to impact the NRHP-eligible Little Falls Laundry and archaeological sites and deposits within areas not previously tested along the alignment of proposed levees and floodwalls and at the site of the diversion culvert outlet on the Passaic River. Because the project has the potential to adversely affect historic properties the District has prepared a draft Programmatic Agreement (PA) that identifies the process it will take as the project moves forward to continue to identify historic properties, assess effects, and determine ways to avoid or mitigate adverse effects (Enclosure 3). In accordance with the National Environmental Policy Act and Section 106 of the National Historic Preservation Act the District is coordinating this draft PA with the New Jersey Historic Preservation Office (NJSHPO), the Delaware Nation, and the Delaware Tribe of Indians. Furthermore, the District is planning to release a Draft Integrated Feasibility Report and Environmental Assessment (DIFR/EA) this month that will include the draft PA as an appendix for review and comment by the public.

As an organization with a significant stake in historic preservation within your community, I invite you to review and comment upon the draft PA for the Peckman River Basin Flood Risk Management Project. We would also like to invite the Little Falls Historical Society to participate in this agreement as a concurring party which would provide you the opportunity to continue to consult on the project and receive status updates as it proceeds. Please review the attached documentation and provide a written response within 30 days to Carissa Scarpa, Project Archaeologist, by mail (US Army Corps of Engineers, CENAN-PL-EA, 26 Federal Plaza, Planning Division, 17th Fl., New York, NY 10278) or by email to <u>Carissa.a.Scarpa@usace.army.mil</u>. If you feel it would be beneficial to schedule a meeting or conference call amongst the consulting parties, please include that with your comments. If you require additional information or have any questions, please contact Ms. Scarpa at (917) 790-8612.

Sincerely.

Peter Weppler V Chief, Environmental Analysis Branch

Enclosures

Attachment 14 Delaware Nation Letter – October 7, 2019



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT JACOB K. JAVITS FEDERAL BUILDING 26 FEDERAL PLAZA NEW YORK NEW YORK 10278-0090

October 7, 2019

Environmental Analysis Branch

Ms. Erin Thompson Historic Preservation/106 Director Delaware Nation P.O. Box 825 Anadarko, OK 73005

Dear Ms. Thompson:

The U.S. Army Corps of Engineers, New York District (District) is undertaking the Peckman River Basin Flood Risk Management Feasibility Study in coordination with New Jersey Department of Environmental Protection, the Township of Little Falls and the Borough of Woodland Park in Passaic County and the Township of Cedar Grove in Essex County. Most recently the District has recommended a solution consisting of the construction of a diversion culvert, weir, levees and floodwalls along the Peckman River in Little Falls. In addition, non-structural measures, including flood-proofing, have been proposed for structures in Little Falls (Enclosure 1).

A Phase I archaeological investigation and structure inventory was completed for this study in January 2013. The survey included a review of previous cultural resources investigations, archaeological field investigations, an architectural survey, and an evaluation of geotechnical survey results. The observations and recommendations from that survey as well as current assessment of the potential for the recommended plan to impact historic properties eligible for or listed on the National Register of Historic Places (NRHP) is presented in the enclosed Historic Properties Summary (Enclosure 2).

The recommended plan has the potential to impact the NRHP-eligible Little Falls Laundry through proposed non-structural measures, and archaeological sites and deposits within areas not previously tested along the alignment of proposed levees and floodwalls and at the site of the diversion culvert outlet on the Passaic River. Because the project has the potential to adversely affect historic properties the District has prepared a draft Programmatic Agreement (PA) that identifies the process it will take as the project moves forward to continue to identify historic properties, assess effects, and determine ways to avoid or mitigate adverse effects (Enclosure 3).

In accordance with the National Environmental Policy Act and Section 106 of the National Historic Preservation Act the District is also coordinating this draft PA with the New Jersey Historic Preservation Office (NJSHPO), the Delaware Tribe of Indians, and the Little Falls Historical Society. Furthermore, the District is planning to release a Draft Integrated Feasibility Report and Environmental Assessment (DIFR/EA) this month that will include the draft PA as an appendix for review and comment by the public.

As a tribe with significant cultural heritage in the region, I invite you to review and comment upon the draft PA for the Peckman River Flood Risk Management Feasibility Study. At a minimum, the PA is intended to be entered into by the U.S. Army Corps of Engineers and the New Jersey State Historic Preservation Office. We would like to invite the Delaware Nation to participate as a signatory, or if signatory is not preferred, as a concurring party which would provide the Delaware Nation the opportunity to consult on the project and receive status updates as it proceeds. Please review the attached documentation and provide a written response within 30 days to Carissa Scarpa, Project Archaeologist, by mail (US Army Corps of Engineers, CENAN-PL-EA, 26 Federal Plaza, Room 2131, New York, NY 10278) or by email to Carissa.a.Scarpa@usace.army.mil. If you feel it would be beneficial to schedule a meeting or conference call amongst the consulting parties, please include that with your comments. If you require additional information or have any questions, please contact Ms. Scarpa at (917) 790-8612.

Sincerely,

Peter Weppler Chief, Environmental Analysis Branch

Enclosures

Attachment 15 Delaware Tribe Letter – October 7, 2019



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT JACOB K. JAVITS FEDERAL BUILDING 26 FEDERAL PLAZA NEW YORK NEW YORK 10278-0090

October 7, 2019

Environmental Analysis Branch

Susan Bachor Historic Preservation Representative Delaware Tribe of Indians Special Assistant Eastern Office P.O. Box 64 Pocono Lake, Pennsylvania 18347

Dear Ms. Bachor:

The U.S. Army Corps of Engineers, New York District (District) is undertaking the Peckman River Basin Flood Risk Management Feasibility Study in coordination with New Jersey Department of Environmental Protection, the Township of Little Falls and the Borough of Woodland Park in Passaic County and the Township of Cedar Grove in Essex County. Most recently the District has recommended a solution consisting of the construction of a diversion culvert, weir, levees, and floodwalls along the Peckman River in Little Falls. In addition, non-structural measures, including flood-proofing, have been proposed for structures in Little Falls (Enclosure 1).

A Phase I archaeological investigation and structure inventory was completed for this study in January 2013. The survey included a review of previous cultural resources investigations, archaeological field investigations, an architectural survey, and an evaluation of geotechnical survey results. The observations and recommendations from that survey as well as current assessment of the potential for the recommended plan to impact historic properties eligible for or listed on the National Register of Historic Places (NRHP) is presented in the enclosed Historic Properties Summary (Enclosure 2).

The recommended plan has the potential to impact the NRHP-eligible Little Falls Laundry and archaeological sites and deposits within areas not previously tested along the alignment of proposed levees and floodwalls and at the site of the diversion culvert outlet on the Passaic River. Because the project has the potential to adversely affect historic properties the District has prepared a draft Programmatic Agreement (PA) that defines the process it will take as the project moves forward to continue to identify historic properties, assess effects, and determine ways to avoid or mitigate adverse effects (Enclosure 3).

In accordance with the National Environmental Policy Act and Section 106 of the National Historic Preservation Act the District is also coordinating this draft PA with the New Jersey Historic Preservation Office (NJSHPO), the Delaware Nation, and the Little Falls Historical Society. Furthermore, the District is planning to release a Draft

Integrated Feasibility Report and Environmental Assessment (DIFR/EA) this month that will include the draft PA as an appendix for review and comment by the public.

As a tribe with significant cultural heritage in the region, I invite you to review and comment upon the draft PA for the Peckman River Basin Flood Risk Management Feasibility Study. At a minimum, the PA is intended to be entered into by the U.S. Army Corps of Engineers and the New Jersey State Historic Preservation Office. We would like to invite the Delaware Tribe of Indians to participate as a signatory, or if signatory is not preferred, as a concurring party which would provide you the opportunity to consult on the project and receive status updates as it proceeds. Please review the attached documentation and provide a written response within 30 days to Carissa Scarpa, Project Archaeologist, by mail (US Army Corps of Engineers, CENAN-PL-EA, 26 Federal Plaza, Room 2131, New York, NY 10278) or by email to Carissa.a.Scarpa@usace.army.mil. If you feel it would be beneficial to schedule a meeting or conference call amongst the consulting parties, please include that with your comments. If you require additional information or have any questions, please contact Ms. Scarpa at (917) 790-8612.

Sincerely,

Peter Weppler Chief, Environmental Analysis Branch

Enclosures

Attachment 16 Scoping Document from NJ Historic Preservation Office – December 28, 2017 HPO Project # 11-0128-5

HPO- L2017-191

Re: Essex and Passaic Counties

Scoping Document

Peckman River Basin Flood Risk Management

Thank you for providing the Historic Preservation Office (HPO) with the opportunity to review and comment on the potential for the above-referenced project to affect historic and archaeological resources. According to the documentation submitted, the proposed undertaking requires consultation with the United States Department of the Army, Corps of Engineers (Corps), pursuant to their obligations under Section 106 of the National Historic Preservation Act of 1966, as amended, and it's implementing regulations, 36 CFR §800. According to our records, consultation was initiated in 2011 and is still ongoing at this time. The HPO looks forward to further consultation with the Corps for the identification, evaluation and treatment of historic properties within the project's area of potential effects.

If additional consultation with the HPO is needed for this undertaking, please reference the HPO project number 11-0128 in any future calls, emails, submissions or written correspondence to help expedite your review and response. If you have any questions, please feel free to contact me.

Take Care,

Jesse

Jesse West-Rosenthal, M.A. Senior Historic Preservation Specialist

Historic Preservation Office New Jersey Department of Environmental Protection

501 E. State Street Mail Code 501-04B PO Box 420 Trenton, New Jersey 08625-0420

P: 609-984-6019[']F: (609) 984-0578[']Website: Blockedhttp://www.nj.gov/dep/hpo <Blockedhttp://www.nj.gov/dep/hpo> NJ HPO's cultural resources GIS data is available via NJ Geoweb

<Blockedhttp://www.nj.gov/dep/gis/geowebsplash.htm> or direct download at NJ DEP's Statewide Digital Data Downloads <Blockedhttp://www.state.nj.us/dep/gis/stateshp.html>

** PLEASE NOTE: The HPO does not currently accept consultation requests for regulatory review via e-mail, at this time. All consultation requests must be submitted in hard copy via mail. **

Attachment 17 NJDEP, Historic Preservation Letter – June 13, 2017



HPO Project #11-0128-7 HPO-F2018-108 Page 1

State of New Jersey DEPARTMENT OF ENVIRONMENTAL PROTECTION NATURAL & HISTORIC RESOURCES HISTORIC PRESERVATION OFFICE MAIL CODE 501-04B P.O. BOX 420 TRENTON, NJ 08625-0420 TEL: # 609-984-0176 FAX: # 609-984-0578

CATHERINE R. McCABE Acting Commissioner

PHILIP D. MURPHY Governor

SHEILA Y. OLIVER Lt. Governor

June 13, 2017

Peter M. Weppler Chief, Environmental Analysis Branch Department of the Army Corps of Engineers, New York District Jacob K. Javits Federal Building New York, NY 10278-0090

Dear Mr. Weppler:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register on December 12, 2000 (65 FR 77725-77739) and amended on July 6, 2004 (69 FR 40544-40555), I am providing continuing consultation comments for the following proposed undertaking:

Passaic County, Township of Little Falls and Borough of Woodland Park Programmatic Agreement Peckman River Basin Flood Risk Management Project United States Department of the Army, Corps of Engineers

Thank you for providing the Historic Preservation Office (HPO) with the opportunity to review and comment on the potential for the above-referenced undertaking to affect historic properties. According to the documentation submitted, the proposed flood risk reduction measures have been revised to include a 1,500-foot long, 35-foot diameter diversion culvert constructed between the Peckman and Passaic Rivers. At the inlet end on the Peckman River, a weir to limit flow and create a pool near the inlet will be installed. The channel of the Peckman River will be modified near the inlet. Up- and downstream of the weir, approximately 2,500 linear feet of levees and/or floodwalls of an average of three to six feet above ground elevation would be constructed. Along the Great Notch Brook, approximately 3,000 linear feet of levees and/or floodwalls would he constructed at an average height of five to 10 feet above ground. Seven permanent ringwalls are planned around 47 structures and 64 structures would be elevated. Four additional structures would be wet floodproofed and three structures would be dry floodproofed.

Based on the nature of the proposed undertaking, the United States Department of the Army, Corps of Engineers (Corps) has recommended the execution of a Programmatic Agreement (PA) to govern the implementation of the proposed undertaking, as it relates to compliance with Section 106 of the National Historic Preservation Act, as amended. The following comments are in response to the draft PA for the Peckman River Basin Flood Risk Management Project, received at our office on May 17, 2018, for the

above-referenced undertaking. Based on our review, the HPO finds the draft PA generally acceptable with the following comments:

- Stipulation I.B
 - 0 For the proposed construction of the diversion culvert, the Corps is recommending archaeological monitoring of construction activities. While the HPO concurs with the recommendation for further testing, please note, archaeological monitoring is not an appropriate methodology for archaeological documentation when standard phased archaeological survey and documentation is possible. Archaeological monitoring is a means of last resort, when no other feasible means of archaeological documentation are possible prior to project construction, or to ensure that resources not identified during standard archaeological survey are documented during project implementation. If there is a reasonable expectation that archaeological resources may be present within a project location and standard archaeological documentation methodology is feasible prior to project implementation, standard archaeological documentation should then be implemented. Please provide further justification for the use of archaeological monitoring for the proposed construction of the diversion culvert or revise the proposed approach to include standard phased archaeological survey (this mayp include machine-assisted approaches).
- Stipulation VIII.B(2)
 - "NJHPO and any other interested party shall have 30 calendar days to review..." shall be revised to state, "NJHPO and any other interested party shall have 30 calendar days from date of receipt to review..."
- Stipulation VIII.B(4)
 - "If comments, objection, etc., are not received within 30 calendar days..." shall be revised to states, "If comments, objection, etc., are not received within 30 calendar days of receipt..."

The HPO looks forward to further consultation with the Corps regarding the development and implementation of this agreement document.

Additional Comments

Thank you for providing the opportunity to review and comment on the potential for the above-referenced project to affect historic properties. Please do not hesitate to contact Jesse West-Rosenthal of my staff at (609) 984-6019 with any questions regarding archaeology or Lindsay Thivierge (609) 292-4091 with questions regarding historic architecture. Please reference the HPO project number 11-0128, in any future calls, emails, or written correspondence to help expedite your review and response.

Sincerely,

Kathume J. Marcopul

Katherine J. Marcopul Deputy State Historic Preservation Officer

Cc: Nancy Brighton, USACE

KJM/MMB/JWR

Attachment 18 NJDEP, Historic Preservation Office Letter – February 5, 2013



DEPARTMENT OF THE ARMY NEW YORK DISTRICT, CORPS OF ENGINEERS JACOB K. JAVITS FEDERAL BUILDING 26 FEDERAL PLAZA NEW YORK, N.Y. 10278-0090

Reply to Environmental Analysis Branch February 5, 2013

Mr. Daniel Saunders Deputy State Historic Preservation Officer Historic Preservation Office New Jersey Department of Environmental Protection CN 404 Trenton, NJ 08625-0404

Re: HPO-H2012-211 PROD 11-0128-3 Peckman River Flood Damage Reduction Project

Dear Mr. Saunders:

Thank you for your letter, dated August 29, 2012 in which you provided Section 106 consultation comments on the draft report *Phase I Archaeological Investigation and Architectural Inventory, Peckman River Flood Damage Reduction Project, Borough of Woodland Park (formerly West Paterson) and Townships of Little Falls and Cedar Grove, Passaic and Essex Counties, New Jersey.* The U.S. Army Corps of Engineers, New York District (District) acknowledges your finding of the Little Falls Laundry weir and headrace as eligible for listing in the National Register of Historic Places. Pursuant to Section 106 of the NRHP, the District will take into account these contributing elements, avoiding adverse effects where feasible, and in the design of alternatives for the Peckman River Flood Damage Reduction Project.

In addition to an opinion of eligibility for the Little Falls Laundry weir and headrace, the letter also included a number of comments pertaining to the archaeological investigations and the architectural survey. The District has attempted to adequately respond to each comment here and has addressed these items in the final draft of the report which is enclosed with this letter.

Archaeology

The HPO has highlighted the early history of the headrace associated with the Little Falls Laundry as a major component of the mid to late nineteenth century Sindle/Van Ness Raceway System identified as such in the 1982 report prepared for the District. The HPO noted that additional industrial resources predating the Little Falls Laundry may be present along the
headrace alignment and advised that potential historic properties should be considered in any future research pertaining to the area surrounding the headrace.

The District is aware of the origins of the Little Falls Laundry weir and headrace as a source of waterpower for the Sindle and Vann Mills originally constructed between 1856 and 1867. The establishment of the mills and the raceway system and the evolution of the raceway and repurposing of it for the Laundry are described in the Archaeological Survey Results section of the current Phase I report. In the development of alternatives the District will strive to avoid disturbance of the headrace and sluice gate so as not to adversely impact the resource. In consideration of the report have been revised to propose additional archeological study to record additional details concerning the creation and maintenance of the structure over time and the relationship between the laundry and downstream mills and the complex water system developed by the laundry required for its operation. These revised recommendations and better clarification about the raceway's historical use has been added to the final report along with a base form and eligibility worksheet.

The HPO has refrained from providing an opinion of eligibility for the Morris Canal Aqueduct Site and the Marley Mill and Dam although the District has determined the sites eligible under Criterion C. The District agrees that project effects on these historic properties cannot be evaluated by the HPO at this time because detailed project plans associated with the Peckman River Flood Control project have not been completed. Therefore, upon development of project plans the Corps shall carry out consultation with your office to determine next steps. The recommendations of the report have been revised to clarify the status of these resources as potentially eligible for the National Register of Historic Places and calls for additional research and archaeological testing.

The HPO has also recommended Phase I mechanical testing in the area of the culvert outlet. The District agrees that there is some potential for deeply buried remains within the culvert alignment in the vicinity of the Passaic River and Patterson Avenue. The District does not, therefore, object to this suggested approach, however, testing of this nature would be extremely disruptive and should be carried out after plans have been developed when the exact alignment and depth of the culvert is known. The recommendations of the report have been revised to reflect this approach.

Finally, the HPO has asked for clarification regarding Phase IB testing in the vicinity of a map documented historic structure. The District assumes that the structure in question is the Seuchlung Slaughterhouse building and house. This structure was documented in 1982 as a concrete foundation of the slaughterhouse and a pile of charred timbers where the house once was. A thorough inspection of the area and shovel tests failed to locate remains of the slaughterhouse. The District supports the conclusions of the report that additional archaeological investigations in the vicinity are not warranted. A more thorough discussion of the investigations has been added to the revised report to support the methodology.

Architecture

The HPO refrained from providing an opinion of eligibility on the Cedar Grove Railroad Overpass due to a lack of historical background and contextual information. The District has revised the recommendation of this resource to potentially eligible in the survey report and added a base form. At this time the conceptual plans do not include any modifications to this structure or the channel below. Should future project plans involve impacting the Cedar Grove Railroad Overpass the District shall carry out a complete NRHP eligibility assessment of the structure.

The HPO requested that in future, the District submit an intensive-level architectural survey which, as described in the New Jersey Guidelines for Architectural Survey (1999) includes a complete set of architectural survey forms for each property within the APE. The District is aware of the state's guidelines and will carry out an intensive-level architectural survey on the structures within the project APE when project effects can be determined. However, the District asks for clarification on what HPO considers an appropriate level of survey for projects in the early stages of alternative analysis and lacking a well defined APE such as this. The District would argue that the reconnaissance level of survey is better suited. Base forms for the NRHP eligible structures within the study area, including the Cedar Grove Railroad Overpass and the Little Falls Laundry weir and headrace have been added to Appendix 4 of the report.

Finally, the HPO has noted that the District's sponsor, Little Falls Township, would be responsible for submitting an Application for Project Authorization under the New Jersey Register of Historic Places Act (N.J.S.A. 13:1B-15.128). Under Section 106 of the National Historic Preservation Act, it is the obligation of the Federal agency to fulfill the requirements of Section106. The District has long been carrying out consultation with the HPO on projects that impact resources listed on the NJ Register of Historic Places through our Section 106 process. The Section 106 process provides an ideal platform for addressing potential impacts and receiving early input from the HPO and other interested parties. The District would ask for clarification on the applicability of the law on federal projects and its function within the context of the Section 106 process.

Thank you for your assistance in the Section 106 process. If you or your staff require additional information or have any questions, please contact Carissa Scarpa, Project Archaeologist at (917) 790-8612.

Sincerely,

() Jousta

Leonard Houston Chief, Environmental Analysis Branch

Enclosure

Attachment 19 NJDEP, Historic Preservation Office Letter – August 29, 2012



HPO Project #11-0128-3 HPO-H2012-211 PROD Page 1 of 5

State of New Jersey

MAIL CODE 501-04B DEPARTMENT OF ENVIRONMENTAL PROTECTION NATURAL & HISTORIC RESOURCES HISTORIC PRESERVATION OFFICE P.O. Box 420 Trenton, NJ 08625-0420 Tel. (609) 984-0176 Fax (609) 984-0578

BOB MARTIN Commissioner

August 29, 2012

Leonard Houston, Chief Environmental Analysis Branch Department of the Army Corps of Engineers, New York District Jacob K. Javits Federal Building New York, NY 10278-0090

Dear Mr. Houston:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the *Federal Register* on December 12, 2000 (65 FR 77725-77739) and amended on July 6, 2004 (69 FR 40544-40555), I am providing Consultation Comments for the following proposed undertaking:

Passaic County, Little Falls Township Township Phase I Cultural Resources Survey Peckman River Flood Damage Reduction Project United States Department of the Army, Corps of Engineers

Summary: This **new SHPO opinion** finds the **Little Falls Laundry weir and headrace contribute to the Little Falls Laundry** which was previously determined eligible for listing in the New Jersey and National Registers of Historic Places on December 28, 2004. The addition of the weir and headrace to the opinion of eligibility represent a boundary expansion for the Little Falls Laundry to include the footprint of both additional resources.

Thank you for submitting the following cultural resources report, received at the Historic Preservation Office (HPO) on July 23, 2012 for the above-referenced undertaking:

Blair, Lori J., Walter R Wheeler, and Matthew J. Kirk

2012 Draft Phase I Archeological Investigation and Structure Inventory, Peckman River Flood Damage Reduction Project, Borough of Woodland Park (formerly West Paterson) and Townships of Little Falls and Cedar Grove, Passaic and Essex Counties, New Jersey. Prepared for the United States Department of the Army, Corps of Engineers, New York District. Prepared by Hartgen Archeological Associates, Inc. Rensselaer, New York.

CHRIS CHRISTIE Governor

KIM GUADAGNO Lt. Governor

HPO Project #11-0128-3 HPO-H2012-211 PROD Page 2 of 5

800.4 Identification of Historic Properties

Archaeology

The above-referenced report states that a Phase I archaeological investigation was undertaken as part of the Peckman River Flood Damage Reduction Project. The purpose of the proposed project will be to employ a series of flood reduction measures to help alleviate the frequent flooding in the drainage basin. A Phase I cultural resources survey was conducted to assess the Project for its potential impacts to historic properties within the project's area of potential effects (APE). Through background research, pedestrian reconnaissance, and subsurface excavation, three archaeological historic properties were identified within the APE: the Little Falls Laundry Weir and Headrace, the Morris Canal Aqueduct, and the Marley mill site.

According to the report, the Little Falls Laundry weir and headrace are archaeological components of the Little Falls Laundry property, which was determined eligible for listing in the New Jersey and National Registers of Historic Places on December 28, 2004. According to the report, the weir and sluicegate were constructed in the early twentieth-century to help funnel water into the laundry, where it was then treated and used in the cleaning process. As a result, the report recommends that the headrace and weir are contributing resources to the Little Falls Laundry and are eligible under Criterion D, for their ability to yield important information in history. The HPO concurs with this recommendation. Therefore, it is my opinion as Deputy State Historic Preservation Officer that the Little Falls Laundry weir and headrace contribute to the Little Falls Laundry which was previously determined eligible for listing in the New Jersey and National Registers of Historic Places on December 28, 2004. The addition of the weir and headrace to the opinion of eligibility represent a boundary expansion for the Little Falls Laundry to include the footprint of both additional resources.

The HPO would like to note that based on historic map research, the headrace associated with the Little Falls Laundry appears to predate the construction and operation of the Laundry itself. The 1877 E.B. Hyde and Co. Passaic County Atlas clearly shows the presence of the headrace within the subject property. Previous consultation with the Army Corps of Engineers identified this resource as the Sindle/Van Ness Raceway System. While the headrace may have been repurposed during the twentieth-century to accommodate the Little Falls Laundry, the HPO would like to point out that additional industrial resources predating the Little Falls Laundry may be present along the headrace alignment. As a result, these potential historic properties should be considered in any future research pertaining to the area surrounding the headrace.

Two additional historic properties were also identified during Phase I survey: the Morris Canal Aqueduct Site and sites relating to the Marley Mill, including the Marley Mill Dam. At this point in time however, detailed project plans were not available for review and comment. As a result, while the HPO does not dispute that these historic properties are present, project effects on these historic properties cannot be evaluated until detailed project plans associated with the Peckman River Flood Control project become available. Once detailed project plans are developed, they should be submitted to the HPO for review and comment. Only then can the HPO assess project effects on the identified resources.

In addition to the historic properties identified, the report also recommends that archaeological monitoring be employed during construction for the diversion culvert outlet into the Passaic River. It is the opinion of the HPO that this methodology for identification is not appropriate for this portion of the project alignment, based on the information provided. According to the report, geotechnical borings and limited shovel test pit excavation identified the presence of fill along this portion of the project alignment. The report also notes that the excavation of shovel test pits was not sufficient for the identification of historic properties, due to the depth of the fill present.

Based on the information provided it is not clear whether the fill identified represents the archaeological signature of former industrial practices in the area. It is also unclear whether there is potential for earlier historic properties to be present below the historic fill deposits identified. As a result, the HPO recommends that further mechanically assisted Phase I testing be employed to identify the presence or absence of historic period archaeological resources within the project alignment. In addition, a geomorphologist should be employed to review the results from the soil borings to examine the potential for Native American archaeological resources to exist within the APE.

Finally, the HPO requests further clarification regarding Phase IB archaeological testing methodology along the western bank of the Peckman River within the Peckman Preserve property. According to the earlier referenced 1877 E.B. Hyde and Co. Passaic County Atlas, the presence of a structure is notated along this section of the project alignment. Results from the shovel testing program also indicate the presence of historic period domestic artifacts within the Peckman Preserve. The HPO requests further clarification regarding why a more intensive testing protocol was not employed within the vicinity of this historic structure to identify potential historic properties in this area.

Architecture

The submitted report documented the results of a reconnaissance-level architectural survey of 81 structures within the project's Area of Potential Effects (APE).

The HPO concurs with the consultant's determination that one previously listed property and two properties previously identified as eligible are located within the APE for the proposed undertaking:

The Morris Canal was listed in the New Jersey Register of Historic Places on November 26, 1973 and the National Register of Historic Places on October 1, 1974.

The Little Falls Laundry was determined eligible for listing in the New Jersey and National Registers of Historic Places in a SHPO Opinion of Eligibility on December 28, 2004.

The Valve House located at the southwest quadrant of the Francisco Avenue Bridge over the Peckman River (Block 155/Lot 4) was previously identified as a contributing structure within the New Jersey and National Registers of Historic Places eligible Jersey City Water Works Historic District, which received a SHPO Opinion of Eligibility on February 20, 2003.

The consultant recommended one additional resource, the Cedar Grove Railroad Overpass, a single-arch stone masonry span carrying the former Erie Railroad over Cedar Grove Road, eligible for listing in the New Jersey and National Registers of Historic Places. The HPO staff concurs that the structure is potentially eligible, however, at this time, the HPO does not have sufficient information to make a definitive eligibility determination for this resource as no historical background or contextual information was provided in the report.

The consultant concluded that none of the remaining 77 properties possessed architectural or historical significance and recommended them not eligible for the New Jersey and National Registers of Historic Places. The submitted report did not even include photographs and/or approximate dates of construction for many of the properties within the APE. It is important to note that, the New Jersey Guidelines for Architectural Survey (1999) require the completion of an intensive-level survey and the submission of a complete set of architectural survey forms for each property within the APE when a report is being submitted for regulatory purposes. In this particular instance, HPO staff was able to proceed with an evaluation of the properties within the APE based upon staff familiarity with the project area and a review of additional information on file at the HPO. However, in the future, the failure to conduct an appropriate intensive-level survey that includes complete sets of architectural survey forms could result in significant project delays.

The HPO does request that the U.S. Army Corps or its consultant submit a completed set of architectural survey forms for the Cedar Grove Railroad Overpass so that we may evaluate the eligibility of the structure. Please note that the "Eligibility Worksheet" submitted in the report is actually the Base Form. The submission should include a Base Form, Bridge Attachment, Eligibility Worksheet, and Continuation Sheets as needed.

New Jersey Register of Historic Places Act

Please note that from the documents submitted, it appears that a portion of the proposed project is being undertaken within the boundaries of the Morris Canal Historic District. The portion of the Morris Canal Historic district is listed in the New Jersey Register of Historic Places and owned by Little Falls Township. Under the New Jersey Register of Historic Places Act, projects which may impact New Jersey Register listed properties must have prior written authorization from the Commissioner of the Department of Environmental Protection. As such, once detailed project plans are developed, it may be necessary for Little Falls Township to submit an Application for Project Authorization, under the New Jersey Register of Historic Places Act, please see: http://www.nj.gov/dep/hpo/2protection/njrrevew.htm

Additional Comments

Thank you for providing the opportunity to review and comment on the potential for the above-referenced project to affect historic properties. The HPO looks forward to further

HPO Project #11-0128-3 HPO-H2012-211 PROD Page 5 of 5

consultation with the Army Corps of Engineers regarding the further development and implementation of the proposed project. If additional consultation with the HPO is needed for this undertaking, please reference the HPO project number 11-0128 in any future calls, emails, or written correspondence to help expedite your review and response. Please do not hesitate to contact Jesse West-Rosenthal (609-684-6019) of my staff with any questions regarding archaeology or Jonathan Kinney (609-984-0141) of my staff with questions regarding historic architecture.

Sincerely,

Daniel D. Saunders Deputy State Historic Preservation Officer

Cc: Carissa Scarpa - USACE

Attachment 20 NJDEP, Historic Preservation Office Letter – July 17, 2012



DEPARTMENT OF THE ARMY NEW YORK DISTRICT, CORPS OF ENGINEERS JACOB K. JAVITS FEDERAL BUILDING 26 FEDERAL PLAZA NEW YORK, N.Y. 10278-0090

July 17, 2012

Reply to Environmental Analysis Branch

July 17, 2012

Mr. Daniel Saunders Deputy State Historic Preservation Officer Historic Preservation Office New Jersey Department of Environmental Protection CN 404 Trenton, NJ 08625-0404

Re: HPO-A2011-065 11-0128-2 VM Peckman River Flood Damage Reduction Project

Dear Mr. Saunders:

The U.S. Army Corps of Engineers, New York District (District), is pleased to furnish you with a copy of the draft report *Phase I Archaeological Investigation and Architectural Inventory, Peckman River Flood Damage Reduction Project, Borough of Woodland Park (formerly West Paterson) and Townships of Little Falls and Cedar Grove, Passaic and Essex Counties, New Jersey (Enclosure 1). This survey serves as an update to a 1982 cultural resources survey prepared by Richard Hunter. The Area of Potential Effect (APE) for the current study is being defined as an area extending along 50 feet on either side of the Peckman River from the Conrail Bridge along Cedar Grove Avenue in Cedar Grove at its southern limit to the US Route 46 overpass at the Woodland Park/Little Falls boundary. The APE also includes a diversion culvert alignment in Little Falls and flood walls along a portion of the Great Notch Brook in Woodland Park (Enclosure 2). The scope of work for this study included evaluation of new areas that were added to the APE since the 1982 study and the reassessment of the condition and National Register of Historic Places (NRHP) eligibility of all structures within the APE. This survey has been carried out in accordance with a recent consultation letter dated 30 December 2010 (Enclosure 3).*

The study identified four resources eligible for the National Register of Historic Places (NRHP): the Cedar Grove Railroad overpass, Marley Mill site, Morris Canal Aqueduct, and Little Falls Laundry weir and headrace. In addition, there is one listed resource, the Morris Canal, and two resources, the Little Falls Laundry and a valve house associated with the Jersey City Water Supply that had been previously determined eligible for the NRHP that are present within the current APE. The Corps will begin developing alternatives for this project in the

near future and further consultation will be carried out at that time when project effects can be assessed.

At this time we would appreciate receiving any comments in accordance with 36 CFR 800.4 that you may have regarding the enclosed report findings and, of course, an indication of your concurrence with the report's recommendations. Thank you for your assistance in the Section 106 process. If you or your staff require additional information or have any questions, please contact Carissa Scarpa, Project Archaeologist at (917) 790-8612.

Sincerely,

Leonard Houston Chief, Environmental Analysis Branch

Enclosures

Enclosure 2 – Study Area



USGS 7.5 min. Orange and Paterson Quadrangle (1981).

Enclosure 3



DEPARTMENT OF THE ARMY NEW YORK DISTRICT, CORPS OF ENGINEERS JACOB K. JAVITS FEDERAL BUILDING 26 FEDERAL PLAZA NEW YORK, N.Y. 10278-0090

December 30, 2010

Environmental Analysis Branch

Mr. Daniel Saunders Deputy State Historic Preservation Officer Historic Preservation Office New Jersey Department of Environmental Protection CN 404 Trenton, New Jersey 08625-0404



RE: Peckman River Flood Damage Reduction Project

Dear Mr. Saunders:

The U.S. Army Corps of Engineers, New York District (District), is initiating the feasibility phase of the Peckman River Flood Damage Reduction and Ecosystem Restoration project. Your office reviewed this project during the initial reconnaissance phase in 1982 when the Corps submitted the report *Cultural Resources Reconnaissance, Peckman River, Little Falls and West Paterson, NJ* (Hunter et. al. 1982) (Attachments 1 and 2). The Corps is moving forward with a plan which includes channelization, construction of flood walls, and a diversion tunnel. Channelization is proposed along the Peckman River from the Conrail Bridge along Cedar Grove Avenue to a point 500 feet south of the U.S. Route 46 overpass. A diversion tunnel is proposed from the Peckman River at the northern limits of proposed improvements directly west to the discharge into the Passaic River. Flood walls are also proposed along Great Notch Brook.

The Corps will be preparing an environmental impact assessment to ensure that the selected plan is in compliance with applicable laws and regulations. In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, the Corps shall be undertaking a cultural resources survey of the current project area in order to update the archaeological investigations, address areas that were not part of the project in 1982, and to evaluate historic resources that may have only become eligible for the NRHP in recent years. Additionally the survey will investigate the projects potential to impact three historic resources that were identified in the 1982 survey.

More specifically, the survey will include the following:

- 1) Document all architectural features within the APE, specifically the twentieth century elements that were not addressed in 1982.
- 2) Collect twentieth century history and background information on the project area in order to develop a context for the historic bridges and other architectural features from that period and to assess their eligibility for the NRHP.
- 3) Identify the boundaries and features of the NRHP-listed Morris Canal and the NRHPeligible Little Falls Water Treatment Plant, and reevaluate the eligibility of the Sindle/VanNess Raceway System.
- 4) Conduct a Phase I archaeological survey of the project APE. This includes further investigation into areas that were tested in the 1982 survey as well as new areas including the diversion tunnel and a stretch of channelization along the Peckman River from the Conrail bridge at the southern limits of the project to Fransisco Avenue. The floodwall footprint along Great Notch Brook will not be subject to archaeological investigation due to recent disturbances caused by widening of U.S. Route 46 and the construction of the nearby shopping centers.

The Corps is planning to move ahead with this work in the coming months and would like to have your office's comments regarding how we intend to proceed. Please review the 1982 report and the attached documentation and provide the Corps with your comments pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended. If you or your staff require additional information or have any questions, please contact Carissa Scarpa, Project Archaeologist, at (917)790-8612. Thank you for your assistance.



Sincerely,

Leonard Houston Chief, Environmental Analysis Branch

Flood Risk Management Feasibility Study

Peckman River Basin New Jersey

Final Integrated Feasibility Report and Environmental Assessment

Appendix A8: Impact and Compensatory Mitigation Assessment



February 2020

Peckman River Basin, New Jersey Flood Risk Management Feasibility Study

Appendix A-8: Impact and Compensatory Mitigation Assessment

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Attachment A: Recommended Plan Existing Conditions Worksheet Attachment B: Recommended Plan With Project Conditions Worksheet Attachment C: Mitigation Site Existing Conditions Worksheet Attachment D: Mitigation Solutions/Scales Worksheets

1.0 Introduction

The U.S. Army Corps of Engineers (USACE), New York District (District) in partnership with the New Jersey Department of Environmental Protection (NJDEP) has developed feasibility level plans to provide flood risk management for the Town of Little Falls and the Borough of Woodland Park, Passaic County, New Jersey.

The Recommended Plan is comprised of the following:

- Construction of 1,487 linear ft of floodwall along the Peckman River;
- Construction of 1,890 linear ft of levee along the right bank of the Peckman River;
- Installation of a weir in the Peckman River that will divert flood water into a 1,500 ft long diversion culvert that will discharge into the Passaic River. A riprap stilling basin at the outlet of diversion channel will be installed on the right bank of the Passaic River;
- Approximately 1,848 ft of channel modification within the Peckman River in the form of creating a trapezoidal channel armored with riprap; and
- Treatment of approximately 58 structures located within the 10-yr floodplain with nonstructural measures in the Town of Little Falls.

In total, approximately 2.14 acres of riparian habitat, 0.87 acres of streambank vegetation and 1,848 linear feet equaling to 1.70 acres of open water will be impacted by the project. USACE regulations stipulate that the recommended plan must contain sufficient mitigation measures to ensure that the plan selected will have no more than negligible net adverse impacts on fish and wildlife resources, including impacts of the mitigation measures themselves. This is accomplished through use of a functional assessment model and incremental cost analysis.

This document precedes the incremental cost analysis (Appendix A-9) by describing the method utilized to evaluate impacts, determining whether compensatory mitigation is required, and describing the potential compensatory mitigation solutions and scales that will be evaluated in the incremental cost analysis. Discussions of the selected compensatory mitigation plan, post construction monitoring, and adaptive management are located in Appendix A-10.

1.1 Impact and Mitigation Assessment Method

The District is using the High Gradient Stream Habitat Assessment Worksheet (Worksheet) developed as part of the U.S. Environmental Protection Agency Rapid Bioassessment Protocol (EPA RBP) to evaluate existing conditions and future with project conditions of the Recommended Plan and compensatory mitigation measures. The Worksheet is an integral component to the New Jersey High Gradient Macroinvertebrate Index (NJHGMI) and Northern New Jersey Fish Index of Biological (Northern NJFIBI) Integrity models. These models, including the Worksheet and the method by which it would be employed in analyzing impacts and compensatory mitigation needs, were approved for regional use by the USACE Headquarters Model Certification Team in February 2014.

The High Gradient Stream Assessment Worksheet consists of a table comprised of ten Habitat Parameters, and four Condition Categories (Optimal, Suboptimal, Marginal and Poor) with a numerical scale of 0 to 20 that is used to evaluate and rate each Habitat Parameter.

The ten Habitat Parameters identified on the High Gradient Stream Habitat Assessment Worksheet are as follows:

- 1. Epifaunal Substrate/ Available Cover
- 2. Substrate Embeddedness
- 3. Velocity/Depth Combinations
- 4. Sediment Deposition
- 5. Channel Flow Status
- 6. Channel Alteration
- 7. Frequency of Riffles
- 8. Bank Stability
- 9. Bank Vegetative Protection
- 10. Riparian Vegetative Zone Width

The scores of each parameter are added together to create a total value. The total score is then compared to the habitat scoring chart to establish habitat quality as defined below.

Habitat Score	Value
Optimal	160-200
Sub-Optimal	110-159
Marginal	60-110
Poor	<60

In assessing impacts and compensatory mitigation needs, the Worksheet is first used to assess and score existing conditions of the Peckman River within the Recommended Plan footprint (Attachment A). A "With Project Conditions" Habitat Score/Value is generated based on the potential impacts of the Recommended Plan (Attachment B). The Existing Conditions and With Project Conditions are compared to each other to determine whether compensatory mitigation is required.

When compensatory mitigation is necessary, a Habitat Score/Value is assigned to the existing conditions of the proposed mitigation site (Attachment C). A series of mitigation measures, called solutions, and scales are then formulated. Each solution and scale is assigned a Habitat Score/Value (Attachment D). The solutions and scales are then used to create various alternatives that are analyzed incrementally to determine the most cost effective compensatory mitigation solution.

Based on the analysis in Sections 3 and 4 of this document, mitigation has been determined necessary to compensate for impacts resulting from implementation of the Recommended Plan. Section 6 discusses the mitigation solutions and scales that will be analyzed in the incremental cost analysis. The alternatives generated, incremental analysis and results are included in Appendix A-9.

2.0 Description of the Peckman River

The Peckman River originates in the Township of West Orange and flows north for approximately 8.5 miles before its confluence with the Passaic River in the Borough of Woodland Park (Figure 1). The Peckman River watershed is 9.8 square miles. The majority of the watershed is heavily developed with half of the development within the basin comprised of residential housing. Undeveloped areas of remaining forest, reservoirs, and wetlands along the river corridor comprise only 29 percent of the basin. The resultant development in the watershed has reduced the water holding capacity of the landscape and altered the natural dynamics of the river system leading to the interrelated problems of flooding and ecosystem degradation. Primary forms of ecosystem

degradation include stream bank erosion, loss of riparian habitat, and the occurrence of invasive species.

The Peckman River and its tributaries, including Great Notch Brook, are designated as FW2-NT by NJDEP. By definition, designated uses for FW2 waters include: 1) maintenance, migration and propagation of the natural and established biota; 2) primary contact recreation; 3) industrial and agricultural water supply; 4) public potable water supply after conventional filtration treatment and disinfection; and 5) any other reasonable uses. Non-trout (NT) waters are those "not generally suitable for trout because of their physical, chemical, or biological characteristics but are suitable for a wide variety of other fishes" (NJDEP, 2016).

The NJDEP Bureau of Freshwater and Biological Monitoring (BFBM) conducts monitoring of surface water quality through a combination of chemical analyses and surveys of macroinvertebrates and/or fish surveys. Based on the composition of species found in NJDEP fish and macroinvertebrate surveys, the water quality of the Peckman River is indicative of a system that has experienced moderate to major changes in structure of the biological community, and moderate changes in ecosystem function. It is not attaining the designated aquatic life uses. Therefore, it falls below the acceptable regulatory range and is considered impaired based on Federal Clean Water Act standards (NJDEP BFBM, 2013; NJDEP BFBM, 2011; Miller, 2012).

Evaluations of the habitat within the macroinvertebrate and fish monitoring stations conducted by NJDEP BFBM during fish and benthic surveys noted characteristics consistent with a stressed aquatic communities. These characteristics included sediment deposition, channel modifications, severe bank erosion, and a limited riparian zone. In addition, water testing indicated high conductivity, which can be an indicator of a high level of dissolved solids often times attributed to stormwater runoff in urban areas (NJDEP BFBM, 2011).

The District conducted macroinvertebrate and fish surveys using the NJHGMI and Northern NJFIBI survey methods within the Peckman River in September 2010. Based on species collected, the conclusion regarding the water quality reached by the District was the same as the NJDEP BFBM: the Peckman River is impaired. As part of these surveys, the District also conducted a stream habitat assessment of approximately 3,700 feet of the Peckman River using the Worksheet. The 2010 stream assessment determined that the reaches surveyed exhibited "suboptimal" habitat. Factors contributing to the suboptimal rating include alterations to the river channel, a high level of embeddedness, and moderate sediment deposition, and a lack of riparian zone (District, 2010b).



Figure 1: Peckman River Basin

 Peckman River Basin Flood Risk Management Feasibility Study

 Study Area
 Vigor Study Area

 US Army Corps of Engineers. New York District
 0
 1
 2
 3
 Vigor Study Area
 Area NJ Of Detail

Peckman River Basin Flood Risk Management Feasibility Study, Passaic County, NJ

3.0 Peckman River Existing Conditions within Recommended Plan Footprint

The portion of Peckman within the Recommended Plan footprint has been subject to modification and development. The average width of the river is 40 ft. Substrate is predominantly comprised of cobble, rock and gravel with riprap and/or boulders placed in several locations to prevent erosion of the bank. Due to the variation in the level of disturbance to the riparian zone and riverbanks, the Recommended Plan footprint was broken into three reaches (Figure 2) to more accurately describe existing conditions. Note that for orientation purposes, direction of bank is based on a downstream viewpoint.

3.1 Recommended Plan Reach 1

Recommended Plan Reach 1 (Photos 1 and 2) is approximately 547 linear ft in length. Land use within this reach comprises of a townhome complex along the left streambank and municipality owned land comprised of an undeveloped forested tract and a baseball field along the right bank. Significant sediment deposition in the Peckman River has occurred within this reach to form large gravel bars ranging from 0.12 to 0.14 acres in size. The average bottom channel width is 40 ft with the exception of a 200 ft section where the bottom width is approximately 75 ft. However, in this location the formation of the large gravel bars in this area has reduced the wetted perimeter of the channel to approximately 25 ft. Moderate to severe bank erosion also occurs within this reach, particularly in the location of the gravel bars. The width of the riparian zone along the left bank ranges between 25-50 ft. The width of the riparian zone along the right riverbank exceeds the 50 ft regulated riparian zone established by the New Jersey Flood Hazard Area Control Act Rules (NJFHACA Rules).



Photo 1: Recommended Plan Reach 1 Looking Downstream



Figure 2: Recommended Plan Reaches

3.2 Recommended Plan Reach 2

Recommended Plan Reach 2 is approximately 645 linear ft in length (Photos 2 and 3). Land use within this reach is comprised of the Town of Little Falls Department of Public Works (DPW) property along the left bank and undeveloped municipally owned land along the right bank. Similar to Reach 1, sediment deposition has occurred to form several large gravel bars. As an example, a large gravel bar approximately 0.13 acres in size is located at the most upstream portion of this reach. The average channel width is 40 ft with a wetted perimeter ranging from 30-40 ft. Both banks in this location have been stabilized with riprap with a concrete retaining wall also occurring along the left bank at the DPW property. The average riparian width along the left bank is 0-1 ft with existing vegetation predominantly comprised of invasive Japanese knotweed occurring along the immediate streambank. The average riparian width along the right bank exceeds the 50 ft NJFHACA Rules regulated riparian zone.



Photo 2: Recommended Plan Reach 2 Looking Upstream at Right Bank

Photo 3: Lower Portion of Recommended Plan Reach 2/Upper Portion of Reach 3 View of Right Bank



3.3 Reach 3

Reach 3 is approximately 656 ft in length. Land use within this reach is comprised of the Little Falls Department of Public Works property and commercial properties along the left bank and a car dealership along the right bank (Photo 4). Although there is some sediment deposition in this reach, it is lacking the large gravel bars that occur within Reaches 1 and 2. The average bottom width of channel and wetted perimeter is approximately 40 ft. Both river banks have been stabilized with large boulders. The average width of riparian zone on the left bank is 10 ft and is predominantly comprised of invasive species such as Japanese knotweed and tree of heaven. The riparian zone of the right bank has been developed right up to the bank with a parking lot of a car dealership. Vegetation along the right bank is limited to the immediate streambank.



Photo 4: Recommended Plan Reach 3 Looking at Right Bank

3.4 Existing Conditions Habitat Score

Table 1 presents the scoring and rationale for each parameter.

Parameter	Score	Rationale		
1. Epifuanal Substrate/Available Cover	8	Based on visual observation in areas where river access was available. Upper portion of Recommended Plan footprint		
2. Substrate Embeddedness	9	Based on visual observation in areas where river access was available.		
3: Velocity/Depth Combinations	10	Based on visual observation in areas where river access was available.		
4: Sediment Deposition	5	Based on visual observation in areas where river access was available and review of aerial photos. Approximately 41% of the total channel length within the Recommended Plan footprint has the presence of large gravel bars.		
5: Channel Flow Status	10	Based on visual observation in areas where river access was available and review of aerial photos. Approximately 41% of the total channel length within the Recommended Plan footprint has a reduced wetted perimeter due to the presence of large gravel bars.		
6: Channel Alteration	7	Based on visual observation and review of aerial photos. Approximately 55% of total length of river within the Recommended Plan footprint has undergone some type of		

Peckman River Basin Flood Risk Management Feasibility Study, Passaic County, NJ

		alteration in th installation.	ne form of	retaining	wall	and/or	riprap	
7.Frequency of Riffles	7	Based on visual observation during field visits in areas where river access was available.						
8. Bank Stability	LB:5	Based on visual observation during field visits in areas where river access was available. Reach 1 of Recommended Plan footprint had the highest occurrences of unstable bank/bank erosion.						
	RB: 4	Based on visual observation during field visits in areas where river access was available. Reach 1 of Recommended Plan footprint had the highest occurrences of unstable bank/bank erosion.						
9.Bank Vegetative Protection	observation s available. mprised of eed and tree	during field Approxima invasive pl e of heaven	l visits i tely 60º ant spe	n areas % of the ecies su	where e bank uch as			
	RB:3	Based on visual observation during field visits in areas where river access was available.						
10. Riparian Vegetative Zone WidthScore based on average w length of left bank within I lacking a riparian zone.					ximately ded Pla	y 70% d an footp	of total print is	
	RB:5	Score based on average width. Approximately 64% of total length of the right bank within the Recommended Plan footprint meets near maximum score criteria (10). However, riparian zone width of the remaining (36% of total length) is less than 10 ft and comprised of invasive plant species resulting in lower average score.						
Total Habitat Score	80	Habitat Value	Marginal					

4.0 Impact Assessment

The below sections briefly summarize the Recommended Plan features and potential impacts within each Recommended Plan Reach.

4.1 Reach 1

The Recommended Plan features within this reach include the channel modifications. The channel modifications entail creating a trapezoidal channel with a 40 ft bottom and 3:1 side slopes. The channel and side slopes will be armored with riprap. Overall changes to channel profile are negligible. Riparian vegetation removed for construction will be restored with native species along both banks. The post construction riparian zone will exceed the 59 ft optimal score along the right riverbank. Vegetation along the riverbanks will not be restored.

4.2 Reach 2

The Recommended Plan features within this reach include channel modifications, 260 linear ft of floodwall and 315 linear ft of levee set back from the right riverbank. The channel modifications entail creating a trapezoidal channel with a 40 ft bottom and 3:1 side slopes. The channel and side slopes will be armored with riprap. Overall changes to channel profile are negligible.

There will be no changes to riparian zone on left bank since none exists. Riparian vegetation on right bank will be restored with native vegetation after construction of the channel modification, floodwall and levee. On average, the post construction riparian zone will be 50 ft. Vegetation along the immediate bank will be removed and not restored.

4.3 Reach 3

The Recommended Plan features within this reach include the weir to the diversion culvert, the stilling basin, 665 ft channel modification, 500 ft of floodwall along the left bank and 300 linear ft floodwalls along the right bank. Channel modifications are similar to that in Reaches 1 and 2. The stilling basin will be constructed by creating a bench within the river through excavating the streambank. Normal flows will be maintained in the existing channel. The stilling basin will be armored with riprap.

Per USACE Engineering Technical Letter (ETL) 1110-2-583 Guidelines for Landscape Planting and Vegetation Management at Levees, Embankment Dams and Appurtenant Structures, a 15 ft vegetation free zone is required on either side of levees and floodwalls. Therefore, neither the modest riparian zone on left bank in the vicinity of the floodwall, nor the vegetation along the streambank will be restored. There is no riparian zone on the right bank, however, vegetation along the river bank will be removed and will not be restored.

4.4 Habitat Score of With Project Conditions

Table 2 presents the habitat score and rationale of the With Project Conditions.

Parameter	Value	Rationale		
1. Epifuanal Substrate/Available Cover	5	The proposed Recommended Plan will create uniform habitat in the form of angular rock.		
2. Substrate Embeddedness	7	Changes in this parameter are expected to be negligible since most sources of sediment are upstream of the Recommended Plan.		
3: Velocity/Depth Combinations	4	Channel modification is expected to initially create one velocity/depth until sediment deposition process occurs in an amount to create different velocity/depth scenarios.		
4: Sediment Deposition	7	Sediment deposition rates are expected to be similar to pre- project conditions since the primary sources of sediment are located upstream of the Recommended Plan footprint.		
5: Channel Flow Status	11	Based on HEC-RAS modeling, the change in normal and baseflow conditions is negligible. Negligible improvements to channel flow status may improve due to gravel bar removal and creating a uniform 40ft wide channel.		
6: Channel Alteration	0	Entire channel within Recommended Plan footprint will be altered in the form of bank and channel modifications and armoring with riprap.		
7.Frequency of Riffles	5	Channel modification is expected to initially create one velocity/depth until sediment deposition process occurs in an amount to create different velocity/depth scenarios.		
8. Bank Stability	LB:9 RB:9	Although the proposed riprap will harden the streambanks, it will provide bank stabilization.		
9.Bank Vegetative	LB:0	All existing bank vegetation will be removed and replaced		
Protection	RB:0	with riprap as part of the Recommended Plan. Vegetation will not be restored along the bank in order to support project operation, maintenance and inspection.		
10. Riparian Vegetative Zone Width	LB:1	Proposed floodwall will be located within existing riparian zone along left bank. In compliance with USACE policy, a vegetation-free zone is required 15 ft on either side of the floodwall. Therefore, riparian vegetation will not be restored.		

Table 2: Results of With Project Habitat Assessment

	RB:5	Riparian vegetation will be restored following completion of construction activities and will be the same width.		
Total Habitat Score	66	Habitat Score	Marginal	

4.5 Conclusion

In total, approximately 2.14 acres of riparian habitat, 0.85 acres of streambank vegetation and 1,848 linear ft equaling to 1.7 acres of open water will be impacted by the project. Overall, the With Project Conditions Habitat Value is 66 compared to the Existing Habitat Value of 80. Although the With Project Conditions is still within the "Marginal" Habitat Score, the reduction of in values to multiple Parameters, particularly Parameters #6, and #9 trigger the requirement for compensatory mitigation. The overall objective is to ensure that adverse impacts to wetland resources are fully mitigated to meet goal outlined in the April 10, 2008 Federal Wetlands Mitigation Rule and USACE policy of no net loss of wetlands.

Of the 2.14 acres of riparian habitat that will be disturbed, 1.37 acres will be restored on-site and is considered to be a temporary disturbance. The remaining 0.77 acres of riparian vegetation that cannot be restored on site is being considered a permanent direct impact requiring off-site compensatory mitigation. In order to operate, maintain and inspect the channel, the 0.85 acres of streambank vegetation removed within the channel modification will not be restored. Therefore this permanent impact will require off-site compensation.

5.0 Mitigation Site Existing Conditions

The area selected for compensatory mitigation is a 3,284 ft length of the Peckman River immediately upstream of the Recommended Plan footprint (Figure 3). A portion of mitigation site was evaluated by the District in 2010 and rated sub-optimal. However, the storm event in August 2018 caused significant bank erosion, sediment deposition and loss of vegetation along the riverbank resulting in significant in-stream habitat degradation. In addition, many areas where vegetation is still present along the streambanks and the riparian zone is comprised of invasive species such as Japanese knotweed. Therefore, opportunities exist to restore and enhance both in-stream and streambank vegetation within the Mitigation Site. Although small, discreet locations within the Mitigation Site could support the compensatory riparian mitigation, the Peckman Preserve will be the primary location for this compensation.

Similar to the Recommended Plan footprint, the mitigation site was broken up into three reaches due to the variation in the level of disturbance to the riparian zone and riverbanks to more accurately describe existing conditions.

Figure 3: Mitigation Site



Feasibility Study, Passaic County, NJ

5.1 Reach 1

Mitigation Site Reach 1 is approximately 1,350 linear ft in length. Land use within this reach is comprised of the Peckman Preserve, a Passaic County owned passive recreational park, and single family residences. Sediment deposition has occurred to form several large gravel bars ranging from 0.04 acres to 0.13 acres in size. The average channel width is 40 ft with a wetted perimeter ranging from 30-40 ft. Remnants of an abandoned dam spillway located in the river are located in the lower portion of this reach. The dam was removed in 2011 to help reduce flooding.

Alteration of the streambanks has occurred in this reach in the form of stone and concrete retaining walls. The August 2018 storm severely impacted this reach in terms of bank erosion and removal of bank vegetation (Photos 5 and 6). The average riparian width along the left bank exceeds the 50 ft NJFHACA regulated riparian zone, but is heavily comprised of invasive Japanese knotweed. The average riparian width along the right bank is 20 ft.

Photo 5: Mitigation Site Reach 1: Peckman River Looking Upstream





Photo 6: Mitigation Site Reach 1 : Peckman River looking Downstream

5.2 Reach 2

Mitigation Site Reach 2 is approximately 1,100 linear ft in length. Land use within this reach is predominantly comprised of commercial properties along both banks. The average channel width is 40 ft with a wetted perimeter width of 40 ft. Both banks within various location of this reach have been modified into concrete retaining walls or have been stabilized with concrete (Photo 7). The average riparian width along both banks is less than five feet with existing vegetation occurring along the immediate streambank.

Photo 7: Mitigation Site Reach 2: Peckman River looking at right streambank



5.3 Reach 3

Mitigation Site Reach 3 is approximately 834 linear ft in length, and is located immediately above the Recommended Plan footprint. Land use within this reach is comprised of single and multiple family residences, and township owned property containing a baseball field. Similar to Reach 1, sediment deposition has occurred to form several large gravel bars ranging from 0.25 to 0.33 acres in size. The average channel width is 40 ft with the exception of where the gravel bars have reduced the wetted perimeter to 25ft. The average riparian width along the left bank exceeds the 50ft NJFHACA regulated riparian zone. The average riparian width along the right bank is 45ft.



Photo 8: Mitigation Site Reach 3, Peckman River Looking Upstream
5.4 Mitigation Site Existing Conditions Habitat Score

Table 3 presents the habitat score and rationale of the With Project Conditions.

Table 3: Mitigation Site Evaluation Results

Parameter	Value	Rationale		
1 Epifuanal		Based on visual observation in areas where river access v		
Substrate/Available Cover	6	available.		
2. Substrate	7	Based on visual observation in areas where river access was		
Embeddedness	(available.		
3: Velocity/Depth	2	Based on visual observation in areas where river access was		
Combinations	3	available.		
4: Sediment Deposition		Based on visual observation in areas where river access was		
	3	available and review of aerial photos. Approximately 54% of		
	5	the total channel length within the mitigation site has the		
		presence of large gravel bars.		
5: Channel Flow Status		Based on visual observation in areas where river access was		
	7	available and review of aerial photos. Approximately 54% of		
	'	the channel within the mitigation site has a reduced wetted		
		perimeter due to the formation of gravel bars.		
6: Channel Alteration		Based on visual observation and review of aerial photos.		
		Approximately 34% of total length of river within the mitigation		
	11	site footprint has undergone some type of alteration in the		
		form of retaining walls and/or riprap installation and remnants		
		of an old dam empedded into the left riverbank.		
7.Frequency of Rimes	9	Based on visual observation during field visits in areas where		
9. Dopk Stability		liver access was available.		
o. Dank Stability	10.2	based on visual observation during field visits in areas where		
	LD.Z	aite had high accurrences of unstable hanks/hank crossion		
		Site flad flight occurrences of unstable ballks/ballk elosion.		
	DB-3	river access was available. Reach 1 of the mitigation site had		
	IND.5	the highest occurrence of unstable banks/bank erosion		
9 Bank Vegetative		Based on visual observation during field visits in areas where		
Protection	IB·2	river access was available. Reach 1 of the mitigation site was		
	LD.Z	the most lacking in bank vegetative protection		
		Based on visual observation during field visits in areas where		
	RB·3	river access was available. Reach 1 of the mitigation site was		
	112.0	the most lacking in bank vegetative protection.		
10. Riparian Vegetative		Score based on average width. Only 17% total length of the		
Zone Width		left bank within the mitigation site meets the width for the		
	LB: 5	maxium score. The riparian width of the remaining 83% is less		
		than five feet and/or comprised of invasive species resulting		
		in a lower average score.		
	RB:4	Score based on average width.		
Total Habitat Score	67	Habitat Value Marginal		

6.0 **Compensatory Mitigation Solution Development**

The overall objective of the compensatory mitigation is to ensure no net loss of freshwater riverine habitat functions, including water quality. Constraints requiring consideration in the formulation of compensatory mitigation solutions include the urbanized nature of the watershed and compatibility with the function of the Recommended Plan.

Three solutions with associated scales were developed to be analyzed in the incremental cost analysis: a) in-stream structures; b) bank vegetative protection; and c) riparian zone. For cost estimating purposes, bendway weirs were assumed for the in-stream compensatory mitigation solution and live stakes were assumed for the bank vegetative protection. Further description of each solution and scale are below. As mentioned in section 1.1, the alternatives generated and results of the incremental cost analysis are presented in Appendix A-9.

6.1 In-Stream Solution

Bendway weirs are rock structures that are installed on outer bends of river meanders to help deflect flow away from the bank to reduce erosion. However, these structures also create aquatic habitat utilized by fish and aquatic macroinvertebrate species. Surveys conducted within the Mississippi River by the USACE St. Louis District in 1997 found higher densities and diversity of fish species within bendway weir fields than in natural, degraded reaches of the River (USACE, 1997). Surveys conducted by others also found that the structures can improve fish and aquatic invertebrate habitat through the establishment and maintenance of pools (Kinzil and Myrick 2009).

Bendway weirs have been successfully utilized at the Green Brook Flood Risk Management Project (Photo 9) constructed by the District in Bound Brook, Somerset County, NJ. The structures were implemented as part of an emergency streambank project in 2014 to reduce erosion occurring at one of the floodwalls. The weirs are still in place, have reduced the level of erosion along the floodwall, and have not interfered with the function of the overall flood risk management system.

A full hydrologic and hydraulic analysis evaluating the use/function of the bendway weirs in the Peckman River will be conducted in the Preconstruction Engineering Design Phase. However, the use of these structures could benefit the function of the Recommended Plan by reducing sources of upstream sediment.

Table 4 presents the scales and habitat value for the in-stream solution. The scales are based on the number of bendway fields installed within the river. Locations of potential bendway fields were based on field visits and are depicted in Figure 4. Parameters 1 through 8 of the Worksheet were used to determine the habitat value. The Worksheets for each scale are located in Attachment D.

Photo 9: Bendway Weirs at Green Brook Flood Risk Management Project Bound Brook, NJ



Table 4: In-stream Measures and Scales

Solution	Scale	Description	Habitat Value
No Action	0	N/A	
Small Bendway	1	1 Field (4 Bendway Weirs)	77
Wiers			
Medium	2	2 Fields (Bendway Weirs)	89
Bendway Weirs			
Large Bendway	3	3 Fields (12 Bendway	111
Weirs		Weirs)	



Figure 4: Locations of Potential Bendway Weir Fields

6.2 Vegetated Streambank

Live stakes are dormant, live woody cuttings of a species with the branches trimmed off (Figure 4). Species typically used include silky dogwood (*Cornus amomum*), red osier dogwood (*Cornus sericea*), black willow (*Salix nigra*), elderberry (*Sambucus Canadensis*), buttonbush (*Cephalanthus occidentalis*). Table 5 presents the scales and habitat score for the vegetative bank solution. Scale 1 represents the no net loss acreage. The amount in Scale 2 represents the maximum acreage that could be restored as determined through site visits and aerials. Parameter 9 was used to determine the habitat value. The Worksheets for each scale is located in Attachment D.



Figure 5: Live Stake Typical Detail

Source. NRCS Engineering Field Handbook

Table	5 : `	Vegetative	Bank	Protection	Solutions	and Scales
-------	--------------	------------	------	------------	-----------	------------

Solution	Scale	Description	Habitat Value
No Action			- Faile -
Small Vegetative Bank	1	0.87 acres of bank vegetation	11
Large Vegetative Bank	2	1.94 acres of bank vegetation	17

6.3 Riparian Zone Solution

Table 6 presents the scales and habitat score for the riparian zone solution. As mentioned in Section 6.0, the Peckman Preserve will be the primary location for the riparian mitigation. Table 6 presents the scales and habitat score for the vegetative bank solution. Scale 1 represents the no net loss value while Scales 2 and 3 were based on mitigation ratios required by the NJFHACA Rules. Parameter 10 was used to determine the habitat value. The Worksheets for each scale is located in Attachment D.

Solution	Scale	Description	Habitat Value
No Action			
Small Riparian Zone	1	0.77 acres	10
Medium Riparian Zone	2	1.5 acres	11
Large Riparian Zone	3	2 acres	13

Table 6: Riparian Zone Solution and Scales

7.0 References

- Kinzli, Kristhoph-Dietrich and Christopher A Myrick. Bendway Weirs: Could they create habitat for the Endangered Rio Grande Silvery Minnow. 2009. John Wiley & Sons, Ltd.
- USACE. October, 30, 1997. Fish Populations in Bendway Weir Fields, Results of the November 1996 Hydroacoustic Surveys Performed on the Middle Mississippi River.

Attachment A

TSP Existing Conditions Worksheet

Stream Name: Peckman River	Location: Little Falls, NJ
Site ID# TSP Existing Conditions	Reach Length: 1,848

	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well- suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE: 8	20 19 18 17 16	15 14 13 12 11	10 9 🛞 7 6	5 4 3 2 1 0
ampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
in s	SCORE: 9	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0
neters to be evaluated	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow- shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow- shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
arar	SCORE: 10	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0
ď	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low- gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50- 80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE: 5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools
	SCORE:10	20 19 18 17 16	15 14 13 12 11	0 9 8 7 6	5 4 3 2 1 0

TOTAL SCORE	42
PARAMETERS 1-5:	

Stream Name: Peckman River	Location: Little Falls, NJ
Site ID# TSP Existing Conditions	Reach Length: 1,848

	Habitat Parameter	Condition Category				
		Optimal	Suboptimal	Marginal	Poor	
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
	SCORE: 7	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0	
ed in sampling reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
luat	SCORE: 7	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0	
arameters to be eval	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5- 30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.	
Ъ,	SCORE LB: 5	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
	SCORE RB:4	Right Bank 10 9	8 7 6	5 (4) 3	2 1 0	
	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well- represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; ; less than one- half of the potential plant stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
	SCORE LB: 4	Left Bank 10 9	8 7 6	5 (4) 3	2 1 0	
	SCORE RB:3	Right Bank 10 9	8 7 6	5 4 3	2 1 0	

TOTAL SCORE	30
PARAMETERS 6-10:	

Stream Name: Peckman River	Location: Little Falls, NJ
Site ID# TSP Existing Conditions	Reach Length: 1,848

۲	Habitat Parameter		Condition Category							
acl		Optimal		Suboptimal			Marginal	Poor		
Parameters to be evaluated in sampling rea	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of rij zone >18 meters activities (i. parking lots roadbeds, cl lawns, or cr have not im zone.	Width of riparian zone •18 meters; human ictivities (i.e., parking lots, oadbeds, clear-cuts, awns, or crops) nave not impacted cone.			f riparia 2-18 mo activitio pacteo nimally	an eters; es d zone	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities	
	SCORE: 3	Left Bank	10	9	8	7	6	5 4 3	2 1 0	
	SCORE: 5	Right Bank	10	9	8	7	6	5 4 3	2 1 0	

TOTAL SCORE FOR	8
PARAMETER 10:	

TOTAL HABITAT	80
SCORE	

HABITAT SCORES	VALUE			
(Total)				
OPTIMAL	160-200			
SUB-OPTIMAL	110-159			
MARGINAL	60-109			
POOR	<60			

Attachment B

TSP With-Project Worksheet

Stream Name: Peckman River	Location: Little Falls, NJ
Site ID# TSP Footprint With Project	Reach Length: 1,848

	Habitat Parameter				
		Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well- suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE: 8	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210
ampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
in s	SCORE: 7	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0
neters to be evaluated i	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow- shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow- shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
aran	SCORE: 4	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 (4) 3 2 1 0
ď	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low- gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50- 80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE:7	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools
	SCORE:11	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	543210

TOTAL SCORE	42
PARAMETERS 1-5:	

Stream Name: Peckman River	Location: Little Falls, NJ
Site ID# TSP Footprint With Project	Reach Length: 1,848

	Habitat Parameter	Condition Category								
		Optimal	Suboptimal	Marginal	Poor					
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.					
	SCORE:0	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1(0)					
uated in sampling reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.					
	SCORE:5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	543210					
arameters to be eval	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5- 30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.					
å	SCORE LB: 9	Left Bank 10 9	8 7 6	5 4 3	2 1 0					
	SCORE RB:9	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0					
	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well- represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; ; less than one- half of the potential plant stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.					
	SCORE LB: 0	Left Bank 10 9	8 7 6	5 4 3	2 1 0					
	SCORE RB:0	Right Bank 10 9	8 7 6	5 4 3	2 1					

TOTAL SCORE	24
PARAMETERS 6-10:	

Stream Name: Peckman River	Location: Little Falls, NJ
Site ID# TSP Footprint With Project	Reach Length: 1,848

۲	Habitat Parameter	Condition Category								
acl		Optimal		Suboptimal			Marginal		Poor	
Parameters to be evaluated in sampling res	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.			Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.			Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.		Width of riparian zone <6 meters: little or no riparian vegetation due to human activities
	SCORE: 1	Left Bank	10	9	8	7	6	54	3	2 1 0
	SCORE: 5	Right Bank	10	9	8	7	6	5 4	3	2 1 0

TOTAL SCORE FOR	6
PARAMETER 10:	

TOTAL HABITAT	66
SCORE	

HABITAT SCORES	VALUE
(Total)	
OPTIMAL	160-200
SUB-OPTIMAL	110-159
MARGINAL	60-109
POOR	<60

Attachment C

Mitigation Site Existing Conditions Worksheet

Stream Name: Peckman River	Location: Turnberry Ct/Forested Tract
Site ID# Existing Conditions Mitigation	Reach Length: 3,284
Site	

	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well- suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE: 6	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
ampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
in s	SCORE:7	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0
neters to be evaluated	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow- shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow- shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
arar	SCORE: 6	20 19 18 17 16	15 14 13 12 11	10 9 8 7 (6)	5 4 3 2 1 0
ď	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low- gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50- 80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE: 3	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 (3) 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools
	SCORE: 7	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0

TOTAL SCORE	29
PARAMETERS 1-5:	

Stream Name: Peckman River	Location: Turnberry Ct/Forested Tract
Site ID# Existing Conditions Mitigation	Reach Length: 3,284
Site	

	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization12, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	SCORE: 11	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
ed in sampling reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
luat	SCORE: 9	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
trameters to be eva	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5- 30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
Å,	SCORE LB: 2	Left Bank 10 9	8 7 6	5 4 3	2 1 0
	SCORE RB:3	Right Bank 10 9	8 7 6	5 4 3	2 1 0
	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well- represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; ; less than one- half of the potential plant stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
	SCORE LB: 2	Left Bank 10 9	8 7 6	5 4 3	(2) 1 0
	SCORE RB: 3	Right Bank 10 9	8 7 6	5 4 3	2 1 0

TOTAL SCORE	30
PARAMETERS 6-10:	

Stream Name: Peckman River	Location: Turnberry Ct/Forested Tract
Site ID# Existing Conditions Mitigation	Reach Length: 3,284
Site	

_	Habitat Parameter	Condition Category			
ach		Optimal	Suboptimal	Marginal	Poor
be evaluated in sampling re	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities
neters to	SCORE: 5	Left Bank 10 9	8 7 6	5 4 3	2 1 0
Parar	SCORE: 4	Right Bank 10 9	8 7 6	5 4 3	2 1 0

TOTAL SCORE FOR	9
PARAMETER 10:	

TOTAL HABITAT	67	
SCORE		

HABITAT SCORES	VALUE
(Total)	
OPTIMAL	160-200
SUB-OPTIMAL	110-159
MARGINAL	60-109
POOR	<60

Attachment D

Mitigation Solutions and Scale Worksheets

Bendway Weirs

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Alternative: 4 Bendway Weirs

	Habitat Parameter	Condition Category								
		Marginal	Poor							
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well- suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.					
	SCORE: 8	20 19 18 17 16	15 14 13 12 11	10 9 🛞 7 6	5 4 3 2 1 0					
ampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.					
n s	SCORE: 10	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0					
eters to be evaluated ir	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow- shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow- shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).					
arar	SCORE: 9	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0					
ď	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low- gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50- 80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.					
	SCORE: 6	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0					
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools					
	SCORE: 9	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0					

TOTAL SCORE	48
PARAMETERS 1-5:	

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Alternative: 4 Bendway Weirs

	Habitat Parameter		Condition Category								
		Optimal	Suboptimal	Marginal	Poor						
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.						
	SCORE: 10	20 19 18 17 16	15 14 13 12 🛈	10 9 8 7 6	5 4 3 2 1 0						
	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.Generally all flat water or shallow riffle poor habitat; distance between riffles divide by the width of the stream is a ratio of >25.							
134	SCORE: 11	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0						
	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5- 30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.						
	SCORE LB: 5	Left Bank 10 9	8 7 6	5 4 3	2 1 0						
	SCORE RB: 3	Right Bank 10 9	8 7 6	5 4 3	2 1 0						
	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well- represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; ; less than one- half of the potential plant stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.						
	SCORE LB: N/A	Left Bank 10 9	8 7 6	5 4 3	2 1 0						
	SCORE RB: N/A	Right Bank 10 9	8 7 6	5 4 3	2 1 0						

TOTAL SCORE	29
PARAMETERS 6-10:	

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Alternative: 4 Bendway Weirs

_	Habitat Parameter		Condition Category									
ach		Optimal		Suł	Suboptimal		Marginal			Poor		
be evaluated in sampling re	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.		Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.			Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.			Width of riparian zone <6 meters: little or no riparian vegetation due to human activities		
neters to	SCORE: N/A	Left Bank 10 9		8	7	6	5	4	3	2	1	0
Parar	SCORE: N/A	Right Bank 10 9		8	7	6	5	4	3	2	1	0

TOTAL SCORE FOR	N/A
PARAMETER 10:	

TOTAL HABITAT	77
SCORE	

HABITAT SCORES (Total)	VALUE
OPTIMAL	160-200
SUB-OPTIMAL	110-159
MARGINAL	60-109
POOR	<60

Stream Name: Peckman RiverLocation: Peckman PreserveSite ID# Mitigation SiteAlternative: 8 Bendway Weirs

	Habitat Parameter								
		Optimal	Suboptimal	Marginal	Poor				
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well- suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.				
	SCORE:11	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0				
ampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.				
s u	SCORE: 12	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0				
neters to be evaluated in	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow- shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow- shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).				
arar	SCORE: 11	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0				
Pe	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low- gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50- 80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.				
	SCORE:9	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0				
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools				
	SCORE: 12	20 19 18 17 16	15 14 13 (12)11	10 9 8 7 6	5 4 3 2 1 0				

TOTAL SCORE PARAMETERS 1-5:	55

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Alternative: 8 Bendway Weirs

Habitat Parameter					
	Optimal	Suboptimal	Marginal	Poor	
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE: 11	20 19 18 17 16	15 14 13 12 1	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.	
SCORE: 13	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5- 30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.	
SCORE LB: 6	Left Bank 10 9	8 7 6	543	2 1 0	
SCORE RB: 4	Right Bank 10 9	8 7 6	5 (4) 3	2 1 0	
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate the bank) More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to remaining. 70-90% of the streambank surfaces streambank surfaces vegetation, but o class of plants is well- represented disruption evider more than one-h the potential plan stubble height remaining.		50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; ; less than one- half of the potential plant stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE LB: N/A	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE RB: N/A	Right Bank 10 9	8 7 6	5 4 3	2 1 0	

TOTAL SCORE	34
PARAMETERS 6-10:	

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Alternative: 8 Bendway Weirs

۔	Habitat Parameter		Condition Category									
ach		Optimal		Suboptimal N		Marginal		Poor				
Parameters to be evaluated in sampling rea	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters: human activities of parking lots, roadbeds, clear-cu lawns, or crops) have not impacte zone.	; (i.e., uts, d	Width o 12-18 m activitie: impacte minimal	f riparia neters; s have d zone ly.	an zone human only	Width of 6- 12 me activities impacted great dea	ripar ters; have I zon al.	ian zone human e e a	Width of <6 meter riparian v due to hu activities	ripari 's: littl /eget uman	an zone le or no ation
	SCORE: N/A	Left Bank 10	9	8	7	6	5	4	3	2	1	0
	SCORE: N/A	Right Bank 10	9	8	7	6	5	4	3	2	1	0

TOTAL SCORE FOR	
PARAMETER 10:	

TOTAL HABITAT	89
SCORE	

HABITAT SCORES	VALUE
(Total)	
OPTIMAL	160-200
SUB-OPTIMAL	110-159
MARGINAL	60-109
POOR	<60

Stream Name: Peckman RiverLocation: Entire ReachSite ID# Mitigation SiteAlternative: 12 Bendway Weirs

	Habitat Parameter	Condition Category						
		Optimal	Suboptimal	Marginal	Poor			
	1. Epiraunal Greater than 70% of 40-70 Substrate/ substrate favorable stable Available Cover for epifaunal suited colonization and fish coloni cover; mix of snags, adequ submerged logs, maint undercut banks, popul cobble or other prese stable habitat and at additi stage to allow full in the colonization potential newfa (i.e., logs/snags that prepa are not new fall and coloni not transient). rate a		40-70% mix of stable habitat; well- suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.			
	SCORE:14	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
eters to be evaluated in sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.			
	SCORE: 15	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow- shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow- shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).			
aran	SCORE: 14	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
P,	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low- gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50- 80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.			
	SCORE: 14	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools			
	SCORE: 15	20 19 18 17 16	14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			

TOTAL SCORE PARAMETERS 1-5:	72

Stream Name: Peckman River	Location: Entire Reach
Site ID# Mitigation Site	Alternative: 12 Bendway Weirs

	Habitat Parameter	Condition Category						
		Optimal	Suboptimal	Marginal	Poor			
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.			
	SCORE: 11	20 19 18 17 16	15 14 13 12 (1)	10 9 8 7 6	5 4 3 2 1 0			
	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.			
	SCORE: 16	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5- 30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.			
	SCORE LB: 6	Left Bank 10 9	8 7 6	543	2 1 0			
	SCORE RB: 6	Right Bank 10 9	8 7 6	543	2 1 0			
	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well- represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; ; less than one- half of the potential plant stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.			
	SCORE LB: N/A	Left Bank 10 9	8 7 6	5 4 3	2 1 0			
34	SCORE RB: N/A	Right Bank 10 9	8 7 6	5 4 3	2 1 0			

TOTAL SCORE	39
PARAMETERS 6-10:	

Stream Name: Peckman River	Location: Entire Reach
Site ID# Mitigation Site	Alternative: 12 Bendway Weirs

۔	Habitat Parameter	Condition Category										
ach		Optimal		Su	boptir	nal	Ma	argir	nal	Poor		
be evaluated in sampling re	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters human activities parking lots, roadbeds, clear-c lawns, or crops) have not impacte zone.	; (i.e., uts, ed	Width o 12-18 m activitie impacte minimal	f riparia neters; s have d zone ly.	an zone human only	Width of 6- 12 me activities impacted great dea	ripar sters; have d zon al.	ian zone human e e a	Width of <6 meter riparian v due to hu activities	ripari 's: littl /egeta uman	an zone e or no ation
neters to	SCORE: N/A	Left Bank 10	9	8	7	6	5	4	3	2	1	0
Paran	SCORE: N/A	Right Bank 10	9	8	7	6	5	4	3	2	1	0

TOTAL SCORE FOR	N/A
PARAMETER 10:	

TOTAL HABITAT	111
SCORE	

HABITAT SCORES	VALUE
(Total)	
OPTIMAL	160-200
SUB-OPTIMAL	110-159
MARGINAL	60-109
POOR	<60

Vegetated Streambank

Stream Name: Peckman River	Location: Peckman Preserve			
Site ID# Mitigation Site	Alternative: Small Bank Vegetation			

	Habitat Parameter	Condition Category							
		Optimal	Poor						
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well- suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.				
	SCORE:N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
ampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.				
in s	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
neters to be evaluated i	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow- shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow- shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).				
arar	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
ď	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low- gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50- 80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.				
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools				
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				

TOTAL SCORE	N/A
PARAMETERS 1-5:	

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Alternative: Small Bank Vegetation

	Habitat Parameter		Condition	Category	
		Optimal	Suboptimal	Marginal	Poor
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5- 30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
	SCORE LB: N/A	Left Bank 10 9	8 7 6	543	2 1 0
	SCORE RB: NA	Right Bank 10 9	8 7 6	5 4 3	2 1 0
	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well- represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; ; less than one- half of the potential plant stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
4	SCORE LB: 6	Left Bank 10 9	8 7 6	5 4 3	2 1 0
34	SCORE RB: 5	Right Bank 10 9	8 7 6	(5) 4 3	2 1 0

TOTAL SCORE	11
PARAMETERS 6-10:	

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Alternative: Small Bank Vegetation

_	Habitat Parameter	Condition Category										
ach		Optimal		Suboptimal M			Marginal		Poor			
be evaluated in sampling re	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.		Width of 12-18 m activities impacted minimall	riparia eters; s have d zone y.	an zone human e only	Width of 6- 12 me activities impacted great de	ripa eters hav d zor al.	rian zone ; human re ne a	Width of <6 meter riparian v due to hu activities	ripari 's: litt /eget uman	an zone le or no ation
neters to	SCORE:N/A	Left Bank 10 9		8	7	6	5	4	3	2	1	0
Parar	SCORE: N/A	Right Bank 10 9		8	7	6	5	4	3	2	1	0

TOTAL SCORE FOR
PARAMETER 10:

TOTAL HABITAT	
SCORE	11

HABITAT SCORES	VALUE
(Total)	
OPTIMAL	160-200
SUB-OPTIMAL	110-159
MARGINAL	60-109
POOR	<60

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Reach A	Alternative: Vegetative Bank Stabilization along entire
_	length of both banks (Large)

	Habitat Parameter	Condition Category				
		Optimal	Suboptimal	Marginal	Poor	
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well- suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.	
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
ampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.	
ins	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
meters to be evaluated	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow- shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow- shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).	
arar	SCORE:N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
L	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low- gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50- 80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.	
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools	
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	

TOTAL SCORE	N/A
PARAMETERS 1-5:	

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Reach A	Alternative: Vegetative Bank Stabilization along entire
_	length of both banks (Large)

Habitat Parameter		Condition Category					
	Optimal	Suboptimal	Marginal	Poor			
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.			
SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.			
SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5- 30% of bank in reach has areas of erosion.	lerately stable; equent, small as of erosion htly healed over. 5- o of bank in reach areas of erosion.Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.				
SCORE LB: N/A	Left Bank 10 9	8 7 6	5 4 3	2 1 0			
SCORE RB: N/A	Right Bank 10 9	8 7 6	5 4 3	2 1 0			
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well- represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; ; less than one- half of the potential plant stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.			
SCORE LB: 9	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0			
SCORE RB: 8	Right Bank 10 9	8 7 6	5 4 3	2 1 0			

TOTAL SCORE	17
PARAMETERS 6-10:	

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Reach A	Alternative: Vegetative Bank Stabilization along entire
	length of both banks (Large)

_	Habitat Parameter	Condition Category										
ach		Optimal		Suboptimal		Marginal			Poor			
be evaluated in sampling re	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.		Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.		Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.		Width of riparian zone <6 meters: little or no riparian vegetation due to human activities				
neters to	SCORE: N/A	Left Bank 10 9		8	7	6	5	4	3	2	1	0
Parar	SCORE: N/A	Right Bank 10 9		8	7	6	5	4	3	2	1	0

TOTAL SCORE FOR	N/A
PARAMETER 10:	

TOTAL HABITAT	17
SCORE	

HABITAT SCORES	VALUE
(Total)	
OPTIMAL	160-200
SUB-OPTIMAL	110-159
MARGINAL	60-109
POOR	<60
Riparian

Stream Name: Peckman RiverLocation: Peckman PreserveSite ID# Mitigation SiteRiparian Alt 1: 0.77 acres

	Habitat Parameter						
		Optimal	Suboptimal	Marginal	Poor		
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well- suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.		
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
mpling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	bble, and ticles are irrounded iment.			
n s	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
leters to be evaluated in	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow- shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow- shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).		
arar	SCORE:N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
с.	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low- gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50- 80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.		
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools		
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		

TOT	AL SCORE	N/A
' כ	AMETERS 1-5	IN/A
AR	RAMETERS 1-5:	
	Habitat Parameter	

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Riparian Alt 1: 0.77 acres

	Optimal	Suboptimal	Marginal	Poor		
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.		
SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.		
SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5- 30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.		
SCORE LB: N/A	Left Bank 10 9	8 7 6	5 4 3	2 1 0		
SCORE RB: N/A	Right Bank 10 9	8 7 6	5 4 3	2 1 0		
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well- represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; ; less than one- half of the potential plant stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.		
SCORE LB: N/A	Left Bank 10 9	8 7 6	5 4 3	2 1 0		
SCORE RB: N/A	Right Bank 10 9	8 7 6	5 4 3	2 1 0		

TOTAL SCORE	N/A
PARAMETERS 6-10:	

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Riparian Alt 1: 0.77 acres

د	Habitat Parameter	Condition Category									
ach		Optima	al	Suboptimal		nal	Marginal		Poor		
Parameters to be evaluated in sampling res	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of ripari zone >18 met human activiti parking lots, roadbeds, clea lawns, or crop have not impa zone.	ian ters; ies (i.e., ar-cuts, os) acted	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.		Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.		Width of <6 meter riparian v due to hu activities	riparia 's: littl /egeta uman	an zone e or no ation	
	SCORE: 6	Left Bank 1	09	8	7	6	5	4 3	2	1	0
	SCORE: 4	Right Bank 1	10 9	8	7	6	5 (4 3	2	1	0

TOTAL SCORE FOR	10
PARAMETER 10:	

TOTAL HABITAT	10
SCORE	

HABITAT SCORES	VALUE
(Total)	
OPTIMAL	160-200
SUB-OPTIMAL	110-159
MARGINAL	60-109
POOR	<60

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Riparian Alternative 2: 1.5 Acres Riparian
_	Restoration

	Habitat Parameter						
		Optimal	Suboptimal	Marginal	Poor		
	Substrate/ Available Cover Available Cover Substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and an stage to allow full colonization potentia (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).		40-70% mix of stable habitat; well- suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	stable habitat; lack of habitat is obvious; substrate unstable or lacking.		
	SCORE: NA	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
ampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.		
in s	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
leters to be evaluated i	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow- shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow- shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).		
arar	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
Ğ	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low- gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50- 80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.		
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools		
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		

TOTAL SCORE	N/A
PARAMETERS 1-5:	

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Riparian Alternative 2: 1.5 Acres Riparian
	Restoration

	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
34	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5- 30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
	SCORE LB: N/A	Left Bank 10 9	8 7 6	5 4 3	2 1 0
	SCORE RB: N/A	Right Bank 10 9	8 7 6	543	2 1 0
	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well- represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; ; less than one- half of the potential plant stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
	SCORE LB: N/A	Left Bank 10 9	8 7 6	5 4 3	2 1 0
	SCORE RB: N/A	Right Bank 10 9	8 7 6	5 4 3	2 1 0

TOTAL SCORE	N/A
PARAMETERS 6-10:	

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Riparian Alternative 2: 1.5 Acres Riparian
	Restoration

_ Habitat Parameter Condition Category					
act		Optimal	Suboptimal	Marginal	Poor
b be evaluated in sampling re	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities
Parameters to	SCORE: 7	Left Bank 10 9	8 7 6	543	2 1 0
	SCORE: 4	Right Bank 10 9	8 7 6	5 4 3	2 1 0

TOTAL SCORE FOR	11
PARAMETER 10:	

TOTAL HABITAT	11
SCORE	

HABITAT SCORES	VALUE
(Total)	
OPTIMAL	160-200
SUB-OPTIMAL	110-159
MARGINAL	60-109
POOR	<60

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Riparian Alternative 3: 2 Acres Riparian Restoration

	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well- suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
ampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0- 25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
ins	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
neters to be evaluated	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow- deep, slow- shallow, fast- deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast- shallow or slow- shallow are missing, score low).	Dominated by 1 velocity/ depth regime (usually slow-deep).
arar	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Ч	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low- gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50- 80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools
	SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

TOTAL SCORE	N/A
PARAMETERS 1-5:	

Stream Name: Peckman River	Location: Peckman Preserve
Site ID# Mitigation Site	Riparian Alternative 3: 2 Acres Riparian Restoration

Habitat Parameter	Condition Category				
	Optimal	Optimal Suboptimal Marginal			
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.	
SCORE: N/A	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction isOccurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 7 to 15.		Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.		
SCORE: NA	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5- 30% of bank in reach has areas of erosion.	Moderately unstable; 30- 60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.	
SCORE LB: N/A	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE RB: NA	Right Bank 10 9	8 7 6	5 4 3	2 1 0	
9. Vegetative Protection (score each bank)	A more than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.		50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; ; less than one- half of the potential plant stubble height remaining	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE LB: N/A	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE RB: N/A	Right Bank 10 9	8 7 6	5 4 3	2 1 0	

TOTAL SCORE	N/A
PARAMETERS 6-10:	

Stream Name: Peckman River	Location: Peckman Preserve	
Site ID# Mitigation Site	Riparian Alternative 3: 2 Acres Riparian Restoration	

_	Habitat Parameter	Condition Category				
ach		Optimal	Suboptimal Marginal		Poor	
b be evaluated in sampling re	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities	
neters to	SCORE: 8	Left Bank 10 9	8 7 6	543	2 1 0	
Paran	SCORE: 5	Right Bank 10 9	8 7 6	5 4 3	2 1 0	

TOTAL SCORE FOR	13
PARAMETER 10:	

TOTAL HABITAT SCORE	

HABITAT SCORES	VALUE
(Total)	
OPTIMAL	160-200
SUB-OPTIMAL	110-159
MARGINAL	60-109
POOR	<60

Flood Risk Management Feasibility Study

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Appendix A9: Cost Effectiveness and Incremental Cost Analysis



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1.0 Introduction

The U.S. Army Corps of Engineers (Corps), New York District (District) in partnership with the New Jersey Department of Environmental Protection (NJDEP) has developed feasibility level plans to provide flood risk for the Town of Little Falls and the Borough of Woodland Park Passaic County, New Jersey.

The Recommended Plan consists of the following elements: a) construction of a 1,500 ft long, 40ft diameter double box diversion culvert that will discharge into the Passaic River. The inlet at the Peckman River includes two weirs to manage flow and create a pool near the inlet; b) construction of 2,107 linear ft of levees and/or floodwalls upstream and downstream of the ponding weir; c) 1,207 linear ft of levees and/or floodwalls in the vicinity of the Little Falls High School; d) approximately 1,848 ft of channel modification within the Peckman River in the form of creating a trapezoidal channel armored with riprap; and e) treatment of approximately 58 structures located within the 10-yr floodplain with nonstructural measures in the Town of Little Falls.

Corps guidance requires a cost effectiveness analysis and an incremental cost analysis for recommended environmental restoration and mitigation plans. A cost effectiveness analysis is conducted to ensure that the last cost solution is identified for each possible level of environmental input. An incremental cost analysis of the solutions is conducted to reveal changes in costs for increasing levels of environmental outputs. In absence of a common measurement unit for comparing the nonmonetary benefits with the monetary costs of environmental plans, cost effectiveness and incremental cost analysis (CE/ICA) are valuable tools to assist in decision making.

The District utilized the Environmental Protection Agency Rapid Bioassessment Protocols (EPA RBP) Stream Assessment Worksheet to evaluate the functions and values of open water systems impacted by the proposed project and determine mitigation needs and derive habitat units. The worksheet is an integral component of the New Jersey High Gradient Macroinvertebrate Index and Northern New Jersey Fish Index of Biological Integrity models which were approved for regional use by the Corps Ecosystem Restoration Planning Center of Expertise in February 2014. The District used the Institute for Water Resources Planning Suite (IWR Planning Suite 2.0.6.1) to evaluate multiple compensatory freshwater riverine scenarios to determine the most cost effective compensatory mitigation plan. The suite is a water resources investment decision support tool, built by the USACE Institute for Water Resources for the formulation and evaluation of ecosystem restoration alternative plans. The cost effectiveness/incremental cost analysis (CE/ICA) approach is consistent with the Principles and Guidelines planning paradigm.

1.1 **Compensatory Mitigation Solutions**

The District is proposing to conduct compensatory freshwater riverine mitigation that includes a riparian component within the Peckman River. Appendix A-8 discusses the mitigation solutions and scales that are to be analyzed in the incremental cost analysis and the mitigation site selected to conduct the compensatory mitigation. The scales used for each solution were 0, 1, 2 and 3 with 0 representing the No Action Plan, 3 expected to provide the greatest ecological uplift, and 1 which is expected to provide the least ecological uplift. Costs and habitat units were created for



each solution and scale and then annualized. The annual costs and average annual habitat unit (AAHU) are presented in Table 1.

Solution	Scale	Identifier	Annual Cost	Average Annual Habitat Unit (AAHU)
Bendway Weir Field (No Action)	0	B0	N/A	N/A
Bendway Weir Field (Small)	1	B1	\$57,925	68.5
Bendway Weir Field (Medium)	2	B2	\$106,270	79.21
Bendway Weir Field (Large)	3	В3	\$155,114	98.79

Table 1: Compensatory Mitigation Solutions and Scales

Solution	Scale	ldentifier	Annual Cost	Average Annual Habitat Unit (AAHU)
Streambank Vegetation (No Action)	0	V0	N/A	N/A
Streambank Vegetation (Small)	1	V1	\$39,068	12.46
Streambank Vegetation (Large)	2	V2	\$59,832	15.13

Solution	Scale	ldentifier	Annual Cost	Average Annual Habitat Unit (AAHU)
Riparian (No Action)	0	R0	N/A	N/A
Riparian (Small)	1	R1	\$51,701	8.4
Riparian (Medium)	2	R2	\$90,587	10.68
Riparian (Large)	3	R3	\$144,640	11.57

Each solution and scale were then input into the IWR Planning Suite Generator function to generate plan combinations. A total of 47 plans were generated for analysis and are presented in Table 2.

Table 2: Compensatory Mitigation Plans

Plan Name	Cost	Output
No Action Plan	\$0.00	0
B1VOR0	\$57,925.00	68.53
B2V0R0	\$106,270.00	79.21
B3V0R0	\$155,114.00	98.79
B0V1R0	\$39,068.00	12.46
B0V2R0	\$59,832.00	15.13
B1V1R0	\$96,993.00	80.99
B2V1R0	\$145,338.00	91.67
B3V1R0	\$194,182.00	111.25
B1V2R0	\$117,757.00	83.66
B2V2R0	\$166,102.00	94.34
B3V2R0	\$214,946.00	113.92
BOVOR1	\$51,701.00	8.4
BOVOR2	\$90,587.00	10.68
BOVOR3	\$144,640.00	11.57
B1VOR1	\$109,626.00	76.93



B2VOR1	\$157,971.00	87.61
B3VOR1	\$206,815.00	107.19
B1V0R2	\$148,512.00	79.21
B2V0R2	\$196,857.00	89.89
B3V0R2	\$245,701.00	109.47
B1VOR3	\$202,565.00	80.1
B2V0R3	\$250,910.00	90.78
B3V0R3	\$299,754.00	110.36
BOV1R1	\$90,769.00	20.86
BOV2R1	\$111,533.00	23.53
BOV1R2	\$129,655.00	23.14
B0V2R2	\$150,419.00	25.81
BOV1R3	\$183,708.00	24.03
B0V2R3	\$204,472.00	26.7
B1V1R1	\$148,694.00	89.39
B2V1R1	\$197,039.00	100.07
B3V1R1	\$245,883.00	119.65
B1V2R1	\$169,458.00	92.06
B2V2R1	\$217,803.00	102.74
B3V2R1	\$266,647.00	122.32
B1V1R2	\$187,580.00	91.67
B2V1R2	\$235,925.00	102.35
B3V1R2	\$284,769.00	121.93
B1V2R2	\$208,344.00	94.34
B2V2R2	\$256,689.00	105.02
B3V2R2	\$305,533.00	124.6
B1V1R3	\$241,633.00	92.56
B2V1R3	\$289,978.00	103.24
B3V1R3	\$338,822.00	122.82
B1V2R3	\$262,397.00	95.23
B2V2R3	\$310,742.00	105.91
B3V2R3	\$359 <i>,</i> 586.00	125.49

The CE/ICA was conducted on plan to determine which alternative was considered the "Best Buy Plan" and the most cost effective compensatory mitigation alternatives. Costs were amortized at the FY2018 discount rate of 2.875% over a 50 year period of analysis.

The cost effectiveness analysis ensures that the least cost plan was identified for each possible level of environmental output; and that for any level of investment, the maximum level of AAHU



output is identified. The "Best Buy" and cost effective plans are identified by an algorithm that measures plans along a frontier of higher output with lower costs (Table 3). **Table 3: Best Buy Plans**

Plan Name	Annual Cost (\$1000)	Average Annual Habitat Unit	CE/ICA Results
No Action	\$0	0	N/A
B1V0RO	\$57	68.53	Best Buy
B1V1R0	\$96	80.99	Best Buy
B3V1R0	\$194	111.25	Best Buy
B3V1R1	\$245	119.65	Best Buy
B3V2R1	\$266	122.32	Best Buy
B3V2R2	\$305	124.60	Best Buy
B2V2R3	\$359	125.49	Best Buy

Incremental Cost Analysis (ICA) calculates the cost per additional AAHU of the Best Buy plans only, which allows for comparison of Best Buy plans across the site study area. An ICA reveals changes in costs as output levels increase, and allows an assessment of whether the increase in output is worth the additional cost. The CE/ICA focuses on break points, where there is a marked increase in incremental costs, beyond the general range of preceding costs, for identifying which Best Buy Plans are Plans of Interest.

2.0 CE/ICA Results

Table 4 and Figures 1 and 2 present the results of the CE/ICA for each plan, the best buy and cost effective plans. A total of seven plans were identified as the Best Buy Plan. Of these seven, three plans – B3V1R1, B3V2R1, B3V2R2, and B2V2R3 - were identified as Plans of Interest, as the other smaller plans do not meet the minimum ecological thresholds to compensate for direct adverse impacts to freshwater riverine habitat from the TSP. Based on the impacts, B3V1R1 is the most cost effective plan that accomplishes the not net loss of functional value and is therefore recommend as the compensatory mitigation plan.



Plan Name	Incremental Cost (\$1000)	Incremental Output	Incremental Cost / Incremental Output	Is it worth it?
No Action	\$0	0	N/A	Minimum unmet
B1V0RO	\$57	68.53	\$0.83	Minimum unmet
B1V1R0	\$96	80.99	\$1.19	Minimum unmet
B3V1R0	\$194	111.25	\$1.74	Minimum unmet
B3V1R1	\$245	119.65	\$2.05	Yes
B3V2R1	\$266	122.32	\$2.17	Yes
B3V2R2	\$305	124.60	\$2.43	Yes
B2V2R3	\$359	125.49	\$2.86	Yes

Table 4: Incremental Cost Analysis





Figure 3: CE/ICA Analysis of All Plans



Peckman River Basin



Figure 4: Best Buy Plans

Peckman River Basin CE/ICA Analysis

Flood Risk Management Feasibility Study

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Integrated Feasibility Report and Environmental Assessment

Appendix A10: Draft Compensatory Mitigation, Monitoring and Adaptive Management Plan



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1.0 Introduction

The U.S. Army Corps of Engineers (Corps), New York District (District) in partnership with the New Jersey Department of Environmental Protection (NJDEP) has developed feasibility level plans to provide flood risk for the Town of Little Falls and the Borough of Woodland Park Passaic County, New Jersey.

In accordance with the Council of Environmental Quality National Environmental Policy Act (NEPA) regulation, mitigation includes (a) avoiding the impact by not taking a certain action or parts of an action; (b) minimizing the impact by limiting the degree of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating or restoring the effected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; (e) compensating for the impact by replacing or providing substitute resources or environments.

This document outlines the feasibility level Compensatory Mitigation, Monitoring and Adaptive Management Plan for the Peckman River Basin Flood Risk Management study, and only addresses the compensatory mitigation method. The other forms of mitigation (e.g. avoidance, minimization, reduction of impact) are addressed within the integrated Draft Feasibility Report/Environmental Assessment.

This plan identifies and describes the mitigation, monitoring and adaptive management activities proposed and the estimated cost of the effort. The general purpose of this plan is to provide a systematic approach for improving resource management outcomes and a structured process for recommending decisions, with an emphasis on uncertainty to improve management.

More specifically, the plan:

- Establishes the method for determining mitigation requirements.
- Establishes the framework for effective monitoring, assessment of monitoring data and decision making for implementation of adaptive management activities in the project area.
- Provides the process for identifying adaptive management actions in the project.
- Establishes decision criteria for vegetation and wildlife evaluation and modification of adaptive management activities.

1.1 **Tentatively Selected Plan Description**

The proposed action is comprised of the following:

• Construction of a 1,500 foot long, 40-foot diameter double box diversion culvert would be constructed between the Peckman and Passaic Rivers to divert floodwater from the Peckman into the Passaic River.

- Channel modifications comprised of creating a trapezoidal channel with a 40 ft bottom and 3:1 side slopes to 1,848 linear ft of the Peckman River would be constructed near the inlet.
- Approximately 2,107 linear feet of floodwalls and/orlevees at a height of up to +139 North American Vertical Datum of 1988 (NAVD88) or 8 ft above ground elevation would be built upstream and downstream of the ponding weir;
- Approiximately 1,207 linear ft of levees and/or floodwalls would be constructed in the vicinity of the Little Falls High School at heights between +139 and +150 feet NAVD88 or an average of five to 10 ft above ground elevation; and
- Treatment of approximately 58 structures located within the 10-yr floodplain with nonstructural measures in the Town of Little Falls.

1.2 Recommended Plan Impacts and Compensatory Mitigation Requirements

Permanent impacts from the Recommended Plan requiring compensatory mitigation include 0.48 acres of forested wetland habitat and 1,848 linear ft totaling 1.70 acres of freshwater riverine habitat, and 0.77 acres of riparian habitat.

Corps guidance requires a cost effectiveness analysis and an incremental cost analysis for recommended environmental restoration and mitigation plans. As coordinated within the HQUSACE, the use of ratios for impacts under one acre is acceptable due to potential model imprecision with small impact amounts. Therefore, only a feasibility level functional assessment and cost estimate/incremental cost analysis (CE/ICA) was performed to identify the freshwater riverine and riparian zone compensatory mitigation requirements.

Based on the CE/ICA analysis, the restoration of approximately 1,848 linear ft of river equaling 1.70 acres of open water habitat via the installation of three bendway weir fields along the outer bends of the river where severe bank erosion is occurring and 0.85 acres of native streambank vegetation was identified as the most cost effective plan. Included in the compensatory mitigation is 0.77 of riparian zone restoration. Details of the CE/ICA analysis is documented in Appendix A-9.

As the forested wetland impacts are under one acre, as coordinated within the Corps Headquarters, the District will follow the NJDEP criteria of requiring a 2:1 ratio for wetland restoration/creation.

The plan will be then reviewed and revised as needed during the Preconstruction Engineering Design Phase (PED) as specific design details are made available.



1.3 **Compensatory Mitigation Guidelines**

1.3.1 Federal Compensatory Mitigation Guidelines

The following laws and Corps implementation guidance provide distinct Corps policy and guidance pertinent to developing this mitigation, monitoring and adaptive management plan:

- CECW-PC 31 August 2009 Memo: Implementation Guidance for Section 2036(a) of the Water Resources Development Act of 2007 (WRDA 07) Mitigation for Fish and Wildlife and Wetlands Losses" requires: 1) monitoring until successful, 2) criteria for determining ecological success, 3) a description of available lands for mitigation and the basis for the determination of availability, 4) the development of contingency plans/adaptive management plans, 5) identification of the entity responsible for monitoring; and 6) establish a consultation process with appropriate Federal and State agencies in determining the success of mitigation.
- ER 1105-2-100 dated 22 April 2000, Planning Guidance Notebook, Section C-3 e. Mitigation Planning and Recommendations
- Compensatory Mitigation for Losses of Aquatic Resources; Final Rule; Federal Register, Volume 73, No. 70, April 10, 2008.
- Water Resource Reform and Development Act (WRRDA) 2014, Section 1040 Fish and Wildlife Mitigation.
- Water Infrastructure Improvements for the Nation Act (WIIN Act) 2016, Sections 1162 Fish and Wildlife Mitigation, and 1163 Wetlands Mitigation. Implementation Guidance has not been issued by USACE HQ.
- CECW-P 02 February 2018 Memo Implementation Guidance for Section 1162 of the Water Resources Development Act of 2016 (WRDA 2016) - Fish and Wildlife Mitigation. Section 1162 authorizes the use of Preconstruction, Engineering Design funds to satisfy mitigation requirements through 3rd party arrangements or acquire lands for mitigation requirements.
- 16 November 2017 Memorandum for the Commanding General of the U.S. Army Corps of Engineers - Implementation Guidance for Section 1163 of the Water Resources Development Act of 2016 (WRDA 2916), Wetlands Mitigation. Rescinds CECW-P 06 November 2008 Memorandum Implementation Guidance for WRDA 2007 – Section 2036 (c). Establishes the following criteria for the use of mitigation banks and in-lieu fee credits as a mitigation alternative: a) demonstration of an approved mitigation banking instrument; b) the mitigation bank and/or in-lieu fee program operates within the service area of the impact; c) completion of a functional analysis of the potential credits using the approved Corps of Engineers certified habitat assessment model specific to the region; d) demonstration that the statutory (and regulatory) mitigation requirements, including monitoring or demonstrating mitigation success have been met; and e) purchase of credits prior to award of a construction contract for the project.



Corps regulations stipulate that the recommended plan must contain sufficient mitigation measures to ensure that the plan selected will have no more than negligible net adverse impacts on fish and wildlife resources, including impacts of the mitigation measures themselves.

Regarding wetlands, however, the guidance contains very specific requirements that the District "ensure that adverse impacts to wetland resources are fully mitigated...as required to clearly demonstrate efforts made to meet the Administration's goal of no net loss of wetlands" as determined by a habitat functional assessment method.

1.3.1.1 Federal Compensatory Mitigation Hierarchy

The Mitigation Rules' preference hierarchy for types of compensatory wetland mitigation is as follows:

- The purchase of wetland credits from an approved wetland mitigation bank
- In-Lieu fee program credits (monetary contribution)
- On-site and in-kind restoration, enhancement, establishment or preservation.
- Off-site and/or out of kind restoration, enhancement, establishment or preservation.

Based the District's experience with compensatory mitigation on other projects, the purchase of credits through a state approved mitigation bank has been the most costeffective option. Therefore, should compensatory mitigation be required, the District will first evaluate the feasibility of purchasing of mitigation credits prior to assessing other compensatory mitigation methods.

Off-site compensatory mitigation will be performed if either a state approved mitigation bank is unavailable, or if a wetland mitigation bank does not conform to the requirements stipulated in the implementation guidance listed in Section 1.1.1. Both the Corps Civil Works guidance and 2008 Federal Mitigation Rule give priority to restoration of impacted resources over enhancement, establishment or preservation when providing on-site or off-site compensation. Corps policies and regulations do not apply a mitigation hierarchy to non-wetland habitats (e.g. upland forest).

1.4 State Mitigation Guidelines

The state of New Jersey assumed responsibility for administering the 404 authority in 1993. The following documents provide New Jersey policy and guidance that are pertinent to developing this monitoring and adaptive management plan:

• New Jersey Freshwater Wetlands Protection Act, N.J.S.A. 13:9B; Freshwater Protection Act Rules N.J.A.C. 7:7A: Outlines requirements for compliance with Sections 401 and 404 of Clean Water Act.

• N.J.A.C. Coastal Zone Management Rules: Establishes compliance and mitigation requirements related to Sections 401 and 404 of the Clean Water Act for tidal wetland and open water resources.

1.4.1.1 State Compensatory Mitigation Hierarchy

Compensatory mitigation hierarchy for freshwater wetland impacts or state open water greater than 1.5 acres as outlined in the Freshwater Wetlands Protection Act Rules is as follows:

- 1. On-site restoration, creation, or enhancement.
- 2. Purchase of in-kind credits from a mitigation bank with a service area that includes the area of disturbance;
- 3. Off-site restoration, creation or enhancement in the same watershed as disturbance
- 4. Monetary contribution to the New Jersey In-lieu fee program;
- 5. Upland preservation;
- 6. Land donation in accordance with Freshwater Wetland Act Rules.

Compensatory Mitigation hierarchy for freshwater wetland impacts less than 1.5 acres as outlined in the Freshwater Wetlands Act Rules is as follows:

- 1. Purchase from a NJDEP approved wetland mitigation bank in the same Hydrologic Unit Code 11 (HUC-11) as the disturbance;
- 2. Off-site creation, restoration or enhancement;
- 3. Monetary contribution to the New Jersey In-lieu fee program;
- 4. Upland preservation; and
- 5. Land donation.

The NJDEP Freshwater Wetlands Protection Act Rules require a mitigation ratio of 2:1 for wetland restoration or creation, and a minimum mitigation ratio of a 3:1 for wetland enhancement. The purchase of wetland mitigation credits is based on a 1:1 mitigation ratio.

1.5 **Roles and Responsibilities**

The District will be responsible for the proposed mitigation construction and monitoring until the initial success criteria as defined in Sections 3.1 - 3.3 are met. Initial construction and monitoring will be funded in accordance with all applicable cost-share agreements with the non-federal sponsor.

It should be noted that the state might require mitigation beyond what has been determined to be appropriate by the functional assessment analysis due to their use of a ratio based mitigation approach. In event this occurs, the non-federal sponsor will be required to pay the for the mitigation costs that exceed what is necessary to meet the federal requirements.

The District will monitor (on a cost-shared basis) the completed mitigation to determine whether additional construction, invasive plant species control, and/or plantings are necessary to achieve initial success criteria. If, during the monitoring period the mitigation is failing to meet the success criteria, the District will consult with the NJDEP to determine the appropriate management or remedial actions required to achieve ecological success. The non-federal sponsor will perform any additional monitoring of the site as part of their O&M obligations once the District has determined that the mitigation goals are met.

The District will retain the final decision on whether or not the project's required mitigation benefits are being achieved and whether or not remedial actions are required. If additional site modifications are deemed necessary to achieve ecological success, the District will implement the appropriate measures in accordance with the adaptive management plan. The adaptive management measures will be subject to cost-sharing requirements, availability of funding, and current budgetary and other guidance.

2.0 Habitat Mitigation Alternatives

2.1 Wetland Mitigation Banks and In-lieu Fee Programs

Based on a review of the State of New Jersey Approved Wetlands Mitigation Banks List (dated January 10, 2019), the Pio Costa mitigation bank currently has freshwater forested wetland credits available and operates within the HUC-11 in which the Peckman River watershed located. The District will assess the availability of mitigation credits at this wetland mitigation bank during the Preconstruction Engineering Design (PED) Phase when permits are acquired.

There are no privately operated In-lieu Fee Programs within the state. The state operates its own In-lieu Fee Program through its Wetland Mitigation Fund. However, as noted in Section 1.2.1.1, this option is lower in the mitigation hierarchy structure than on-site restoration or off-site mitigation, of which opportunities exist within the project area. Therefore, as an authority responsible for administering Section 404 of the Clean Water Act, it is unlikely that the state would approve a monetary contribution.

2.2 **Off-Site Wetland Mitigation**

In the event that wetland credits are available from the Pio Costa Wetland Mitigation Bank or another state approved mitigation bank in the PED Phase, the District will pursue offsite wetland mitigation. As mentioned in Section 1.1, the District will follow a 2:1 ratio to create/restore 0.96 acres of forested wetland habitat.

If off-site wetland mitigation is necessary, a suitable site within the Peckman River will be identified and evaluated during the PED Phase. Given the urban nature of the creation/restoration activities that would be proposed include invasive species

management, regrading to create hydrological conditions supportive of forested wetlands, planting with native vegetation and installation of anti-herbivory measures.

2.3 **Open Water/Freshwater Riverine Habitat**

The District conducted a CE/ICA to determine the compensation to open water resources. The CE/ICA determined that performing stream restoration measures to 1,848 linear ft equaling to 1.70 acres of open water was the most cost effective solution. The cost estimate includes stream restoration measures such as streambank stabilization with native vegetation, installation of bendway weirs to reduce bank erosion and restoring pool and riffle complexes within the Peckman River, and applying proposed riprap in a manner that provides foraging and resting habitat for fish and aquatic macroinvertebrates.

2.3.1 New Jersey HGMI and Northern NJ FIBI

The District will be using the New Jersey High Gradient Macroinvertebrate Index and Northern New Jersey Fish Index of Biological Integrity to evaluate the functions and values of open water systems impacted by the proposed project and determine mitigation needs. Both models use the stream assessment worksheet developed as part of the U.S. Environmental Protection Agency Rapid Bioassessment Protocol (EPA RBP) to evaluate stream habitat.

The models were approved for regional use by the Corps Ecosystem Restoration Planning Center of Expertise in February 2014. In accordance with the Corps Civil Works Planning Policy, the impact analysis utilizing these models and the incremental cost analysis to determine the appropriate level of mitigation required will occur during optimization of the Recommended Plan. The results of these analyses will be presented in the final report.

2.4 **Off-site Riparian Zone Mitigation**

The laws and implementation guidance cited in Section 1.1.1 provides a mean for compensating for riparian zone impacts as part of an overall watershed approach and requirement to ensure that the proposed action will have no more than negligible net adverse impacts on fish and wildlife resources.

New Jersey Flood Hazard Area Control Act (NJFHACA) requires mitigation for impacts to riparian zone resources. Per the NJFHACA Rules, riparian zone mitigation can consist of the following:

- Removal of any impervious surface within 100 feet of streambank;
- Herbicide application for invasive species management;
- Clearing/grubbing of invasive plant species; and/or
- Planting native trees and shrubs within 100 feet of streambank.



2.4.1 U.S. EPA RPB Stream worksheet

The EPA RBP stream assessment worksheet contains evaluation and scoring criteria for riparian habitat. The District utilized this worksheet as part of the NJ HGMI and NNJFIBI models to evaluate the functional value of riparian habitat and determine the necessary compensatory mitigation required.

Compensatory riparian zone mitigation will be conducted at the Peckman Preserve, a 12 acre park owned by Passaic County. The park is approximately 0.40 miles upstream of the Recommended Plan footprint. The District will coordinate with Passaic County and New Jersey Green Acres staff to determine the feasibility of utilizing the park for mitigation purposes in the PED phase.

The State also allows for the purchase of riparian zone credits from state approved mitigation banks. There are currently no riparian mitigation banks that operate within the service area in which the project is located. However, the District will evaluate the status of such banks during the PED Phase.

2.5 Vegetation

For any habitat compensatory mitigation, the District will use native vegetative species with an emphasis on those that can compete with invasive plant species, and support federally and/or state endangered and threatened species, and pollinator species. A list of common tree and shrub species used for habitat mitigation is included in Attachment 1. This not an exhaustive list and may change during finalization of any compensatory mitigation plans. A list of plants that support pollinator species is included in Attachment 2.

2.6 **Preliminary Cost Estimate**

A preliminary cost estimate was prepared and included costs for open water, wetland, riparian zone and upland forest compensatory mitigation. The costs included any necessary excavation required to construct the proposed mitigation, removal of invasive plant species, herbicide applications, replanting native vegetation, installation of anti-herbivory measures such as fencing and tree guards, post construction monitoring and adaptive management.

The Total Project Cost for the mitigation is \$2,249,916. The costs are presented in Account 06 "Fish and Wildlife Facilities" in Appendix D Cost Engineering.

The cost estimate will be revised during optimization of the Recommended Plan pending the results of the functional assessment and incremental cost analyses and will be included in the final report.

3.0 Monitoring and Reporting

An effective monitoring program will be required to determine if the mitigation performed is consistent with original project goals and objectives. Information collected under this monitoring plan will provide insights into the effectiveness of mitigation and adaptive management strategies and indicate where goals have been met, if actions should continue and/or whether more aggressive management is warranted. The information generated by the monitoring plan will be used by the District in consultation with the nonfederal sponsor to guide decisions on operation changes that may be needed to ensure that the mitigation project meets the success criteria.

Federal wetland mitigation rules require monitoring until success criteria is met and do not establish a minimum required monitoring period. The New Jersey Freshwater Wetlands Protection Act Rules require a minimum monitoring period of five years for any wetland enhancement, restoration or creation, and establish specific criteria for determining success. Therefore, for cost estimating purposes, the District is assuming a minimum monitoring period of **five years** for each mitigation type. Monitoring is not to exceed 10 years. Should the compensatory mitigation measures be achieved in less than five years, monitoring will cease or be continued by the non-federal sponsor at their cost.

3.1 **Open Water Monitoring Protocol**

Surveys utilizing the NJ HGMI and Northern FIBI with the EPA RBP stream habitat assessment method will be conducted to determine mitigation success. Surveys will be conducted prior to construction to form baseline conditions. Once construction is completed, surveys will occur annually as recommended in each of the methods respective guidance documents. A report discussing the results of the surveys and whether adaptive management measures may be required will be prepared annually. The report will be submitted to the NJDEP LURP and will be made available by the District for the public to review.

3.2 Forested Wetlands Monitoring Protocol

The District will survey vegetation growth on a bi-annual (spring and fall) basis and will conduct a wetland delineation on an annual basis utilizing the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)(Regional Supplement). As part of the wetland delineation, a minimum of six soil pits will be dug and described to a depth of 20 inches within the mitigation area. The soil profiles will document the depth of topsoil placement as well as indicators of hydric soil. The depth to saturated soil and free water will also be recorded for each soil profile.

The location of each soil pit will be documented using GPS and plotted onto a map for inclusion in the Monitoring Report.

The criteria for which mitigation success is determined includes: 1) 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes which are species native to the area and similar to ones identified in the mitigation planting plan; 2) Any trees planted are at least five feet in height; 3) The site contains hydric soils or there is evidence of oxidative reduction (redox) occurring in the soil; 4) Evidence that the site is meeting the hydrologic regime as specified in the mitigation proposal; 5) The site is less than 10 percent occupied by invasive or noxious species; and 6) The site delineates as a wetland using the 1989 Federal Manual for Identifying and Delineated Jurisdictional Wetlands and Regional Supplement.

Stem densities of woody plants will be generated using stem counts within permanent 10meter square sample plots randomly located within upland forest mitigation area. The location of each sample plot will be determined prior to conducting field work by randomly by establishing a 10- meter square grid over the area to be monitored as shown on the As-Built plans, assigning each grid block a number, and generating a series of random numbers. The random numbers corresponding to the first ten grid blocks will be used to establish the sample locations. Within each plot the number of trees and shrubs will be counted, by species, and recorded onto a data form. The height of each tree and shrub will also be recorded. In addition, the presence and extent of any invasive plant species will be documented.

The location of each sample plot will be determined prior to conducting field work by randomly by establishing a 10- meter square grid over the area to be monitored as shown on the As-Built plans, assigning each grid block a number, and generating a series of random numbers. The random numbers corresponding to the first ten grid blocks will be used to establish the sample locations. The location of each quadrat will be shown on the plans contained in the monitoring report.

3.3 **Riparian Zone Monitoring Protocol**

Ripairan zone vegetation will be surveyed on a bi-annual (spring and fall) basis. Stem densities of woody plants will be generated using stem counts within permanent 10-meter square sample plots randomly located within upland forest mitigation area. The location of each sample plot will be determined prior to conducting field work by randomly by establishing a 10- meter square grid over the area to be monitored as shown on the As-Built plans, assigning each grid block a number, and generating a series of random numbers. The random numbers corresponding to the first ten grid blocks will be used to establish the sample locations. Within each plot the number of trees and shrubs will be counted, by species, and recorded onto a data form. The height of each tree and shrub will also be recorded. In addition, the presence and extent of any invasive plant species will be documented.



The location of each sample plot will be shown on the plans contained in the monitoring report.

The criteria for which mitigation success is determined includes: 1) 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes which are species native to the area and similar to ones identified in the mitigation planting plan; and 2) The site is less than 10 percent occupied by invasive or noxious species.

3.4 Monitoring Costs

Cost estimates for the monitoring of each mitigation type are presented in Table 1. Costs include the level of effort needed to complete the required field investigations and report preparation and coordination.

Mitigation Feature	Annual Monitoring Cost	Total Monitoring Period (5 yrs) Cost
Forested Wetland	\$ 8,000.00	\$40,000.00
Open Water	\$ 6,000.00	\$30,000.00
Riparian Zone	\$ 3,200.00	\$16,000.00
Total	\$17,000.00	\$86,000.00

Table 1: Preliminary Mitigation Monitoring Costs

3.5 **Reporting**

The District will prepare an annual Monitoring Report summarizing the results of monitoring efforts conducted for each mitigation type and describing any necessary adaptive management measures.

The format of the report will contain, but not be limited to: 1) Executive Summary; 2) Requirements and goals of approved mitigation proposal have been achieved 3) Documentation including wetland delineations, stream survey locations and results, habitat assessment worksheets, topographical surveys, photos and field notes; 4) suggested adaptive management measures and their estimated costs.

Figures contained within the report will include but not be limited to: 1) mitigation site location delineated on USGS quad map; 2) mitigation site delineated on an aerial; 3) mitigation site delineated on tax map; and 4) preconstruction and post construction habitat type map.

Appendices will include but not be limited to: 1) permits; 2) as-built plans; 3) vegetation species table and survey data sheets; 4) photograph log and location map; and 5) soil investigation report.

As required by NJDEP, the District submit the Monitoring and Adaptive Management Report to the agency by 31 December each year the monitoring is conducted. The District will also post the report on the District webpage and will submit the report to the Corps Headquarters (Corps HQ) for inclusion to the annual mitigation report that is submitted to Congress and posted on the Corps HQ website.

4.0 Adaptive Management

A comprehensive adaptive management plan will be prepared, if needed, during post construction monitoring. However, the following sections describe common adaptive management measures associated with each habitat type. For the purposes of the feasibility level cost estimate, the cost of adaptive management was assumed to be 10% of the total mitigation cost and is included in the Account 6 "Fish and Wildlife Facilities."

4.1 Open Water (e.g. stream restoration)

- Additional morphological changes to enhance aquatic habitat
- Repair, relocation or additional bendway weir structures
- Replanting vegetation along the streambanks
- Invasive plant species management

4.2 Forested Wetlands

- Replanting vegetation in areas where plantings do not meet predetermined criteria
- Enhancing survival of planted vegetation (by applying a fertilizer)
- Elevation modifications through additional grading/excavation to achieve desired hydrology.
- Invasive species management through mechanical landscaping techniques, physical removal and/or replanting of desirable species
- Installation/maintenance of anti-herbivory measures (e.g. fencing, tree guards)

4.3 Riparian Zone

- Enhancing survival of planted vegetation (by applying a fertilizer)
- Suppressing encroachment invasive plant species through herbicide application, physical removal, landscaping techniques (e.g. weed mats) and/or replanting of desirable species
- Installation/maintenance of anti-herbivory measures (e.g. fencing, tree guards)
- Replanting vegetation; re-assessing the type of species used and replacing with more species better adapted to site conditions.

5.0 **References**



NJDEP, Office of Policy Implementation. Site available at: <u>http://www.state.nj.us/dep/opi/wetland-bank-photos.html#pio-costa</u>. Site accessed 5 January 2018.



Attachment A

Tables of Common Tree and Shrub Species Used for Habitat Mitigation


Common Name	Latin Name
Sugar Maple	Acer saccharinum
River birch	Betula nigra
Green ash	Fraxinus
	Pensylvanica
Sycamore	Platanus
-	occidentalis
Black willow	Salix nigra

Table 1: Native Forested Wetland Tree Species

Table 2: Native Wetland Shrub Species

Common Name	Latin Name
Alder	Alnus serrulata
Red chokeberry	Aronia arbutifolia
Common buttonbush	Cephalanthus occidentalis
Silky dogwood	Cornus amomum
Red osier dogwood	Cornus sericea
Inkberry	llex glabra
Common winterberry	llex verticillata
Northern Spicebush	Lindera benzoin
Black elder	Sambucus Canadensis
Steeplebush	Spiraea tomentosa
Highbush blueberry	Vaccinium corymbosum

Table 3: Native Upland and Riparian Tree Species

Common Name	Latin Name
Ash-leaf maple	Acer negundo
Red maple	Acer rubrum
Canadian	Amelanchier
serviceberry	Canadensis
Shagbark hickory	Carya ovata
American beech	Fagus grandifolia
Tuliptree	Liriodendron tulipfera
Black gum	Nyssa sylvatica
White oak	Quercus alba
Northern red oak	Quercus rubra



Attachment B

Native Pollinator Species



Helping People Help the Land

http://www.nj.nrcs.usda.gov

NJ BIOLOGY TECHNICAL NOTE

Habitat Development for Pollinators

As many as two-thirds of the world's crop species depend on insects for pollination, and this may account for 15-30 percent of the food we consume. In the United States one third of all agricultural output depends on pollinators. More than 90 crops in North America depend upon bees for pollination. In New Jersey crops such as apples, peaches, strawberries, blueberries, cranberries, pumpkins, cucumbers, squash and more depend upon insect pollination. The seeds of many forage crops used by New Jersey livestock producers such as clover and alfalfa require insect pollinators. Pollinators are also important to the function of many terrestrial ecosystems because they enhance native plant reproduction. Native plants provide food and cover for numerous wildlife species, help stabilize the soil and improve water quality. As a group, pollinators are threatened worldwide by habitat loss and fragmentation, pesticides, disease, and parasites. This has serious economic implications for native ecosystem diversity and stability, for agricultural producers, and for all consumers of agricultural products.

Honey bees, first brought to the United States from Europe in the 1600s, have been used by farmers for many years for pollination of crops. Honey bee populations are experiencing sharp declines recently due to honey bee pests and diseases. Prices for rental of honey bee colonies have doubled in recent years and many crop producers report it has even become hard to secure any honey bees for pollination services. Wild honey bee colonies, once common on New Jersey farms, are almost non-existent due to the recent pests and diseases.

Native pollinators such as bees and butterflies are often underestimated when it comes to pollination. Except for the larger bumble bees, many native bees are small, solitary, non-social insects. While some species look like bees, many are very small and look like flies or flying ants. Native bees can contribute significantly to crop pollination, and if the proper conditions exist on farms they may provide all the pollination needs of some crops. Some researchers suggest that crops pollinated by wild bees in the United States are valued at \$2 to \$3 billion annually. Researchers around the country are learning more about native pollinators such as their role in crop pollination and what producers can do to benefit habitat for native bees on their farms.

To provide habitat for native pollinators, diverse floral sources that provide a succession of flowers are needed. Some floral sources should be available throughout the spring, summer and fall so nectar and pollen are available to insects for the entire growing season. Bees and butterflies have good color vision so choose flowers of several colors – particularly blues, purple, violet, yellow and white. Provide flowers of different shapes to attract pollinators with different body sizes and mouthparts. Use native plants first since these are usually adapted to New Jersey's growing conditions and native pollinators evolved with these plants.

Quality nesting sites must also be available for native pollinators to thrive. Many native bee species are digger bees that nest underground. Nesting sites may be underground in sunny, well drained, partially bare areas adjacent to crop fields. Other species nest in hollow twigs of dead shrubs,

tunnels in dead trees left behind by wood-boring beetles, or excavate nests in above-ground rotting logs and stumps. Cranberry growers report some success in providing artificial nesting structures or "trap nests" made by drilling ten to twenty 5/16" diameter holes, 4"-10" deep, in blocks of wood that are erected near bogs for leaf-cutting bees. Bumble bees are social insects and build nests just under or near the soil surface in small depressions such as old mammal borrows or under fallen plant matter. Leaf cutting bees and bumble bees are very effective pollinators of cranberries and blueberries. Bee nesting areas can be established on sunny, south facing slopes on well-drained soils. A combination of bare soil, brush piles, standing dead trees and flowering forbs, shrubs and trees is ideal. Several of these areas could be located strategically around a farm since many native pollinators do not fly long distances like honeybees.

Another practice important to native pollinators on farms is integrated pest management. Pesticides can inadvertently kill beneficial insects or beneficial plants. Contaminated nectar and pollen can be collected by bees and brought back to nests to feed to larvae, causing reproduction failures. Insecticides, if necessary, should be chosen wisely and applied during times when beneficial insects are least active. Indiscriminant herbicide use should be discouraged, and herbicides should be targeted directly at specific weed problems. Odd areas, hedgerows, filter strips and field borders may appear "weedy" but can provide important pollinator habitat and should be protected from pesticides.

NRCS can assist landowners with habitat enhancement for pollinators by encouraging them to establish an array of plants that flower throughout the growing season to provide a source of nectar for adult pollinators and a diversity of herbaceous material for immature pollinator life stages. In addition, bee shelter areas can be designated on farms to provide nesting sites. The Upland Wildlife Habitat Management or Early Successional Habitat Development/Management standards and specifications could be used in conservation plans for pollinator habitat. In general, diverse upland wildlife habitat on farms, in areas such as hedgerows, odd areas and field borders, with diverse native plants and if protected from pesticides, will be good pollinator habitat.

The pollinator habitat development practices discussed above will help enhance farms for native pollinators and likely help with crop pollination. One or more of the items discussed above could easily be worked into most farm conservation plans. These practices will also provide habitat for many other wildlife species including many beneficial insects. In 2007, the New Jersey Wildlife Habitat Incentive Program (WHIP) includes cost sharing assistance for "Pollinator Meadows" as a component of Early Successional Habitat Development/Management (Practice Code 647). The plants on the attached list provide some good guidance on pollinator plants for New Jersey and will be updated as further results are obtained from ongoing local research projects. For specific planting recommendations or developing seed mixes, contact the NRCS Biologist in your region. The references listed provide more detailed information on specific pollinator topics and should be reviewed prior to adding pollinator practices into conservation plans. Selected references could also be provided to landowners interested in pollinator habitat enhancement.

References:

Agroforestry Note – 32: *Sustaining Native Bee Habitat For Crop Pollination*. Vaughan, M. and Black, S.H., 2006. USDA National Agroforestry Center. www.unl.edu/nac/agroforestrynotes/an32g06.pdf

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Agroforestry Note – 35: *Pesticide Considerations For Native Bees in Agroforestry*. Vaughan, M. and Black, S.H., 2006. USDA National Agroforestry Center.

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Bees of New York State. Danforth, B.N. and K.N. Magnacca. 2002. New York State Biodiversity Clearinghouse, New York State Biodiversity Project and New York State Biodiversity Research Institute. <u>http://www.nybiodiversity.org/</u>

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Farming for Bees: Guidelines for Providing Native Bee Habitat on Farms. Vaughan, M.; Shepherd, M.; Kremen, C. and Black, S.H.. 2004. The Xerces Society for Invertebrate Conservation. Portland, OR. <u>www.xerces.org</u>

Pollinator Friendly Practices. North American Pollinator Protection Campaign. San Francisco, CA. <u>www.nappc.org</u>

The Importance of Pollinators. and *Biology and Life Cycles of Native Bees*. The Xerces Society for Invertebrate Conservation. Portland, OR. <u>www.xerces.org</u>

USDA - NRCS Wildlife Leaflet Number 34: *Native Pollinators*. 2005. USDA NRCS Wildlife Habitat Management Institute. <u>ftp://ftp-fc.sc.egov.usda.gov/WHMI/WEB/pdf/TechnicalLeaflets/NativePolinators.pdf</u>

Beneficial Plant Species for NJ Pollinators on Farms

Common Name	Scientific Name	Early-Mid-Late	Wetland	Benefits
		Summer	Indicator	
		Flowering	Status*	
		Period		
Native Herbaceous Perennials				
Goldenrods	Solidago spp.	Mid and Late	various	Many native bee spp. and honeybees use, one of the best bee plants
Asters	Aster spp.	Late	various	Many native bee spp. and honeybees use, one of the best bee plants
Bee Balm, Wild Bergamot	Monarda fistulosa	Mid	UPL	Excellent bee plant. Substitute M. punctata (horsemint) in S. Jersey
Showy Tick Treefoil	Desmodium canadense	Mid	FAC	Long summer flowering period
Wild Columbine	Aquilegia canadensis	Early	FAC	Good early bee plant
Wild Indigo	Baptisia tinctoria	Mid	U	Yellow flowers
Common Boneset	Eupatorium perfoliatum	Mid to Late	FACW	Excellent butterfly and bee plants
Joe-Pye Weed	Eupatorium purpureum	Mid to Late	FAC	Excellent butterfly and bee plants
Giant Sunflower	Helianthus giganteus	Mid to Late	FACW	Large, up to 8' tall, very showy
Ox Eye Sunflower	Heliopsis helianthoides	Mid to Late	U	Long bloom period, up to 4' tall, yellow flowers
Round-headed Bush Clover	Lespedeza capitata	Late	FACU	Native clover
Milkweeds	Asclepias spp.	Mid	various	Excellent butterfly and bee plants
Blazing Star	Liatris spicata	Mid	FAC	Pink, purple spikes
Wild Lupine	Lupinus perennis	Early	U	Large blue flowers
Beardtounge	Penstemon digitalis	Early	FAC	White to purple tinged flowers
Black-eyed Susan	Rudbeckia hirta	Mid to Late	FACU	Common volunteer
Blue Vervain	Verbena hastata	Late	FACW	Moist areas
Jewelweed	Impatiens capensis or pallida	Mid	FACW	Common in moist woodlands, no commercial seed source
Great Blue lobelia	Lobelia siphilitica	Late	FACW	Showy blue flowers
Purple Coneflower	Echinacea purpurea	Mid	U	Showy pink flowers
Evening Primrose	Oenothera biennis	Mid to Late	FACU	Common volunteer, showy yellow flowers
Fleabanes	Erigeron spp.	Mid to Late	various	Common weed on farms, no seed sources
Non-native Herbaceous				
Perennials				
White Clover	Trifolium repens	Mid	FACU	Excellent honeybee nectar source, native bee use
Red Clover	Trifolium pratense	Mid	FACU	Excellent honeybee nectar source, native bee use
Crimson Clover (annual)	Triflium incarnatum	Early to Mid	U	Excellent honeybee nectar source, native bee use
Bird's Foot Trefoil	Lotus corniculatis	Mid	FACU	Excellent honeybee nectar source, native bee use
Sweet Clover (biennial)	Melilotus officinalis	Mid	U	Excellent honeybee nectar source, native bee use. Can be invasive
Mustards	Brassica spp.	Early	various	Very early yellow flowers
Dandelion	Taraxacum officinale	Early	FACU	Very common weed, good pollen source. Can be invasive
Daisies	Chrysanthemum spp.	Mid to Late	various	Showy white flower

Trees/Shrubs				
New Jersey Tea	Ceanothus americanus	Mid	U	Low upland woodland shrub
Sweet Pepperbush	Clethra alnifolia	Mid	FAC	Moist woodland shrub, sweet smelling flowers
Wild Plum	Prunus americana	Early	FACU	Shrub. Substitute P. maritima (Beach Plum) in coastal areas
Black locust	Robinia pseudoacacia	Early	FACU	Tree. Excellent bee nectar source. Some authors list as non-native
Steeplebush, Meadowsweet	Spirea tomentosa	Mid to Late	FACW	Small shrub in moist soils
Willow	<i>Salix</i> spp.	Early	various	Trees and shrubs. Early pollen source, impt. to many native bees.
Hawthorns, Thorn Apple	Crataegus spp.	Early to Mid	various	Many species, thorny shrubs
Red Maple	Acer rubrum	Early	FAC	Tree provides abundant early pollen sources
Sumac	Rhus spp.	Mid	various	Common shrub of odd areas on farms
Juneberry, Shadbush	Amalanchier spp.	Early	various	Small tree with early white flowers attract many insects
Dogwoods	Cornus spp.	Early-Mid	various	Showy white spring flowers attract many insects
Apple, Crabapple (non-native)	Malus spp.	Early-Mid	various	Showy white spring flowers attract many insects
Raspberries, Blackberries	Rubus spp.	Early-Mid	various	Showy white spring flowers attract many insects
Black Cherry	Prunus serotina	Early-Mid	FACU	Common tree on NJ farms. Good fall fruit for wildlife
Button Bush	Cephalanthus occidentalis	Mid	OBL	Shrub of very wet sites only

*From US Fish Wildlife Service National List of Plant Species That Occur in Wetlands – Northeast Region. Plants with a "U" normally would not occur in wetlands and are totally upland species and are not on the list ("U" is not an official US FWS designation). Plants with the "various" designation include several species that are good pollinator plants, with several different wetland indicator status designations. Check the wetland indicator status from the US FWS list for the specific plant chosen.

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Flood Risk Management Feasibility Study

Peckman River Basin New Jersey

Integrated Feasibility Report and Environmental Assessment

Appendix A11: Feasibility Report/Environmental Assessment Distribution List



US Army Corps of Engineers® New York District

February 2020

Feasibility Report/Environmental Assessment Distribution List

Federal Agencies

U.S. Fish and Wildlife Service
New Jersey Field Office
Attn: Eric Schrader
4 East Jimmie Leeds Road, Unit 4
Galloway, New Jersey 08205

Federally Recognized Tribes

Delaware Nation	
Kim Penrod	
P.O. Box 825	
Anadarko, OK 73005	Н
kpenrod@delawarenation.com	

Delaware Tribe of Indians Ms. Susan Bachor Delaware Tribe Historic Preservation Representative P.O. Box 64 Pocono Lake, PA 18347 temple@delawaretribe.org

State Agencies

	New Jersey Historic Preservation Office
New Jersey Department of Environmental	Ms. Katherine Marcopul
Protection, Division of Dam Safety and Flood	Deputy State Historic Preservation Officer
Control	P.O. Box 420
Attn: John Moyle	Trenton, NJ 08625-0420
	Kate.Marcopul@dep.state.nj.us
New Jersey Department of Environmental Protection, Office of Permit Coordination and Environmental Review Attn: Ruth Foster 401 East State Street P.O. Box 420 Trenton, NJ 08625	

County Agencies

Passaic County Freeholders Passaic County Administration Building 401 Grand Street Paterson, NJ 07505 contact@passaiccountyny.org	Passaic County Parks and Recreation Passaic County Administration Building 401 Grand Street Paterson, NJ 07505
Passaic County Planning Department Attn: Jonathan Pera, Principal Engineer 401 Grand Street Paterson, NJ 07505	Friends of Passaic County Parks (County established non-profit) <u>fopcparks@gmail.com</u>

Municipalities

Township of Cedar Grove Mayor Robbie Vargo 525 Pompton Ave. Cedar	Town of Little Falls Mayor James Damiano 225 Main Street
Grove, NJ 07009	Little Falls, NJ 07424
Woodland Park Borough Mayor Keith Kazmark 5 Brophy Lane Woodland Park, NJ 07424	

Non-Government Organizations

Sierra Club	Passaic River Coalition
New Jersey Chapter	330 Speedwell Avenue
139 West Hanover Street	Morristown, NJ
Trenton, NJ 08618	info@passaicriver.org
Association of New Jersey Environmental Commissions (ANJEC) P.O. Box 157 Mendham, NJ 07945	Little Falls Historical Society PO Box 1083 Little Falls, New Jersey 07424

Flood Risk Management Feasibility Study

Peckman River Basin New Jersey

Draft Integrated Feasibility Report and Environmental Assessment

Appendix A12: Phase I Environmental Site Assessment



US Army Corps of Engineers® New York District

February 2020

PHASE I ENVIRONMENTAL SITE ASSESSMENT PECKMAN RIVER FLOOD RISK MANAGEMENT PROJECT PASSAIC COUNTY, NEW JERSEY September 2019

Richard Dabal, CHMM, REP US Army Corps of Engineers, New York District

Acronyms:

ESA - Environmental Site Assessment HTRW – Hazardous, Toxic, Radioactive Wastes NJAC – New Jersey Administrative Code NJDEP - New Jersey Department of Environmental Protection PCBs – Polychlorinated biphenyls PPM – Part Per Million RCRA – Resource, Conservation, Recovery Act SVOA – Semi-Volatile Organics TSP – Tentatively Selected Plan VOA – Volatile Organic

Executive Summary:

As part of the overall flood risk management feasibility study of the Peckman River Basin a Phase I Environmental Site Assessment (ESA) and sub-surface site characterization was conducted. The purpose of this assessment is to determine any potential environmental contamination issues that could impact the proposed project. The project currently proposed is a combination of flood walls, diversion culvert, levees, channel modification and non-structural measures within the Township of Little Falls along the Peckman River. The diversion culvert would be located just upstream of the Route 46 Bridge. The culvert's purpose is to reduce the flooding potential at Route 46 and Woodland Park. Records review of several data bases for any current and past industrial, commercial or other activity that may pose potential impacts to the project was conducted. Review of these data bases showed no major activities that would impact the project.

Introduction:

The purpose of this Phase I is to identify any HTRW conditions that indicate past or current release of potential contaminants to ground water or surface waters of the project site. A Phase I is required by US Army Corps of Engineers Engineering Regulation(ER) 1165-2-132 <u>Hazardous, Toxic, Radioactive Waste</u> (HTRW) Guidance for Civil Works Projects.

The scope of this ESA is limited to the areas of the proposed construction for this project as defined by the Tentatively Selected Plan (TSP). Sites identified from environmental databases will be classified according to their potential impact on the project area. Sites will be identified as having significant

Appendix A12: Phase I Environmental Site Assessment Peckman River Basin Draft Feasibility Report/EA impacts to project construction or as no impact. The Phase II site assessment involved the drilling for soil samples and it's laboratory analysis of soil borings taken within the study area.

Site Location/Description:

The area of the proposed construction is located within the Township of Little Falls in Passaic County. The Peckman River is a small stream that flows northward from its origin in Essex County several miles north through several municipalities before joining the Passaic River in the Borough of Woodland Park. The entire river basin is approximately eight square miles. Within that area is a densely developed suburban environment with a mix of mainly single family homes, commercial areas, a major highway with strip mall commercial zones and occasional small wooded areas adjacent to the river. Historically the area has been residential with locally small scale light manufacturing or warehouses. These activities disappeared or re-located to other areas and the locations have now been redeveloped into housing or office buildings. Because of the high density of development the Peckman River is prone to flash floods after intense rains. Over the years, this type of flooding has caused considerable damage to homes, commercial properties and caused closure of Route 46 which is a major east west route for this part of the state.

Records Review:

The following databases were reviewed: National Priorities List (NPL) CERCLIS (Comprehensive Environmental Response Compensation and Liability Information System) SEM (Superfund Enterprise Management System) Resource Conservation and Recovery Information System (RCRIS) KCS – Known Contaminated Sites (Database maintained by the NJDEP) Toxic Release Inventory System (TRIS)

Based on the database review, there are no known contaminated sites within the proposed project area.

Site Reconnaissance:

The US Army Corps of Engineers, New York District (District) in addition to the database review, completed a series of borings in October 2011 within the project area. Borings were conducted using a direct push ("GeoProbe") and truck mounted rotary type drill rig. Soil samples were collected from surface to top of bedrock or 25 feet below ground surface, which ever was encountered first.

Site Reconnaissance Findings:

A total of 23 soil borings were completed. The boring locations along the Peckman River in Verona, Little Falls and Woodland Park. Additional borings took place along Route 46 in Little Falls along the Great Notch Brook, a tributary to the Peckman River. Like the Peckman River, the Great Notch Brook is also prone to flash flooding. The 23 soil collected were analyzed for: 1) Volatile Organics+15 (VOA); 2) Semi-Volatile Organics+25 (SVOA); 3) Pesticides; 4) PCBs; and 5) RCRA metals. Analytical results were compared to the NJAC -7:26D – Non-Residential Direct Contact Soil Remediation Standard, 2017 (NRDCSRS). The reason for using this standard is that no residential areas were/are adjacent to these boring locations and the potential location of the flood control structures in these areas. Of the five

Appendix A12: Phase I Environmental Site Assessment Peckman River Basin Draft Feasibility Report/EA type contaminants analyzed, VOAs, Pesticides and PCBs were found at levels below threshold levels or non-detect, therefore they will not impact the proposed project.

Of the two other categories, SVOAs and RCRA metals were detected. Four SVOA compounds were detected but they did not exceed NRDCSRS thresholds. There was no pattern to the distribution of these detections and levels found. The soil borings where the SVOAs were detected were taken from the Township of Little Falls Department of Public Works (DPW) yard and the off-ramp from Route 46. Of the eight RCRA metals analyzed, only two, arsenic and lead, were detected. Only two samples had detects of these metals. These samples came from a parking lot for a commercial office building and the DPW yard. The arsenic detect barely exceeds the NJDEP threshold (22 ppm verses NJDEP limit of 19 ppm). The lead detects from the DPW yard is 600 ppm and from the commercial office building parking lot was 403 ppm, both below the NJDEP threshold of 800 ppm. The detects at the DPW yard is likely the result of the activities undertaken at the yard and the presence of fill in this area. Similarly, the detect at the office building is most likely from backfill used at time of construction.

Non-Structural Measures:

A number of structures within the Township of Little Falls have been identified for non-structural measures, including wet and dry floodproofing and elevations. Many of these structures are fifty years or older and are likely to have lead-based paint (LBP) and/or asbestos-containing materials (ACM).

According to USACE policy, no elevation or floodproofing can occur to structures with asbestos, ACM, or LBP if the proposed actions may affect these contaminants. Prior to any actions being conducted, the asbestos, ACM, or LBP that may be disturbed by the elevation or floodproofing activity must be removed. For all structures proposed for nonstructural activities, an asbestos investigation will be conducted to confirm the presence/absence of damaged or friable asbestos, ACM, or LBP. If damaged or friable asbestos, ACM, or exposed LBP are confirmed on a property and will be impacted by the implementation of nonstructural measures, the property owner and/or non-Federal sponsor will be obligated, at their sole expense, to conduct all necessary response and remedial activities in compliance with all applicable local, state, and federal laws and regulations. Asbestos, ACM, and LBP that would not be affected by construction of the recommended nonstructural element(s) would not need to be removed prior to construction.

Recommendations:

Based on the review of the databases and the results of the geotechnical survey, there is no known impact to the project elements. The structural measures should be constructed with minimal additional protocols for excavation and movement of the lead impacted soil. The SVOA impacted soils should not need additional protocols during excavation. Prior to construction, additional soil borings may be taken to the areal extent of the lead impacted soil or at other segment locations not previously subjected to soil borings to determine if additional management controls are required.

In accordance with ER 1165-2-132 *HTRW Guidance for Civil Works Projects*, if additional soil borings indicate the existence of any materials regulated by CERCLA within the project area that would be affected by construction, any necessary actions to remove these materials would be the responsibility of the non-Federal sponsor and are a full non-federal cost. The non-Federal sponsor would be required to

Appendix A12: Phase I Environmental Site Assessment Peckman River Basin Draft Feasibility Report/EA remove these materials prior to any construction activities being undertaken within the area of the identified contaminated area.

References:

ASTM E1527 Standard Practice for Environmental Site Assessments: Phase One Environmental Site Assessment Process. November 2005.

ASTM E1903-11 Standard Practice for Environmental Site Assessments: Phase Two Environmental Site Assessment Process

NJAC 7-26D Remediation Standards; 2017 – Non Residential Direct Contact Soil Remediation Standard

Flood Risk Management Feasibility Study

Peckman River Basin New Jersey

Integrated Feasibility Report and Environmental Assessment

Appendix A13: Agency/Public Response Matrix



February 2020

Comment	USACE, New York District Response
NJDEP	
Green Acres Program	
Peckman Preserve (Block 122, Lots 48, 57-64): Under DEP's freshwater permitting rules, permittees are not allowed to conduct freshwater wetlands mitigation on Green Acres funded parkland and there are limitation to which unfunded lands can qualify as mitigation sites. However, these restrictions do not apply to riparian corridor mitigation or T&E mitigation.	The District was basing the ability to use the Preserve for wetland mitigation based on previous coordination with staff from the Green Acres Program and Passaic County and the June 5, 2018 letter that notes that upland, wetland riparian mitigation would be allowable provided Passaic County goes through the Change in Use process.
If the County wishes to use Green Acres funded parkland for riparian corridor mitigation or T&E mitigation, it will be necessary for the County to go through the "change in use" process.	The November 27, 2019 letter indicates a change in policy preventing the potential use of the Peckman Preserve for wetland mitigation. The October 2019 DIFR/EA states that the District will first pursue purchasing credits at a state approved wetland mitigation bank. If this option is unavailable at the time of permit application submission, the District will further coordinate with staff from the Division of Land Use Regulation and Green Acres program to receive further clarification on the policy change and/or identification of another site complies with Green Acres and Freshwater Wetland Rules and meets the objectives of wetland mitigation.
Little Falls Recreation Center/Duva Field (Block 218 Lot): If the Army Corps of Engineers can document that the diversion culvert is a component of a legitimate watershed protection strategy for the Peckman River Basin, then the project may not constitute as a diversion of parkland.	Comment noted. The District will provide all necessary documentation supporting this purpose when an application is made once the project is authorized and appropriated for construction.
Old Morris Canal Way (Block 187 Lot 4): Report map titled "Diversion Culvert Management Measures: shows a floodwall being placed near the northwestern corner of this parcel.	Based on the optimized TSP design, there is no floodwall proposed in this location.
Unnamed Park (Block 125, Lot 2): The Township acquired the parcel in 1998 and held it as vacant land. This parcel is within the overall project area, but will not be impacted by the proposed plan.	This parcel will now be partially impacted by the TSP via serving as a temporary access way to construct the proposed channel modifications. Further coordination between the District, Town of Little Falls and the Green Acres Program

1

Comment	USACE, New York District Response
	regarding compliance with Green Acre Rules will occur during the PED Phase.
Division of Land Use Regulation	
For this proposed project, a Flood Hazard Area and Freshwater Individual permit applications are required for review.	As per the USACE SMART Planning Civil Works Planning process, permits are not acquired until the study has been authorized and appropriated for construction.
The Division does not have any concern with the issuance of a Federal Consistency determination decision, provided that the ACOE submits a Federal Consistency request for the final selected project design and the Division can confirm that the proposed project is consistent with its Coastal Zone Management Rules.	The project is located outside the jurisdiction of the Coastal Zone and as such, a determination is not required.
Township of Little Falls	
Acres proposed for acquisition should be clarified. The plan identifies 5.84 and 12.2 acres in different areas of the report.	A total of 5.84 acres will be acquired in fee. The 12.2 noted in Section 4.3 has been revised to the correct amount.
The fiscal responsibility of Little Falls for capital and operation and maintenance costs (O&M) costs should be clarified.	USACE enters an agreement with a non-federal sponsor, NJDEP in this instance, to cost share the feasibility study, design, and construction of the project. Once constructed, the project is turned over to and becomes the responsibility of the non-federal sponsor. This includes O&M. The non-federal sponsor may elect to execute a separate agreement with any local and/or county government to cover such costs. O&M costs and how they are shared between the non-federal sponsor and any local/county government entities will be determined by the agreement between those parties.
The non-structural component of the project requires asbestos, ACM or LBP materials to be removed at the sole expense of the property owner or non-federal sponsor. The USACE should clarify, to the extent possible, the impact to the Township and to property owners in Little Falls.	Remediation and/or removal of asbestos, ACM, and LBP materials must be completed prior to elevation or floodproofing of structures at the sole expense of the local sponsor. The non-federal sponsor may enter into an agreement with a local government entity or homeowner to cover such expense. As such, these costs and how they are shared between the non-federal sponsor and any municipalities or homeowner(s) will be determined by the agreement between those parties.

Comment	USACE, New York District Response
The size of the diversion culvert will result in significant excavation and material disposal. The plan should discuss the potential for removal and what impact the procedures for this removal may have on nearby residences and businesses.	Some of the excavated material will be used to construct the levee. Remaining unused material will disposed of at a state approved facility. The District will acquire temporary easements from any property that will be effected by construction and a traffic plan will be developed during the PED Phase. No other impacts to nearby properties are expected.
Clarify the note (Page 108 Transportation) that indicates partial or full closure of Browertown Road may occur due to installation of the culvert. The culvert is a substantial distance from this roadway.	A culvert under Browertown Rd was originally proposed in the May 2018 FR/EA but has since been removed as a result of optimization of the TSP.
It should be clear who bears the cost of the monetary compensation related to Green Acres mitigation should it be required for impacts to the Little Falls Recreation Center.	The non-Federal sponsor is placed with the responsibility of providing all the lands, easements and rights-of-way (LER) required to support the construction of a project, including any LER required for mitigation purposes. They born all the upfront costs associated with acquiring the real estate. The non-Federal sponsor is entitled to credit against its share of project costs for the value of LER it provides. However, when it comes to monetary compensation such as contributing to a wetland mitigation bank, USACE real estate regulations do not specify how that will occur.
Table 21 of the plan lists \$14M for land and damages. Clarify what "damages" are included.	Property owners will be entitled to receiving the fair market value of the property we acquire from them, plus severance damages, if any. Severance damages means the compensation given to a property owner for the loss in value of a portion of land and for the decrease in value to the remaining property which the government takes for public use. Meaning, it's the damages awarded to a property owner for reduction in the fair market value of land as a result of severance from the land of the property. Refer to the Real Estate Appendix (Appendix E) for further information.
The responsibility for O&M is identified as the "Non-Federal" entity within the plan. It is not clear what portion, if any, will fall to the Municipalities. Furthermore it is unclear what permitting (if any)	USACE enters an agreement with a non-Federal sponsor, NJDEP in this instance, to cost share the feasibility study, design, and construction of the project. Once constructed, the project is turned over to and becomes the responsibility of the

Comment	USACE, New York District Response
will be required for ongoing maintenance and who will bear the cost.	non-Federal sponsor. This includes O&M. The non-Federal sponsor may elect to execute a separate agreement with any local and/or county government to cover such costs. The cost share breakdown of such separate agreement will be determined between the participating parties.
It is not clear whether the entrance/exit of the diversion culvert includes screening or other protections.	Feasibility level designs do not contain the level of detail being requested. These details will be determined during Pre- Construction Engineering & Design (PED) phase once the project is authorized and appropriated for construction. However, the District notes the concerns of the Township and will work with it during the PED Phase to identify appropriate protection measures for the entrance/exit of the diversion culvert.
The appearance of the flood walls in terms of color and material should be considered for aesthetic impacts to the community.	Feasibility level designs do not contain the level of detail requested. These details will be determined during the PED Phase. However, the District notes the concerns of the Township and will work with the Township in the PED Phase to minimize aesthetic impacts. As mentioned in Section 5.14 of the Main Report, the floodwall may be treated with stamped concrete and/or paint to further enhance aesthetics.
As a result of the proposed plan, there is a loss of land and impact on land use for community and recreational activities, traffic and others at least temporarily. We recommend, as a mitigation to this community impact, consideration of the transfer of land to the Township which is currently used for parking and a factory building on the East side of the Paterson fields. This land could serve as an extension to the Little Falls park facilities and procurement could facilitate construction which might partially or fully offset the cost of acquisition. We note it is privately owned and the storage of parked cars in this area may not meet zoning	 Typically when a facility such as a park is temporarily impacted by the construction of a project, the park remains closed during the construction period. Once construction is complete, the park is restored back to its original condition. USACE would not acquire additional lands or do an "exchange" for a temporary impact. If it's determined there is a permanent impact to park facilities, the project will provide a "substitute facility" as just compensation to the owner. Meaning, the project will provide
criteria.	a functionally equivalent facility to the owner of the existing park. Providing a functionally equivalent facility may take the form of an alteration, lowering, raising, or replacement (and attendant removal) of the affected facility or part thereof, which may require the acquisition of additional lands to

Comment	USACE, New York District Response
	facilitate. These types of situations are categorized as a "relocation" and part of the non-Federal sponsor's responsibility to perform prior to construction
Modifications to the Peckman River will be completed using "cofferdams" which may have impact and should be described in more detail.	Cofferdams are temporary structures installed within a portion of the river during construction so that work can be conducted in the dry while still maintaining flow in the waterway. Environmental and hydraulic impacts are negligible.
Mr. Zurbruegg	
 Page 99; Section 4.5.5 - Resilience to Climate Change We have concerns about the conclusion drawn in this section, that " climate change is expected to have negligible impact on the Peckman River hydrology," for the following reasons: As acknowledged in the report, the USGS stream gages were inadequate for rigorous analysis; Questionable data from these inadequate gages was used to caclulate a downward trend in peak streamflow; The perceived downward trend is contradicted by available data on the nearby Passaic River (source (https://water.weather.gov/ahps2/crests.php?wfo=phi&gage=I tfn4&crest_type=historic) The base estimate of 10-15% precipitation increase may be slightly underestimated (other sources cite 20%). 	Comment noted. Section 4.5.5 of the Main Report and Appendix C-1 has been revised to better reflect "climate change" impacts within Peckman River Watershed.
This leads us to question the assumption that climate change will have a "negligible impact." We are concerned that the study's proposed solutions may not have the capacity to accommodate the more likely scenario that climate change and increased precipitation rates may in fact result in increased streamflow. As a resident, it is important to me that this project is reasonably scoped to be resilient against the long-term effects of climate	
change, and that this sizable investment in our community delivers a positive return for as long as possible. I hope there is	

Comment	USACE, New York District Response
an opportunity to re-assess the assumptions in this section and	
consider their effect on the report's conclusions.	

Comment	USACE, New York District Response
NJDEP	
Division of Fish and Wildlife	
Section 5.1.2, Table 27- Compliance with state laws, change	Concur. Language has been changed in Table 27 to state that
the development of the erosion of the sediment control plan	the erosion and sediment control plan will be developed prior to
The first and Wildlife and an and the incomparation of a	Construction.
low flow design in the culvert bottom to allow any diverted	an angle such that it will completely drain and aquatic biota will
aquatic biota to escape downstream when the amount of	be able to exit the culvert. Further evaluation and any
diverted water is slight or receding.	modifications to the design will be performed during the
	Preconstruction Engineering Design (PED) Phase in
	coordination with the USEWS and Division of Fish and Wildlife.
Section 5.10.2 State Endangered, Threatened and Special	Comment noted. The Tentatively Selected Plan (TSP) footprint
program agrees that no known populations of endangered	any effect to wood turtle or its babitat in Verona Township
threatened and species are in the project area, but records exist	
for Wood turtle up-stream in Verona.	
Green Acres Program	
Peckman Preserve (Block 122, Lots 48, 57-64) : The use of	Comment noted. The District will coordinate with the Green
funded public parkland for upland, wetland and/or riparian	Acres Program and Passaic County during the PED Phase if
mitigation is allowable provided the County goes through the	the Preserve is proposed for off-site habitat mitigation.
Change in Use process and submit plans to ensure consistency	
with Green Acres restrictions and could require a conservation	
במסכוווכוונ.	

Comments Received on May 2018 Draft FR/EA

Comment	USACE, New York District Response
Little Falls Recreation Center/Duva Field (Block 218 Lot): Green Acres received an updated ROSI from Little Falls listing Block 218, Lot 1 in its entirety as unfunded, encumbered parkland. The taking of a sub-surface easement for construction of the diversion culvert may constitute as a diversion and will need to satisfy the requirement that the project fulfills a compelling project need and provide an alternative analysis. The Township would need to provide adequate compensation in accordance with N.J.A.C. 7:36-26.10.	The proposed project provides flood risk management benefits to the Township of Little Falls and the Borough of Woodland Park. The Revised Draft Integrated Feasibility Report and Environmental Assessment (Revised DIFR/EA) includes an alternative analysis and discussion of economic and life safety benefits achieved by the TSP. Further coordination between the District, Town of Little Falls and the Green Acres Program regarding compliance with Green Acre Rules will occur during the PED Phase.
Old Morris Canal Way (Block 187 Lot 4): Report map titled "Diversion Culvert Management Measures: shows a floodwall being placed near the northwestern corner of this parcel.	Based on the optimized TSP design, there is no floodwall proposed in this location.
Unnamed Park (Block 125, Lot 2): The Township acquired the parcel in 1998 and held it as vacant land. This parcel is within the overall project area, but will not be impacted by the proposed plan.	This parcel will now be partially impacted by the TSP via serving as a temporary access way to construct the proposed channel modifications. Further coordination between the District, Town of Little Falls and the Green Acres Program regarding compliance with Green Acre Rules will occur during the PED Phase.
Division of Land Use Regulation	
A permit application must address impacts to channels, riparian zones and fishery resources. Disturbance to riparian zone is limited to 3,000 sf in a 50-ft riparian zone. Riparian zone mitigation is required for impacts that exceed the limit.	Comment noted. Permits will be acquired in the PED phase. Riparian mitigation is discussed in Section 5.8.1 of the Draft Revised Integrated Feasibility Report/Environmental Assessment and Appendix A8.
The requirements set forth at N.J.A.C. 7:13-12.7, 12.12 and 12.13 must be addressed in detail.	Permits will be obtained in PED.
Division of Land Use Regulation recommends a pre-application meeting once more specific information is available to discuss potential impacts and specific application requirements as well as mitigation.	Comment noted. A pre-application meeting will be requested during the PED Phase prior to the submission of permit applications.
Air Compliance and Enforcement/Air Mobile Resources	
Stationary construction equipment may require air pollution permits.	No stationary equipment will be used in constructing the project.
Dust emissions either windblown or generate	Prior to construction, the contractor will be required to develop an erosion and sediment control plan (E&S Plan) that will need

Comment	USACE, New York District Response
from construction equipment or activities should be controlled to prevent offsite impacts.	to be approved by the Hudson, Essex, Passaic Conservation District. The E&S Plan will minimize the potential of fugitive dust through the implementation of best management practices such as seeding disturbed areas and watering areas.
Any vehicles involved on the project must adhere to the idling standards (less than 3 minutes)	As indicated in the mitigation subsection of Section 6.15 Air Quality of the Revised DIFR/EA, the contractor will be required to adhere to all applicable New Jersey environmental laws pertaining to air quality during construction.
 Implement the following measures to minimize impact of diesel exhaust: Comply with the three-minute idling limit Non-road diesel construction equipment greater than 100 horsepower used on the project for more than 10 days should have engines that meet the USEPA Tier 4 non-road emission standards. Vehicles used to haul materials to and from the construction site should use designated truck routes. 	The plans and specifications for the construction of the project will include the specifications provided by NJDEP, as required and according to state regulations.
NJDEP Discharge to Surface Water	
Based on a review of the Draft Integrated Feasibility Report and Environmental Assessment, no new surface water discharges are anticipated from this project. However, if a surface water discharge becomes necessary during construction (i.e. dewatering), a NJPDES Discharge to Surface Water permit will be needed.	Comment noted. All necessary permit will be obtained during the PED Phase.
Stormwater Management	
Construction projects that disturb one acre or more are required to obtain coverage under the Stormwater Construction General Permit (5G3).	Comment noted. All necessary permits will be obtained during the PED Phase.
U.S. EPA	
The EPA encourages the incorporation of sustainability and green design into future construction plans.	Comment noted. Additional language that complies with Corps policy on sustainability has been added to Section 4.8 of the main report.

Recycling and/or reuse of construction and demolition (C&D) material or beneficial reuse of dredged materials should be considered in order to lessen the impacts of increasing disposal at solid waste facilities. The EPA recommends applying these practices and identifying them in your future reports.	Comment noted. Discussion of potential recycling and/or reuse of C&D material is included in Section 4.8 of the main report.
 The EPA recommends implementing diesel controls, cleaner fuel and cleaner construction practices for on-road and off-road equipment used for transportation, soil/sand movement or other construction activities, including: Strategies and technologies that reduce unnecessary idling, including auxiliary power units, the use of electric equipment, and strict enforcement of idling limits; and Use of clean diesel through add-on control technologies like diesel particulate filters and diesel oxidation catalysts, repowers, or newer, cleaner equipment. 	The plans and specifications for the construction of the project will include state requirements to reduce emissions that, include the suggestions provided in the comment.
Construction projects that disturb one acre or more are required to obtain coverage under the Stormwater Construction General Permit (5G3).	Comment noted. All necessary permits will be obtained during the PED Phase.

Attachment 1 Notice of Availability for October 2019 Draft Revised Integrated Feasibility Report/Environmental Assessment



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT JACOB K. JAVITS FEDERAL BUILDING 26 FEDERAL PLAZA NEW YORK NEW YORK 10278-0090

Planning Division

October 9, 2019

Notice of Availability

The U.S. Army Corps of Engineers, New York District, in partnership with the non-Federal sponsor New Jersey Department of Environmental Protection, announces the availability of the Draft Integrated Feasibility Report & Environmental Assessment for the Peckman River Basin, New Jersey, Flood Risk Management Feasibility Study, and the opening of the 30-day public comment period on the report. The public comment period concludes on November 8, 2019.

This Draft Integrated Feasibility Report and Environmental Assessment addresses flood risk management in the Peckman River Basin and is an update to the DIFR/EA previously released in May 2018 due to refinements to the project design.

In summary, the Tentatively Selected Plan includes the following: a) construction of a 1,500 foot long, 40-foot diameter double box diversion culvert to divert floodwater from the Peckman into the Passaic River. The inlet at the Peckman river includes two weirs to manage flow and create a pool near the inlet; b) Approximately 1,848 feet of channel modifications within the Peckman River near the diversion culvert inlet; c) Approximately 2,170 linear feet of levees and/or floodwalls upstream and downstream of the weir; d) Approximately 1,207 linear feet of levees and/or floodwalls in the vicinity of the Little Falls High School; e) Nonstructural treatments of 58 structures within the ten percent floodplain; f) compensatory forested wetland, riparian habitat and riverine mitigation.

The report and associated documents are available on New York District's web site at: <u>http://www.nan.usace.army.mil/Missions/Civil-Works/Projects-in-New-Jersey/Peckman-River-Basin-Flood-Risk-Management-Feasibility-Study</u>.

Written comments and general questions on the Draft Integrated Feasibility Report and Environmental Assessment should be submitted to: Mr. Dag Madara, Project Manager U.S. Army Corps of Engineers, New York District Programs and Project Management 26 Federal Plaza New York, New York 10278-0090

Email: <u>Dag.Madara@usace.army.mil</u>; Phone: 917-790-8730. Public comments can also be submitted by email to: <u>peckman.river@usace.army.mil</u>

Comments submitted will assist in the agency's evaluation of the project changes and will be reflected in the project record.

All written comments, including contact information, will be made a part of the administrative record, available to the public under the Freedom of Information Act (FOIA). The Administrative Record, or portions thereof, may also be posted on an U.S. Army Corps of Engineers' Internet website. Due to resource limitations, this office generally cannot acknowledge receipt of comments or respond to individual letters.

Attachment 2 Notice of Availability for May 2018 Draft Integrated Feasibility Report/Environmental Assessment

Army Corps announces availability of availability of the Draft Integrated Feasibility Report & Environmental Assessment for the Peckman River Basin, New Jersey, Flood Risk Management Feasibility Study

Contact:

Public Affairs Office

917-790-8007

cenan-pa@usace.army.mil

Public comment period open until June 5, 2018

The U.S. Army Corps of Engineers, New York District, announces the availability of the Draft Integrated Feasibility Report & Environmental Assessment for the Peckman River Basin, New Jersey, Flood Risk Management Feasibility Study, and the opening of the 30-day public comment period on the report. The public comment period concludes on June 5, 2018.

This Draft Integrated Feasibility Report and Environmental Assessment has been prepared to document the formulation and evaluation of plans to address flood risk management in the Peckman River Basin and the significance of potential environmental impacts of the Tentatively Selected Plan (TSP) recommended in the report. The report and associated documents are available on New York District's web site at: <u>http://www.nan.usace.army.mil/Missions/Civil-Works/Projects-in-New-Jersey/Peckman-River-Basin-Flood-Risk-Management-Feasibility-Study</u>.

Written comments on the Draft Integrated Feasibility Report and Environmental Assessment should be submitted to:

Mr. Alek Petersen U.S. Army Corps of Engineers New York District Jacob J. Javits Federal Building, Room 2127 26 Federal Plaza New York, New York 10278-0090

Public comments can also be submitted by email to: peckman.river@usace.army.mil

General questions regarding the Peckman River, New Jersey Flood Risk Management Feasibility Study can be directed to Mr. Alek Petersen, Project Manager, email: <u>Aleksander.J.Petersen@usace.army.mil</u>; phone: 917-790-8624.

Comments submitted will assist in the agency's evaluation of the project changes and will be reflected in the project record.

All written comments, including contact information, will be made a part of the administrative record, available to the public under the Freedom of Information Act (FOIA). The Administrative Record, or portions thereof, may also be posted on an U.S. Army Corps of Engineers' Internet website. Due to resource limitations, this office generally cannot acknowledge receipt of comments or respond to individual letters.