# Appendix B

**NEW YORK DISTRICT**
**U.S. ARMY CORPS OF ENGINEERS, NEW YORK, NY.**
**CLEAN WATER ACT**
**SECTION 404 (B) (1) EVALUATION**

**PROJECT:** Spring Creek North Restoration Project, Brooklyn, Kings County, New York

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**PROJECT DESCRIPTION:**

The recommended plan for this project is described in detail in Section 5 of the Feasibility Report and Environmental Assessment (FR/EA). In general the proposed plan will create approximately 7.6 acres of low marsh, 5.4 acres of high marsh, 1.0 acre of scrub-shrub, 2.1 acres of upland, and 19.0 acres of maritime forest for a total of 35.1 acres. The plan is designed to address the erosion presently occurring at this location by creating a less fragmented, more contiguous marsh, and reducing channel area. Low marsh restoration is achieved through excavation, the restoration of mudflat areas, and the filling in of select channel portions. Areas designed for maritime forest will tie into existing grade elevations and higher existing elevations will be re-graded to create low and high marsh. To achieve the designed wetland elevation, approximately 98,000 cubic yards of material excavated from onsite will be distributed to create the upland and maritime forest communities.

The excavation and re-contouring used to restore the inter-tidal salt marsh system will establish an elevational gradient that gradually transitions from open water to wetland to upland. Wetland vegetation primarily smooth cordgrass) would occupy a gentle slope of increasing elevation. At low tide, mudflat areas will be exposed along the edges of the interface of the salt marsh and the open water area; at high tide, the mudflat and salt marsh will be flooded at varying depths, depending on final elevations.

**5. Actions to Minimize Adverse Effects (Subpart H)**

| | YES | NO |
|---|---|---|
| All appropriate and practicable steps have been taken, through application of recommendation of Section 230. 70-230. 77 to ensure minimal adverse effects of the proposed discharge. | X | |

**List actions taken:**

Best Management Practices will be installed at the waterward limits of work prior to and maintained throughout construction to prevent in-situ and downstream sedimentation and erosion impacts. Such BMP's may include environmental windows as well as physical solutions such as hay bails and silt fences, temporary detention basins, filter bags, temporary seeding/stabilization and floating turbidity curtains. The disposal and dewatering sites will be located in upland areas to avoid impacts to aquatic and wetland resources.

**The following actions will be taken to minimize adverse impacts to the biological resources within the projects area:**

Clearing, grubbing, excavation and grading would take place during the winter months and would last through the early spring. In water work would take place at low tide during the winter, limiting the species that will be utilizing the nearshore habitat. Heavy machinery and earthwork would be complete prior to the beginning of the growing season and the seasonal activity period for most wildlife. Species of resident wildlife that are active in the winter months include some species of fish and birds. These species tend to be mobile and will seek refuge in other parts of Jamaica bay until the completion of construction. Planting will follow construction and would begin in the early spring taking approximately 6-8 weeks to complete. Planting would be accomplished primarily by hand causing minimal disturbances to resident and transient wildlife.

## 6. FACTUAL DETERMINATIONS

**Review of Compliance – Section 230.10(a)-(d)**

| | YES | NO |
|---|---|---|
| a. The discharge represents the least environmentally damaging practicable alternative and, if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose. | X | |
| b. The activity does not appear to: 1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally listed threatened and endangered species or their habitat; and 3) violate requirements of any Federally designated marine sanctuary. | X | |
| c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic and economic values. | X | |
| d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem. | X | |

**Technical Evaluation Factors (Subparts C-F)**

| | | N/A | Not Significant | Significant |
|---|---|---|---|---|
| **a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)** | | | | |
| | 1) Substrate | | X | |
| | 2) Suspended particulates/turbidity | | X | |
| | 3) Water column impacts | | X | |
| | 4) Current patterns and water circulation | | X | |
| | 5) Normal water circulation | | X | |

| | | | | |
|---|---|---|---|---|
| | 6) Salinity gradients | X | | |
| **b. Potential Impacts on Biological Characteristics on the Aquatic Ecosystem (Subpart D)** | | | | |
| | 1) Threatened and endangered species | | X | |
| | 2) Fish, crustaceans, mollusks, and other organisms in the aquatic food web | | X | |
| | 3) Other wildlife (mammals, birds, reptiles and amphibians) | | X | |
| **c. Potential Impacts on Special Aquatic Sites (Subpart E)** | | | | |
| | 1) Sanctuaries and refuges | | X | |
| | 2) Wetlands | | X | |
| | 3) Mud Flats | | X | |
| | 4) Vegetated Shallows | X | | |
| | 5) Coral reefs | X | | |
| | 6) Riffle and pool complexes | X | | |
| **d. Potential Effects on Human Use Characteristics (Subpart F)** | | | | |
| | 1) Municipal and private water supplies | X | | |
| | 2) Recreational and commercial fisheries | | X | |
| | 3) Water-related recreation | | X | |
| | 4) Aesthetic impacts | | X | |
| | 5) Parks, national and historic monuments, national seashores, wilderness areas, research sites and similar preserves | | X | |

**Evaluation and Testing – Subpart G**

| **a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Check only those appropriate.)** | | |
|---|---|---|
| | 1) Physical characteristics | X |
| | 2) Hydrography in relation to known or anticipated sources of contaminants | X |
| | 3) Results from previous testing of the material or similar material in the vicinity of the project | X |
| | 4) Known, significant sources of persistent pesticides from land runoff or percolation | X |

| | | |
|---|---|---|
| | 5) Spill records for petroleum products or designated hazardous substances (Section 311 of CWA) | X |
| | 6) Public records of significant introduction of contaminants from industries, municipalities or other sources | X |
| | 7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities | X |
| | 8) Other sources (specify) | N/A |
| **List appropriate references –** See Environmental Assessment | | |

| | **YES** | **NO** |
|---|---|---|
| **b. An evaluation of the appropriate information factors in 3a above indicates that there is reason to believe the proposed dredged material is not a carrier of contaminants or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to require constraints.** | X | |

**4. Disposal Site Delineation - Section 230.11(f)**

| **a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Check only those appropriate.)** | | |
|---|---|---|
| | 1) Depth of water at disposal site | Yes |
| | 2) Current velocity, direction, variability at disposal site | Yes |
| | 3) Degree of turbulence | Yes |
| | 4) Water column stratification | Yes |
| | 5) Discharge of vessel speed and direction | Yes |
| | 6) Rate of discharge | Yes |
| | 7) Dredged material characteristics (constituents, amount, and type of material, settling velocities) | Yes |
| | 8) Number of discharges per unit of time | Yes |
| | 9) Other factors affecting rates and patterns of mixing (specify) | Yes |
| **List appropriate references** – See Environmental Assessment | | |

| | **YES** | **NO** |
|---|---|---|
| **b. An evaluation of the appropriate information factors in 4a above indicated that the disposal sites and/or size of mixing zone are acceptable.** | X | |

**6. Factual Determination – Section 230.11**

| A review of appropriate information, as identified in Items 2-5 above, indicates there is minimal potential for short or long-term environmental effects of the proposed discharge as related to: | | |
|---|---|---|
| | **YES** | **NO** |
| a. Physical substrate at the disposal site (review Sections 2a, 3, 4 and 5 above) | X | |
| b. Water circulation, fluctuation and salinity (review Sections 2a, 3, 4 and 5) | X | |
| c. Suspended particulates/turbidity (review Sections 2a, 3, 4 and 5) | X | |
| d. Contaminant availability (review Sections 2a, 3 and 4) | X | |
| e. Aquatic ecosystem structure, function and organisms (review Sections 2b, 2c, 3 and 5) | X | |
| f. Proposed disposal site (review Sections 2, 4 and 5) | X | |
| g. Cumulative effects on the aquatic ecosystem | X | |
| h. Secondary effects on the aquatic ecosystem | X | |

**Findings of Compliance or Non-Compliance**

| | **YES** | **NO** |
|---|---|---|
| The proposed disposal site for discharge of dredged or fill material complies with Section 404(b)(1) guidelines. | X | |

In summary, the implementation of the recommended Spring Creek North Ecosystem Restoration Project:

Will have no adverse effects of the discharge of pollutants on human health or welfare, including but not limited to effects on municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites.

Will have no significant adverse effects of the discharge of pollutants on life stages of aquatic life and other wildlife dependent on aquatic ecosystems, including the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site through biological, physical, and chemical processes;

Will have no significant adverse effects of the discharge of pollutants on aquatic ecosystem diversity, productivity, and stability.

Will have no significant adverse effects of discharge of pollutants on recreational, aesthetic, and economic values.

**NEW YORK STATE COASTAL ZONE MANAGEMENT PROGRAM AND NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM (WRP) CONSISTENCY DETERMINATION**

**Project:** Spring Creek North Ecosystem Restoration Project.

**Applicant:** U.S. Army Corps of Engineers, New York District.

**Applicable Policies:** Based on a review of the Coastal Management Program policies for New York, 14 state policies, 4 New York City policies were found to be potentially applicable to the proposed Project. These policies are listed below.

**Consistency Determination:** All of the applicable policies were evaluated with respect to the Project's consistency with their stated goals. The Project has been found to be consistent with each policy.

**State Policy 1** – Restore, revitalize and redevelop deteriorated and underutilized waterfront areas for commercial, industrial, cultural, recreational and other compatible uses.

Determination – The Spring Creek Restoration project is located within a portion gf Spring Creek Park, which is operated by the New York City Parks and Recreation Department. The project area encompasses portions of Spring Creek and all of Ralph's creek. The goal is to restore about 30 acres of coastal habitat within the park, from its current state, which is disturbed upland habitat that has been filled with dredge material and anthropogenic debris and is vegetated with invasive plant species, to its former state as intertidal salt marsh and maritime upland communities. Intertidal salt marshes are dependent on the daily fluctuating tides, thus making this project water dependent. Restoration of these native coastal ecosystems will improve fish and wildlife habitat, vegetative composition, scenic and aesthetic resources, and the recreational value of the park. The project directly supports Policy 1 by restoring and revitalizing a water-dependent site for recreational use.

**State Policy 2** – Facilitate the siting of water dependent uses and facilities on or adjacent to coastal waters.

Determination – The Spring Creek Restoration project involves restoring approximately 30 acres of coastal habitats including up to 8.3 acres of low marsh salt marsh. Low marsh habitats are dependent on the daily fluctuating tides, thus making this project water dependent. Furthermore, in accordance with Policy 2, the project is considered water dependent because it will provide water-based recreational activities such as fishing and wildlife viewing.

**State Policy 7** – Significant coastal fish and wildlife habitats would be protected, preserved, and where practical, restored so as to maintain their viability as habitats.

Also applicable: **NYC Policy 4-** – Protect and restore the quality and function of ecological systems within the New York City coastal area.

**NYC Policy 5 –** Protect and improve water quality in the New York City coastal area.

Determination – A portion of the Spring Creek Restoration project is located within an area designated as Significant Coastal Fish and Wildlife Habitat. This area encompasses the wetlands between Spring and Ralph's Creeks and is considered part of the Jamaica Bay habitat. The goal of the project is to restore approximately 30 acres of coastal habitat including up to 17.5 acres of salt marsh and 12.5 acres of upland maritime communities. Ultimately, this effort will improve the fish and wildlife habitat in the area by removing invasive plant species, increasing the biodiversity, and providing additional area for foraging and reproductive activities, thereby increasing the productivity of the bay in this area. There may be short-term impacts during the 12 month construction phase of the project, including temporary displacement of species and increased sedimentation/turbidity. It is expected that mobile fish and wildlife species will utilize adjacent marshes and waters during the construction phase. Sedimentation will be minimized to the extent possible by implementing approved Best Management Practices and sediment control devices such as hay bales, silt fencing, and/or sediment erosion control fabric as necessary. The proposed effort supports Policy 7 by restoring a highly disturbed upland habitat into productive salt marsh and upland maritime ecosystems.

**State Policy 9-** Expand recreational use of fish and wildlife resources in coastal areas by increasing access to existing resources, supplementing existing stocks, and developing new resources.

Determination – The project will improve the restore the quality of 30 acres of coastal habitat, including about 17.5 acres of salt marsh and 12.5 acres of upland maritime habitat. Ultimately, the project will improve habitat for coastal recreational uses such as wildlife photography, bird watching, and nature study. Per Policy 9, the restoration efforts will be undertaken in accordance with state, federal, and local guidelines in order to minimize or mitigate potential impacts to fish and wildlife species during the restoration process.

**State Policy 12** – Activities or development in the coastal area would be undertaken so as to minimize damage to natural resources and property from flooding and erosion by protecting natural protective features including beaches, dunes, barrier islands and bluffs.

Also applicable:

**NYC Policy 6** – Minimize loss of life, structures and natural resources caused by flooding and erosion.

Determination – The Spring Creek salt marsh restoration project will involve excavating fill of former salt marsh and returning them to an elevation that supports salt marsh grasses such as *Spartina alterniflora*, *Spartina patens*, or *Distichlis spicata*. The plan is designed to address the erosion presently occurring at this location by creating a less fragmented, more contiguous marsh, and reducing channel area. Wetland habitats act as buffers for coastal erosion and flooding by absorbing and retaining water before it has the opportunity to reach developed land. Therefore, this project should help to naturally buffer flooding rather than increase it. During construction, approved Best Management Practices will be implemented to ensure

flooding/erosion does not impact any coastal features and that sedimentation and increased turbidity are minimized to the extent possible.

Several existing projects and ongoing efforts at the project site by the sponsor (NYCDPR) and other agencies further support the above listed policies and bolster the CSRM ecosystem services provided by this habitat (see section 1.3.1 of the FR/EA for further details).

**State Policy 17** – Non-structural measures to minimize damage to natural resources and property from flooding and erosion shall be used whenever possible.

Determination – The project involves creating additional salt marsh habitat at the edge of the creeks in Spring Creek Park. As mentioned for Policy 12, wetland habitats are natural buffers to storm-induced erosion and coastal flooding as they are capable of retaining and/or baffling the flow of water. During construction, erosion to the project site will be minimized by implementing approved BMP's, such as hay bales, silt fence, and/or sediment erosion control fabric and then planting with native vegetation species appropriate for the restored habitats.

**State Policy 18** – To safeguard the vital economic, social and environmental interests of the state and of its citizens, proposed major action in the coastal area must give full consideration to those interests, and to the safeguards which the state has established to protect valuable coastal resource areas.

Determination – The project will improve the quality of Spring Creek Park. Specifically, by restoring the native habitats (salt marsh and maritime upland habitats) and removing the prevalent invasive plant species *(Phragmites australis, Artemesia vulgaris),* the project should increase biodiversity of the site, improve wildlife habitat and utilization, provide additional coastal buffers to erosion and flooding, and provide increased opportunities for recreational uses such as wildlife viewing/photography, fishing, and nature study. These benefits directly support and safeguard the social and environmental interests of the State and its citizens.

**State Policy 20** – Access to publicly-owned foreshore and to lands immediately adjacent to the foreshore or the water's edge that are publicly-owned shall be provided and it shall be provided in a manner compatible with adjoining uses.

Also applicable: **NYC Policy 8** – Provide Public Access to, from, and along New York City's coastal waters.

Determination – The project will improve the quality of a portion of the publicly-owned foreshore of Spring Creek Park. Although access to the site will be limited during the 12 month construction period, the long-term effects of the project will benefit the public by improving the recreational uses within the park. Also, the project involves only a small portion of Spring Creek Park, so there should be sufficient access to the unaffected portions of the park available for public enjoyment during the construction phase.

**State Policy 21** – Water-dependent and water-enhanced recreation would be encouraged and facilitated, and would be given priority over non-water related uses along the coast.

Determination – The project will improve the water-related recreational and environmental uses of an existing city park by restoring about 30 acres of native coastal habitats. Since the site is already an existing city park, there will be no increased demands on the local community including the transportation system nor will there be impacts to onsite or adjacent land uses.

**State Policy 22** – Development when located adjacent to the shore would provide for water-related recreation whenever such use is compatible with reasonably anticipated demand for such activities, and is compatible with the primary purpose of the development.

Determination – The proposed restoration project is located within the NYC-owned Spring Creek Park. The site is already used for water-related recreational purposes. However, as previously mentioned, the proposed undertaking will improve the quality of the coastal habitat thus providing improved opportunities for recreational usage. Since the proposed action does not affect the current land-use or activities onsite, it is compatible with the surrounding areas of Spring Creek Park.

**State Policy 25** – Protect, restore or enhance natural and man-made resources which are not identified as being of statewide significance, but which contribute to the overall scenic quality of the coastal area.

Determination – The project site is not located in an area designated as a Scenic Resource of Statewide Significance. Nonetheless, the restoration effort will improve the scenic quality of the site. The project involves the removal of the unsightly invasive plant species including *Phragmites australis* and *Artemesia vulgaris* and the excavation of material (dredge material and man-made debris) that has been used to fill an area of former salt marsh over the past 50+ years. Portions of the site will be re-graded to an elevation sufficient to support desirable, naturally occurring salt marsh grasses such as *Spartina alternafiora.* The remaining areas will be restored into maritime upland grassland and shrub communities. These restoration efforts should significantly improve the wildlife habitat as well as increase the aesthetic and scenic value of the site.

**State Policy 37-** Best management practices will be utilized to minimize the non-point discharge of excess nutrients, organics, and eroded soils into coastal waters.

Determination – Approved Best Management Practices will be implemented during construction of the restoration project to minimize impacts to the site and surrounding ecosystems. BMP's may include but are not limited to hay bales, silt fence, sediment erosion control fabric and the use of vegetation plantings to stabilize ground surfaces. Sediment erosion control devices will be installed prior to the initiation of ground alteration and will be monitored and maintained throughout the course of the construction phase to ensure they are properly functioning. These measures should minimize non-point discharge of eroded soils into coastal waters.

**State Policy 38-** The quality and quantity of surface water and groundwater supplies, will be conserved and protected, particularly where such waters constitute the primary or sole source of water supply.

Determination – A water quality certification will be obtained from the NYSDEC prior to undertaking the restoration project. All conditions of the certification will be complied with during the construction/planting phase of the project to ensure that impacts to the surrounding surface or ground water resources will not be affected.

**State Policy 44** – Preserve and protect tidal and freshwater wetlands and preserve the benefits derived from these areas.

Determination – The Spring Creek Restoration Project will restore up to 8.3 acres of tidal wetlands. The project site was formerly intertidal salt marsh, but over the past century has been filled with dredge material and man-made debris and has lost most, if not all of its characteristic wetland features. The project seeks to restore this area into its previous state as a salt marsh state and hence will provide all of the functions naturally afforded by wetland systems including fish and wildlife habitat; erosion, flood and storm control; natural pollution treatment; groundwater protection; recreational opportunities; educational and scientific opportunities; and aesthetic open space.

# NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM (WRP)
## CONSISTENCY ASSESSMENT FORM - WRP POLICY QUESTIONS – RESPONSES

For those policies checked Promote or Hinder, on the Consistency Assessment Form, responses are provided below.

**WRP POLICY QUESTIONS – RESPONSES**

WRP Policy 3: *Promote use of New York City's waterways for commercial and recreational boating and water-dependent transportation.*

The project is not expected to negatively impact boating within the area. During restoration activities traffic may be restricted to only shallow draft boats. No existing marinas or port will be affected; therefore, the project is consistent with this policy.

WRP Policy 3.4: *Minimize impact of commercial and recreational boating activities on the aquatic environment and surrounding land and water use.*

Restoration of a tidal marsh system with protective buffers along Spring Creek will protect the shoreline from wave action created by recreational and commercial boats; therefore, the project is consistent with this policy.

WRP Policy 4: *Protect and restore the quality and function of ecological systems within the New York coastal area.*

The goal of the tentatively selected plan (TSP) design is consistent with the stated goal of this policy. The goals and objectives (listed in State Policy 44) of the project will "protect and restore the quality and function of ecological systems within the New York City coastal area." The ecosystem restoration forms a vital component of Jamaica Bay, one of the three New York City SNWAs. The project will improve the environmental quality and protect the coastal ecosystem features of this area. (The purposes of this policy are similar to State Policies 7 and 44.)

WRP Policy 4.1: *Protect and restore the ecological quality and component habitats and resources within the Special Natural Waterfront Areas.*

Spring Creek is recognized as being within a Special Natural Waterfront Area (SNWA). The New York City Comprehensive Waterfront Plan recognizes SNWAs as large areas with significant open spaces and concentration of natural resources including wetlands, habitats, and buffer areas. The purpose of this project is to restore coastal habitats, which is in direct accord with this policy.

WRP Policy 4.3: *Protect designated Significant Coastal Fish and Wildlife Habitats.*

Restoration activities at Spring Creek will improve and increase physical, biological, and chemical parameters including tidal inundation, flushing rates, turbidity, erosion control, vegetative diversity, wildlife habitat, habitat diversity, and water quality. Excavation will be done and will temporarily impact existing habitat; however, all work will be done using best management practices (BMPs) for erosion control. Upland vegetation clearing and excavation will be done only in areas that are currently dominated by introduced invasive species; planting and seeding of the native vegetative species will replace the existing invasive species and improve vegetative diversity. Placement of structural materials will protect marshes and create beneficial habitat for macroinvertebrates. Since the focus of this project is to protect habitat and restore ecological function, the project is consistent with the goals of this policy.

WRP Policy 4.5: *Protect and restore tidal and freshwater wetlands.*

The primary goal for this project is to restore degraded tidal ecosystems, improve environmental quality, and enhance fish and wildlife habitat. Project activities proposed for this site include restoring and creating low and high marshes; therefore, the project is consistent with this policy.

WRP Policy 4.6: *In addition to wetlands, seek opportunities to create a mosaic of habitats with high ecological value and function that provide environmental and societal benefits. Restoration should strive to incorporate multiple habitat characteristics to achieve the greatest ecological benefit at a single location.*

The Recommended Plan of Improvement calls for approximately 7.6 acres of low marsh, 5.4 acres of high marsh, 1.0 acre of scrub-shrub habitat, 2.1 acres of upland, and 19.0 acres of maritime upland, for a total of 35.1 acres of restored habitat. Restoration will include the reestablishment of predisturbance aquatic functions and related physical, chemical and biological characteristics. The proposed restoration will be accomplished through a combination of excavation, placement, re-contouring, and native species' plantings. The capacity of the existing wetland and the selected plan to perform specific wetland functions and values were assessed using the Evaluation of Planned Wetlands (EPW) procedure. Current vegetative communities, tidal patterns, and human use patterns at the project site were observed, documented, and incorporated into an analysis of the existing site and in the selection for the recommended design plan. The project is consistent with this policy.

WRP Policy 4.7: *Protect vulnerable plant, fish, and wildlife species, and rare ecological communities. Design and develop land and water uses to maximize their integration or compatibility with the identified ecological community.*

Restoration activities will benefit vulnerable plant, fish, and wildlife species and rare ecological communities by producing localized environmental enhancements, including improving water quality and creating and restoring habitat, which support an increase in local and regional biodiversity; therefore, the project is consistent with this policy

WRP Policy 4.8: *Maintain and protect living aquatic resources.*

The project will not only maintain and protect aquatic resources, but will create habitat for shellfish, finfish, and benthic resources through wetland and stream restoration activities. Salt marshes and estuaries provide essential habitat for fish caught commercially and recreationally. Species such as summer flounder, scup, butterfish, mullet, menhaden, Atlantic croaker, and blue crab all use salt marshes as juvenile or adults for feeding and refuge. Additionally, the design plan includes basin bathymetry reconfiguration and re-contouring at the head of the basin, which is expected to improve flushing rates and water quality. Therefore, the restoration measures implemented for the project are consistent with this policy.

WRP Policy 5: *Protect and improve water quality in the New York City coastal area.*

One of the project's restoration secondary objectives is to improve water quality. The project includes the preservation, enhancement, and restoration of wetland areas, providing for an increase in wetland water quality functions. Water quality functions of wetlands include erosion control, sediment stabilization, and filtration of dissolved particulate materials. Additionally, basin bathymetry reconfiguration and re-contouring at the head of the basin is expected to improve flushing rates and water quality; therefore, the project is consistent with this policy. As part of the Jamaica Bay watershed, the Spring Creek project has the potential to play an important role in significantly improving the overall water quality of the area. As the project includes the preservation, enhancement, and restoration of wetland areas, it will provide for an increase in wetland water quality functions, which include erosion control, sediment stabilization, and stabilization of dissolved particulate materials.

WRP Policy 5.1: *Manage direct or indirect discharges to waterbodies.*

As stated in Policy 5, the restoration of wetland areas and stream geomorphology will provide overall improvements in water quality of the area through functions such as erosion control, sediment stabilization, filtration of dissolved particulate materials, and improvement of dissolved oxygen; therefore, the project is consistent with this policy.

WRP Policy 5.2: *Protect the quality of New York City's waters by managing activities that generate nonpoint source pollution.*

Standard construction stormwater BMPs will be implemented to protect water quality of surrounding water resources. The following BMPs will be used:

- Minimize area of ground disturbance and vegetation clearing.
- Use the site's natural contours to minimize run-off and erosion.
- Do not expose the entire site at one time; avoid bare soils during rainy months.
- Stabilize erodible surfaces with mulch, compost, seeding, or sod.
- Use features such as silt fences, gravel filter berms, silt dikes, check dams, and gravel bags for interception and dissipation of turbid runoff water.
- Use silt or turbidity curtains during in-water construction to contain and control dissolved sediments.
- Use wetland mats for construction access within wetland areas to prevent soil compaction.
- Use vehicles with high flotation tires within wetland areas to prevent rutting and soil compaction.
- Complete in-water work during periods of low tide.
- Install cofferdams or stream diversions to isolate in-water construction areas.
- Use stabilized construction entrances for all ingress and egress points.

The project is consistent with this policy.

WRP Policy 5.3: *Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, tidal marshes, and wetlands.*

The project will carefully evaluate construction in a manner to prevent or minimize adverse impacts such as soil erosion and sediment alteration. For example, work can be accomplished during low tidal periods or in areas temporarily disconnected from tidal waters. In addition, all appropriate BMPs for soil erosion and sediment control including use of an environmental bucket to perform mechanical dredging, silt fencing, turbidity curtains, and hay bales will be used. The project is consistent with this policy.

WRP Policy 5.4: *Protect the quality and quantity of groundwater, streams, and the sources of water for wetlands.*

As stated in Policy 5.2, BMPs for soil erosion and sediment control will be implemented at the site to protect water quality; therefore, the project is consistent with this policy.

WRP Policy 5.5: *Protect and improve water quality through cost-effective grey-infrastructure and in-water ecological strategies.*

As stated in Policy 5, the restoration of wetland areas and stream geomorphology will provide overall improvements in water quality of the area through functions such as erosion control, sediment stabilization, filtration of dissolved particulate materials, and improvement of dissolved oxygen; therefore, the project is consistent with this policy.

WRP Policy 6: *Minimize loss of life, structures, infrastructure, and natural resources caused by flooding and erosion, and increase resilience to future conditions created by climate change.*

The expansion and restoration of wetland habitat should slightly increase flood storage at the site, but is not expected to make an overall change in flood zones. Therefore, the project is consistent with this policy.

WRP Policy 6.1: *Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the site, the use of the property to be protected, and the surrounding area.*

As stated in Policy 6, the project includes the protection and restoration of wetland habitat and expansion and restoration of wetland habitat will slightly increase flood storage on the site, but is not expected to make an overall change in flood zone. The project is consistent with this policy.

WRP Policy 6.2: *Integrate consideration of the latest New York City projections of climate change and sea level rise (as published in New York City Panel on Climate Change 2015 Report, Chapter 2: Sea Level Rise and Coastal Storms) into the planning and design of projects in the city's Coastal Zone.*

Consistent with Corps guidance, as alternatives are refined, and a particular alternative is identified, the selection of the preferred plan will consider the sensitivity of the alternative plan to varying projections of sea level rise (SLR). Consideration will also be given to alternatives that perform well and are adaptable to a range of SLR projections. The 2015 report prepared by the New York City Panel on Climate Change presents SLR projections that take into account the predicted ranges of both global climate change and local land subsidence. The central ranges of these projections are sea level increases in New York City of 4 to 8 inches by the 2020s, 11 to 21 inches by the 2050s, and 18 to 39 inches by the 2080s. The project is consistent with this policy.

WRP Policy 6.2- General Methodology:

The New York District of the USACE has proposed habitat restoration plans for the Spring Creek Park, located along Spring and Ralph's Creels in the Boroughs of Brooklyn and Queens, New York. The Project does not include any shoreline infrastructure or enclosed structures.

1a. The project is located within the current and 2050 1% annual chance floodplain. A portion of the site may also be flooded by 2050s Mean Higher High Water.

Ground elevations in areas project areas A and B will be reduced to elevations appropriate for wetland development, 1.5 to 3.2 feet. In areas E, F, and G local topography will increase to ranges between 4.0 to 13 feet. Base Flood elevations are between 10-11 feet in Zone A.

1b. The project does not include any vulnerable, critical, or potentially hazardous features.

2. N/A

3. The Project will advance Policy 6.2 and no further analysis is needed.

Please see Project Location Maps at the end of this document.

WRP Policy 7: *Minimize environmental degradation and negative impacts on public health from solid waste, toxic pollutants, hazardous materials, and industrial materials that may pose risks to environment and public health and safety.*

Preliminary sampling has been completed at the site and will be utilized to consider the impacts of the conceptual plans, however further sampling will be conducted during the next phase of this project before final plans are created. It is expected that this further testing will define areas that may include contaminated soils or solid wastes that would need to be excavated and transported to an existing upland facility for processing. It will also verify soils that can be reused on site for landscaping and possible capping of contaminated areas and solid wastes that do not need to be removed. Preliminary testing has showed contaminant types and levels as would be expected in urban areas. Overall, the proposed project is

expected to result in a positive impact, in that it will effectively remove or cap contaminated soils. It is therefore determined that the project is consistent with this policy.

WRP Policy 7.1: *Manage solid waste material, hazardous wastes, toxic pollutants, substances hazardous to the environment, and the unenclosed storage of industrial materials to protect public health, control pollution and prevent degradation of coastal ecosystems.*

As stated in Policy 7, preliminary testing showed contaminants common in urban areas present on site. Further testing will be utilized to define these areas. Based on these findings and the nature of the soil/sediment, removal and placement can be undertaken. If the nature of the removed material is non-hazardous, it can be retained on site. If the nature of the excavated material is found to be hazardous, the material will be treated and disposed of at a facility approved to accept hazardous material. The project is consistent with this policy.

WRP Policy 8: *Provide public access to, from, and along New York City's coastal waters.*

The project area consists of undeveloped City of New York parkland that straddles the boundary between the Boroughs of Brooklyn and Queens in Kings and Queens Counties respectively, New York City, New York. The project area is bound to the north by Flatlands Avenue, to the south by Belt Parkway, to the West by Fountain Avenue, and to the east by residential development (77th Street and 157th Avenue). A portion of the 47-acre project area is being evaluated for opportunities to be restored to intertidal salt marsh and maritime upland. This area, referred to as the restoration area, is bound to the north by Flatlands Avenue, to the east by 77th Street, and to the west by the New York City Department of Environmental Protection (NYCDEP) 26th Ward Auxiliary Plant. To the south, the restoration area is bound by Spring and Ralph's Creeks. The project shall be conducted on land owned by NYC Department of Parks and Recreation. In addition, there are four privately owned Lots in Block 4585 including: Lots 165 and 167 (EZER LCC) and Lots 205 and 225 (Julian Utevsky) which are wetlands and restricted from most development. The NYC Department of Parks and Recreation is seeking to acquire the parcels through donation as not part of this project rather as parkland and anticipates ownership before construction begins. The Fresh Creek Bridge, which connects Canarsie Beach Park to Spring Creek Park, provides additional recreational opportunities for bikers and pedestrians crossing the Fresh Creek Basin. The proposed action will have positive impacts to the recreational and educational features of this site by creating a much more diverse landscape with enhanced wildlife habitat and viewing opportunities. Restoration activities will not modify public access and all public access trails will be reestablished, to include signage, after construction. Therefore, this project is consistent with this policy.

WRP Policy 8.1: *Preserve, protect, maintain, and enhance physical, visual and recreational access to the waterfront.*

See Policy 8 above.

WRP Policy 8.3: *Provide visual access to the waterfront where physically practical.*

See Policy 8 above.

WRP Policy 8.4: *Preserve and develop waterfront open space and recreation on publicly owned land at suitable locations.*

See Policy 8 above.

WRP Policy 8.5: *Preserve public interest in and use of lands and waters held in public trust by the State and City.*

See Policy 8 above.

WRP Policy 8.6: *Design waterfront public spaces to encourage the waterfront's identify and encourage stewardship.*

See Policy 8 above.

WRP Policy 9: *Protect scenic resources that contribute to the visual quality of the New York City coastal area.*

Spring Creek consists of parkland owned by NYCDPR. A substantial amount of the area is disturbed; however, it also contains a large parcel of native marsh, grass and woodlands. Invasive species dominate the site including mugwort, Japanese knotweed, and common reed, which block the line of sight. By restoring the habitat at Spring Creek, the project will be protecting habitats from erosion, improving water quality, removing invasive species, and preserving/enhancing the scenic resources; therefore, the project is consistent with and furthers the goals of this policy.

WRP Policy 9.1: *Protect and improve visual quality associated with the New York City's urban context and the historic and working waterfront.*

See Policy 9 above.

WRP Policy 9.2: *Protect and enhance scenic values associated with natural resources.*

See Policy 9 above.

WRP Policy 10: *Protect, preserve, and enhance resources significant to the historical, archaeological, architectural, and cultural legacy of the New York City coastal area.*

A Phase 1A Cultural Resources survey has been completed for the site to identify potentially significant cultural resources in the project area. The restoration area will not affect any known prehistoric sites. Further testing will be conducted in the Plans and Specifications Phase of the project and will be completed prior to construction. In order to ensure the project does not impact unanticipated archaeological remains and to further help to document the area, limited monitoring of the excavation of fill material at Spring Creek will occur during the construction phase of the project. Therefore, the project is consistent with this policy.

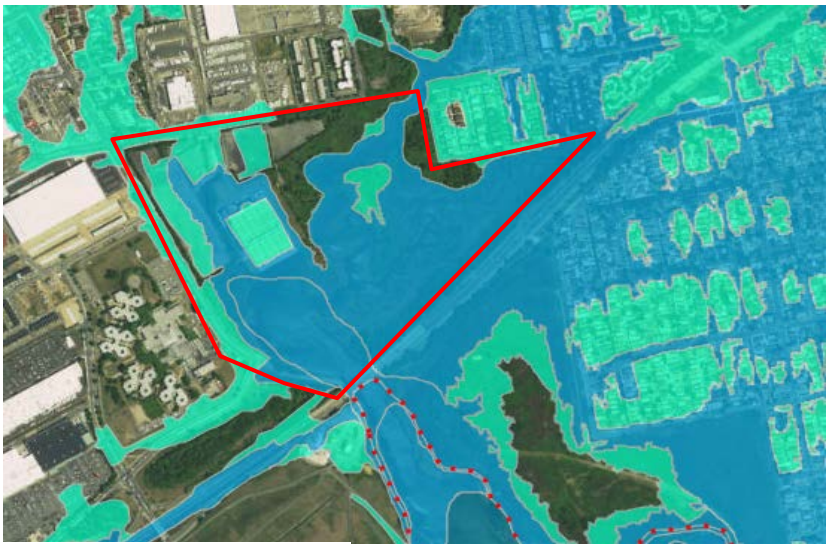
WRP Policy 10.1: *Retain and preserve historic resources, and enhance resources significant to the coastal culture of New York City.*

See Policy 10 above.

WRP Policy 10.2: *Protect and preserve archaeological resources and artifacts.*

See Policy 10 above.

Project Location Maps:



**Limit of Moderate Wave Action (LiMWA 2015 PFIRMs)**

**Preliminary Flood Insurance Rate Maps 2015**

- V Zone
- A Zone
- Shaded X Zone

**Future Floodplain 2050s**

1% Annual Chance Floodplain

0.2% Annual Chance Floodplain

**High Tide 2050s**

Low Estimate (8 inches SLR)

Low-Mid Estimate (11 inches SLR)

Middle Estimate (16 inches SLR)

Mid-High Estimate (21 inches SLR)

High Estimate (30 inches SLR)

| FOR INTERNAL USE ONLY | WRP No. |
|---|---|
| Date Received: | DOS No. |

# NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM
## Consistency Assessment Form

Proposed actions that are subject to CEQR, ULURP or other local, state or federal discretionary review procedures, and that are within New York City's Coastal Zone, must be reviewed and assessed for their consistency with the *New York City Waterfront Revitalization Program (WRP)* which has been approved as part of the State's Coastal Management Program.

This form is intended to assist an applicant in certifying that the proposed activity is consistent with the WRP. It should be completed when the local, state, or federal application is prepared. The completed form and accompanying information will be used by the New York State Department of State, the New York City Department of City Planning, or other city or state agencies in their review of the applicant's certification of consistency.

### A. APPLICANT INFORMATION

Name of Applicant: United States Army Corps of Engineers

Name of Applicant Representative: To Be Determined

Address: 26 Federal Plaza, New York, NY 10278-0090

Telephone: 917-790-8511 Email: To Be Determined

Project site owner (if different than above): _____

### B. PROPOSED ACTIVITY

*If more space is needed, include as an attachment.*

1. Brief description of activity

The Recommended Plan of Improvement calls for approximately 7.6 acres of low marsh, 5.4 acres of high marsh, 1.0 acre of scrub-shrub habitat, 2.1 acres of upland, and 19.0 acres of maritime upland, for a total of 35.1 acres of restored habitat. Restoration will include the reestablishment of predisturbance aquatic functions and related physical, chemical and biological characteristics. The proposed restoration will be accomplished through a combination of excavation, placement, re-contouring, and native species' plantings.

2. Purpose of activity

It is anticipated that without restoration, the Spring Creek site would remain a degraded, low quality habitat. The main problem to be addressed is the degradation of the health and habitat value of the marsh system located within the Spring Creek North area. Over an 80-year period (1920's to the present), the salt marsh community at Spring Creek was significantly altered by the dredging and filling activities associated with the construction and maintenance of the Jamaica Bay Federal Navigation Project. The plan is designed to address the erosion presently occurring at this location by creating a less fragmented, more contiguous marsh, and reducing channel area. .

## C. PROJECT LOCATION

Borough: Brooklyn Tax Block/Lot(s): NYC Parks - 87.55 aces over multiple lots

Street Address: _____

Name of water body (if located on the waterfront): Spring Creek (and Ralph's Creeks)

## D. REQUIRED ACTIONS OR APPROVALS

*Check all that apply.*

### City Actions/Approvals/Funding

***City Planning Commission*** ☐ Yes ☑ No

- ☐ City Map Amendment
- ☐ Zoning Map Amendment
- ☐ Zoning Text Amendment
- ☐ Site Selection – Public Facility
- ☐ Housing Plan & Project
- ☐ Special Permit
  (if appropriate, specify type: ☐ Modification ☐ Renewal ☐ other) Expiration Date: _____
- ☐ Zoning Certification
- ☐ Zoning Authorizations
- ☐ Acquisition – Real Property
- ☐ Disposition – Real Property
- ☐ Other, explain: _____
- ☐ Concession
- ☐ UDAAP
- ☐ Revocable Consent
- ☐ Franchise

***Board of Standards and Appeals*** ☐ Yes ☑ No

- ☐ Variance (use)
- ☐ Variance (bulk)
- ☐ Special Permit
  (if appropriate, specify type: ☐ Modification ☐ Renewal ☐ other) Expiration Date: _____

***Other City Approvals***

- ☐ Legislation
- ☐ Rulemaking
- ☐ Construction of Public Facilities
- ☐ 384 (b) (4) Approval
- ☐ Other, explain: _____
- ☐ Funding for Construction, specify: _____
- ☐ Policy or Plan, specify: _____
- ☐ Funding of Program, specify: _____
- ☐ Permits, specify: _____

### State Actions/Approvals/Funding

- ☑ State permit or license, specify Agency: NYSDEC Permit type and number: Water Quality Certificate
- ☐ Funding for Construction, specify: _____
- ☐ Funding of a Program, specify: _____
- ☐ Other, explain: _____

### Federal Actions/Approvals/Funding

- ☑ Federal permit or license, specify Agency: N/A Permit type and number: _____
- ☑ Funding for Construction, specify: Section 1135 of WRDA 1986
- ☐ Funding of a Program, specify: _____
- ☐ Other, explain: _____

Is this being reviewed in conjunction with a Joint Application for Permits? ☑ Yes ☐ No

## E. LOCATION QUESTIONS

| | | | |
|---|---|---|---|
| 1. | Does the project require a waterfront site? | ☑ Yes | ☐ No |
| 2. | Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land under water or coastal waters? | ☑ Yes | ☐ No |
| 3. | Is the project located on publicly owned land or receiving public assistance? | ☑ Yes | ☐ No |
| 4. | Is the project located within a FEMA 1% annual chance floodplain? *(6.2)* | ☑ Yes | ☐ No |
| 5. | Is the project located within a FEMA 0.2% annual chance floodplain? *(6.2)* | ☐ Yes | ☑ No |
| 6. | Is the project located adjacent to or within a special area designation? *See Maps – Part III of the NYC WRP. If so, check appropriate boxes below and evaluate policies noted in parentheses as part of WRP Policy Assessment (Section F).* | ☑ Yes | ☐ No |

- ☐ Significant Maritime and Industrial Area (SMIA) (*2.1*)
- ☑ Special Natural Waterfront Area (SNWA) (*4.1*)
- ☐ Priority Martine Activity Zone (PMAZ) (*3.5*)
- ☐ Recognized Ecological Complex (REC) (*4.4*)
- ☐ West Shore Ecologically Sensitive Maritime and Industrial Area (ESMIA) (*2.2, 4.2*)

## F. WRP POLICY ASSESSMENT

*Review the project or action for consistency with the WRP policies. For each policy, check* Promote, Hinder *or* Not Applicable (N/A). *For more information about consistency review process and determination, see* ***Part I*** *of the NYC Waterfront Revitalization Program. When assessing each policy, review the full policy language, including all sub-policies, contained within* ***Part II*** *of the WRP. The relevance of each applicable policy may vary depending upon the project type and where it is located (i.e. if it is located within one of the special area designations).*

*For those policies checked* Promote *or* Hinder, *provide a written statement on a separate page that assesses the effects of the proposed activity on the relevant policies or standards. If the project or action promotes a policy, explain how the action would be consistent with the goals of the policy. If it hinders a policy, consideration should be given toward any practical means of altering or modifying the project to eliminate the hindrance. Policies that would be advanced by the project should be balanced against those that would be hindered by the project. If reasonable modifications to eliminate the hindrance are not possible, consideration should be given as to whether the hindrance is of such a degree as to be substantial, and if so, those adverse effects should be mitigated to the extent practicable.*

| | | Promote | Hinder | N/A |
|---|---|---|---|---|
| **1** | **Support and facilitate commercial and residential redevelopment in areas well-suited to such development.** | ☐ | ☐ | ☑ |
| 1.1 | Encourage commercial and residential redevelopment in appropriate Coastal Zone areas. | ☐ | ☐ | ☑ |
| 1.2 | Encourage non-industrial development with uses and design features that enliven the waterfront and attract the public. | ☐ | ☐ | ☑ |
| 1.3 | Encourage redevelopment in the Coastal Zone where public facilities and infrastructure are adequate or will be developed. | ☐ | ☐ | ☑ |
| 1.4 | In areas adjacent to SMIAs, ensure new residential development maximizes compatibility with existing adjacent maritime and industrial uses. | ☐ | ☐ | ☑ |
| 1.5 | Integrate consideration of climate change and sea level rise into the planning and design of waterfront residential and commercial development, pursuant to WRP Policy 6.2. | ☐ | ☐ | ☑ |

| | | Promote | Hinder | N/A |
|---|---|---|---|---|
| **2** | **Support water-dependent and industrial uses in New York City coastal areas that are well-suited to their continued operation.** | ☐ | ☐ | ☑ |
| 2.1 | Promote water-dependent and industrial uses in Significant Maritime and Industrial Areas. | ☐ | ☐ | ☑ |
| 2.2 | Encourage a compatible relationship between working waterfront uses, upland development and natural resources within the Ecologically Sensitive Maritime and Industrial Area. | ☐ | ☐ | ☑ |
| 2.3 | Encourage working waterfront uses at appropriate sites outside the Significant Maritime and Industrial Areas or Ecologically Sensitive Maritime Industrial Area. | ☐ | ☐ | ☑ |
| 2.4 | Provide infrastructure improvements necessary to support working waterfront uses. | ☐ | ☐ | ☑ |
| 2.5 | Incorporate consideration of climate change and sea level rise into the planning and design of waterfront industrial development and infrastructure, pursuant to WRP Policy 6.2. | ☐ | ☐ | ☑ |
| **3** | **Promote use of New York City's waterways for commercial and recreational boating and water-dependent transportation.** | ☑ | ☐ | ☐ |
| 3.1. | Support and encourage in-water recreational activities in suitable locations. | ☐ | ☐ | ☑ |
| 3.2 | Support and encourage recreational, educational and commercial boating in New York City's maritime centers. | ☐ | ☐ | ☑ |
| 3.3 | Minimize conflicts between recreational boating and commercial ship operations. | ☐ | ☐ | ☑ |
| 3.4 | Minimize impact of commercial and recreational boating activities on the aquatic environment and surrounding land and water uses. | ☑ | ☐ | ☐ |
| 3.5 | In Priority Marine Activity Zones, support the ongoing maintenance of maritime infrastructure for water-dependent uses. | ☐ | ☐ | ☑ |
| **4** | **Protect and restore the quality and function of ecological systems within the New York City coastal area.** | ☑ | ☐ | ☐ |
| 4.1 | Protect and restore the ecological quality and component habitats and resources within the Special Natural Waterfront Areas. | ☑ | ☐ | ☐ |
| 4.2 | Protect and restore the ecological quality and component habitats and resources within the Ecologically Sensitive Maritime and Industrial Area. | ☐ | ☐ | ☑ |
| 4.3 | Protect designated Significant Coastal Fish and Wildlife Habitats. | ☑ | ☐ | ☐ |
| 4.4 | Identify, remediate and restore ecological functions within Recognized Ecological Complexes. | ☑ | ☐ | ☐ |
| 4.5 | Protect and restore tidal and freshwater wetlands. | ☑ | ☐ | ☐ |
| 4.6 | In addition to wetlands, seek opportunities to create a mosaic of habitats with high ecological value and function that provide environmental and societal benefits. Restoration should strive to incorporate multiple habitat characteristics to achieve the greatest ecological benefit at a single location. | ☑ | ☐ | ☐ |
| 4.7 | Protect vulnerable plant, fish and wildlife species, and rare ecological communities. Design and develop land and water uses to maximize their integration or compatibility with the identified ecological community. | ☑ | ☐ | ☐ |
| 4.8 | Maintain and protect living aquatic resources. | ☑ | ☐ | ☐ |

| | | Promote | Hinder | N/A |
|---|---|---|---|---|
| **5** | **Protect and improve water quality in the New York City coastal area.** | ☑ | ☐ | ☐ |
| 5.1 | Manage direct or indirect discharges to waterbodies. | ☑ | ☐ | ☐ |
| 5.2 | Protect the quality of New York City's waters by managing activities that generate nonpoint source pollution. | ☑ | ☐ | ☐ |
| 5.3 | Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, tidal marshes, and wetlands. | ☑ | ☐ | ☐ |
| 5.4 | Protect the quality and quantity of groundwater, streams, and the sources of water for wetlands. | ☑ | ☐ | ☐ |
| 5.5 | Protect and improve water quality through cost-effective grey-infrastructure and in-water ecological strategies. | ☑ | ☐ | ☐ |
| **6** | **Minimize loss of life, structures, infrastructure, and natural resources caused by flooding and erosion, and increase resilience to future conditions created by climate change.** | ☑ | ☐ | ☐ |
| 6.1 | Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the site, the use of the property to be protected, and the surrounding area. | ☑ | ☐ | ☐ |
| 6.2 | Integrate consideration of the latest New York City projections of climate change and sea level rise (as published in *New York City Panel on Climate Change 2015 Report, Chapter 2: Sea Level Rise and Coastal Storms*) into the planning and design of projects in the city's Coastal Zone. | ☑ | ☐ | ☐ |
| 6.3 | Direct public funding for flood prevention or erosion control measures to those locations where the investment will yield significant public benefit. | ☐ | ☐ | ☑ |
| 6.4 | Protect and preserve non-renewable sources of sand for beach nourishment. | ☐ | ☐ | ☑ |
| **7** | **Minimize environmental degradation and negative impacts on public health from solid waste, toxic pollutants, hazardous materials, and industrial materials that may pose risks to the environment and public health and safety.** | ☑ | ☐ | ☐ |
| 7.1 | Manage solid waste material, hazardous wastes, toxic pollutants, substances hazardous to the environment, and the unenclosed storage of industrial materials to protect public health, control pollution and prevent degradation of coastal ecosystems. | ☑ | ☐ | ☐ |
| 7.2 | Prevent and remediate discharge of petroleum products. | ☐ | ☐ | ☑ |
| 7.3 | Transport solid waste and hazardous materials and site solid and hazardous waste facilities in a manner that minimizes potential degradation of coastal resources. | ☐ | ☐ | ☑ |
| **8** | **Provide public access to, from, and along New York City's coastal waters.** | ☑ | ☐ | ☐ |
| 8.1 | Preserve, protect, maintain, and enhance physical, visual and recreational access to the waterfront. | ☑ | ☐ | ☐ |
| 8.2 | Incorporate public access into new public and private development where compatible with proposed land use and coastal location. | ☑ | ☐ | ☐ |
| 8.3 | Provide visual access to the waterfront where physically practical. | ☑ | ☐ | ☐ |
| 8.4 | Preserve and develop waterfront open space and recreation on publicly owned land at suitable locations. | ☑ | ☐ | ☐ |

| | | Promote | Hinder | N/A |
|---|---|---|---|---|
| 8.5 | Preserve the public interest in and use of lands and waters held in public trust by the State and City. | ☑ | ☐ | ☐ |
| 8.6 | Design waterfront public spaces to encourage the waterfront's identity and encourage stewardship. | ☑ | ☐ | ☐ |
| **9** | **Protect scenic resources that contribute to the visual quality of the New York City coastal area.** | ☑ | ☐ | ☐ |
| 9.1 | Protect and improve visual quality associated with New York City's urban context and the historic and working waterfront. | ☑ | ☐ | ☐ |
| 9.2 | Protect and enhance scenic values associated with natural resources. | ☑ | ☐ | ☐ |
| **10** | **Protect, preserve, and enhance resources significant to the historical, archaeological, architectural, and cultural legacy of the New York City coastal area.** | ☑ | ☐ | ☐ |
| 10.1 | Retain and preserve historic resources, and enhance resources significant to the coastal culture of New York City. | ☑ | ☐ | ☐ |
| 10.2 | Protect and preserve archaeological resources and artifacts. | ☑ | ☐ | ☐ |

## G. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program. If this certification cannot be made, the proposed activity shall not be undertaken. If this certification can be made, complete this Section.

"The proposed activity complies with New York State's approved Coastal Management Program as expressed in New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program, and will be conducted in a manner consistent with such program."

Applicant/Agent's Name: U.S. Army Corps of Engineers, New York District

Address: 26 Federal Plaza, New York, New York 10278-0090

Telephone: 917-790-8634 Email: peter.m.weppler@usace.army.mil

Applicant/Agent's Signature: WEPPLER.PETER.M.1228647353 Digitally signed by WEPPLER.PETER.M.1228647353 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=WEPPLER.PETER.M.1228647353 Date: 2017.09.15 15:08:47 -04'00'

Date: 15 Sept 2017

## Submission Requirements

For all actions requiring City Planning Commission approval, materials should be submitted to the Department of City Planning.

For local actions not requiring City Planning Commission review, the applicant or agent shall submit materials to the Lead Agency responsible for environmental review. A copy should also be sent to the Department of City Planning.

For State actions or funding, the Lead Agency responsible for environmental review should transmit its WRP consistency assessment to the Department of City Planning.

For Federal direct actions, funding, or permits applications, including Joint Applicants for Permits, the applicant or agent shall also submit a copy of this completed form along with his/her application to the NYS Department of State Office of Planning and Development and other relevant state and federal agencies. A copy of the application should be provided to the NYC Department of City Planning.

The Department of City Planning is also available for consultation and advisement regarding WRP consistency procedural matters.

**New York City Department of City Planning**
Waterfront and Open Space Division
120 Broadway, 31st Floor
New York, New York 10271
212-720-3525
wrp@planning.nyc.gov
www.nyc.gov/wrp

**New York State Department of State**
Office of Planning and Development
Suite 1010
One Commerce Place, 99 Washington Avenue
Albany, New York 12231-0001
(518) 474-6000
www.dos.ny.gov/opd/programs/consistency

### Applicant Checklist

- ☐ Copy of original signed NYC Consistency Assessment Form
- ☐ Attachment with consistency assessment statements for all relevant policies
- ☐ For Joint Applications for Permits, one (1) copy of the complete application package
- ☐ Environmental Review documents
- ☐ Drawings (plans, sections, elevations), surveys, photographs, maps, or other information or materials which would support the certification of consistency and are not included in other documents submitted. All drawings should be clearly labeled and at a scale that is legible.

STATE OF NEW YORK
**DEPARTMENT OF STATE**
ONE COMMERCE PLAZA
99 WASHINGTON AVENUE
ALBANY, NY 12231-0001
WWW.DOS.NY.GOV

ANDREW M. CUOMO
GOVERNOR

ROSSANA ROSADO
SECRETARY OF STATE

December 01, 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, NY 10278

**Re: DOS-F-2017-0889 (DA)**
U.S. Army Corps of Engineers/ New York District

U.S. Army Corps of Engineers and
NYC Department of Parks and Recreation
Spring Creek North Ecosystem Restoration Project
Spring Creek Park, Brooklyn and Queens, NY;
*Spring Creek and Ralph's Creek*

**Concurrence with Consistency Certification**

Dear Mr. Weppler:

The Department of State has completed its review of your consistency certification regarding the consistency of the above-referenced activities with the New York State Coastal Management Program (NYSCMP).

Pursuant to 15 CFR Part 930.62, and based upon the project information submitted, the Department of State concurs with your consistency certification for the proposed activities. This concurrence is without prejudice to and does not obviate the need to obtain all other applicable licenses, permits, or other forms of authorization or approval that may be required pursuant to existing State statutes.

Sincerely,

Gregory L. Capobianco
Office of Planning and Development

*GLC/ TS*
*cc: COE/ NY District – Steve Ryba;*
*COE/ NY District – Diana M. Kohtio;*
*DEC/ Region 2 – Steve Watts*

| | |
|---|---|
| **From:** | Melissa Herlitz (DCP) |
| **To:** | Weppler, Peter M CIV USARMY CENAN (US); Baron, Lisa A CIV CENAN CENAD (US); Kohtio, Diana M CIV USARMY CENAN (US) |
| **Cc:** | "Sturn, Terra (DOS)"; Michael Marrella (DCP) |
| **Subject:** | [EXTERNAL] NYC WRP: Spring Creek North Ecosystem Restoration Project |
| **Date:** | Wednesday, November 15, 2017 11:21:11 AM |

We have completed the review of the project as described below for consistency with the policies and intent of the New York City Waterfront Revitalization Program (WRP).

Spring Creek North Ecosystem Restoration Project: Proposed restoration of a 35-acre portion of Spring Creek Park located adjacent to the banks of Spring Creek and Ralph's Creek to rectify adverse impacts associated with historic dredge and fill activities around the Jamaica Bay navigation channel and associated indirect ecosystem degradation within the study area.

Based on the information submitted, the Waterfront and Open Space Division, on behalf of the New York City Coastal Commission, having reviewed the waterfront aspect of this action, finds that the actions will not substantially hinder the achievement of any Waterfront Revitalization Program (WRP) policy and hereby provides its finding to the New York State Department of State (DOS) that this action is consistent with the WRP policies and the local program. Please note that the proposed action(s) are subject to consistency review and approval by the New York State Department of State (DOS) in accordance with the New York State Coastal Management Program.

This finding is only applicable to the information received and the current proposal. Any additional information or project modifications would require an independent consistency review.

For your records, this project has been assigned WRP #17-132. The DOS file reference number is F-2017-0889 (DA). If there are any questions regarding this review, please contact me.

MELISSA HERLITZ

FLOOD RESILIENCE PLANNER • WATERFRONT AND OPEN SPACE

NYC DEPT. OF CITY PLANNING

120 BROADWAY, 31st FLOOR • NEW YORK, NY 10271

212-720-3624 I mherlitz@planning.nyc.gov <mailto:mherlitz@planning.nyc.gov%0d>

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**DEPARTMENT OF THE ARMY**
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090
October 7, 2015

REPLY TO
ATTENTION OF
Environmental Analysis Branch

Ms. Karen Greene
Northeast Region EFH Coordinator
National Marine Fisheries Service
James J. Howard Marine Sciences Laboratory
74 Magruder Rd.
Highlands, NJ 07732

Attention: Ms. Melissa Alvarez

Dear Ms. Greene:

The U.S. Army Corps of Engineers, New York District (District), in partnership with the New York City Department of Parks and Recreation, is currently re-evaluating the 2010 draft recommended plan for the Spring Creek Park Ecosystem Restoration Project. Originally authorized under the Continuing Authorities Program, Section 1135(b) of the Water Resource Development Act (WRDA) of 1986; a draft Ecosystem Restoration Report and Environmental Assessment was prepared in 2010 with a recommended National Ecosystem Restoration plan which restored degraded ecosystem structure, function, and dynamic processes to less degraded and more natural conditions. The costs of the recommended plan exceeded what was then the maximum federal expenditure of $5 million including both planning and construction costs. In light of the 2014 WRDA amendment, increasing the maximum federal expenditure from the $5 million to $10 million, the NYD is optimizing the plan and updating initial designs to current conditions. The project area is a tributary to Jamaica Bay just north of the Belt parkway, on the border of the New York City boroughs of Brooklyn and Queens.

The District is presently updating the draft Ecosystem Restoration Report and Environmental Assessment evaluating the proposed optimized plan (see attached). The proposed plan will create approximately 8.3 acres of low marsh, 9.2 acres of high marsh, 0.9 acres of scrub-shrub, 2.1 acres of upland, and 9.5 acres of maritime forest. The plan is designed to address the erosion presently occurring at this location by creating a less fragmented, more contiguous marsh, and reducing channel area. Low marsh restoration is achieved through excavation, the restoration of mudflat areas, and the filling in of select channel portions. Areas designed for maritime forest will tie into existing grade elevations and higher existing elevations will be re-graded to create low and high marsh. The restoration would consist of excavating approximately 71,000 CY of material, with approximately 63,000 CY being reused on site.

In a letter dated February 2, 2004, we provided your office a draft Essential Fish Habitat Assessment (EFH) that concluded the project was not likely to significantly affect any of the species listed, due predominately to its location outside the main body of Jamaica Bay. The 2004 EFH assessment (attached) has been updated to account for recent design changes; while some

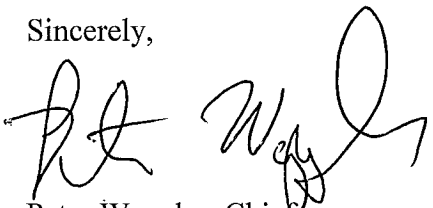
impacts are anticipated, they will be limited to the construction period, managed with best management practices, and are not expected to have a long-term effect. The District requests your review and confirmation of concurrence with the EFH Assessment.

During the course of our 2004 coordination, your office advised us of the possible occurrence of several species of endangered sea turtles within the project area; we would like to note that we are currently in contact with the Gloucester, Massachusetts office of National Marine Fisheries Service on all Endangered Species Act coordination.

The District plans to release the Draft Report to the Public in early December 2015 in order to coordinate grant funding (provided to improve the resiliency and coastal storm risk management benefits at the site) that has been awarded to NYCDP&R from the New York Rising – Howard Beach Community Reconstruction Plan and the National Fish and Wildlife Foundation's (NFWF) Hurricane Sandy Coastal Resiliency Program. Given the requirements of these grant programs, we greatly appreciate your responsiveness to this request.

Should you have any questions regarding this action or the above requests please contact the project biologist, Diana Kohtio, by phone (917) 790-8619, or by email at Diana.M.Kohtio@usace.army.mil.

Sincerely,



Peter Weppler, Chief
Environmental Analysis Branch

US Army Corps
of Engineers®
New York District

# ESSENTIAL FISH HABITAT ASSESSMENT

## Spring Creek Ecosystem Restoration Project Brooklyn, NY

**January 2004**
**Updated: October 2017**

**Prepared By: U.S. Army Corps of Engineers**
**Planning Division**
**New York District**
**26 Federal Plaza**
**New York, New York 10278-0090**

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## 1.0 Magnuson-Stevens Fishery Conservation & Management Act

Essential fish habitat (EFH) is defined under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) (PL 94-265), as amended by the Sustainable Fisheries Act (SFA) of 1996 (PL 104-267), as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". The SFA requires the identification of EFH for those species actively managed under Federal fishery management plans (FMP's). This includes species managed by the eight regional fishery management councils (FMC's), established under the MSFCMA, as well as those managed by the National Marine Fisheries Service (NMFS) under FMP's developed by the Secretary of Commerce.

EFH designations have been defined for specific life stages based on their occurrence in tidal freshwater, estuarine (i.e., mixing/brackish salinity zone) and marine (i.e., seawater salinity zone) waters. The project site is located within an estuarine mixing zone; therefore, only those species and lifestages with EFH designated in the estuaries of Jamaica Bay itself were considered (Table 1).

Table 1:
Essential Fish Habitat Designation in Jamaica Bay

| Species | Eggs | Larvae | Juveniles | Adults |
|---|---|---|---|---|
| Whiting | X | X | X | |
| Red Hake | X | X | X | |
| Winter Flounder | X | X | X | X |
| Windowpane Flounder | X | X | X | X |
| Atlantic Sea Herring | | | X | X |
| Monkfish | X | X | | |
| Bluefish | | | X | X |
| Atlantic Butterfish | | X | X | X |
| Atlantic Mackerel | | | X | X |
| Summer Flounder | | X | X | X |
| Scup | X | X | X | X |
| Black Sea Bass | | | X | X |
| King Mackerel * | X | X | X | X |
| Spanish Mackerel* | X | X | X | X |
| Cobia* | X | X | X | X |
| Sand Tiger Shark* | | X | | |
| Dusky Shark* | | X | | |
| Sandbar Shark * | | X | X | X |

* Migratory Species

EFH is considered to be particularly important to the long-term productivity of populations of one or more managed species or to be particularly vulnerable to degradation, it can also be identified by FMC's and NMFS as habitat areas of particular concern (HAPC). Those areas of EFH considered to be HAPC must demonstrate the importance of the ecological function provided by the habitat; the extent to which the habitat is sensitive to human-induced environmental degradation; whether, and to what extent, development activities are, or will be, stressing the habitat type; or the rarity of the habitat. No HAPC have been identified in the project area.

The species with EFH listed in Jamaica Bay include: whiting (*Merluccius bilinearis*), red hake (*Urophycis chuss*), winter flounder (*Pleuronectes americanus*), windowpane flounder (*Scopthalmus aqupsus*), Atlantic sea herring (*Clupea hargenus*), monkfish (*Lophhius americanus*), bluefish (*Pomatomus saltatrix*), Atlantic butterfish (*Peprilus triacanthus*), Atlantic mackerel (*Scomber scombrus*), summer flounder (*Paralicthys dentatus*), scup (*Stenotomus chrysops*), black sea bass (*Centropristus striata*), king mackerel (*Scomberomorus cavalla*), Spanish mackerel, (*Scomeberomorus maculates*), cobia (*Rachycentron canadum*), sand tiger shark (*Odontaspis taurus*), dusky shark (*Charcharinus obscurus*) and sandbar shark (*Charcharinus plumbeus*). Windowpane flounder, winter flounder, and scup have EFH designated in the project area for each stage of their life cycle. Red hake and whiting have EFH designated for egg to juvenile stages. Only monkfish has EFH designated for eggs and larval stages. Butterfish and summer flounder have EFH designated for larval to adult stages. Bluefish, black sea bass, Atlantic sea herring and Atlantic mackerel have EFH designated for juvenile and adult stages. King mackerel, Spanish mackerel, cobia, sand tiger shark, dusky shark, and sandbar shark have EFH designations for the Jamaica Bay estuary with no salinity zone indicated.

## 2.0 Existing Conditions

The project known as Spring Creek North is a 47-acre wetland-upland complex located on undeveloped City of New York parkland that straddles the boundary of the Boroughs of Brooklyn and Queens in Kings and Queens Counties, New York. The site is comprised of low marsh dominated by *Spartina alterniflora*, mudflats, scattered pockets of high marsh, salt pannes, disturbed upland supporting exotic herbaceous and woody plant species (i.e. tree-of-heaven and mugwort, and some disturbed areas dominated by common reed). Within the study area are two tidal creeks, Spring Creek and Ralph's Creek, which drain into Jamaica Bay. The primary sediments found within the eastern and northern

portions of Jamaica bay are characterized as muddy fine sand (USFWS 1997).

The site is plagued by a number of environmental issues, many of which are attributed to the long history of marsh infill and surrounding land disturbance. Despite the fact that there have been no new major fill activities or significant anthropogenic disturbance in the salt marsh, the site experiences ongoing marsh losses (NYC Parks and Natural Areas Conservancy, 2014) which in turn effect water quality and wildlife habitat.

## 3.0 Proposed Action

The proposed plan will create approximately 7.6 acres of low marsh, 5.4 acres of high marsh, 1.0 acre of scrub-shrub habitat, 2.1 acres of upland, and 19.0 acres of maritime upland, for a total of 35.1 acres. To achieve designed wetland elevation, approximately 98,000 cubic yards of material excavated from onsite will be distributed to create the upland and maritime forest communities. Areas designed for maritime forest will tie into existing grade elevations and higher existing elevations will be regraded to create low and high marsh. The plan will also fill in two lengths of tributaries with approximately 7,000 CY (total) of clean sand: (1) an approximately 360-ft length of linear channel (possibly a mosquito ditch), which will bridge the remaining segments of the small tributary, restoring its prior sinuosity, and (2) an approximately 435-ft length of a larger tributary that will be filled to create more low marsh; these activities are expected to occur in winter. Areas of maritime forest will have a clean soil cap of 1.5 feet, while the remaining areas (low and high marsh, scrub-shrub and uplands) will have a 1.0-foot clean cap.

The proposed design represents an optimization of the previously selected plan (2004) with regard to engineering and ecological constraints, cost effectiveness, and sea level change adaptability. The previously proposed turtle mounds were eliminated to increase the proportion of low marsh acreage; selected channel reaches were filled to address low marsh erosion. Importantly, the present plan addresses issues of constructability in areas of transition from low marsh to upland transition through the design of constructible and sustainable grades. Finally, the placement of excavated material in upland areas has been modified to incorporate presently available areas and current local constraints. This optimized plan also addresses the need to restore upland areas that will be disturbed during construction.

## 4.0 Assessment

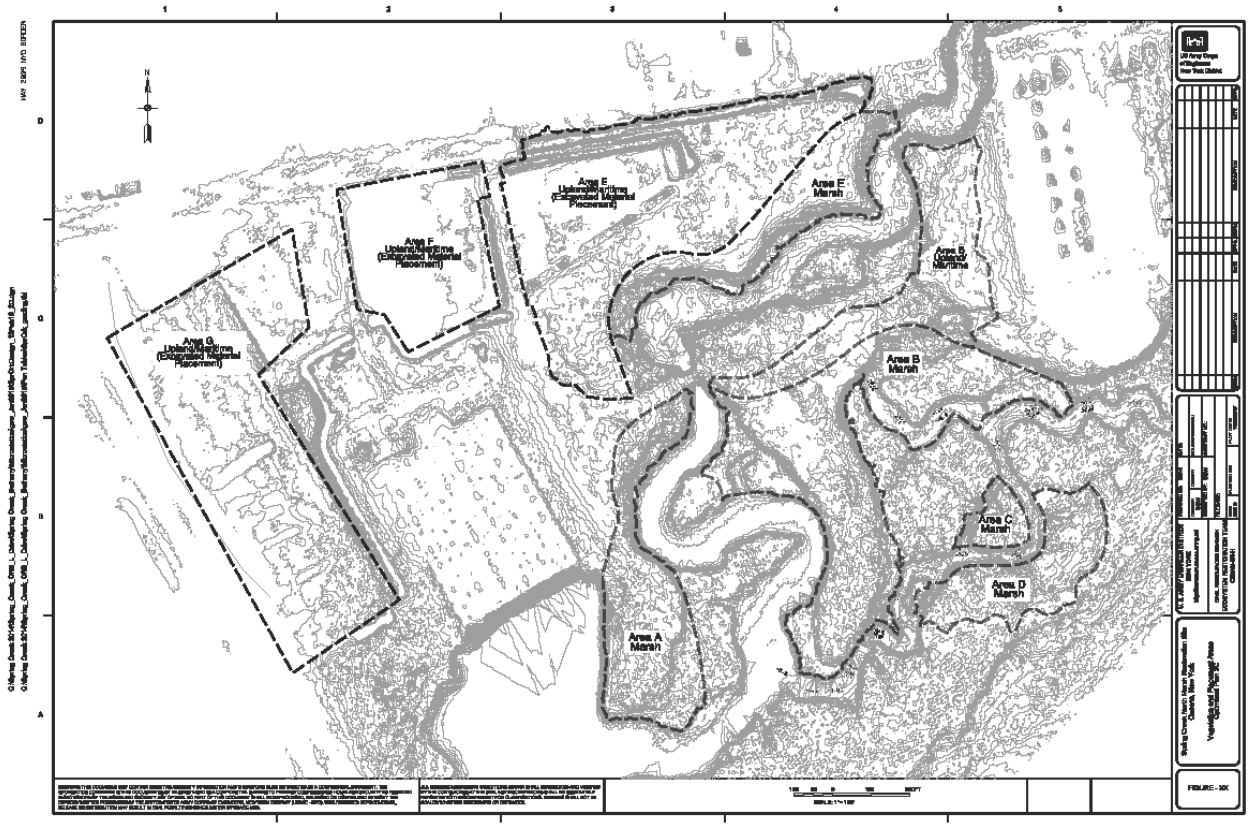


Figure 1. Labeling scheme for recommended plan.

### 4.1 Site Assessment

**Topography:** Excavation and regrading at the project sites will result in a permanent change to local topography. Excavations will be done along the shorelines to allow for the influx of tidal waters to create the tidal marshes. Ground elevations in areas A and B (Figure 1) will be reduced from levels ranging from 11.9 to 25 feet at the top of fill to elevations appropriate for wetland development (1.5 to 3.2 feet, depending on the target community). Soil will be placed in areas C and D to restore the channel and prevent erosion, the segments of channel designated for fill are in the range of -2.5-2.0. Proposed elevations more closely reflect the historical elevations of the project site, prior to fill activities and utilize bio-benchmarking to help establish elevations that currently support the desired habitat type.

**Wetlands:** Impacts to existing wetlands would include clearing and grubbing all of the vegetation

located within restoration areas A, B, C, and D. Additionally, there is a potential for increased sedimentation and turbidity during excavation and grading of adjacent areas. These impacts are expected to be temporary and Best Management Practices (BMPs), such as hay bales and/or erosion control fabric and floating turbidity barriers will be in place prior to and maintained throughout construction to prevent and/or minimize temporary impacts to water quality.

**Fish and Wildlife:** The loss of existing shellfish, finfish and benthic macroinvertebrate populations is expected to occur in some areas during construction, principally through an increase in sedimentation and turbidity and resultant physical disturbances to the site. Finfish and other mobile species will be able to avoid impacts by relocating to adjacent open water wetlands during construction. Sessile, filter-feeding species, such as mussels, will be unable to avoid water quality disturbances and may experience a decrease in their ability to feed. However, the short-term nature of this impact will be limited to the immediate vicinity of the restoration activities and avoid the existing wetlands within the project area and is therefore not expected to result in a significant loss of species in any manner. Additionally, sedimentation and turbidity will be minimized to the fullest extent possible through the implementation of BMP's. There will be a permanent loss of benthic habitat in Area B as a result of channel filling activities. Although these open water channel segments will be permanently converted to low marsh habitat, many nearby areas have habitat similar to that which will be lost or made temporarily unusable due to construction.

**Turbidity:** A temporary increase in turbidity is expected during construction as a result of the earthwork. As previously mentioned, the work will be accomplished during low tidal periods and utilizing BMP's for erosion and sedimentation control, reducing the amount of sedimentation that could potentially enter the adjacent water bodies. Sedimentation and turbidity will be minimized, and if any does occur, it will likely settle out quickly or be dissipated by the tide.

**Contaminants:** It is expected that some temporary impacts would occur from the excavation and disturbance of fill material containing low level metals contamination located in areas A, B, C and D of the project site. The areas proposed for excavation have been selected avoiding any high-level of contaminants at or above required excavation depth. Prior to more detailed HTRW sampling during the PED phase, the current plans call for placement of a twelve inch cover of growing media over excavated area at the cut line prior to the creation of wetlands. The material that is retained on site and

graded/planted as upland coastal habitat (maritime forest or grassland) will also be covered with eighteen (18) inches of growing media. Long term positive impacts would include the excavation and subsequent relocation and capping of fill material containing low level metals contamination from areas A, B, C, and D, to areas E, F and G.

**Tides and Currents:** Currently, only the existing marsh habitats are subject to tidal influence. The excavation of area B may result in a change in the tidal influences of Ralph's Creek as more marsh habitat will be opened up to tidal inundation. Placement of excavated materials on some portions of the site would raise elevations and serve as a berm which may protect adjacent properties from elevated tidal flooding during storm events. The channel realignment and channel filling activities off of Ralph's Creek would have a long-term impact on the tidal flow, sedimentation, and erosion within Ralph's Creek. Tidal flows are the main erosional and depositional driver within creek systems. The plan will fill in two tributary segments with clean sand: (1) an approximately 360-ft length of linear channel (possibly a mosquito ditch), which will bridge the remaining segments of the small tributary, restoring its prior sinuosity and slowing the flows to address the current low marsh erosion problem, and (2) an approximately 435- ft length of a larger, dead end tributary will be filled to create more low marsh. This creek segment was cut off from the main channel of Spring Creek by historic filling activities. Current speed is a function of tidal volume and channel size. In this regard, two factors of the proposed restoration may impact long term current speed: (1) plans for the narrowing and filling of existing channels, which will decrease channel size; and (2) the creation of wetland from former upland, which will increase tidal volume.

**Noise:** There will be a temporary increase in noise levels in the immediate project area during construction due to the increase in traffic, and the operation of construction equipment. However, these impacts are expected to be short-term (eight to ten months). The temporary impacts to ambient noise levels from construction equipment will occur during normal working hours, in compliance with local noise ordinances. All equipment will be land based reducing potential disturbance to EFH.

### 4.2 Water Quality

Jamaica Bay is a brackish estuary located within the Southern Long Island watershed (United States Geological Survey (USGS) Hydrologic Unit 2030202). This watershed has a drainage area of

approximately 2,000 square miles and includes Kings, Queens, Nassau, and Suffolk Counties of New York State. Land uses within the southern Long Island watershed include residential, urban, industrial, commercial, recreational, forested, and coastal areas. Average annual precipitation is approximately 42 inches and is generally evenly distributed throughout the year. Salinity in the bay varies from 23 to 27 parts per thousand (NYCDEP, 2011). Stratification of the water column can occur following precipitation events as the less dense stormwater overrides the denser saline waters in the Bay. Jamaica Bay has an average semidiurnal tidal range of 5 feet. Tidal currents move sediment and other materials around the Bay and mix salt and freshwater.

All of eastern Jamaica Bay and its Spring Creek have been designated by NYSDEC as impaired, due to nitrogen levels, oxygen demand, and presence of pathogens (NYSDEC, 2016). Spring Creek is a tributary to Old Mill Creek which opens to Jamaica Bay. Spring Creek is 3,800 feet long by an average width of 180 feet. Depths throughout the system range from 3 to 12 feet and surface water temperatures range from 32 to 78°F, with a mean of 56°C. Salinities range from 19 to 32 ppt, with a mean of 26 ppt (JABERRT, 2002).

Dissolved oxygen is the primary metric utilized by regulatory agencies to assess water quality. The Class I (applicable to Spring Creek) dissolved oxygen criterion of >4.0 mg/L is considered by the NYSDEC to be fully consistent with the "fishable" goal of the CWA. The Class SB waterbody classification (applicable to Jamaica Bay) of >5.0 mg/L considered by the NYSDEC to be consistent with the "fishable/ swimmable" goals of the CWA. The IEC Class A dissolved oxygen criterion is >5.0 mg/L. As per the New York City Department of Environmental Protection (2011), the annual percent attainment of the Class I dissolved oxygen threshold at the mouth of Spring Creek is 83% and the annual percent attainment of IEC Class A dissolved oxygen threshold at the mouth of Spring Creek is 65%. The annual percent attainment at Jamaica Bay of the Class A (set by IEC) and Class SB (set by NYSDEC/EPA) dissolved oxygen thresholds is 99%.

### 4.3 Species Assessment

In Addition to EFH descriptions, the assessment of EFH of the site and subsequent fish utilization will be discussed in relation to site morphology, water chemistry, and sediment composition. The following is an individual species account of all EFH species.

**Black Sea Bass**

EFH is defined within the vicinity of the project site for juveniles and adults. The offshore EFH habitat for juvenile and adult black sea bass is the demersal waters found over the Continental Shelf (from the coast out to the limits of the exclusive economic zone (EEZ)), from the Gulf of Maine to Cape Hatteras. The inshore EFH for juveniles and adults are estuaries with a common or high abundance of black sea bass. Juveniles are found in depths from one (1) to thirty-eight (38) meters at salinity greater than eighteen (18) parts per thousand, and favor shell beds, rough bottoms, hard structures or eel grass beds. Adults generally overwinter at depths from seventy (70) to more than one-hundred and eighty (180) meters. Few adults occur north of Cape May, New Jersey in the winter. In the spring, this species displays a general northward and inshore movement, expanding its range as far north as Cape Cod from May to October. During the summer, adult sea bass gather around rocky bottoms, sunken wrecks, old pilings, and wharves. At this time of year they are most abundant at depths of less than thirty-five (35) meters.

The Jamaica Bay Ecosystem Research and Restoration Team (JABERRT) reported that black sea bass have been collected in the Dubos Point, and Brandt Point sections of Jamaica Bay (USACE NYD, 2002). The Northeast Fisheries Science Center (NEFSC) bottom trawl survey, 1963-1997 indicates the presence of juvenile black sea bass within Jamaica Bay during the fall from 1963 through 1996 (Steimle, F. et al., 1999a).

Juvenile black sea bass may make some use of the site during the summer months, but the lack of hard structures or extensive shell beds or eel grass probably limits the use as does the lack of depth at the site. Potential impacts to black sea bass EFH at the project site would be minimal due to their strong association with structured habitats and rough bottoms.

**Red Hake**

EFH is defined within the project site for eggs through juvenile lifestages of the red hake. The EFH for red hake eggs and larvae is defined as areas of coastal and offshore waters out to the offshore US boundary of the exclusive economic zone (EEZ). The EFH for red hake juveniles is defined as bottom habitats with an abundance of scallops and a shell fragmented substrate. Eggs are commonly located within sea surface water temperatures below $10^{o}$ C with salinities less than 25 ppt along the

inner Continental Shelf. The larvae are commonly located within sea surface temperatures below 19° C at depths less than 200 m and salinities greater than 0.5 ppt. Juveniles prefer water temperatures less than 16° C, depths below 100 m, salinity ranges of 33-34 ppt, and are typically found over substrate consisting largely of shell fragments and in conjunction with abundant scallop populations or other cover such as eelgrass.

The JABERRT report indicates that red hake are present in Jamaica Bay estuaries and Jamaica Bay; however few juvenile red hake have been collected near the project area during previous sampling programs. Although there have been no reports of egg or larvae of Red Hake within the project site the area is designated as EFH for red hake eggs and larvae. No direct impact is expected to red hake larvae or eggs as the tidal flushing exchanges water at a pace that minimizes any significant or persistent use of the site. Any pelagic larvae within the study area are not expected to be heavily impacted as in water construction is expected to be completed before May when most red hake larvae are found. Potential impacts to juvenile red hake would be minimal since the prevailing salinity range is below that preferred by juveniles. Further, red hake prefer fragmented shell substrate and the substrate at the project site is muddy. The project is not expected to have any adverse impacts to this species.

**Windowpane Flounder**

EFH is defined within the project area for all lifestages (egg through adults) of the windowpane flounder. The EFH for windowpane flounder has been described as coastal and offshore areas from the Gulf of Maine to Cape Hatteras. Windowpane eggs have a typical spawning temperature of 11° C and are observed in the middle Atlantic from February to November with peaks in May and October. Adults and juvenile are usually found over mud or fine-grained sand bottoms in water temperatures below 26.8° C, at depths ranging from 1-75 meters, and in salinities between 5.5-36 ppt.

Windowpane flounder are one of the dominant species within Jamaica Bay. Windowpane flounder spawn between February and December, with a peak in May and have been reported in Jamaica Bay during that time; however no sexually mature windowpane flounder were collected during the JABERRT study. While windowpane flounder may utilize the site during periods of the year, the site represents less than ideal habitat for some lifestages. Larval site utilization is most likely limited by

temperature and therefore confined to the early and late portions of the typical range. Direct impacts likely to occur are related to construction activities (smothering and turbidity) as the project does require fill of open water. Some impact is expected, but numbers should be minimal. Construction- related disturbances would be confined within the project site and would occur over a brief period of time. Channel filling activities will also cause permanent and temporary disruption of foraging habitat for juvenile and adult windowpane flounder during construction. Impacts due to loss of foraging habitat from channel fill are expected to be minor, as ample amounts of similar habitat surround the project site. Windowpane flounder would continue to use areas surrounding the project site during construction, for foraging and shelter. Since windowpane flounder larvae and juveniles have been collected within the project site, best management practices (BMP's) will be used to minimize the temporary construction disturbances such as increased sedimentation and turbidity. This project is expected to have a measurable positive impact on this species, by increasing the area and quality of the salt marsh habitat within Spring Creek.

**Winter Flounder**

EFH is defined within the project area for all lifestages of the winter flounder. EFH for the winter flounder eggs, juveniles and adults has been defined as benthic habitats comprised of gravel, mud, muddy sand and sand. Eggs prefer water temperatures less than $10^{o}$C, with salinities between 10-30 ppt and water depths less than 5 m. Juveniles and adults prefer water temperatures below $25^{o}$ C, depths from 1-100 m and salinities between 15-33 ppt. The EFH for winter flounder larvae has been defined as pelagic and bottom waters. Larvae are commonly found within sea surface temperatures less than $15^{o}$ C and salinities ranging from 4-30 ppt, and water depths less than 6 m.

Winter flounder are located throughout Jamaica Bay making them one of the dominant species of the bay. From May 2000 to May 2001 JABERRT collected winter flounder within the project area (USACE NYD, 2002). Winter flounder spawn and lay demersal eggs during winter to early spring in estuaries such as Jamaica Bay; however the timing is temperature dependent. Research indicates that spawning occurs from January to March in New Jersey, and occurred when temperatures were below $5^{0}$C from January to April (NEFMC, 1998a). Water temperatures in Jamaica Bay have been reported to be below $5^{o}$ C during the spawning period; however sexually mature winter flounder have not been reported in Jamaica Bay during this time period.

Direct impacts to the demersal eggs, larvae, and young-of-year juveniles are likely to occur as they may be unable to move away from the filling activities as well as general turbidity created by construction activities. Some impact is expected, but numbers should be minimal. Additionally, channel filling activities will cause permanent and temporary disruption of foraging habitat for juvenile and adult winter flounder during construction. Impacts due to loss of foraging habitat from channel fill are expected to be minor, as ample amounts of similar habitat surround the project site. Construction-related disturbances would be confined within the project site and would occur over a brief period of time. Winter flounder would continue to use areas surrounding the project site during construction, for foraging and shelter. Since winter flounder larvae and juveniles have been collected within the project site, best management practices (BMP's) will be used to minimize the level of disturbance. Overall, this project is expected to have a measurable positive impact on this species, by providing increased salt marsh habitat which, is used as foraging habitat by juvenile and adult winter flounder.

**Atlantic Sea Herring**

EFH for Atlantic herring juveniles and adults is designated within the project site. Juvenile fish are found in pelagic and bottom habitats in fifteen 15-35 m of water at temperatures less than $10^{o}$ C with a preferred salinity range of 26-32 ppt. Adult fish are found in pelagic waters of 20-130 m depth at temperatures below $10^{o}$ C and salinity in excess of 28 ppt.

Jamaica Bay is included in the designated bays and estuaries identified by the NOAA ELMR program as supporting Atlantic herring at "common" or "abundant" levels (NEFMC, 1998b). Atlantic herring are a schooling pelagic species, not generally associated with bottom habitats or nearshore areas. While juvenile herring may at times utilize the site, the duration would be limited to winter months. There is no anticipated impact to Atlantic sea herring.

**Butterfish**

Butterfish EFH is designated for larvae, juveniles and adults within the project site. EFH for butterfish is defined as pelagic offshore and inshore waters where butterfish are common, or abundant. Juvenile and adult butterfish inhabit water from 10-365 meters at temperatures ranging from 3-$28^{o}$ C.
Larvae are commonly found at temperatures of $9^{o}$-$19^{o}$ C. They are frequently found in bays and estuaries

from Massachusetts to New York in the summer and fall.

During July 2000 butterfish were collected in the Dead Horse Bay section of Jamaica Bay, which is located approximately 4 miles west of the project site. Butterfish larvae are found between late May and July, minimal impacts are expected as in water construction is expected to be completed before May. Butterfish juveniles and adults are both pelagic, and not typically associated with bottom habitats or nearshore areas; those that make their way into the project site would be expected to escape the construction area for nearby similar habitat. Direct impact should therefore be minimal to these age groups.

Indirect long-term impacts to butterfish are expected to be positive as their forage species would be expected to thrive at the project site with completion of the restoration. Butterfish prey on plankton, small crustaceans, small fish and polychaetes; which will all benefit from the added vegetation, cover, and detritus produced by the restored marsh.

**Summer Flounder**

Summer flounder EFH is designated for larvae, juveniles and adults within the project site. Planktonic summer flounder larvae are found offshore and would not be affected by this construction; however, post-larvae migrate in shore from October- May (Packer et al. 1999). Juvenile summer flounder are typically found in inshore waters with salinity ranging from 10-30 ppt and are associated with salt marsh creeks, seagrass beds, and mudflats at temperatures greater than 2.8$^{o}$ C. Adult fish are found in the same habitats as juveniles during the warm summer months and migrate offshore during the winter to depths of 150m.

Summer flounder larvae and juveniles were collected during the sampling efforts conducted by JBERRT. Summer flounder accounted for less than 1% of the species collect during the sampling. Potential direct impacts to larval and juvenile summer flounder include smothering and direct loss of lifestage habitat due to channel filling activities. Although some impact is expected, numbers should be minimal. Older juveniles and adults are expected to escape the construction area, so that impacts will be minimal but will include temporary displacement due to activity in the area.

Potential indirect impacts to summer flounder EFH include temporary and permanent disruption of

foraging habitat for juvenile and adult summer flounder. Impacts due to loss of foraging habitat from channel fill are expected to be minor, as ample amounts of similar habitat surround the project site. Construction-related disturbances would be confined within the project site and would occur over a brief period of time. Adult and juvenile summer flounder would continue to use the project site during construction, for foraging and shelter. BMP's will be used to minimize the level of disturbance, and any adverse impacts. This project will have a beneficial impact on the species with the addition of salt marsh habitat, which is used as foraging habitat by juvenile and adult summer flounder.

**Atlantic Mackerel**

Atlantic mackerel EFH is designated for juveniles and adults and is defined as the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from Cape Hatteras to Maine. Juveniles tend to form schools in coastal areas, whereas adult mackerel primarily occur further offshore. Juvenile and adult mackerel inhabit cold and temperate shelf areas at temperatures ranging from seven (7) to twenty (20) degrees Celsius.

Adult Atlantic mackerel are not expected to utilize this site with regularity because of the shallow depths. Atlantic mackerel are a schooling fish and are not generally associated with bottom habitats or nearshore areas; therefore potential impacts due to the ecosystem restoration are not expected. Juveniles and adults that may make their way into the project site would be expected to escape the construction area for nearby similar habitat, minimizing direct impacts to these age groups.

**Bluefish**

The EFH for bluefish juveniles and adults is defined as pelagic water over the Continental Shelf (from the coast out to the limits of the EEZ) from Massachusetts south to Cape Hatteras. Bluefish juveniles are usually found in waters with salinities of 23.0-33.0 ppt, but can endure salinities as low as 3.0 ppt.

During the JABERRT study bluefish where collected within the project site; however, direct impacts to juvenile and adult bluefish are expected to be minor as these life stages are mobile and would leave the construction area for nearby similar unaffected habitats. Indirect negative impacts are expected to be negligible.

**Scup**

EFH in the project area is designated for all life stages and is defined as estuaries and demersal waters. Scup prefer sand, mud, mussel bed, and eelgrass bottoms. Scup are inshore from early April at the mouth of Chesapeake Bay, and from early May northward to southern Massachusetts. Most of them withdraw from the coast late in October, though some few linger through November, and an occasional fish into December even as far north as the vicinity of Woods Hole. Scup usually congregate in schools. The young fry come close in to the land in only a few feet of water. Adults prefer smooth to rocky bottom, where they feed on amphipods, annelid worms, hydroids, sand-dollars, and young squid.

Juvenile scups have previously been collected within the project area; however, juveniles and adults which may come into the project area would be expected to escape the construction area for nearby similar habitat, limiting the direct impacts.

Scup eggs and larvae are generally found in water with temperature between 12$^{o}$-22$^{o}$ C and salinities greater than 15 ppt. During the period when theses life stages may be present, salinities within the project site have been known to go below 15 ppt; therefore potential impacts to egg and larvae due to the ecosystem restoration project are not expected to occur.

**Whiting**

The project site has been described as EFH for whiting eggs, larvae and juveniles. Whiting spawning and lifestages occur in water depths of 30 and 325 meter, which are much deeper than those within the project site; therefore potential impacts due to project are not expected to occur.

**Monkfish**

Monkfish EFH within Jamaica Bay has been designated for eggs and larvae. Monkfish are found on the continental slope from tide line to at least 650 meters. Monkfish are a temperature tolerant species and have been observed in waters ranging from 0-24$^{o}$ C. In addition, they are tolerant to a wide range of salinity, occurring from estuaries to the upper part of the continental slope. The larvae feed on various small pelagic animals such as copepods, crustacean larvae, and glass worms. Impacts due to the project are not expected to occur.

**Migratory Species**

King mackerel, Spanish mackerel, cobia, sand tiger shark, dusky shark, and sandbar shark have EFH designations for the Jamaica Bay estuary; however they are pelagic migratory species; therefore impacts to these species are not expected to occur.

## 5.0 Summary and Determination of Impacts

Essential fish habitat (EFH) is defined under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) (PL 94-265), as amended by the Sustainable Fisheries Act (SFA) of 1996 (PL 104-267), as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity".

EFH has been designated for eighteen species within Jamaica Bay as follows: windowpane flounder, winter flounder, and scup have EFH designated in the project area for each stage of their life cycle; Red hake and whiting have EFH designated for egg to juvenile stages; monkfish has an EFH designated for eggs and larval stages; Butterfish and summer flounder have EFH designated for larval to adult stages, and bluefish, black sea bass, Atlantic sea herring and Atlantic mackerel have an EFH designated for juvenile and adult stages. King mackerel, Spanish mackerel, cobia, sand tiger shark, dusky shark, and sandbar shark have EFH designations for the Jamaica Bay estuary but no salinity zone indicated.

Direct impacts from the proposed ecosystem restoration project are expected for summer flounder (larvae, juveniles), butterfish (larvae), winter flounder (egg, larvae, juveniles), windowpane flounder (egg, larvae, juveniles), and red hake (larvae). Potential impact to EFH would be limited to the proposed construction period and may include smothering related to channel filling activities, gill abrasion, suffocation, and decreased predation efficiency for sight feeding fish (Uncles and Stephens, 1998). Temporary impacts include exclusion from the project site as well as increased turbidity and sedimentation. Sand will be used for the restoration, which is expected to settle quickly out of the water column, the increase in turbidity is therefore expected to be relatively minor. Turbidity and sedimentation will also be limited by completing in water construction activities at low tide in the winter and limiting the impact zone with the use of BMP's. The segments of channel designated for fill are in the range of -2.5 - 2.0, thus potentially eliminating impacts to a number of species that would not

typically occur at those depths. Additionally, Juvenile and adult life stages of fish will be able to avoid impacts by relocating to adjacent wetlands during construction. There are few fish species that use the creek as a nursery, therefore impacts on egg and/or larval life stages are not expected to be significant. Indirect negative impacts are expected to be minor; although the proposed project calls for a loss (< 1 acre) of open water habitat and the temporary loss of forage species at the site due to the filling. Many nearby areas have similar habitat to that which will be lost or temporarily unusable due to construction therefore recolonization of temporarily disturbed areas is expected to occur soon after construction.

This project will have a beneficial impact to all EFH species present within the project area and forage species are expected to benefit from the vegetation and increased detritus of the marsh system. Salt marshes are one of the most productive ecosystems, providing shelter and food to numerous organisms. It has been established that these intertidal habitats serve as nurseries for larvae and juveniles of many fish species.

The District has determined that the adverse effects on EFH from the Spring Creek North Ecosystem Restoration Project are not substantial and therefore requests an abbreviated EFH consultation.

## 6.0 References


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**UNITED STATES DEPARTMENT OF COMMERCE**
**National Oceanic and Atmospheric Administration**
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

DEC 18 2017

Peter Weppler, Chief
Environmental Analysis Branch
Planning Division
New York District
U.S. Army Corps of Engineers
26 Federal Plaza
New York, NY 10278-0900

RE: Spring Creek North Ecosystem Restoration Project
Brooklyn and Queens, NY

Dear Mr. Weppler:

We have reviewed the September 2017 Draft Integrated Feasibility Report and Environmental Assessment and the October 2017 Draft Essential Fish Habitat (EFH) Assessment for the Spring Creek North Ecosystem Restoration project located in the Boroughs of Brooklyn and Queens in Kings and Queens Counties, New York. The report addresses the formulation and evaluation of plans to restore the degraded ecosystem structure, function, and dynamic processes within Spring Creek Park, part of the Jamaica Bay ecosystem. The tentatively selected plan (TSP) would be accomplished by excavating and re-contouring uplands to appropriate intertidal elevations, removing invasive plant species, and replanting with native plant species.

The Spring Creek North project area is a 47-acre portion of Spring Creek Park located adjacent to the banks of Spring Creek and Ralph's Creek. The TSP includes the conversion of 35.1 acres of upland characterized by anthropogenic fill and impermeable surfaces to approximately 7.6 acres of low marsh, 5.4 acres of high marsh, 1.0 acre of scrub-shrub habitat, 2.1 acres of upland, and 19.0 acres of maritime upland. The plan also recommends channel realignment to reintroduce sinuosity back into the creek and address ongoing erosion that has occurred on the eastern portion of the project area. To achieve the designed wetland elevation, approximately 98,000 cubic yards of material excavated from onsite will be distributed to create the upland and maritime forest communities. Areas designed for maritime forest will tie into existing grade elevations and higher existing elevations will be regraded to create low and high marsh.

**Magnuson Stevens Fisheries Management and Conservation Act (MSA)**
The estuarine portions of the project area have been designated as EFH for a number of federally managed species including Atlantic butterfish (*Peprilus triacanthus*), Atlantic mackerel (*Scomber scombrus*), Atlantic sea herring (*Clupea harengus*), black sea bass (*Centropristis striata*), bluefish (*Pomatomus saltatrix*), cobia (*Rachycentron canadum*), king mackerel (*Scomberomorus cavalla*), red hake (*Urophycis chuss*), Spanish mackerel (*Scomberomorus maculates*), summer flounder (*Paralichthys dentatus*), windowpane flounder (*Scophthalmus aquosus*), winter flounder (*Pseudopleuronectes americanus*), clearnose skate (*Raja eglanteria*),

little skate (*Leucoraja erinacea*), winter skate (*Leucoraja ocellata*), and sandbar shark (*Charcharinus plumbeus*).

The MSA requires federal agencies to consult with us on project such as this that may affect EFH adversely. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments, lists the required contents of EFH assessments, and generally outlines each agency's obligations in this consultation procedure.

The EFH final rule published in the Federal Register on January 17, 2002 defines an adverse effect as "any impact which reduces the quality and/or quantity of EFH" and further states that:

> An adverse effect may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystems components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from action occurring within EFH or outside EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

We have reviewed the EFH assessment for this project, which evaluates the impacts of the project on EFH associated with the conversion of anthropogenically impacted upland habitat to salt marsh and maritime upland habitats. Overall, the restoration of wetlands and the enhancement of uplands to create a mix of high and low marsh habitat and upland buffers will have a positive effect on EFH, federally managed species and other NOAA trust resources. However, because contaminants have been identified on the site, we are concerned that the activities proposed could result in the increased risk of contaminant exposure to aquatic organisms during construction and post-construction due to restoration of tidal flow to portions of the site.

The most recent contaminant studies of the site were conducted in 2002 and 2003. At that time contaminants of particular concern (COPCs), including metals (arsenic, barium, cadmium, chromium, lead, mercury, and selenium) and semi-volatile organic compounds, were identified in some sediment samples. Further analyses indicated that the COPCs would not leach, and a cap of 1 ft. of clean cover ("growing media") in wetlands and 1.5 ft. in uplands was proposed. We recommend that the sediment testing and analyses be updated and reevaluated due to the duration of time since the previous testing was conducted. Results of the analyses and evaluation of potential impacts to EFH and NOAA trust resources should be provided to our office as part of our continuing coordination on this project.

**Endangered Species Act**

Threatened or endangered species under the jurisdiction of NMFS may be present in the project area. As the lead federal action agency, you are responsible for determining the nature and extent of effects and coordinating with our Protected Resources Division as appropriate. Please be aware that we have recently provided on our website (http://www.greateratlantic.fisheries.noaa.gov/section7) guidance and tools to assist action agencies with their description of the action and analysis of effects to support their determination. Should you have any questions about the section 7 consultation process, please

contact Edith Carson at 978-282-8490 or by email edith.carson@noaa.gov.

We look forward to our continued coordination with your office on this project as it moves forward. If you have any questions or need additional information, please do not hesitate to contact Ursula Howson at our Highlands, NJ field office at ursula.howson@noaa.gov or (732) 872-3116.

Sincerely,

Karen Greene
Mid-Atlantic Field Office Supervisor
Habitat Conservation Division

cc: NYD ACOE – D. Kohtio
PRD – D. Marrone
SED – V. Vecchio, J. Pelligrino

Environmental Analysis Branch July 10, 2017
(CENAN-PL-E)

**RECORD OF NON-APPLICABILITY (RONA)**

Project Name: Spring Creek North
Reference: Equipment list in draft RONA provided by Diana Kohtio (26 June 17) to Jenine Gallo via email

Project/Action Point of Contact: Diana Kohtio

Begin Date: May 2019

End Date: Fall, 2020

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 $NO_x$, $PM_{2.5}$, CO, and $SO_2$ and less than 50 tons for VOCs for each project year (40CFR§93.153(b)(1) & (2)). The estimated total $NO_x$ emissions for the project are 5.8 tons. VOC, $PM_{2.5,}$ CO, and $SO_2$ are all less than 1 ton each 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(c)(1).

Encl

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:

$$\mathbf{E = hrs \times LF \times EF}$$

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:

$$\mathbf{250 \text{ horsepower} \times 0.43 \times 1{,}000 \text{ hours} = 107{,}500 \text{ hphr}}$$

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:

$$\frac{\mathbf{107{,}500 \text{ hphr} \times 9.5 \text{ g } NO_x\text{/hphr}}}{\mathbf{453.59 \text{ g/lb} \times 2{,}000 \text{ lbs/ton}}} = \mathbf{1.1 \text{ tons of } NO_x}$$

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.

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 : Spring Creek North**
**General Conformity Related Emission Estimates**
**DRAFT**
**7/10/2017**

**Summary of Emissions***

| Pollutants: | $NO_x$ | tons VOC | $PM_{2.5}$ | CO | $SO_2$ |
|---|---|---|---|---|---|
| **Calendar Year** | | | | | |
| 2019 | 2.9 | 0.06 | 0.05 | 0.37 | 0.002 |
| 2020 | 2.9 | 0.06 | 0.05 | 0.37 | 0.002 |
| **Totals** | **5.8** | **0.12** | **0.10** | **0.74** | **0.003** |

* Assuming equal work in each of two calendar years. Worst-case would be all work during one year.

| Equipment Type | Make /model | Quantity | Horse-power | Load factor | Percent utilization | Operating hours | hp-hours | Emissions, tons $NO_x$ | VOC | $PM_{2.5}$ | CO | $SO_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Backhoe | Cat 225LC | 1 | 135 | 0.21 | 100% | 1,040 | 29,484 | 0.31 | 0.01 | 0.01 | 0.04 | 0.0002 |
| Dump truck | Cat 769C | 2 | 450 | 0.59 | 50% | 1,040 | 276,120 | 2.89 | 0.06 | 0.05 | 0.37 | 0.0015 |
| Dozer | Cat D7G | 2 | 200 | 0.59 | 60% | 1,248 | 147,264 | 1.54 | 0.03 | 0.03 | 0.20 | 0.0008 |
| Loader | Cat 966D | 2 | 200 | 0.21 | 60% | 1,248 | 52,416 | 0.55 | 0.01 | 0.01 | 0.07 | 0.0003 |
| Compactor | Cat 825C | 1 | 310 | 0.43 | 20% | 208 | 27,726 | 0.29 | 0.01 | 0.00 | 0.04 | 0.0002 |
| Grader | Cat 12G | 1 | 135 | 0.59 | 30% | 312 | 24,851 | 0.26 | 0.01 | 0.00 | 0.03 | 0.0001 |
| **Totals** | | | | | | | **557,861** | **5.84** | **0.12** | **0.10** | **0.74** | **0.0031** |

Greenhouse gas (GHG) 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 greenhouse gas that an engine emits while performing a defined amount of work.

In these estimates, the emission factors are in units of grams of GHG 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 $CO_2$ emission factors used in these calculations are based on locally-specific emissions data related to off-road and on-road diesel engines.[1] In the example of the crane engine, a $CO_2$ emission factor of 571 g/hphr would be used to estimate emissions from this crane on the project by the following equation:

$$\frac{107{,}500 \text{ hphr} \times 571 \text{ g } CO_2/\text{hphr}}{1{,}000{,}000 \text{ g/metric ton}} = 61.4 \text{ metric tons (tonnes) of } CO_2$$

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 non-

[1] http://www.panynj.gov/about/pdf/PANYNJ-2014%20Multi-Facility-EI-Report-1-Mar-16-scg.pdf

road 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."

The following pages summarize the estimated emissions of $CO_2$ 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 by piece of equipment.

**U.S. Army Corps of Engineers**
**Project : Spring Creek North**
**Greenhouse Gas Emission Estimates**
**DRAFT**
**7/10/2017**

**GHG emissions, metric tons $CO_2$**

| **Calendar Year** | |
|---|---|
| 2019 | 159 |
| 2020 | 159 |
| **Total** | 319 |

| **Equipment Type** | **Make /model** | **Quantity** | **Horse-power** | **Load factor** | **Percent utilization** | **Operating hours** | **hp-hours** | **Emissions $CO_2$ metric tons** |
|---|---|---|---|---|---|---|---|---|
| Backhoe | Cat 225LC | 1 | 135 | 0.21 | 100% | 1,040 | 29,484 | 17 |
| Dump truck | Cat 769C | 2 | 450 | 0.59 | 50% | 1,040 | 276,120 | 158 |
| Dozer | Cat D7G | 2 | 200 | 0.59 | 60% | 1,248 | 147,264 | 84 |
| Loader | Cat 966D | 2 | 200 | 0.21 | 60% | 1,248 | 52,416 | 30 |
| Compactor | Cat 825C | 1 | 310 | 0.43 | 20% | 208 | 27,726 | 16 |
| Grader | Cat 12G | 1 | 135 | 0.59 | 30% | 312 | 24,851 | 14 |
| **Totals** | | | | | | | **557,861** | **319** |