HUDSON-RARITAN ESTUARY COMPREHENSIVE RESTORATION PLAN
POTENTIAL RESTORATION OPPORTUNITIES
PROJECT SUMMARY SHEETS
NEWARK BAY, PASSAIC & HACKENSACK

Hackensack

Restoration Opportunities
CRP Identification #: Site Name

- 715. Anderson Creek *TBD
- 42. Bellman's Creek Marsh
- 803. Berry's Creek Marsh
- 40. Berry's Creek Canal *TBD
- 843. Kearny Brackish Marsh
- 39. Kearny Freshwater Marsh
- 38. Penhorn Creek
- 67. Laurel Hill Park Wetlands
- 522. Losen Slote Creek Park
- 718. Lyndhurst Riverside Marsh
- 719. Meadowlark Marsh
- 720. Mehrhof Pond
- 721. Metro Media Tract
- 722. Mori Tract
- 723. Oritani Marsh
- 724. Petrillo Tract
- 725. Riverbend Wetland Preserve
- 727. Secaucus Tract
- 728. Steiners Marsh
- 729. Teterboro Woods
- 43. Overpeck Creek *TBD
- 142. Van Buskirk Island *TBD
- 904. Dundee Lake Islands at Clifton and Elmwood Park
- 143. Oradell Dam

CRP Site 715 Anderson Creek

A. Harbor Estuary Program Site information

Category: Candidate Restoration/Preservation Site
Location: Along the eastern bank of the Hackensack River, south of the New Jersey Transit Bergen Line in Secaucus, Hudson County.
Latitude/Longitude: 40.78225/-74.08348
Watershed: Hackensack River
Size: 52 acres
Current Ownership: NJMC
Site Description: The Anderson Creek Marsh is an undeveloped tidal marsh that has been impacted by ditching for mosquito control and tide gate installation. The site was treated with herbicide to eradicate *Phragmites* over a three-year period (2006 to 2009). Portions of the site have been naturally recolonized by *Spartina alterniflora*.The remaining areas are open water during high tide, or mudflats during low tide.
Current Land Use: Tidal Marsh
Available Habitat:
Proposed Project: Project has a conceptual plan
Projected/Estimated Costs:
Project Status: USACE 2006 design completed; due to potential unavailability CW restoration project was moved to overall HRE project.
Partners:
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

B. Hudson Raritan Estuary Ecosystem Restoration Study information

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Enhance wetland habitat and assess the need for improved hydrology through additions of meandering creeks, lowered site elevations and excavation of shallow pools to provide open water habitats.
Islands for Waterbirds – Potential creation of upland habitat for nesting waterfowl if excavation occurs and onsite placement is feasible**Habitat for Fish, Crab and Lobsters –** Addition of complex structure to the mudflats and creeks will facilitate movement and habitat exchange.
Sediment Contamination – Control any potential remobilization of buried contaminants. Address levels of mercury contamination. Potential dredging and capping based on sediment contamination testing. FWS lists site contaminant concerns as moderate.
Benefits, Cost and Comparative Restoration Ratio:

C. Existing Site Specific Data Inventory

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: Site-specific baseline data collected in 1985. Qualitative data. Hackensack River benthic community investigation, Earthworks 2007.
D. Biological Studies/ General Environment: Baseline data and wetland and habitat quality assessments conducted in the early 1985, 1990, 1992, 1993 and 2002 (Kiviat and McDonald). Wetland assessments performed in 2003.
E. Geotechnical: Geotechnical and HTRW data collected by the Army Corps of Engineers in 2004. Bowne AE&T Group preformed elevation surveys, 2003.
F. Hydraulics and Hydrology: Site-specific baseline data collected in 1985. Bowne AT&E Group conducted hydrographic surveys, 2003. Tidal data from the site was collected in 2004.
G. Water and Sediment: Site-specific baseline data collected in 1985.
H. Historical and Cultural Resources: USACE performed a Phase I cultural resource study in 2006.
I. Restoration Remediation and Design Plans: Conceptual restoration plans developed in 1985 and 1986. As of 2006, Berger was preparing an environmental assessment and collecting geotechnical and hydrologic data for the site design to restore the marsh by re-establishing tidal flows, reducing invasive reeds, and introducing native species.

References:

- The Louis Berger Group, Inc. Hydrogeomorphic (HGM) Functional Assessment Model and Guidebook for Tidal Fringe Wetlands in the New Jersey Meadowlands. 2003.

- TAMS Consultants, Inc. & Environmental Concern, Inc. Anderson Marsh Wetlands Management Study: Hackensack Meadowlands Development Commission Island Residential -1 Southern Tract Project. Hartz Mountain Industries, Inc. 1985.
- TAMS Consultants, Inc. Comprehensive Baseline Studies, IR-2 and Off-Site Mitigation Areas/Evaluation of the Harmon Meadow Western Brackish Marsh Mitigation Area. June 1990.
- TAMS Consultants, Inc. Functional Evaluation of the Villages at Mill Creek Development and Mitigation Sites. March 1993.
- TAMS Consultants, Inc. Habitat Evaluation Procedure (HEP): IR-2 Site and Off-Site Mitigation Areas: Evaluation of the Villages at Mill Creek Mitigation Program. October 1990.
- TAMS Consultants, Inc. Technical Report on Vegetation Mapping for IR-2, Anderson Creek Marsh, and South Secaucus Wetland Sites. December 1990.
- TAMS Consultants, Inc. The Villages at Mill Creek (IR-2) Wetland Evaluation Technique (WET) Assessment (Draft). February 1990.
- USEPA and Gannett Fleming, Inc. Site Survey Report: Ecological Studies: Hartz Mountain Development Corporation Villages at Mill Creek. October 1992.
- TAMS Consultants, Inc. The Villages at Mill Creek (IR-2) Brackish Wetland Mitigation Concept. May 1986.
- Kiviat, E. & K. MacDonald. 2002. Hackensack Meadowlands, New Jersey, biodiversity: A review and synthesis. Hackensack Meadowlands partnership.
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.
- US Army Corps of Engineers. Summary Data Report, Preliminary Geotechnical and hazardous, Toxic, & Radioactive Waste Site Investigation, Anderson Creek Marsh, Secaucus, NJ. October 2004.

US Army Corps of Engineers. Cultural Resource Investigation of Ten Sites in the Hackensack Meadowlands, Hackensack Meadowlands Restoration Project, Hudson and Bergen Counties, New Jersey. August 2006.

- Sidney Browne and Son, LPP. 2003. **Anderson Creek Wetlands Mapping.**

***TBD**

CRP SITE 42. BELLMAN'S CREEK MARSH

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: Between I-95 and US Route 1, 0.2 miles east of I-95 and approximately 1 mile south of Hendrickson Causeway**.** *North of Bellman's Creek and east of the Eastern Spur of the New Jersey Turnpike in the Town of Ridgefield, Bergen County, New Jersey. Latitude/Longitude: 40.83189/-74.01829*
Watershed: Hackensack River
Size: 62 acres
Current Ownership: Owned by PSEG.
Site Description: *Bellman's Creek marsh is dominated by common reed (Phragmites australis) and interspersed with pockets of wooded uplands and mudflats. Portions of the site are used for utility purposes, including a berm running through the site from the northeast to the southwest. Site contains waterfowl, nesting marsh birds and Northern Harrier foraging areas. Some industrial development exists along the periphery of the site.*
Current Land Use: Tidal marsh
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact: Ross Feltes
Phone: 201-460-4919
Website www.njmeadowlands.gov
Project Funding Source:
HEP Ratified Date: 7/1/1997

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands –Activities may include removal of invasives and re-planting with native species.
Habitat for Fish, Crab and Lobsters – Addition of complex structure to approximately 6 acres of mudflats and creeks will create connectivity and will facilitate movement and habitat exchange between Hackensack and Bellman's Creek, and the marsh.
Tributary Connections- Upgrade or removal of culverts will support enhancement of tidal flow to wetland development along 3,025 feet.
Sediment Contamination – FWS lists contaminant concerns as minimal. Basic sediment sampling and bulk sediment chemistry analysis may be necessary.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: Some qualitative data.
D. Biological Studies/ General Environment: General baseline environmental investigations preformed by Schuldere in 1995, Audubon Society 1997 (Kane and Githens), Kiviat and McDonald 2002.
E. Geotechnical: No data obtained.
F. Hydraulics and Hydrology: No data obtained.
G. Water and Sediment: Water quality data was collected in 1971 and 1980.
H. Historical and Cultural Resources: Schulderein 1995.
I. Restoration Remediation and Design Plans: No data obtained.

References:

- Louis Berger & Associates, Inc. Wetland Delineation Report. 1993.
- PSE&G Company. Application for the Zoning Certificate for the 12" Natural Gas Distribution Main. 1993.
- Schulderein, J. Geoarchaeological Overview of Bellman's Creek, Hackensack Meadowlands, New Jersey. H-BLRT 1B Appendix (Pages 198 - 219). 1995.
- Mattson, C., G. Potera, & M.E. Saks. Water Quality in a Disordered Ecosystem: A Report on the Water Quality Monitoring Study Performed in the Hackensack Meadowlands between June and September 1971.
- Schulderein, J. Geoarchaeological Overview of Bellman's Creek, Hackensack Meadowlands, New Jersey. H-BLRT 1B Appendix (Pages 198 - 219). 1995.
- Kane, R., and D. Githens. 1997. Hackensack River migratory bird report: With recommendations for conservation. New Jersey Audubon Society, Bernardsville, New Jersey. 37 pp.
- Kiviat, E. & K. MacDonald. 2002. Hackensack Meadowlands, New Jersey, biodiversity: A review and synthesis. Hackensack Meadowlands partnership.

- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.

CRP SITE 803. BERRY'S CREEK MARSH

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: *East of the Meadowlands Corporate Center and southwest of Oritani Marsh and the New Jersey Transit - Bergen Line in Rutherford, NJ. Latitude/Longitude: 40.80145/-74.08913*
Watershed: Hackensack River
Size:
Current Ownership: NJMC & Buckley Broadcasting Group
Site Description: Wetland portions if the site are mostly Phragmites with pockets of Spartina. The site contains some commercial development. *Fish Creek traverses through the site and a portion of the area is bordered by Berry's Creek, a tributary of the Hackensack River. Site contains open water with mudflats, isolated pockets of vegetation,* and fill. *The marshes around Berry's Creek are important because they link the lower river marshes with the upper marshes at Route 3 and provides continuous habitat through the middle of the district. NPL site Ventron Velsicol has been identified as a source of mercury contamination in Berry's Creek. Site is adjacent to the EnCap wetland mitigation site along Berry's Creek.*
Current Land Use: Tidal marsh
Available Habitat: Estuarine, marshes, tidal waterways.
Proposed Project:
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact:
Phone:
Website:
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Re-grading of the marsh surface to create approximately x acres of low marsh habitat, meandering creeks, shallow pools, and native vegetation.
Habitat for Fish, Crab and Lobsters – Addition of complex structure to approximately 20 acres of mudflats and creeks will facilitate movement and habitat exchange between the Hackensack, Berry's Creek, Fish Creek, and the marsh.
Sediment Contamination – This site has been documented to have high levels of mercury contamination. FWS lists site contaminant concerns as substantial. Likely dredging and capping based on sediment contamination sampling.
Tributary Connections- Upgrade or removal of culverts will support enhancement of tidal flow along approximately 7,600 feet of channels, to wetland restoration.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

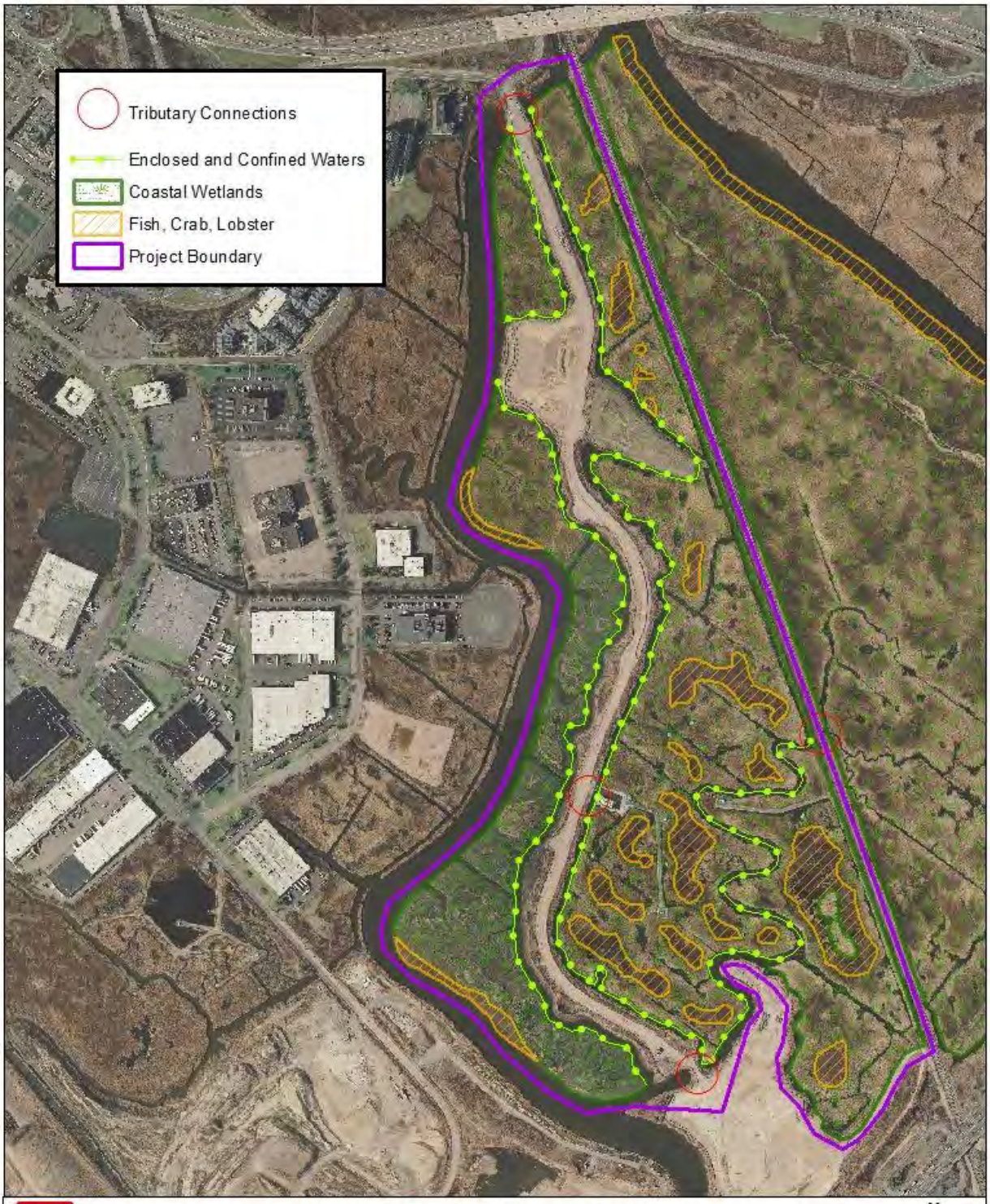
A. Survey, Maps and GIS: HMD regional data exists inclusive of this site. Topographic information collected for a portion of the site in 2001.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: General baseline data collected in 1988, site-specific data collected in 1985, 1992 and 2001, Audubon Society 1997 (Kane and Githens).
D. Biological Studies/ General Environment: Baseline data and wetland quality assessments conducted in 1988 and 1992, and in 2001 for a portion of the site, Audubon Society 1997 (Kane and Githens), New Jersey Transit Authority Study 1986, Kiviat and Mc Donald 2002.
E. Geotechnical: General baseline data collected in 1988, site-specific data collected in 1985, 1992 and 2001.
F. Hydraulics and Hydrology: Baseline data collected in 1988, site-specific data collected in 1985, 1992 and 2001.
G. Water and Sediment: Site-specific water and sediment contamination data collected in 1980 and 1985.
H. Historical and Cultural Resources: Site-specific baseline data collected in 2001 and 2006.
I. Restoration Remediation and Design Plans: Final wetland mitigation plan developed in 2001.

References:

- BCUA. Bergen County Utilities Authority Resource Recovery Facility: Lyndhurst Site Rezoning Application. 1983.
- ERDC, HMDC, & USACE . NYD. Flood Control Survey. 2000.
- Exponent Environmental Group. Agency Review Draft Phase I Remedial Investigation Report: Ventron/Velsicol Site, Wood-Ridge/Carlstadt, New Jersey. Volumes 1-3. December 1998.

- Exponent Environmental Group. Operable Unit 1 Remedial Investigation Report: Ventron/Velsicol Site, Wood-Ridge/Carlstadt, New Jersey. Volumes 1-3 September 2000.
- Jack McCormick & Associates, Inc. Draft Assessment of the Potential Environmental Impact of the Construction and Operation of a New Jersey Sports and Exposition Complex at a Site in Rutherford, Bergen County, New Jersey. 1972.
- Paulus, Sokolowski, & Sartor, Inc. Wetland Assessment and Mitigation Plan for Eighty Associates, East Rutherford, NJ Sites. 1988.
- Rogers Surveying, Inc. Hackensack River Survey: Upper Portion. March 1999.
- TAMS Consultants, Inc. Delineation of Waters of U.S. 1992.
- NJSEA. Flood Management Plan Hackensack Meadowlands District . Volume 2: Summary of Permit to Construct an Embankment and Other Facilities on Berry's Creek, Bergen County, New Jersey. 1980.
- The Academy of Natural Sciences Benedict Estuaries Research Laboratory & HMDC Environmental Operations Research Laboratory. Interim Report: Accumulation of Chromium in Blue Crabs (Callinectes sapidus) from the Hackensack River, Hudson County, New Jersey. November 1991.
- Anonymous (HMDC). Biological Water Quality and Field Sampling Survey of the Hackensack Meadowlands. 1980.
- Black, I. H. Past and Present Status of the Birds of the Lower Hackensack River Marshes. New Jersey Nature News. 25(2):57-70. 1970.
- Bragin, A. Brett, W. Frame, M. Kraus, D. Smith, A. Goeller, J. Grabiec, & E. Konsevick. Inventory of Fisheries Resources of the Hackensack River within the Jurisdictional Boundary of the Hackensack Meadowlands Development Commission from Kearny, Hudson County, to Ridgefield, Bergen County, New Jersey. May 18, 1989.
- EA Science and Technology & PSE&G. Kearny Generating Station Supplemental 316(b) Report. NJDEP. 1988.
- ERM . Southeast, Inc. Task I: Site Specific Literature Search . Non-Hazardous Matrix Characteristics Part I: Soils and Sediment Characteristics Water Quality and Biological Resources Rare and Endangered Species. April 1985.
- Galluzzi, P. Mercury Concentrations in Muskrats, Ondata zibethicus, from the Hackensack Meadowlands, New Jersey. Fairleigh Dickinson University. 1976.
- HMDC Environmental Operations Laboratory. Berry.s Creek Site Mercury in Biota Monitoring. May 1988.
- Jack McCormick & Associates, Inc. Collections of Aquatic Organisms from the Hackensack Meadowlands, Bergen and Hudson Counties, NJ. 1977.
- McFarland, Victor A., Charles R. Lee, & Joan U. Clarke (USACE WES). Bioavailability Studies . Phase 1: Mercury Uptake by Killifish and Clams. 1988
- Santoro, E. & S. Koepp. Mercury Levels in Organisms in Proximity to an Old Chemical Site (Berry.s Creek, Hackensack Meadowlands, New Jersey). Marine Pollution Bulletin, vol. 17, # 5 pp. 219-224. 1986.
- Burke, D.J., J.S. Weis, & P. Weis. Release of Metals by the Leaves of the Salt Marsh Grasses Spartina alterniflora and Phragmites australis. May 2000.
- Exponent Environmental Group. Operable Unit 1 Ecological Risk Assessment Ventorn/Velsicol Site Wood-Ridge/Carlstadt, New Jersey. April 2001.
- Turner, Joe. Chromium Concentrations in the Blue Crab (Callinectes sapidus): An Independent Study Project Conducted at the Hackensack Meadowlands Environmental Research Laboratory. May 1990.
- Windham, Lisamarie, Judith S. Weis, and Peddrick Weis. Patterns and Processes of Mercury Release from Leaves of Two Dominant Salt Marsh Macrophytes, Phragmites australis and Spartina alterniflora. December 2001.
- Dames & Moore. Final Project Operations Plan, Remedial Investigation, Scientific Chemical Processing Site, Carlstadt Township, Bergen County, New Jersey. 1987.
- Bertolotti, Benjamin J. Chemical Oxygen Demand Interference in the Stormwater Collection System of the Meadowlands Sport Complex. 1990.
- ERDC & USACE . NYD. The Hackensack Meadowlands Flood Control Study. 1998 . 2004 (On-going).
- Galluzzi, Paul F. (HMDC). An Investigation of the Net Downstream Movement of Mercury on Suspended Sediment in Berry's Creek, East Rutherford, Bergen County, New Jersey.
- Mattson, C., G. Potera, & M.E. Saks. Water Quality in a Disordered Ecosystem: A Report on the Water Quality Monitoring Study Performed in the Hackensack Meadowlands between June and September 1971. 1971.
- PTI Environmental Services. Agency Review Draft: Background Investigation Technical Memorandum for the Wood-Ridge Site RI/FS, Wood-Ridge/Carlstadt, New Jersey. July 1997.
- Battelle. Effect of Acid Rain on the Leaching and Bioavailability of Heavy Metals in Contaminated Coastal Wetlands. 1981
- Dames & Moore. Data Summaries, SCP Site. 1988
- ERT. Draft Stream Channel Sediment Sampling Plan: Revision 2 . UOP Site, East Rutherford, NJ. April 1987.
- Gambrell, R.P, H. Ghane, J. Weispape, R.D. Delaune, & W.H. Patrick, Jr. Factors Affecting Mercury Transformations and Migration in Berry.s Creek. 1989.
- Goeller, Arthur. Heavy Metals and Radionuclides in Sediments of The Hackensack River, NJ. Rutgers University. 1989
- Gunawardana, Vajira K., Po-Shu Huang, Tavit O. Najarian, & Rhomaios V. Ram. Impact Analysis of Sewage Treatment Plant Discharges of the Water Quality of the Lower Hackensack River. June 1992.
- HMDC Environmental Operations Laboratory. Mercury Concentrations in Surface Waters of Berry.s Creek. 1988.
- Konsevick, Edward, Christine Cheng Hobble, & Paul Lupini. Monitoring Effects of Urban Land Use of Esturine Water Quality, Hackensack Meadowlands District, New Jersey. November 1994.
- McFarland. Sediment Characterization: Berry.s Creek, Original Material. August, 1987.
- Sabounjian, E. & P. Galluzi. The Distribution of Mercury Contamination in Marsh Sediments, Channel Sediments, and Surface Waters of the Hackensack Meadowlands, New Jersey. 1980.
- Schaefer, J., T. Cardona-Merek, K. Ellickson, J. Yagi, T. Barkay, & J. Reinfelder. Mercury Contamination in Berry.s Creek and Downstream Ecosystem. Abstracts of the Meadowlands Symposium. 2003
- Weis, Peddick, Judith S. Weis, & John Bogden. Effects of Environmental Factors on Release of Mercury from Berry's Creek Sediments and Its Uptake by Killifish: Fundulus heteroclitus. Environmental Pollution (Series A) v40. 1986
- Kane, R., and D. Githens. 1997. Hackensack River migratory bird report: With recommendations for conservation. New Jersey Audubon Society, Bernardsville, New Jersey. 37 pp.
- Kiviat, E. & K. MacDonald. 2002. Hackensack Meadowlands, New Jersey, biodiversity: A review and synthesis. Hackensack Meadowlands partnership.
- US Army Corps of Engineers. Cultural Resource Investigation of Ten Sites in the Hackensack Meadowlands, Hackensack Meadowlands Restoration Project, Hudson and Bergen Counties, New Jersey. August 2006.
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.

US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.



US Army Corps of Engineers
New York District

CRP 803 Berry's Creek Marsh

Newark Bay, Passaic River & Hackensack River

0 140 280 560 840 1,120 Feet

N W E S

CRP SITE 40. BERRY'S CREEK

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: *Waterbodies & Other Wetlands*
Location: *Berry's Creek is located on the western side of the Hackensack River, running along NJSEA Sports Complex Walden Marsh, Berry's Creek Marsh, Lyndhurst Landfill, Rutherford Landfill, Bellemeade Mitigation, and Lyndhurst Riverside Marsh. The creek flows through East Rutherford into Rutherford, then along the boundary of Rutherford and Lyndhurst out to the Hackensack River in Bergen County. Berry's Creek Canal is located to the west of the Hackensack River along the northern boundary of Oritani Marsh in East Rutherford..*
Watershed: Hackensack River
Size:
Current Ownership:
Site Description: *Berry's Creek and Berry's Creek Canal converge just south of the Route 3 Bridge. The canal flows unimpeded, while the creek flows through two degraded culverts located under the Rutherford Landfill haul road and New Jersey Transit Bergen Line. Both are considered to be highly contaminated, with high levels of mercury and other heavy metals found in the sediments. From as early as 1943, F.W. Berk and Co., and then later the Wood-Ridge Chemical Corporation (Velsicol Corporation), were releasing effluent containing substantial levels of mercury into the creek . It is estimated that as much as one to two kilograms of mercury per day were being released from the chemical plant, until it ceased operation in 1974. Although the chemical plants are no longer releasing mercury into the creek , studies have shown that the site is still a source of contamination.*
Current Land Use:
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact:
Phone:
Website:
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION -TBD

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Shorelines and Shallows – Re-grading of gentle slopes along canal edge should take place during dredging and capping.
Tributary Connections – Upgrade or removal of culverts will support enhancement of tidal flow to the restored wetlands..
Sediment Contamination – This site has been documented to have high levels of mercury contamination. Likely dredging and capping based on sediment contamination sampling.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD data exists inclusive of this site. Detailed surveys completed in 1999 and 2000. Other topographic information is available from reports for nearby sites with dates ranging from 1972 to 2000.
B. Site History and Land Use: Flood management plan conducted for NJSEA Sports Complex site in 1980.
C. Biological Studies/ Fauna: Various bird, fish, invertebrate, and wildlife studies conducted for the creek and surrounding areas dated between 1972 and 2000 , Audubon Society 1997 (Kane and Githens).
D. Biological Studies/ General Environment: Various general studies for creek and surrounding sites conducted between 1972 and 2001, Audubon Society 1997 (Kane and Githens), Kiviat and McDonald 2002.
E. Geotechnical: Various general studies for creek and surrounding sites conducted between 1972 and 2000.
F. Hydraulics and Hydrology: Flood control survey conducted in 2000; study conducted between 1998 and 2004, including a two-dimensional hydrologic ("child") model for the creek. Other information is available from reports for nearby sites with dates ranging from 1982 to 2000.
G. Water and Sediment: Abundant water and sediment quality data collected spanning a period from 1971 to 2003.
H. Historical and Cultural Resources: Baseline data collected for the creek and surrounding areas in 1998 as part of Phase 1 investigation.
I. Restoration Remediation and Design Plans: No data obtained.

References:

- BCUA. Bergen County Utilities Authority Resource Recovery Facility: Lyndhurst Site Rezoning Application. 1983.
- ERDC, HMDC, & USACE . NYD. Flood Control Survey. 2000.
- Exponent Environmental Group. Agency Review Draft Phase I Remedial Investigation Report: Ventron/Velsicol Site, Wood-Ridge/Carlstadt, New Jersey. Volumes 1-3. December 1998.
- Exponent Environmental Group. Operable Unit 1 Remedial Investigation Report: Ventron/Velsicol Site, Wood-Ridge/Carlstadt, New Jersey. Volumes 1-3 September 2000.
- Jack McCormick & Associates, Inc. Draft Assessment of the Potential Environmental Impact of the Construction and Operation of a New Jersey Sports and Exposition Complex at a Site in Rutherford, Bergen County, New Jersey. 1972.
- Paulus, Sokolowski, & Sartor, Inc. Wetland Assessment and Mitigation Plan for Eighty Associates, East Rutherford, NJ Sites. 1988.
- Rogers Surveying, Inc. Hackensack River Survey: Upper Portion. March 1999.
- TAMS Consultants, Inc. Delineation of Waters of U.S. 1992.
- NJSEA. Flood Management Plan Hackensack Meadowlands District . Volume 2: Summary of Permit to Construct an Embankment and Other Facilities on Berry's Creek, Bergen County, New Jersey. 1980.
- The Academy of Natural Sciences Benedict Estuaries Research Laboratory & HMDC Environmental Operations Research Laboratory. Interim Report: Accumulation of Chromium in Blue Crabs (Callinectes sapidus) from the Hackensack River, Hudson County, New Jersey. November 1991.
- Anonymous (HMDC). Biological Water Quality and Field Sampling Survey of the Hackensack Meadowlands. 1980.
- Black, I. H. Past and Present Status of the Birds of the Lower Hackensack River Marshes. New Jersey Nature News. 25(2):57-70. 1970.
- Bragin, A. Brett, W. Frame, M. Kraus, D. Smith, A. Goeller, J. Grabiec, & E. Konsevick. Inventory of Fisheries Resources of the Hackensack River within the Jurisdictional Boundary of the Hackensack Meadowlands Development Commission from Kearny, Hudson County, to Ridgefield, Bergen County, New Jersey. May 18, 1989.
- EA Science and Technology & PSE&G. Kearny Generating Station Supplemental 316(b) Report. NJDEP. 1988.
- ERM . Southeast, Inc. Task I: Site Specific Literature Search . Non-Hazardous Matrix Characteristics Part I: Soils and Sediment Characteristics Water Quality and Biological Resources Rare and Endangered Species. April 1985.
- Galluzzi, P. Mercury Concentrations in Muskrats, Ondata zibethicus, from the Hackensack Meadowlands, New Jersey. Fairleigh Dickinson University. 1976.
- HMDC Environmental Operations Laboratory. Berry.s Creek Site Mercury in Biota Monitoring. May 1988.
- Jack McCormick & Associates, Inc. Collections of Aquatic Organisms from the Hackensack Meadowlands, Bergen and Hudson Counties, NJ. 1977.
- McFarland, Victor A., Charles R. Lee, & Joan U. Clarke (USACE WES). Bioavailability Studies . Phase 1: Mercury Uptake by Killifish and Clams. 1988
- Santoro, E. & S. Koepp. Mercury Levels in Organisms in Proximity to an Old Chemical Site (Berry.s Creek, Hackensack Meadowlands, New Jersey). Marine Pollution Bulletin, vol. 17, # 5 pp. 219-224. 1986.
- Burke, D.J., J.S. Weis, & P. Weis. Release of Metals by the Leaves of the Salt Marsh Grasses Spartina alterniflora and Phragmites australis. May 2000.
- Exponent Environmental Group. Operable Unit 1 Ecological Risk Assessment Ventorn/Velsicol Site Wood-Ridge/Carlstadt, New Jersey. April 2001.
- Turner, Joe. Chromium Concentrations in the Blue Crab (Callinectes sapidus): An Independent Study Project Conducted at the Hackensack Meadowlands Environmental Research Laboratory. May 1990.
- Windham, Lisamarie, Judith S. Weis, and Peddrick Weis. Patterns and Processes of Mercury Release from Leaves of Two Dominant Salt Marsh Macrophytes, Phragmites australis and Spartina alterniflora. December 2001.
- Dames & Moore. Final Project Operations Plan, Remedial Investigation, Scientific Chemical Processing Site, Carlstadt Township, Bergen County, New Jersey. 1987.
- Bertolotti, Benjamin J. Chemical Oxygen Demand Interference in the Stormwater Collection System of the Meadowlands Sport Complex. 1990.
- ERDC & USACE . NYD. The Hackensack Meadowlands Flood Control Study. 1998 . 2004 (On-going).
- Galluzzi, Paul F. (HMDC). An Investigation of the Net Downstream Movement of Mercury on Suspended Sediment in Berry's Creek, East Rutherford, Bergen County, New Jersey.
- Mattson, C., G. Potera, & M.E. Saks. Water Quality in a Disordered Ecosystem: A Report on the Water Quality Monitoring Study Performed in the Hackensack Meadowlands between June and September 1971. 1971.
- PTI Environmental Services. Agency Review Draft: Background Investigation Technical Memorandum for the Wood-Ridge Site RI/FS, Wood-Ridge/Carlstadt, New Jersey. July 1997.
- Battelle. Effect of Acid Rain on the Leaching and Bioavailability of Heavy Metals in Contaminated Coastal Wetlands. 1981
- Dames & Moore. Data Summaries, SCP Site. 1988
- ERT. Draft Stream Channel Sediment Sampling Plan: Revision 2 . UOP Site, East Rutherford, NJ. April 1987.
- Gambrell, R.P, H. Ghane, J. Weispape, R.D. Delaune, & W.H. Patrick, Jr. Factors Affecting Mercury Transformations and Migration in Berry.s Creek. 1989.
- Goeller, Arthur. Heavy Metals and Radionuclides in Sediments of The Hackensack River, NJ. Rutgers University. 1989
- Gunawardana, Vajira K., Po-Shu Huang, Tavit O. Najarian, & Rhomaios V. Ram. Impact Analysis of Sewage Treatment Plant Discharges of the Water Quality of the Lower Hackensack River. June 1992.
- HMDC Environmental Operations Laboratory. Mercury Concentrations in Surface Waters of Berry.s Creek. 1988.
- Konsevick, Edward, Christine Cheng Hobble, & Paul Lupini. Monitoring Effects of Urban Land Use of Esturine Water Quality, Hackensack Meadowlands District, New Jersey. November 1994.
- McFarland. Sediment Characterization: Berry.s Creek, Original Material. August, 1987.
- Sabounjian, E. & P. Galluzi. The Distribution of Mercury Contamination in Marsh Sediments, Channel Sediments, and Surface Waters of the Hackensack Meadowlands, New Jersey. 1980.
- Schaefer, J., T. Cardona-Merek, K. Ellickson, J. Yagi, T. Barkay, & J. Reinfelder. Mercury Contamination in Berry.s Creek and Downstream Ecosystem. Abstracts of the Meadowlands Symposium. 2003
- Weis, Peddick, Judith S. Weis, & John Bogden. Effects of Environmental Factors on Release of Mercury from Berry's Creek Sediments and Its Uptake by Killifish: Fundulus heteroclitus. Environmental Pollution (Series A) v40. 1986
- Kane, R., and D. Githens. 1997. Hackensack River migratory bird report: With recommendations for conservation. New Jersey Audubon Society, Bernardsville, New Jersey. 37 pp.
- Kiviat, E. & K. MacDonald. 2002. Hackensack Meadowlands, New Jersey, biodiversity: A review and synthesis. Hackensack Meadowlands partnership.

*TBD

CRP SITE 843. KEARNY BRACKISH MARSH

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: 0.2 miles northwest from the intersection of NJTPK South and Belleville Turnpike**.** *The site is divided horizontally by the New Jersey Turnpike - Eastern Spur and bordered in the east by the Hackensack River in Kearny, Hudson County. Latitude/Longitude: 40.75814/-74.10272*
Watershed: Hackensack River
Size: *116* acres
Current Ownership: Owned by NJMC. Acquisition data available on NJMC website.
Site Description: The Kearny Brackish Marsh is an irregularly flooded brackish marsh interspersed with shallow open water. *The system is contaminated due to current and historical inputs of landfill leachate and municipal storm water discharges. Emergent vegetation at the Kearny Brackish Marsh has been mostly eliminated over the past forty years and replaced by open water. Both tidal flows and hydrologic connections have been restricted due to surrounding development and poorly functioning tidegates and culverts. Existing marsh habitat is dominated by shallow open water. The area offers feeding and nesting habitat for resident and migratory waterfowl.*
Current Land Use: Tidal marsh
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status: NJMC Environmental Improvement Plan
Partners: NJ Meadowlands Commission, NJMC, USACE
Project Contact: Ross Feltes
Phone: 201-460-4919
Website www.njmeadowlands.gov
Project Funding Source: NJ Green Acres
HEP Ratified Date: 7/1/1997

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Re-establish approximately 28 acres of emergent vegetation and clean fill. Additionally, water levels must be managed to prevent soil erosion and broken water control structures at the Cayuga Dike must be replaced.
Habitat for Fish, Crab and Lobsters – Addition of complex structure to approximately 16 acres to create functionally related habitats amongst mudflats, low marsh and high marsh.
Sediment Contamination – FWS lists site contaminant concerns as substantial. Likely dredging and capping of sediment based on sediment contamination testing. This site is surrounded on three sides by chromium contaminated site.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: Surveys by Audubon Society 1997 (Kane and Githens) and 2004-2006. Ecological studies were conducted by Eckenfelder, Inc. in 1992 and 1993.
D. Biological Studies/ General Environment: Environmental investigations preformed by Kiviat and McDonald 2002. A sediment/vegetation comparative study was performed in 2003. Wetland assessment performed in 2003.
E. Geotechnical: Soil borings, HTW soil sampling and analysis, and geotechnical soil sampling and analysis conducted by Berger Group, 2008.
F. Hydraulics and Hydrology: No data obtained.
G. Water and Sediment: A sediment/vegetation comparative study was performed in 2003. Sediment contaminant data collected in 1992 by Eckenfelder, Inc.
H. Historical and Cultural Resources: A Phase I cultural resource investigation was conducted in 2006.
I. Restoration Remediation and Design Plans: No data obtained.

References:

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- Eckenfelder, Inc. An Assessment of the Potential for Ecological Impacts due to Chromite Ore Processing Residue Deposition in the Hackensack Meadowlands. November, 1992.
- Eckenfelder, Inc. An Evaluation of Tissue and Sediment Concentrations of Selected Compounds in the Hackensack Meadowlands. August, 1993
- Ravit, B., J.G. Ehrenfeld, & M.M. Haggblom. A Comparison of Sediment Microbial Communities Associated with Phragmites australis and Spartina alterniflora in Brackish Wetlands of New Jersey. Estuaries. 26(2B). 2003.
- Kane, R., and D. Githens. 1997. Hackensack River migratory bird report: With recommendations for conservation. New Jersey Audubon Society, Bernardsville, New Jersey. 37 pp.

- Kiviat, E. & K. MacDonald. 2002. Hackensack Meadowlands, New Jersey, biodiversity: A review and synthesis. Hackensack Meadowlands partnership.
- HTTP://RERC.RUTGERS.EDU/KEARNYMARSH/PUBLICATIONS.HTML
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. 2007. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey.
- The Louis Berger Group. 2008. Combined Geotechnical and HTW Sampling Meadowlands Restoration Sites, Hudson-Raritan Estuary Hackensack Meadowlands Ecosystem Restoration Project.
- The Louis Berger Group, Inc. Hydrogeomorphic (HGM) Functional Assessment Model and Guidebook for Tidal Fringe Wetlands in the New Jersey Meadowlands. 2003.
- US Army Corps of Engineers. Cultural Resource Investigation of Ten Sites in the Hackensack Meadowlands, Hackensack Meadowlands Restoration Project, Hudson and Bergen Counties, New Jersey. August 2006.

CRP SITE 39. KEARNY FRESHWATER MARSH

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Sites
Location: *Bordered to the north by the New Jersey Transit - Boonton Line, to the south by a freight line and the west by Keegan Landfill, in Kearny, NJ. Latitude/Longitude: 40.75956/-74.12746*
Watershed: Passaic/Hackensack Rivers
Size: 279 acres
Current Ownership: Owned by NJMC. Acquisition data available from the NJMC website.
Site Description: *The Kearny Freshwater Marsh is a freshwater impoundment, interspersed with patches of Phragmites and shallow open water. Over the years, the productivity of the marsh has declined as a result of rising water levels within the marsh itself. The entire marsh is surrounded by railroad embankments, which isolate it hydrologically. There is brackish water intrusion from a broken tide gate, and the area has become more brackish recently, causing changes in the fish community and vegetation. Additionally, this system is contaminated due to combined sewer overflows, runoff from the surrounding areas, municipal storm water discharges and leachate from the Keegan Landfill. A portion of this site drains to Franks Creek. It is part of the Hudson County conservation plan. Existing marsh is dominated by Phragmites. The area offers feeding and nesting habitat for resident and migratory waterfowl.*
Current Land Use: Freshwater wetland
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Re-establishment of approximately 120 acres of emergent vegetation through removal of Phragmites and re-grading to wetland elevations to allow for recolonization of native freshwater marsh vegetation . Additionally, water levels must be managed and erosion reduced.
Habitat for Fish, Crab and Lobsters – Addition of complex structure to create approximately 85 acres of functionally related habitats amongst mudflats, low marsh and high marsh.
Coastal and Maritime Forests – Once closed, the landfill is slated for recreational development (i.e., ball fields), along approximately 7 acres.
Enclosed and Confined – Alterations to the marsh hydrology include ditching, urban stormwater infrastructure, highway and rail construction. Improving and re-locate tide gates, pumping stations, and culverts would help manage water levels and hydrologic exchange along approximately 8760 feet of channels.
Sediment Contamination – The leachate collection system is already in place. Removal and disposal of mercury contaminated surface soils. FWS lists site contaminant concerns as substantial. Likely, dredging and capping bases on sediment testing.
Public Access – Create public access through a viewing deck, canoe/kayak launching area and up to 8547 feet of walking paths.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site. General, baseline data was collected for a 1989 EIS. Topography information for a portion of the site is available in a 1998 Keegan Landfill study.
B. Site History and Land Use: General site information available from the 1978 Meadowlands Management Plan and a 1989 EIS. Site specific data from 1978, 1982, and 1988 reports.
C. Biological Studies/ Fauna: A variety of studies have been completed ranging from a 1978 bird survey to a 2003 macroinvertebrate biodiversity assessment. Avian Surveys by Audubon Society 1997 (Kane and Githens) and 2007, Day et al. 1999.
D. Biological Studies/ General Environment: A variety of studies have been completed, dating from 1978 to 2003, inlcuding environmental investigations preformed by Kiviat and McDonald 2002. Ecological risk assessment of contamination, 2004.
E. Geotechnical: No data obtained.
F. Hydraulics and Hydrology: NJMC/Rutgers University conducted hydrologic studies. River hydrodynamic data were collected by Rutgers University in 2004.
G. Water and Sediment: A variety of water and sediment quality studies were completed between 1999 and 2003. NJMC/Rutgers University redevelopment area has been analyzed for concentrations of heavy metals, PAHs, and PCBs.

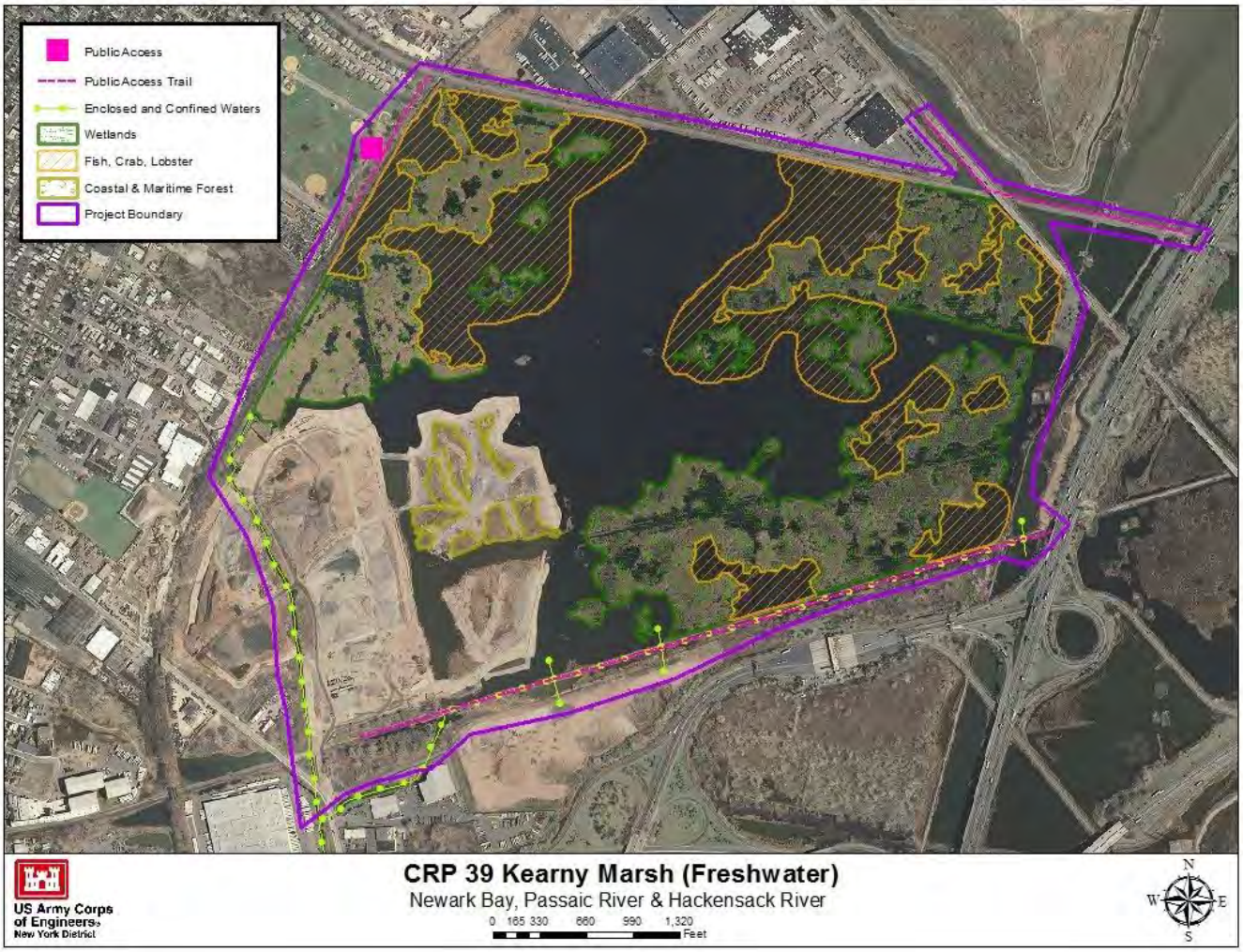
H. Historical and Cultural Resources: General baseline data collected for 1989 EIS. A Phase I cultural resource investigation was conducted in 2006.

I. Restoration Remediation and Design Plans: A draft wetland mitigation plan was proposed in 1998.

References:

- Bentivegna, C., S. Bugel, J. Alfano, & K. Czechowicz, Comparison of Sediment and Detritus Toxicity from a Heavy Metal Contaminated Freshwater Marsh. Abstracts of the Meadowlands Symposium. 2003.
- Bugel, S. & C. Bentivegna. Evaluating Macroinvertebrate Biodiversity in a New Jersey Freshwater Marsh. Abstracts of the Meadowlands Symposium. 2003.
- Cai, H. and Hahn, D. Assessing Microbial Indicators for Heavy Metal Contamination using Automated Image Analysis. MERI. 2002.
- Camp Dresser & McKee Inc. Land Use Feasibility Study Keegan Landfill, Kearny, New Jersey Final Report. July 1998.
- HMDC. Draft Proposed Wetland Mitigation for FDP Enterprises Inc. September 1998.
- Kane, Richard. Birds of the Kearny Marsh. Occasional Paper No. 135, New Jersey Audubon Vol. IV No. 5. Winter, 1978.
- Kane, Richard. Phragmites use by birds in New Jersey. NJ Audubon Society Magazine. Vol. XXVI, No. 4, pp. 122-123. Winter 2000-2001.
- Langan Engineering and Environmental Services, Inc. Sediment and Water Sampling Report: Kearny Marsh. June 22, 1999.
- Mattson, C. P. Ecological and Resource Management Plan for the Hackensack Meadowlands. Hackensack Meadowlands Development Corporation. 1978.
- Ravit, B. and J. Ehrenfeld. Microbial Community Structure of Salt Marsh Macrophyte Rhizosphere as an Indicator of Contamination. MERI. 2002.
- Tutak, J. A Comparative Analysis of Seed Bank Composition in the Kearny Freshwater Marsh. Rutgers, The State University of New Jersey. 2003.
- Urban Mass Transportation Administration. Technical Reports for the Draft EIS and Section 4 (f) Evaluation, Boonton Line-Montclair Branch Corridor Study. 1989.
- Kane, R., and D. Githens. 1997. Hackensack River migratory bird report: With recommendations for conservation. New Jersey Audubon Society, Bernardsville, New Jersey. 37 pp.
- Kiviat, E. & K. MacDonald. 2002. Hackensack Meadowlands, New Jersey, biodiversity: A review and synthesis. Hackensack Meadowlands partnership.
- HTTP://RERC.RUTGERS.EDU/KEARNYMARSH/PUBLICATIONS.HTML
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.
- ENSR International. 2004. New Jersey Meadowlands Commission. Screening Level Ecological Risk Assessment of Contamination in Wetlands Considered for Restoration in Hackensack Meadowlands District Final Report.

New Jersey Audubon Society. 2007. Avian Abundance and Distribution in the New Jersey Meadowlands District: The Importance of Habitat, Landscape, and Distribution. US Army Corps of Engineers. Cultural Resource Investigation of Ten Sites in the Hackensack Meadowlands, Hackensack Meadowlands Restoration Project, Hudson and Bergen Counties, New Jersey. August 2006.


Public Access
Public Access Trail
Enclosed and Confined Waters
Wetlands
Fish, Crab, Lobster
Coastal & Maritime Forest
Project Boundary
US Army Corps of Engineers
New York District
CRP 39 Kearny Marsh (Freshwater)
Newark Bay, Passaic River & Hackensack River
0 165 330 660 990 1,320
Feet
N
W
E
S

CRP SITE 38. PENHORN CREEK

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Waterbodies & Other Wetlands
Location: Penhorn Creek, Hackensack River, 1 mile north of the intersection of Howell Street and Duffield Avenue. *Located in the southeastern portion of the HMD, flows along the border of Secaucus and Jersey City in Hudson County, underneath the various New Jersey Transit rail lines that converge at the Secaucus Transfer Station. The creek lets out to the Hackensack River, just east of Malanka Landfill. 40.453549/-74.42012.*
Watershed: Hackensack River
Size:
Current Ownership: Private**,** corporate, NJ Turnpike Authority, NJ DOT, Port Authority.
Site Description: Penhorn Creek contains a large freshwater marsh with extensive stands of Phragmites. Some industrial development and utility infrastructure are on the site. *The creek runs through the Croxton rail yards and other industrial areas, resulting in very poor water quality. It is blocked from tidal inundation at two points by tide gates. The first is located just above the Hackensack River by the railroad crossing; the second is located above Secaucus Road. Both tide gates have associated pump stations. Accumulation of pollutants in the lower and middle reaches of the creek has created anoxic conditions; however, the headwaters of the creek are less affected.*
Current Land Use: Open Water
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status: Approximately 53.5 acres were filled for the F. D. & P. Enterprises, Inc. Intermodal Terminal Project in 2002. In 2003 F. D. & P. bought credits at MRI Mitigation Bank, in addition to on site enhancement on Penhorn Creek. The on- site enhancement did not meet expectations. Princeton Hydro began trying to save the on-site enhancement in 2006.
Partners:
Project Contact: Ross Feltes
Phone: 201-460-4919
Website www.njmeadowlands.gov
Project Funding Source:
HEP Ratified Date: 7/1/1997

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Wetland and tidal creek preservation. Restoration of approximately acres of emergent vegetation through removal of invasives, planting of native species, and re-grading to wetland elevations.
Habitat for Fish, Crab and Lobsters – Addition of complex structure to create functionally related habitats amongst mudflats, low marsh and high marsh along approximately 10 acres of habitat.
Tributary Connections – Removal/regulation of tide gates and man-made debris and control of storm water runoff can potentially re-connect approximately 11,175 feet of channels from Hackensack River and surrounding creeks to wetlands.
Sediment Contamination – Possible dredging and capping of sediment based on sediment contamination testing.
Public Access – Opportunity to create approximately 3,262 feet of trails along the main stem of the river, which could provide a connection to Laurel Hill Park.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD data exists inclusive of this site. Detailed flood control survey completed in 2000.
B. Site History and Land Use: General land use studies were conducted for an ecological resource plan completed for the HMD in 1978.
C. Biological Studies/ Fauna: A benthos study was conducted in the creek for the Secaucus Transfer Station Project in 1990.
D. Biological Studies/ General Environment: Various general wetland studies were completed for an ecological resource plan for the HMD in 1978 and HMDC in 1984, Kiviat and McDonald 2002.
E. Geotechnical: No data obtained
F. Hydraulics and Hydrology: Flood control survey conducted in 2000; study conducted between 1998 and 2004, including a two-dimensional hydrology ("child") model for the creek.
G. Water and Sediment: Water quality studies were conducted in the creek in 1990 and 1994. General water quality studies were completed for an ecological resource plan completed for the HMD in 1978.
H. Historical and Cultural Resources: A cultural resources study of the area associated with the Secaucus Interchange Project, including the creek, was completed in 1992.
I. Restoration Remediation and Design Plans: No data obtained.

References:

- ERDC, HMDC, & USACE . NYD. Flood Control Survey. 2000.
- Mattson, C. P. Ecological and Resource Management Plan for the Hackensack Meadowlands. 1978.
- Aguilar Associates & Consultants, Inc. Report on Surface Water Quality and Benthos Biological Studies for the Design Modification to the NEC for the Secaucus Transfer Station Project. June 1990.
- Mattson, C. P. Ecological and Resource Management Plan for the Hackensack Meadowlands.1978.
- ERDC & USACE . NYD. The Hackensack Meadowlands Flood Control Study. 1998 . 2004 (On-going).
- Konsevick, Edward, Christine Cheng Hobble, & Paul Lupini. Monitoring Effects of Urban Land Use of Esturine Water Quality, Hackensack Meadowlands District, New Jersey. November 1994.
- Mattson, C., G. Potera, & M.E. Saks. Water Quality in a Disordered Ecosystem: A Report on the Water Quality Monitoring Study Performed in the Hackensack Meadowlands between June and September 1971. 1971.
- Geismar, Joan H. Stage 1A Cultural Resources Survey of the Impact Area of New Jersey Turnpike Secaucus Interchange Project Hudson County, New Jersey. July 1992.
- Kiviat, E. & K. MacDonald. 2002. Hackensack Meadowlands, New Jersey, biodiversity: A review and synthesis. Hackensack Meadowlands partnership.


Tributary Connections Point
Public Access Trail
Wetlands
Fish, Crab, Lobster
Project Boundary
US Army Corps of Engineers
New York District
CRP 38 Penhorn Creek (South)
Newark Bay, Passaic River & Hackensack River
0 95 190 380 570 760
Feet
N
W
E
S

CRP SITE 67. LAUREL HILL PARK WETLANDS

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: Adjacent to Laurel Hill Park, east of the Hackensack River, north of the Penn-Central Northeast Corridor (AMTRAK), and south of New Jersey Turnpike - Eastern Spur. *Secaucus, NJ*. Block 1 Lot 3. *Latitude/Longitude: 40.75603/-74.08950*
Watershed: Hackensack River
Size:
Current Ownership: Hudson County
Site Description: *Laurel Hill Park Wetland is a tidal marsh and adjacent to a public park. The wetland, southwest of the Laurel Hill County Park, is surrounded by rail lines and highways. The site is dominated by common reed (Phragmites australis) interspersed with pockets of saltmarsh hay (Spartina patens). Tidal waters enter the site directly from the Hackensack River. This site is an important part of the larger Meadowlands complex providing essential habitat.*
Current Land Use: Tidal marsh and public park.
Available Habitat: Phragmites marsh interspersed with small patches of high marsh.
Proposed Project:
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact: Ken Jennings, Hudson County Parks
Phone: (201) 309-1547
Website:
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Improve approximately 23 acres of existing wetland by removing invasive Phragmites and re-vegetating and planting with native vegetation.
Habitat for Fish, Crab, and Lobsters- Increase habitat connectivity along approximately 3 acres of existing subtidal and upland habitat.
Sediment Contamination – FWS lists site contaminant concerns as substantial. Likely dredging and capping of contaminated sediments depending on sediment contamination testing.
Public Access – Laurel Hill County Park contains a ball field, boat launch, river walkway and nature trail. Potential exists to create up to1,938 feet of walking trails.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

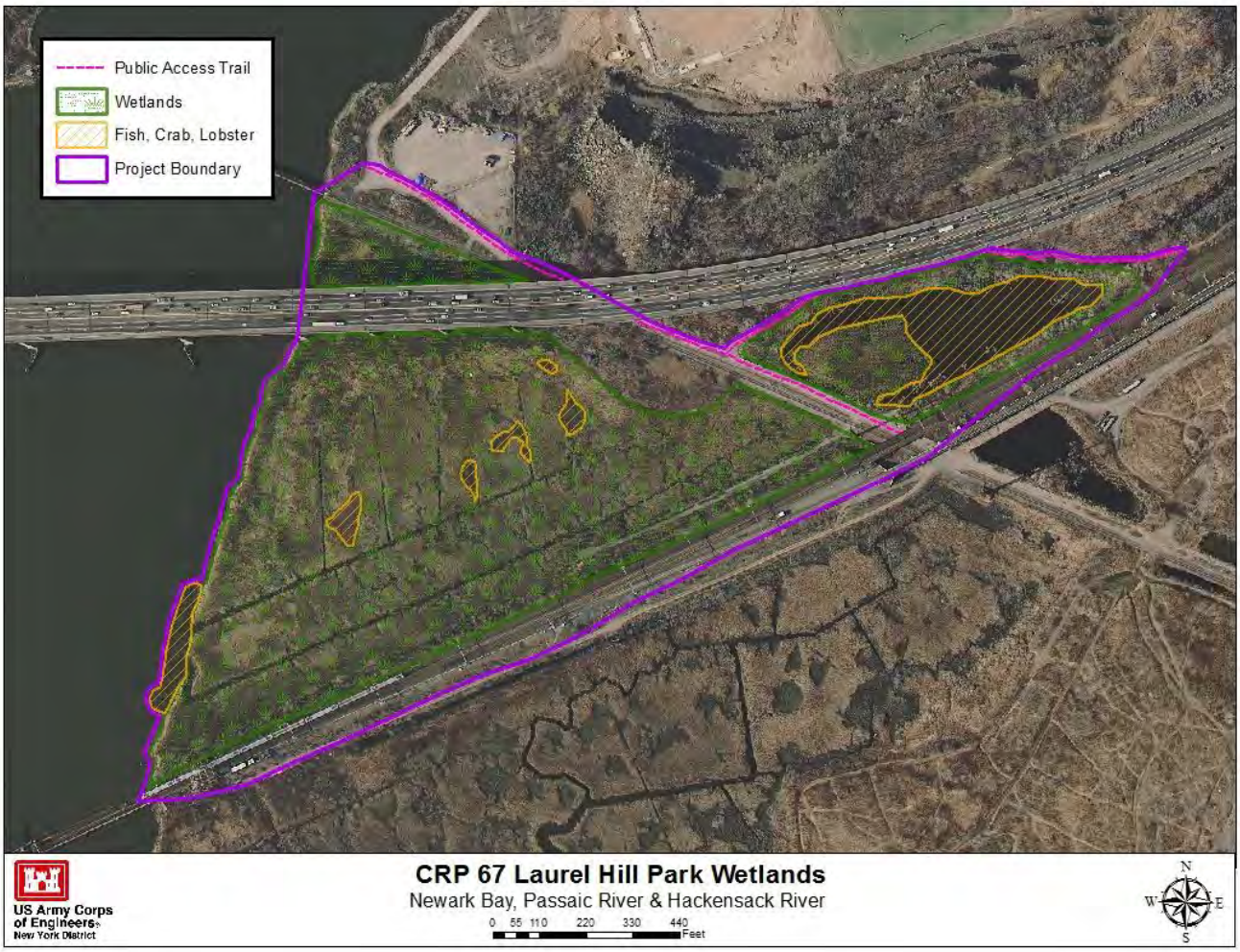
A. Survey, Maps and GIS: HMD regional data exists inclusive of this site. General site conditions were examined in a 1994 environmental assessment.
B. Site History and Land Use: General site history information was compiled in 1994. Site-specific land use information developed in 1981.
C. Biological Studies/ Fauna: General baseline data was collected for a 1994 environmental assessment. Avian Surveys, Audubon Society 2007.
D. Biological Studies/ General Environment: General baseline data was collected for a 1994 environmental assessment and through Kiviat and McDonald 2002. A JD was issued in 1995. Extensive, list of plants compiled by Torrey Botanical Society and NJMC include the rare species wafer-ash tree and violet bush clover.
E. Geotechnical: General site history information was compiled in 1994. Site-specific geologic information developed in 1981.
F. Hydraulics and Hydrology: General baseline data was collected for a 1994 environmental assessment.
G. Water and Sediment: General baseline data was collected for a 1994 environmental assessment.
H. Historical and Cultural Resources: General baseline data was collected for a 1994 environmental assessment. A Phase I cultural resource investigation was conducted in 2006.
I. Restoration Remediation and Design Plans: A conceptual wetland mitigation plan was developed in 1994.

References:

- Edwards and Kelcey, Inc. Environmental Assessment Report for NJ Transit.s Proposed Secaucus Transfer Station: Northeast Corridor Track Modifications and Main Line Improvements. 1994.
- USACE. Jurisdictional Determination: Laurel Hill Park (Application. No. 1995-03220). 8/15/1995.
- Facciolla, Nicholas W. Minerals of Laurel Hill. 1981.

- Torrey, J. C. 1819. A catalogue of plants growing spontaneously within thirty miles of the City of New York. Websters and Skinners, New York. 100 pp. and www.nynjctbotany.org
- Kiviat, E. & K. MacDonald. 2002. Hackensack Meadowlands, New Jersey, biodiversity: A review and synthesis. Hackensack Meadowlands partnership.
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.
- New Jersey Audubon Society. 2007. Avian Abundance and Distribution in the New Jersey Meadowlands District: The Importance of Habitat, Landscape, and Distribution.

- US Army Corps of Engineers. Cultural Resource Investigation of Ten Sites in the Hackensack Meadowlands, Hackensack Meadowlands Restoration Project, Hudson and Bergen Counties, New Jersey. August 2006.



CRP SITE 522. LOSEN SLOTE CREEK PARK

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: 0.1 miles west of I-95, 1.2 miles southeast of intersection of Washington Avenue and Moonachie Avenue. *Northwest of the Mehrhof Pond site and bordered to the west by Losen Slote Creek in Little Ferry, NJ. Latitude/Longitude: 40.83756/-74.03893*
Watershed: Hackensack River
Size:
Current Ownership: *Borough of Little Ferry (NJMC has a 99-year lease agreement for public access.)*
Site Description:*The Losen Slote Creek Park site was part of the extensive plantation of Captain John Berry, an early Meadowlands landowner. Historically, the area was a semi-wilderness of cedar swamps, cattails, and wet woodlands. In the 18th century, the site was harvested for salt hay from the tidal portions of the site. In the 19th century, the site was diked and drained, and as a result, much of the formerly tidal areas are now upland. The park was protected in 1990 per an agreement between the Town of Little Ferry and the NJMC. In 1999, Little Ferry replaced the wooden tide gate with a modern, high capacity pumping station to prevent excessive flooding. The recreational section of the park contains a two-acre children's playground, a regulation-size roller hockey rink, and an educational and recreational resource area with outdoor classrooms. The undeveloped portion contains a lowland forest. A plant inventory was completed in 1991. Some existing wetlands on the property were enhanced in 1992; however, some areas onsite could still be enhanced. The park is located adjacent to the Bergen County Utilities Authority Nature Preserve. The site is one of the few remaining remnants of lowland forest in Bergen County. Losen Slote is a rich and diverse environment which supports many migratory songbirds, as well as a variety of small mammals and reptiles.*
Current Land Use: Freshwater wetland and Public Park.
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Improvements to existing wetlands are freshwater, as Losen Slote is behind a well maintained tide gate/pumping station and restoration of additional on site wetlands, totaling approximately 7 acres. Improvements include removal of invasives, replanting with native species, and re-grading to wetland elevations.
Coastal and Maritime Forests – Maintenance and improvements to approximately 18 acres of the areas of lowland forest and meadow.
Sediment Contamination – FWS lists contaminant concerns as minimal. Basic sampling and bulk sediment chemistry analysis may be necessary.
Public Access – Maintenance and improvement to the parks 2 acre recreation unit may include approximately 769 linear feet of trails.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site. A survey was completed in 1987.
B. Site History and Land Use: Site history information was compiled in 1987.
C. Biological Studies/ Fauna: Avian Surveys, Audubon Society 2007.
D. Biological Studies/ General Environment: Baseline wetland data and quality assessments conducted in 1991 for a zoning permit application, Audubon Society 1997 (Kane and Githens), Kiviat and McDonald 2002. Extensive list of plants compiled by The Torrey Botanical Society.
E. Geotechnical: No data obtained.
F. Hydraulics and Hydrology: No data obtained.
G. Water and Sediment: Some creek water quality data collected, 1971.
H. Historical and Cultural Resources: No data obtained.
I. Restoration Remediation and Design Plans: No data obtained.

References:

- Talge, H. Survey of the Losen Slote Creek Park and Adjacent Lands. August 1987.
- Paulus, Sokolowski, and Sartor, Inc. Zoning Certificate Application: Proposed Sludge Dewatering Facilities. Bergen County Utilities Authority. 1991.
- HMDC. Losen Slote Creek Park Woods; Contract EI- 103. May 1992.

- Kane, R., and D. Githens. 1997. Hackensack River migratory bird report: With recommendations for conservation. New Jersey Audubon Society, Bernardsville, New Jersey. 37 pp.
- Kiviat, E. & K. MacDonald. 2002. Hackensack Meadowlands, New Jersey, biodiversity: A review and synthesis. Hackensack Meadowlands partnership.
- Torrey, J. C. 1819. A catalogue of plants growing spontaneously within thirty miles of the City of New York. Websters and Skinners, New York. 100 pp. and www.nynjctbotany.org
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.
- Mattson, CG and ME Saks. 1971. Water Quality in a disordered ecosystem: A report on the water quality monitoring study preformed in the Hackensack Meadowlands between June and September 1971. Hackensack Meadowlands Development Commission, Lyndhurst, New Jersey. 58pp.
- New Jersey Audubon Society. 2007. Avian Abundance and Distribution in the New Jersey Meadowlands District: The Importance of Habitat, Landscape, and Distribution.

CRP SITE 718. LYNDHURST RIVERSIDE MARSH

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: Located southeast of where Berry's Creek flows into the Hackensack River, to the east of the Bellemeade Mitigation site, and south of Rutherford Landfill in Lyndhurst, Hudson County. *Latitude/Longitude: 40.78422/-74.08880*
Watershed: Hackensack River
Size: *31 acres*
Current Ownership: Owned by NJMC. Acquisition data available from the NJMC website.
Site Description: *Lyndhurst Riverside Marsh is undeveloped and adjacent to the Bellemeade Mitigation site. The site is dominated by common reed (Phragmites australis) and contains small pockets of high marsh. This area is adjacent to an area which has been restored to high saltmarsh (Spartina patens).*
Current Land Use: Tidal marsh.
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status: The Bergen County Utility Authorities portion of the site is a large pond with a well developed forest. Part of the site is in Losen Slote Creek Park, which is mostly forested but includes field, marsh and a portion of Losen Slote Creek site will be advanced HRE Study with Metro Media as first phase implementation (having their designs be completed and included in the HRE FS Report).as part of the USACE HRE Study (first phase of implementation site).
Partners:
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Re-grading of the marsh surface, and re-establishing approximately 24 acres of low marsh. Creation of approximately 1,656 feet of tidal channels (20 foot width) will increase hydrologic exchange.
Habitat for Fish, Crab and Lobsters – Addition of complex structure to create functional connections along approximately 10 acres of mudflats, tidal channels, low marsh and high marsh.
Sediment Contamination – FWS lists site contaminant concerns as substantial. Likely dredging and capping of sediment based on testing. Restoration designs should include measures to prevent contamination from surrounding sites (adjacent landfills and Berry's Creek).
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site. A boundary and topographic survey was conducted in 1999. A topographic survey was completed by the ACOE in 2006.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: Avian Surveys, Audubon Society 2007.
D. Biological Studies/ General Environment: Wetland assessment performed in 2003.
E. Geotechnical: Geotechnical and HTRW data collected by the Army Corps of Engineers in 2004.
F. Hydraulics and Hydrology: No data obtained.
G. Water and Sediment: No data obtained.
H. Historical and Cultural Resources: A Phase I cultural resource investigation was completed in 2006.
I. Restoration Remediation and Design Plans: No data obtained.

References:

- Van Cleef Engineering Associates. Boundary and Topographic Survey for Lyndhurst Preserve Wetland Mitigation Site. 1999.
- NJMC. Riverside Marsh Acquisition Information. September 2003 (from http://www.hmdc.state.nj.us/eip/wl-riverside.html).
- The Louis Berger Group, Inc. Hydrogeomorphic (HGM) Functional Assessment Model and Guidebook for Tidal Fringe Wetlands in the New Jersey Meadowlands. 2003.
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.
- Earthworks. 2008. Geophysical Investigation as part of the Design of the Hackensack River Enhancement Project.
- Earthworks. 2007. Benthic Community Investigation Hackensack River Enhancement Project.
- New Jersey Audubon Society. 2007. Avian Abundance and Distribution in the New Jersey Meadowlands District: The Importance of Habitat, Landscape, and Distribution.

- US Army Corps of Engineers. Summary Data Report, Preliminary Geotechnical and Hazardous, Toxic, & Radioactive Waste Site Investigation, Lyndhurst Riverside Marsh, Lyndhurst, NJ. December, 2004.
- US Army Corps of Engineers. Cultural Resource Investigation of Ten Sites in the Hackensack Meadowlands, Hackensack Meadowlands Restoration Project, Hudson and Bergen Counties, New Jersey. August 2006.

CRP SITE 719. MEADOWLARK MARSH

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: Located north of Bellman's Creek and east of the New Jersey Turnpike - Eastern Spur in Ridgefield, Bergen County. *Latitude/Longitude: 40.82120/-74.02449*
Watershed: Hackensack River
Size: 90 acres
Current Ownership: Originally owned by Hartz Mountain Development Corporation. NJMC acquired the site in 2003.

Site Description: The Meadowlark Marsh site is currently undeveloped and dominated by common reed *(Phragmites australis)*, but dotted with staghorn sumac *(Rhus hirta)* and black cherry *(Prunus serotina)* trees. *Site elevations range from approximately 15 feet in the upland forest to 1-foot along Bellman's Creek, with minimal inundation. It appears that runoff from development along Westside Avenue is a possible source of freshwater for several ponds contained on site. Primary hydrologic connection appears to be from Bellman's Creek. A small isolated un-vegetated, non-tidal pond bordering an 8 acre spoil pile occurs on the marsh. A small forested upland area also lies at the center of the site. A natural gas pipeline crosses the site and is covered by a 3 foot berm. The land is visited frequently by feeding ducks including green-winged teal (Anas crecca), and is a popular nesting area for red-winged black birds (Agelaius phoeniceus). This site has also been known as the Meadowlark Tract and Bellman's Creek Site.*
Current Land Use: Tidal marsh
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Improvements and restoration to approximately 64 acres of existing wetlands; to include removal of debris, historic fill and invasives. Re-grading to wetland elevations and replanting with native species.
Coastal Maritime Forests- Restoration/creation of approximately 3 acres of upland shrub and wooded area.
Habitat for Fish, Crab, and Lobsters- Creation of habitat connectivity along approximately 14 acres of mudflats and channels.
Sediment Contamination – FWS lists site contaminant concerns as moderate. Potential dredging and capping based on sediment contamination testing.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site.
B. Site History and Land Use: Existing conditions surveyed at the site in 1997. Preliminary hazardous materials assessment completed in 2003.
C. Biological Studies/ Fauna: General wildlife and environmental data was collected in 1993 and 1997 for site assessments.
D. Biological Studies/ General Environment: Wetland assessments conducted in 1993, 1997, and 2003. Preliminary hazardous materials assessment completed in 2003.
E. Geotechnical: General soils data was collected for a 1997 site assessment.
F. Hydraulics and Hydrology: General hydrology data was collected for a 1997 site assessment.
G. Water and Sediment: General sediment data was collected for a 1997 site assessment.
H. Historical and Cultural Resources: Existing cultural resources information was compiled for a 1997 site assessment. A more recent Phase I cultural resource investigation was completed in 2006.
I. Restoration Remediation and Design Plans: Conceptual restoration plan was developed in 1986. Development of a conceptual restoration plan was evaluated for a 1997 site assessment.

References:

- Louis Berger & Associates, Inc. Bellman's Creek Site: Assessment of 90-acre Site in the Hackensack Meadowlands District. August, 1997.
- PMK Group, Preliminary Assessment Report Meadowlark Site. December 2003.
- The Louis Berger Group, Inc. Hydrogeomorphic (HGM) Functional Assessment Model and Guidebook for Tidal Fringe Wetlands in the New Jersey Meadowlands. 2003.
- TAMS Consultants, Inc. Functional Evaluation of the Villages at Mill Creek Development and Mitigation Sites. March 1993.

- TAMS Consultants, Inc. The Villages at Mill Creek (IR-2) Brackish Wetland Mitigation Concept. May 1986.
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Army Corps of Engineers. Cultural Resource Investigation of Ten Sites in the Hackensack Meadowlands, Hackensack Meadowlands Restoration Project, Hudson and Bergen Counties, New Jersey. August 2006.

- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.

CRP SITE 720. MEHRHOF POND

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: South of Losen Slote Creek, east of Losen Slote Creek Park, and west of the Hackensack River in Little Ferry, Bergen County. *Latitude/Longitude: 40.83600/-74.03752*
Watershed: Hackensack River
Size: 77 acres
Current Ownership: Owned by Bergen County Utilities Authority (BCUA). NJMC has lease access agreement for public access.
Site Description: Part of the site is in Losen Slote Creek Park, which is mostly forested but includes field, marsh and a portion of Losen Slote Creek

The Mehrhof Pond site consists of an open freshwater pond (Mehrhof Pond), native grassland and wet meadow areas, *and the BCUA Nature Preserve forest and trail. The site is adjacent to a BCUA water treatment facility, and is bisected by a service road. The approximately six acre BCUA Nature Preserve and trail were dedicated in June of 1996 by BCUA. The nature preserve itself is considered a remnant lowland forest with coastal indications. The self-guided trail is approximately 1½ miles long and features observation sites that include an observation deck and an outdoor classroom. The trail encircles Mehrhof Pond, which was formerly a clay pit for a brick manufacturing company that occupied the property until the 1940's. All the plant life that embellishes the nature preserve is indigenous to the area. At the present time, the BCUA Nature Preserve is not open to the general public, but is open by appointment only to organized groups and organizations.*
Current Land Use: Open water, upland, and freshwater wetland
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact: Bergen County Utilities Authority
Phone:
Website: http://www.bcua.org/
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

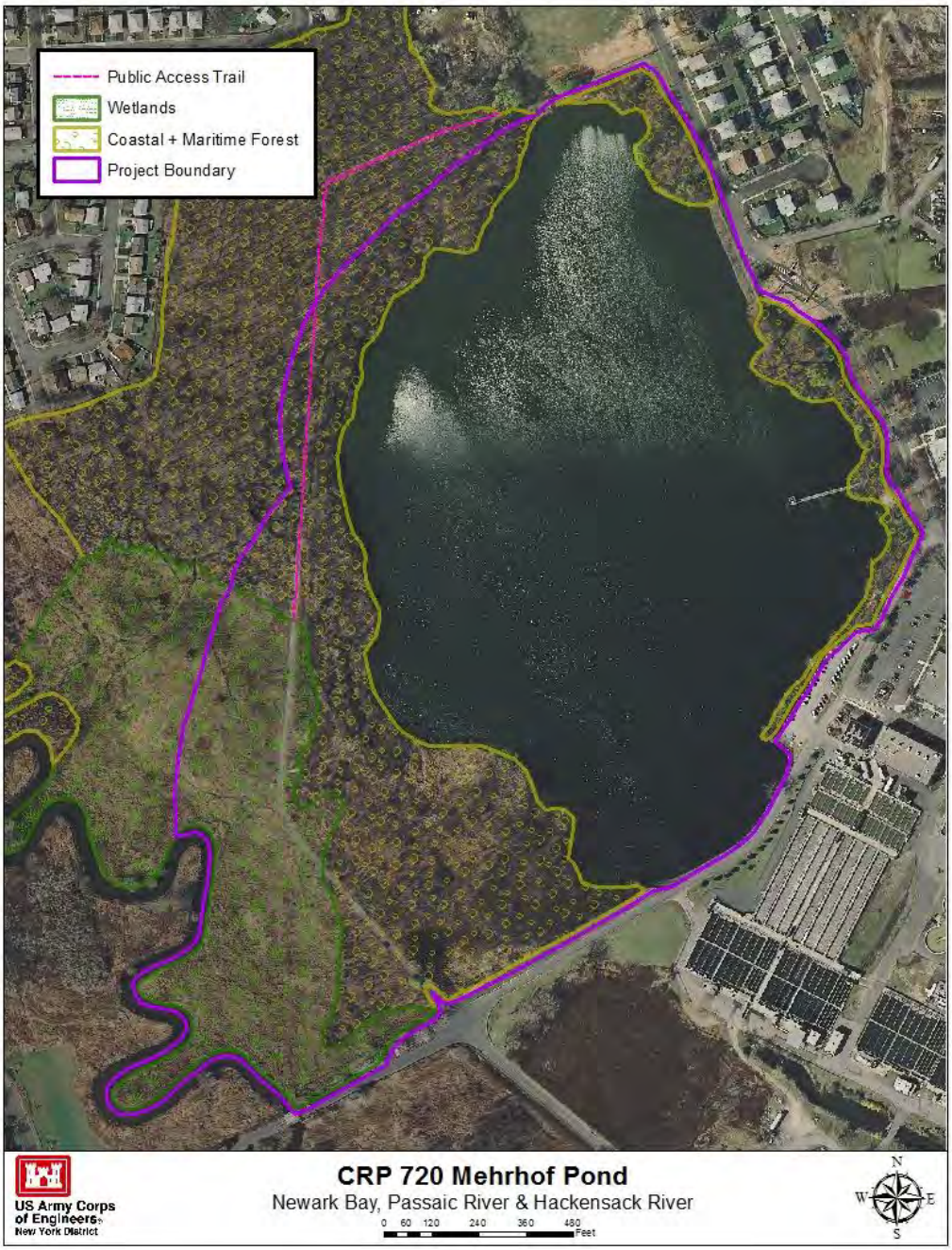
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Maintain the existing 10 acre freshwater wetland and support restoration where needed.
Coastal and Maritime Forests – Maintain and preserve the existing 19 acres of lowland forest and meadow.
Sediment Contamination – FWS lists contaminant concerns as minimal. Basic sampling and bulk sediment chemistry analysis may be necessary.
Public Access- Support maintenance of the approximately 814 linear feet of trails.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: Fisheries study completed in 1998. Avian Surveys, Audubon Society 2007.
D. Biological Studies/ General Environment: No data obtained.
E. Geotechnical: No data obtained.
F. Hydraulics and Hydrology: No data obtained.
G. Water and Sediment: No data obtained.
H. Historical and Cultural Resources: No data obtained.
I. Restoration Remediation and Design Plans: No data obtained.

References:

- Princeton Hydro, LLC. An Environmental Assessment of Mehrhof Pond as part of the Revitilization Project for the Bergen County Utilities Authority Nature Preserve & Trail, Bergen County. October 1998.
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.
- New Jersey Audubon Society. 2007. Avian Abundance and Distribution in the New Jersey Meadowlands District: The Importance of Habitat, Landscape, and Distribution.


Public Access Trail
Wetlands
Coastal + Maritime Forest
Project Boundary
US Army Corps of Engineers
New York District
CRP 720 Mehrhof Pond
Newark Bay, Passaic River & Hackensack River
0 60 120 240 360 480
Feet
N
W
E
S

CRP SITE 721. METRO MEDIA TRACT

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: Bordered on the east and south by the Hackensack River and on the north by Marsh Resources Meadowlands Mitigation Bank in Carlstadt, NJ. *Latitude/Longitude: 40.81180/-74.03711*
Watershed: Hackensack River
Size: 74 acres
Current Ownership: NJMC
Site Description: *The Metro Media Tract surrounds the Metro Media Broadcast site and towers. The site is undeveloped and dominated by common reed (Phragmites australis). Site may have received fill from unknown sources during the construction of the radio towers.*
Current Land Use: Tidal marsh
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status: to be implemented under HRE Study with Lyndhurst as as first phase implementation (having their designs be completed and included in the HRE FS Report*).*
Partners: USACE
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Restore approximately 53 acres of low marsh and upland buffer by remove invasives and re-plant with native species. Tidal hydrology could be increased through the construction of approximately 1,862 feet of channel networks (20 foot width).
Habitat for Fish, Crab, and Lobsters- Creation of habitat connectivity along approximately 16 acres of mudflats and channels.
Sediment Contamination – FWS lists site contaminant concerns as moderate. Potential dredging and capping based on sediment contamination testing.
Benefits, Cost and Comparative Restoration Ratio:

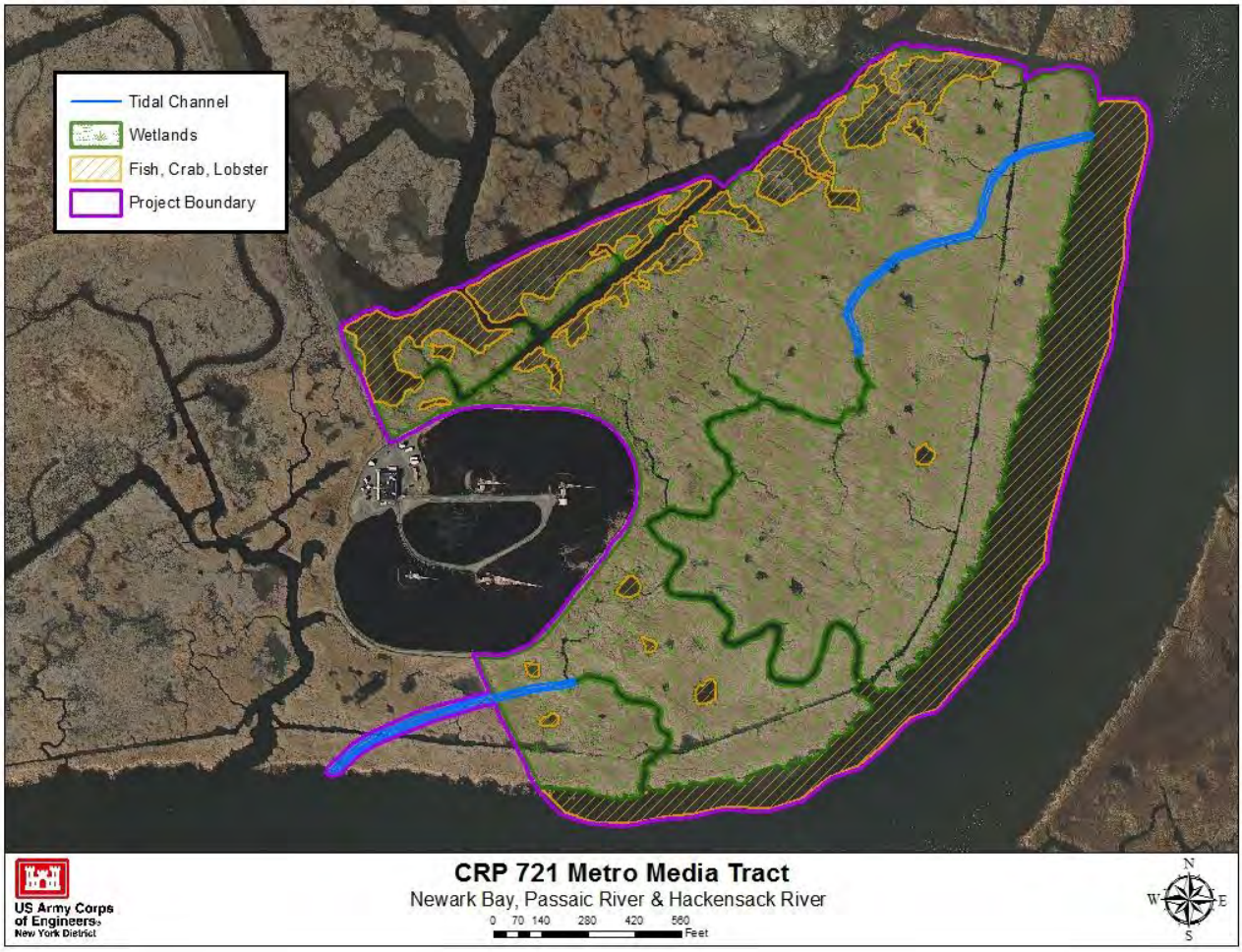
C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: Avian Surveys, Audubon Society 2007.
D. Biological Studies/ General Environment: Study on effects of differing soil types on growth of smooth cordgrass *(Spartina alterniflora)* was conducted in 1995.
E. Geotechnical: Study on effects of differing soil types on growth of smooth cordgrass *(Spartina alterniflora)* was conducted in 1995.
F. Hydraulics and Hydrology: No data obtained.
G. Water and Sediment: No data obtained.
H. Historical and Cultural Resources: A Phase I cultural resources investigation was conducted in 2006.
I. Restoration Remediation and Design Plans: No data obtained.

References:

- Celebrano, M. A Characterization of Sites in the Hackensack Meadowlands District Experiencing Unexplained Decline of Spartina alterniflora. HMDC. 1995.
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.
- New Jersey Audubon Society. 2007. Avian Abundance and Distribution in the New Jersey Meadowlands District: The Importance of Habitat, Landscape, and Distribution.

US Army Corps of Engineers. Cultural Resource Investigation of Ten Sites in the Hackensack Meadowlands, Hackensack Meadowlands Restoration Project, Hudson and Bergen Counties, New Jersey. August 2006.


Tidal Channel
Wetlands
Fish, Crab, Lobster
Project Boundary
US Army Corps of Engineers
New York District
CRP 721 Metro Media Tract
Newark Bay, Passaic River & Hackensack River
0 70 140 280 420 560
Feet
N
W
E
S

CRP SITE 722. MORI TRACT

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: Located along Cromakill Creek, south of Eastern Brackish Marsh, and bordered to the east by West Side Avenue in Secaucus, NJ. *Latitude/Longitude: 40.79141/-74.03806*
Watershed: Hackensack River
Size: 77 acres
Current Ownership: Private
Site Description: Formerly, Cromakill Marsh**.** *This site is a tidal marsh dominated by common reed (Phragmites australis). Cromakill creek receives 18 MGD of effluent from the North Bergen Municipal Utilities Authority Central Sewage Treatment Plant and has likely introduced this effluent to the wetland. Heavy sedimentation is occurring in the creek and is believed to be associated with the effluent.*
Current Land Use: Tidal marsh
Available Habitat:
Proposed Project: The current conceptual restoration plan includes increasing tidal flow and exchange, restoring intertidal wetlands, and reintroducing native wetland species. The adjacent upland area to the south of the site is owned by the same property owner. This site has also been known as the Cromakill Creek Marsh.
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands –Restore approximately 41 acres of intertidal wetlands by increase tidal flow and exchange, removing invasives, re-planting native species.
Sediment Contamination – FWS lists site contaminant concerns as substantial. Likely dredging and capping based on sediment contamination testing. Restoration plans would include measures to prevent contamination from surrounding sites.
Habitat for Fish, Crab and Lobsters – Addition of complex structure to approximately 8 acres of existing mudflats and creeks will facilitate movement and habitat exchange.
Public Access- Potential exists to create approximately 4,600 feet of trails.
Benefits, Cost and Comparative Restoration Ratio:

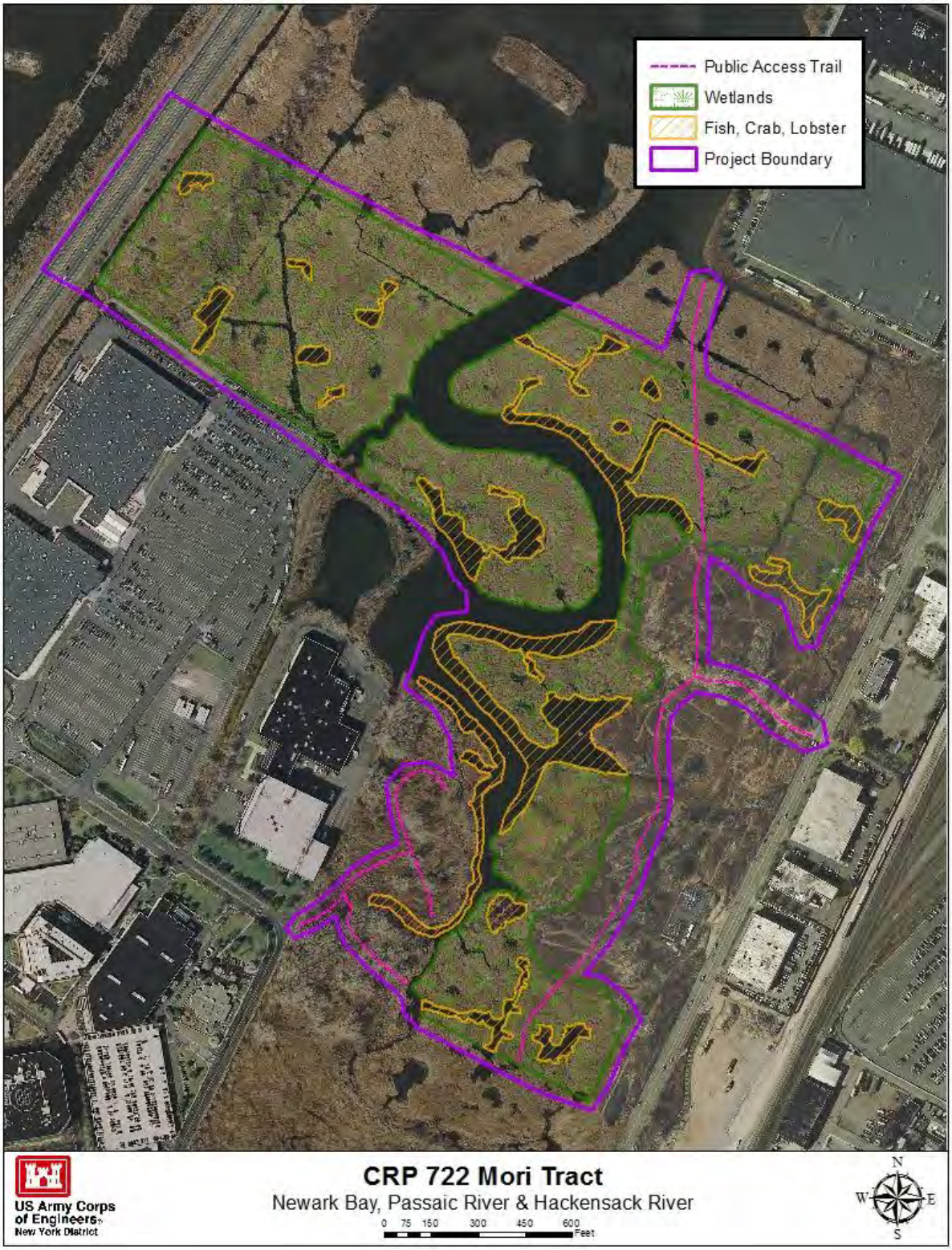
C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: No data obtained.
D. Biological Studies/ General Environment: Baseline investigations conducted in New Jersey Turnpike Authority 1986, Audubon Society 1997 (Kane and Githens), A Jurisdictional Determination was issued in 2001. Wetland assessments performed in 2003.
E. Geotechnical: No data obtained.
F. Hydraulics and Hydrology: Hackensack Meadowlands Development Commission 1984
G. Water and Sediment: No data obtained.
H. Historical and Cultural Resources: No data obtained.
I. Restoration Remediation and Design Plans: Hudson County has plans to complete the Hackensack River Greenway along the water's edge from the Bayonne Bridge to the Cromakill Creek (Hudson County Master Plan Re-examination, 2008).

References:

- The Louis Berger Group, Inc. Hydrogeomorphic (HGM) Functional Assessment Model and Guidebook for Tidal Fringe W etlands in the New Jersey Meadowlands. 2003.
- USACE. Jurisdictional Determination: Mori Tract Site (Application. No. 2001-00328). 7/6/2001
- New Jersey Turnpike Authority (NJTA). 1986. New Jersey Turnpike 1985-90 Widening, Technical Study. Volume II: Biological Resources.
- Kane, R., and D. Githens. 1997. Hackensack River migratory bird report: With recommendations for conservation. New Jersey Audubon Society, Bernardsville, New Jersey. 37 pp.
- Kiviat, E. & K. MacDonald. 2002. Hackensack Meadowlands, New Jersey, biodiversity: A review and synthesis. Hackensack Meadowlands partnership.
- Hudson County Master Plan Re-examination, 2008.
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.

- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.



CRP SITE 723. ORITANI MARSH

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: Bordered to the northeast by Berry's Creek Canal, to the southeast by the New Jersey Turnpike - Western Spur, and to the west by New Jersey Transit Bergen Line in East Rutherford, NJ. *Latitude/Longitude: 40.80229/-74.08405*
Watershed: Hackensack River
Size: 224 acres
Current Ownership: Owned by NJMC. Acquisition data available from the NJMC website.
Site Description: Oritani Marsh is an undeveloped tract that includes upland areas and high and low marsh areas, with small tidal channels. *Present elevations at the Oritani Marsh site are substantially higher than that of the average daily tide, resulting in minimal hydrologic connections to the adjacent Berry's Creek Canal and the Hackensack River. The upland areas are dominated by a dense monoculture of common reed (Phragmites australis). The high marsh areas are dominated by saltmarsh hay (Spartina patens), while the low marsh areas are dominated by smooth cordgrass (Spartina alterniflora), marsh fleabane (Pluchea pupurascens), and dwarf spikerush (Eleocharis pavula). The northern portions of the tract along the Berry's Creek Canal received spoils from the original dredging of the canal in 1911. The northeastern half of the site received hydraulically broadcast spoils removed from the New Jersey Turnpike construction during the - the western spur of the turnpike was constructed between 1969 to 1970]. Together, these activities eliminated a large portion of the low saltmarsh, burying it beneath several feet of fill material. The marshes around Berry's Creek are important because they link the lower river marshes with the upper marshes at Route 3 and provides continuous habitat through the middle of the district. This site has also been known as the Sisselman Tract.*
Current Land Use: Tidal marsh
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Restore approximately 205 acres of marsh habitat through re-grading, removal of invasives, and re-planting with natives. Increase tidal flow and exchange through restoration of the historic re-alignment of Fish Creek approximately x feet (20 foot width).
Shorelines and Shallows – Removal of man-made debris and re-grading of approximately 5,732 feet of shoreline.
Habitat for Fish, Crab and Lobsters – Addition of complex structure to the mudflats and creeks will facilitate movement and habitat exchange along approximately 12 acres.
Sediment Contamination – Potential dredging and capping based on sediment contamination testing. FWS lists site contaminant concerns as substantial. Site borders Berry's Creek, a superfund site with documented high level mercury contamination. EPA will decide on the cleanup solution for the soil/sediment contamination within the Berry's Creek watershed after the Phase 3 studies have been completed.
Tributary Connections- Upgrading or removing culverts will support enhancement of tidal flow along approximately 5,812 feet of channels that support wetland development.

Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site. Survey conducted for 2001 baseline study.
B. Site History and Land Use: Existing condition surveyed for baseline studies report.
C. Biological Studies/ Fauna: Baseline studies and wildlife monitoring was conducted in by New Jersey Transit Authority in 1986, seperatly 2001 and an assessment of benthic invertebrates and bird and mammal usage was completed in 2003. Avian Surveys, Audubon Society 1997 (Kane and Githens) and 2007.
D. Biological Studies/ General Environment: Baseline data collected in 1999 and 2001, 1986 by New Jersey Transit Authority. Site monitoring conducted in 2001, and a vegetation assessment completed in 2003. A JD was issued in 2000. Wetland assessments performed in 2003. Ecological risk assessment of contamination, 2004.
E. Geotechnical: Baseline data collected in 1998, 1999, 2001, and 2003.
F. Hydraulics and Hydrology: Baseline data collected in 1999.

G. Water and Sediment: Baseline data collected in 1998, 1999, and 2003.
H. Historical and Cultural Resources: A Phase I cultural resource investigation was conducted in 2006.
I. Restoration Remediation and Design Plans: A conceptual wetland mitigation plan was investigated in 1999 and 2001.

References:

- The Louis Berger Group, Inc. Oritani Marsh Mitigation Site: Baseline Studies. February 2001.
- Barrett, K. R., M. A. McBrien, & F. J. Artigas. Chemical and Biotic Assessment of Oritani Marsh, a Degraded Brackish Marsh in the Hackensack Meadowlands, Northeastern NJ. Abstract of the Meadowlands Symposium. 2003.
- Donald J. Smith Environmental Consultants. Monthly Report: Harrier Meadow, Mill Creek, Skeetkill Creek Marsh, Oritani Marsh, Riverbend Wetlands Preserve and Secaucus High School. August 2001.
- Ducks Unlimited, Inc. Baseline Monitoring Program: Soil and Sediment Contamination at Wetland Enhancement Sites within the Hackensack Meadowlands. March 1998.
- The Louis Berger Group, Inc. Hydrogeomorphic (HGM) Functional Assessment Model and Guidebook for Tidal Fringe Wetlands in the New Jersey Meadowlands. 2003.
- The Louis Berger Group, Inc. Oritani Marsh Mitigation Site: Baseline Studies. February 2001.
- The Louis Berger Group, Inc. Oritani Marsh. December 1999.
- NJMC. Oritani Marsh Acquisition Information. September 2003. (from http://www.hmdc.state.nj.us/eip/wl-oritani.html)
- USACE. Jurisdictional Determination: Oritani Marsh (Application No. 1999-14600). 1/21/2000.
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.
- ENSR International. 2004. New Jersey Meadowlands Commission. Screening Level Ecological Risk Assessment of Contamination in Wetlands Considered for Restoration in Hackensack Meadowlands District Final Report.
- New Jersey Audubon Society. 2007. Avian Abundance and Distribution in the New Jersey Meadowlands District: The Importance of Habitat, Landscape, and Distribution.

- US Army Corps of Engineers. Cultural Resource Investigation of Ten Sites in the Hackensack Meadowlands, Hackensack Meadowlands Restoration Project, Hudson and Bergen Counties, New Jersey. August 2006.


Tributary Connections Point
Public Access Trail
Tidal Channel
Shorelines & Shallows
Wetlands
Fish, Crab, Lobster
Project Boundary
US Army Corps of Engineers
New York District
CRP 723 Oritani Marsh
Newark Bay, Passaic River & Hackensack River
0 130 260 520 780 1,040
Feet
N
W
E
S

CRP SITE 724. PETRILLO TRACT

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: Located adjacent to the Secaucus High School, Secaucus Tract, and Mill Creek Marsh sites in Secaucus, NJ.
Latitude/Longitude: 40.80004/-74.04621
Watershed: Hackensack River
Size: 8 acres
Current Ownership: Private
Site Description: *The Petrillo Tract includes a lowland marsh area and an upland area where a 43 townhome development has recently been constructed. It appears that runoff from residential streets flows into the property. A drainage ditch on the western border prevents runoff from an adjacent parking lot from reaching the upland areas, but it is likely that this runoff reaches the low-lying marsh area.*
Current Land Use: Tidal marsh
Available Habitat:
Proposed Project: *The current conceptual restoration plans includes increasing tidal flow and exchange, restoring intertidal wetlands, reintroducing native wetland species.*
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

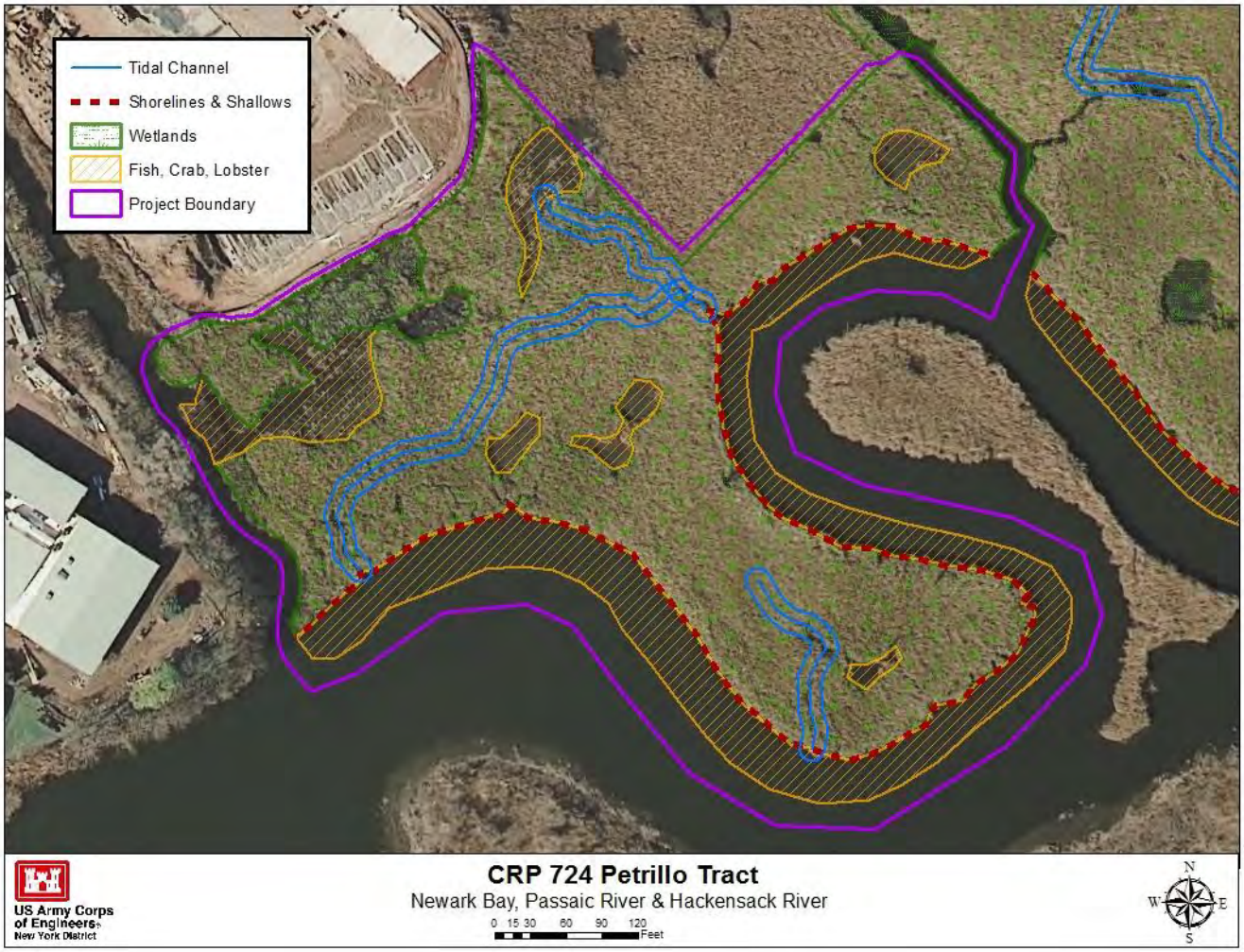
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Restore approximately 3.95 acres of intertidal wetlands by remove invasives, reintroduce native wetland species, and increasing tidal flow through the addition of up to 787.9 feet of tidal channels (20 ft width).
Shorelines and Shallows – Remove man-made debris and re-grade approximately 1516.19 linear feet of shorelines.
Habitat for Fish, Crab and Lobsters – Addition of complex structure to the mudflats and creeks will facilitate movement and habitat exchange along approximately 1.53 acres.
Sediment Contamination – FWS lists contaminant concerns as minimal. Screening level assessment of contaminants at this site is necessary.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site. Relevant survey, mapping, and GIS data for the Meadowlands can be found in the Meadowlands-wide site report under data category A.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: No data obtained.
D. Biological Studies/ General Environment: A variety of data was collected from baseline, habitat, vegetation studies etc. conducted in 1986 and 1990.
E. Geotechnical: No data obtained.
F. Hydraulics and Hydrology: No data obtained.
G. Water and Sediment: No data obtained.
H. Historical and Cultural Resources: No data obtained.
I. Restoration Remediation and Design Plans: Conceptual restoration plan developed in 1986.

Reference:

- TAMS Consultants, Inc. Comprehensive Baseline Studies, IR-2 and Off-Site Mitigation Areas/Evaluation of the Harmon Meadow Western Brackish Marsh Mitigation Area. June 1990.
- TAMS Consultants, Inc. Habitat Evaluation Procedure (HEP): IR-2 Site and Off-Site Mitigation Areas: Evaluation of the Villages at Mill Creek Mitigation Program. October 1990.
- TAMS Consultants, Inc. Technical Report on Vegetation Mapping for IR-2, Anderson Creek Marsh, and South Secaucus Wetland Sites. December 1990.
- TAMS Consultants, Inc. The Villages at Mill Creek (IR-2) Brackish Wetland Mitigation Concept. May 1986.
- TAMS Consultants, Inc. The Villages at Mill Creek (IR-2) Wetland Evaluation Technique (WET) Assessment (Draft). February 1990.
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.


Tidal Channel
Shorelines & Shallows
Wetlands
Fish, Crab, Lobster
Project Boundary
US Army Corps of Engineers
New York District
CRP 724 Petrillo Tract
Newark Bay, Passaic River & Hackensack River
0 15 30 60 90 120
Feet
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CRP SITE 725. RIVERBEND WETLAND PRESERVE

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Existing Restoration/Preservation Site
Location: Directly adjacent to the Malanka landfill to the east, the Hackensack River to the west and south, and south of the Laurel Hill Park Wetland site in Secaucus, NJ. *Latitude/Longitude: 40.75312/-74.08973*
Watershed: Hackensack River
Size: 57 acres
Current Ownership: Owned by NJMC. Acquisition data available on NJMC website.
Site Description: *Riverbend Wetlands Preserve is undeveloped but is directly adjacent to the Malanka Landfill. Mosquito ditches were dug at the site in the 1920's and 1930's. Portions of the site currently support a mixture of native high saltmarsh vegetation, dominated by saltmarsh hay (Spartina patens). Other areas consist of open water and dense monocultures of common reed (Phragmites australis). Rutgers University has used the site as a reference study site due to the presence of native high marsh vegetation. The site was purchased by NJMC in December 1996.*
Current Land Use: Tidal marsh
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status: *Concerns of the NJDEP & USFWS about elevated levels of contamination detected in on-site sediments/soils put an end to the baseline studies & restoration designs. It was decided to simply preserve this site in its existing condition. This site has also been known as the South Secaucus Site.*
Partners:
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION- TBD

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Improvements to existing wetlands (high and low marsh) and restoration of additional on site wetlands, totaling approximately 53 acres, to include removal of invasives, replanting with native species.
Shorelines and Shallows – Re-grading of approximately 2,739 linear feet of shorelines to reduce steepness and accommodate wetland elevations.
Habitat for Fish, Crab and Lobsters – Addition of complex structure to the mudflats and creeks will facilitate movement and habitat exchange along approximately 4 acres.
Sediment Contamination – Possible dredging and capping based on sediment contamination testing. FWS lists site contaminate concerns as substantial.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: Monitoring conducted in 2001. Avian Surveys, Audubon Society 2007.
D. Biological Studies/ General Environment: Site-specific baseline data collected in 1990,1992 and 2002 (Kiviat and McDonald). Monitoring conducted in 2001. *Phragmites australis* studies were conducted from 2000-2003. Wetland assessments conducted in 1990, 1993, and 2003. Ecological risk assessment of contamination, 2004.
E. Geotechnical: No data obtained.
F. Hydraulics and Hydrology: No data obtained.
G. Water and Sediment: Site-specific sediment sampling and analyses conducted in 1982 and 2001.
H. Historical and Cultural Resources: No data obtained.
I. Restoration Remediation and Design Plans: Conceptual restoration plan developed in 1986.

References:

- NJMC. Riverbend Wetlands Preserve Acquisition Information. September 2003.
- Donald J. Smith Environmental Consultants. Monthly Report: Harrier Meadow, Mill Creek, Skeetkill Creek Marsh, Oritani Marsh, Riverbend Wetlands Preserve and Secaucus High School. August 2001.
- Bart, D. Environmental Determinants of Phragmites australis Invasion in a New Jersey Salt Marsh: Interactions Among Human Activities, Disturbance, and Edaphic Conditions. Rutgers University. 2003.
- Bart, D. & J.M. Hartman. Environmental Constraints on Early Establishment of Phragmites australis in Salt Marshes. Wetlands. Volume 22 No. 2 pp. 201-213. 2002.
- Bart, D. and J.M. Hartman. Environmental Determinants of Phragmites australis Expansion in a New Jersey Salt Marsh: An Experimental Approach. Oikos. 89:59-69. 2000.

- Bart, D. & J.M. Hartman. The Role of Large Rhizome Dispersal and Low Salinity Windows in the Establishment of Common Reed, Phragmites australis, in Salt Marshes: New Links to Human Activities. Estuaries. Volume 26 No. 2B pp. 436-443. 2003.
- The Louis Berger Group, Inc. Hydrogeomorphic (HGM) Functional Assessment Model and Guidebook for Tidal Fringe Wetlands in the New Jersey Meadowlands. 2003.
- TAMS Consultants, Inc. Comprehensive Baseline Studies, IR-2 and Off-Site Mitigation Areas/Evaluation of the Harmon Meadow Western Brackish Marsh Mitigation Area. June 1990.
- TAMS Consultants, Inc. Functional Evaluation of the Villages at Mill Creek Development and Mitigation Sites. March 1993.
- TAMS Consultants, Inc. Habitat Evaluation Procedure (HEP): IR-2 Site and Off-Site Mitigation Areas: Evaluation of the Villages at Mill Creek Mitigation Program. October 1990.
- TAMS Consultants, Inc. Technical Report on Vegetation Mapping for IR-2, Anderson Creek Marsh, and South Secaucus Wetland Sites. December 1990.
- TAMS Consultants, Inc. The Villages at Mill Creek (IR-2) Wetland Evaluation Technique (WET) Assessment (Draft). February 1990.
- USEPA and Gannett Fleming, Inc. Site Survey Report: Ecological Studies: Hartz Mountain Development Corporation Villages at Mill Creek. October 1992.
- TAMS Consultants, Inc. Riverbend Wetlands Preserve: Sampling and Analyses of Sediment. June 11, 2001.
- Torlucci, Joseph Jr. Distribution of Heavy Metal Concentrations in Sediment Surrounding a Sanitary Landfill in the Hackensack Meadowlands, NJ. Rutgers University, Newark. 1982.
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.
- ENSR International. 2004. New Jersey Meadowlands Commission. Screening Level Ecological Risk Assessment of Contamination in Wetlands Considered for Restoration in Hackensack Meadowlands District Final Report.
- New Jersey Audubon Society. 2007. Avian Abundance and Distribution in the New Jersey Meadowlands District: The Importance of Habitat, Landscape, and Distribution.

CRP SITE 727. SECAUCUS TRACT

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: Bordered on the west by the Mill Ridge Road ball fields and to the east by Mill Creek Marsh in Secaucus, NJ.
Latitude/Longitude: 40.80313/-74.04427
Watershed: Hackensack River
Size: 35 acres
Current Ownership: Town of Secaucus (NJMC has a 99-year lease agreement).
Site Description: *The site is currently dominated by common reed (Phragmites australis). Restoration of this site would provide connectivity between the Mill Creek Marsh and the Western Brackish Marsh to form a large, expanse of contiguous habitat.*
Current Land Use: Tidal marsh
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

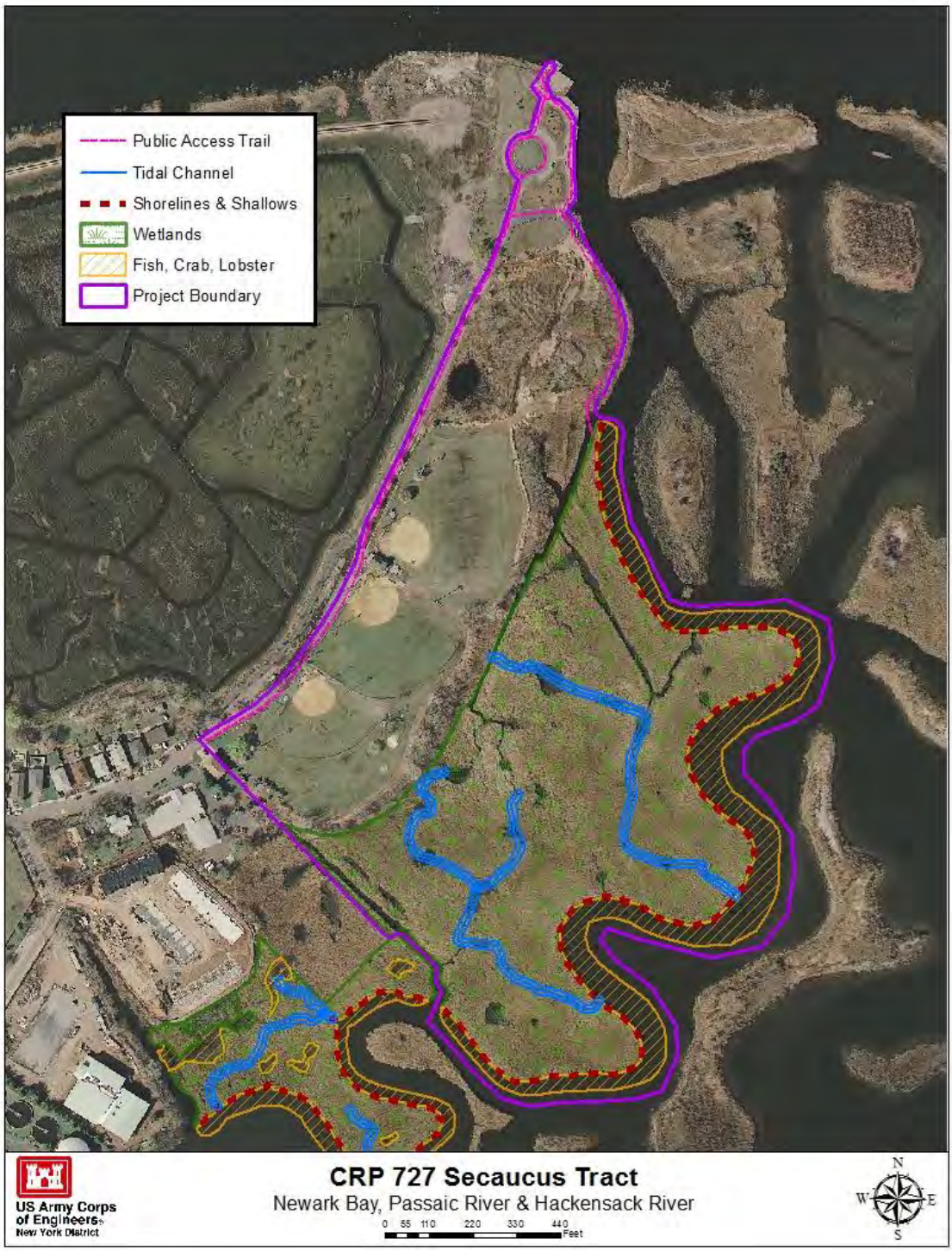
B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Restore approximately 21 acres of intertidal wetlands through removal of invasives and re-introduction of native wetland species. Increase tidal flow through construction of up to 2,426 feet of tidal channels (20 foot width).
Shorelines and Shallows – Re-grading of approximately 3,280 feet of shorelines to accommodate wetland elevations and reduce steepness.
Habitat for Fish, Crab and Lobsters – Addition of complex structure to the mudflats and creeks will facilitate movement and habitat exchange along approximately 4.09 acres.
Sediment Contamination – FWS lists contaminant concerns as minimal. Screening level assessment of contaminants at this site is necessary. Additionally, as assessment of the effects of effluent at Mill Creek on fish and wildlife is needed.
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: No data obtained**.**
D. Biological Studies/ General Environment: No data obtained.
E. Geotechnical: No data obtained.
F. Hydraulics and Hydrology: No data obtained.
G. Water and Sediment: No data obtained.
H. Historical and Cultural Resources: No data obtained.
I. Restoration Remediation and Design Plans: No data obtained.

References:


Public Access Trail
Tidal Channel
Shorelines & Shallows
Wetlands
Fish, Crab, Lobster
Project Boundary
US Army Corps of Engineers
New York District
CRP 727 Secaucus Tract
Newark Bay, Passaic River & Hackensack River
0 55 110 220 330 440
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CRP SITE 728. STEINERS MARSH

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: Located south of the New Jersey Turnpike - Western Spur, west of Paterson Plank Road, and north of Hackensack River in East Rutherford, NJ. *Latitude/Longitude: 40.80745/-74.06321.*
Watershed: Hackensack River
Size: 8 acres
Current Ownership: Tomu Construction Company Inc.
Site Description: Steiner's Marsh is predominately an upland area with a low marsh fringe dominated by smooth cordgrass *(Spartina alterniflora)* along the southeastern edge of the site. Development on the property includes a Transco service road along the northern property edge and a golf driving range at the eastern corner. *Site elevations range from one foot along the Hackensack River to approximately eight feet on the Transco road. The site may receive some runoff from nearby parking lots and roads.*
Current Land Use: Tidal marsh and upland.
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status:
Partners:
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Improvements to approximately 1.56 acres of existing wetlands include increased hydrology, removal of invasives, and replanting with native species.
Shorelines and Shallows – Re-grading of approximately 410 feet of shorelines to increase hydrologic connection to marsh.
Habitat for Fish, Crab and Lobsters – Addition of complex structure to the mudflats and creeks will facilitate movement and habitat exchange along approximately 0.33 acres.
Sediment Contamination – Possible dredging and capping of sediment in existing channels based on sediment contamination testing. FWS lists site contaminate concerns as substantial.

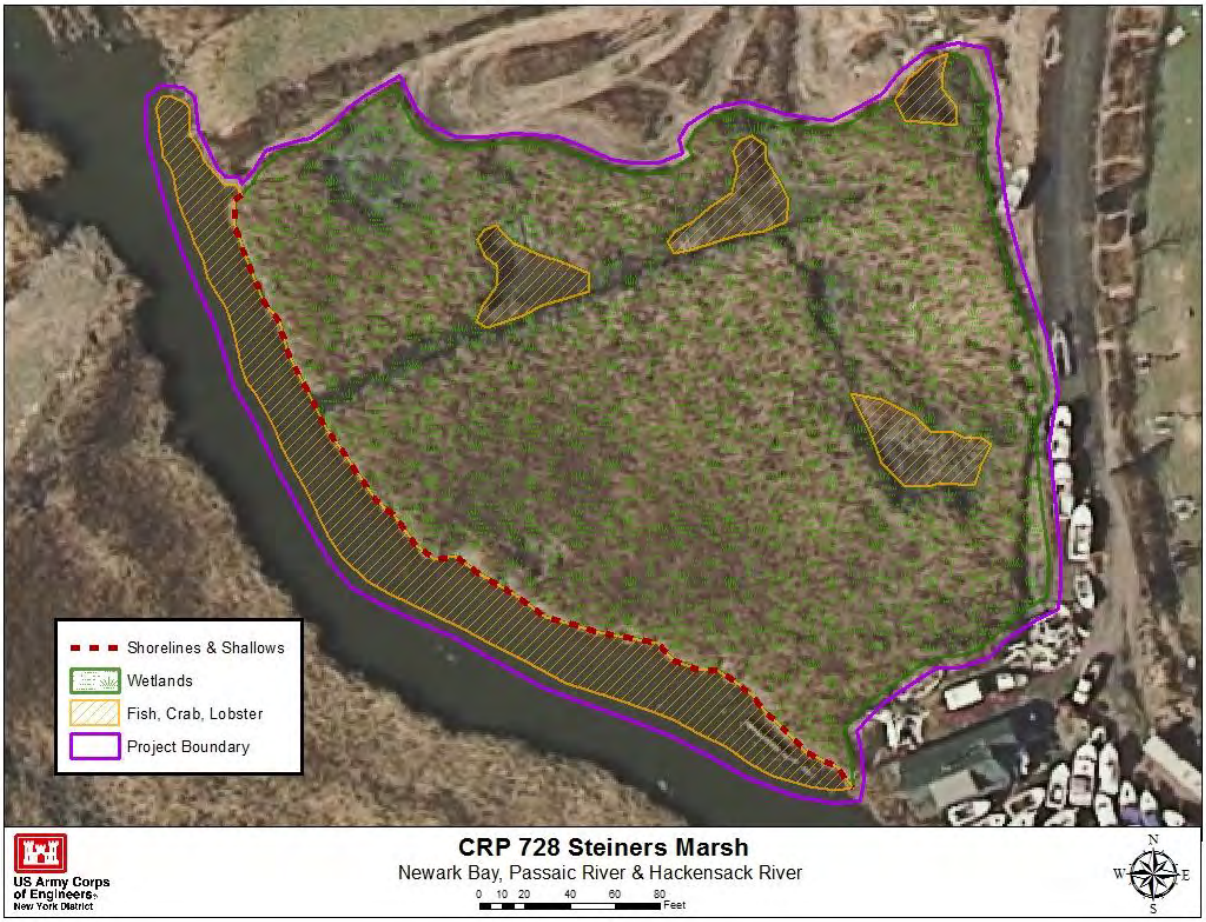
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: No data obtained.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: No data obtained.
D. Biological Studies/ General Environment: No data obtained.
E. Geotechnical: No data obtained.
F. Hydraulics and Hydrology: No data obtained.
G. Water and Sediment: No data obtained.
H. Historical and Cultural Resources: No data obtained.
I. Restoration Remediation and Design Plans: No data obtained.

References:

- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.


Shorelines & Shallows
Wetlands
Fish, Crab, Lobster
Project Boundary
US Army Corps of Engineers
New York District
CRP 728 Steiners Marsh
Newark Bay, Passaic River & Hackensack River
0 10 20 40 60 80
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CRP SITE 729. TETERBORO WOODS

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: The site is bordered by Moonachie Avenue to the south and New Jersey Transit Pascack Valley *Line in Moonachie, Teterboro, and Little Ferry, NJ. Latitude/Longitude: 40.84622/-74.05548*
Watershed: Hackensack River
Size: 258 acres
Current Ownership: Port Authority of New York and New Jersey
Site Description: *The Teterboro Woods site consists of an approximately 70 year-old, hardwood wetland forest stand at the Teterboro Airport, in Teterboro, NJ. The site is broken up into two separate areas southeast and southwest of the Teterboro Airport. The dominant wetland type is palustrine, successional broad-leaved deciduous forested/scrub-shrub with pockets of emergent wetlands. Upland inclusions and some disturbed areas are scattered among the wetland areas. Disturbance is mostly due to excavation and subsequent filling, as well as ditch dredging and spoil disposal, which has resulted in much drier soils.*
Current Land Use: Freshwater wetland
Available Habitat:
Proposed Project:
Projected/Estimated Costs:
Project Status: *The Teterboro Woods site is slated for preservation.* Due to the location of these wetlands within the Teterboro airport, it is unlikely that any wetland restoration will occur here. Conversely, some of these wetlands may be lost to future airport development.

Partners:
Project Contact: Ross Feltes - Supervisor of Wetlands Management
Phone: 201-460-4919
Website: http://www.njmeadowlands.gov/
Project Funding Source:
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Costal Wetlands – Preservation and management of approximately 234 acres of existing palustrine wetlands.
Sediment Contamination – FWS lists contaminant concerns as minimal. Basic sampling and bulk sediment chemistry analysis may be necessary.
Benefits, Cost and Comparative Restoration Ratio:

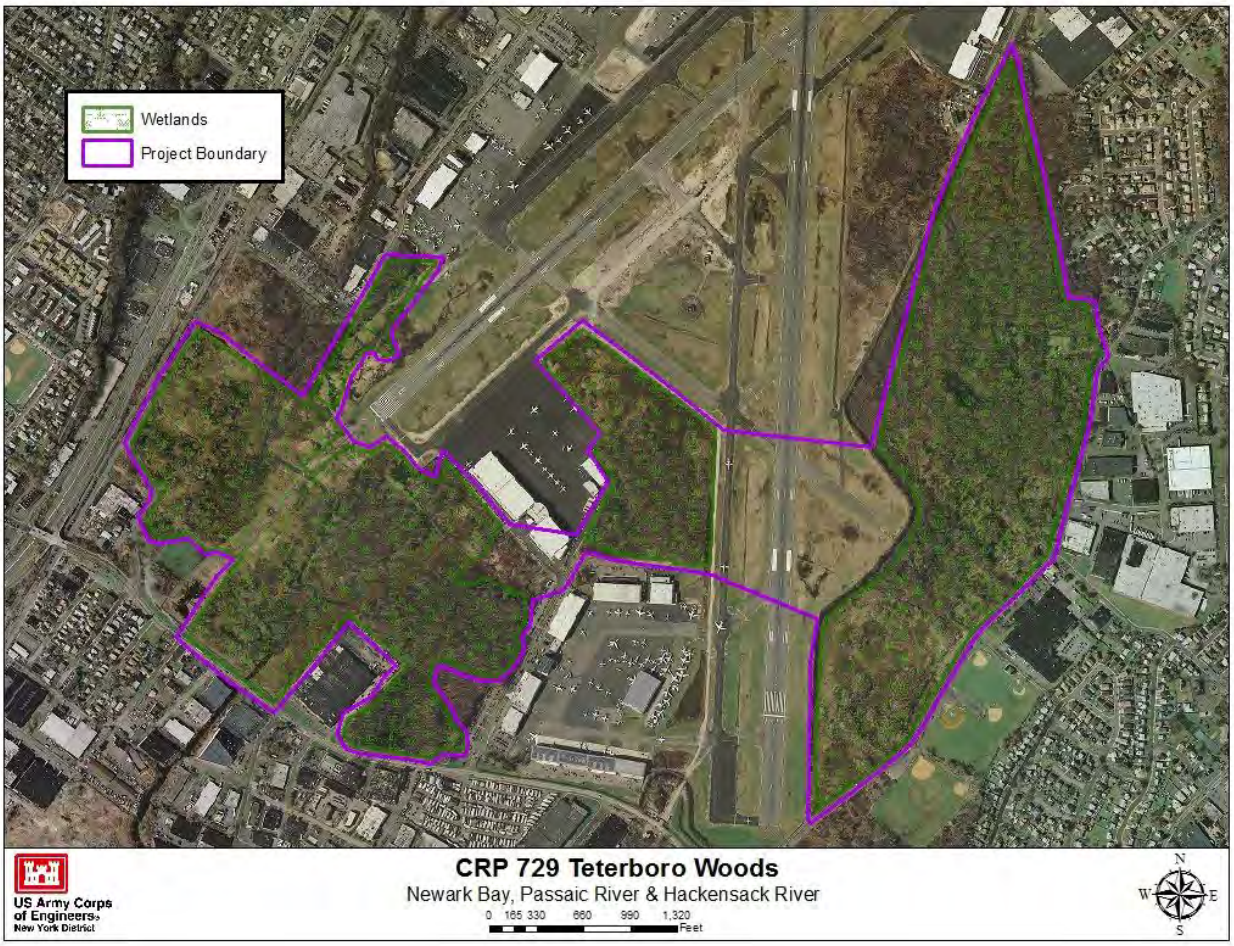
C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: HMD regional data exists inclusive of this site. A topographic survey is included in the 1999 wetland delineation report.
B. Site History and Land Use: No data obtained.
C. Biological Studies/ Fauna: Avian Surveys, Audubon Society 2007.
D. Biological Studies/ General Environment: Wetland delineations conducted in 1987 and 1999. Wetland quality assessment conducted in 1999. A JD was issued in 2001. Baseline environmental investigations by Kiviat and McDonald 2002.
E. Geotechnical: Soils information was collected during wetland delineation in 1987. Soil borings, HTRW soil sampling and analysis, and geotechnical soil sampling and analysis conducted by Berger Group, 2008.
F. Hydraulics and Hydrology: No data obtained.
G. Water and Sediment: No data obtained.
H. Historical and Cultural Resources: No data obtained.
I. Restoration Remediation and Design Plans: Conceptual design developed to mitigate for unauthorized fill at Teterboro Airport in 1987.

References:

- The Louis Berger Group, Inc. Teterboro Airport: Final Wetland Delineation Report. December 1999.
- Louis Berger & Associates, Inc. Report on Environmental Conditions at Teterboro Airport. May 1989.
- Louis Berger and Associates, Inc. Wetland Delineation Report for Teterboro Airport. May 1987.
- Louis Berger & Associates, Inc. Wetland Mitigation for Teterboro Airport. 1987.
  USACE. Jurisdictional Determination: Teterboro Woods/Airport Site (App. No. 2000-01158). 10/3/2001.
- US Fish and Wildlife Services. Planning Aid and Report Hackensack Meadowlands Ecosystem Restoration Project Bergen and Hudson Counties, New Jersey, Environmental Contaminants Issues for Restoration. November 2005.
- US Fish and Wildlife Services. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning for the Hackensack Meadowlands Hudson and Bergen Counties, New Jersey. March 2007.
- The Louis Berger Group. 2008. Combined Geotechnical and HTW Sampling Meadowlands Restoration Sites, Hudson-Raritan Estuary Hackensack Meadowlands Ecosystem Restoration Project.

- New Jersey Audubon Society. 2007. Avian Abundance and Distribution in the New Jersey Meadowlands District: The Importance of Habitat, Landscape, and Distribution.



CRP SITE 43. OVERPECK CREEK

A. HARBOR ESTUARY PROGRAM SITE INFORMATION
Category: Candidate Restoration/Preservation Site/Acquisition
Location: Leonia, Bergen County, NJ and
Watershed: Hackensack River
Size: 8 acres
Current Ownership:
Site Description:
Current Land Use:
Available Habitat: upland
Proposed Project: upland buffer protection
Projected/Estimated Costs: 846,000
Project Status:
Partners: NJDEP
Project Contact: Mark Becker & Lori Charkey; Bergen SWAN
Phone: (201) 666-1877
Website: www.state.nj.us/dep/greenacres/
Project Funding Source: NJ Green Acres Bond Act, HM.
HEP Ratified Date:

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION- TBD
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS:
B. Site History and Land Use:
C. Biological Studies/ Fauna:
D. Biological Studies/ General Environment:
E. Geotechnical:
F. Hydraulics and Hydrology:
G. Water and Sediment:
H. Historical and Cultural Resources:
I. Restoration Remediation and Design Plans:

References:

*TBD

CRP SITE 143. ORADELL DAM

A. HARBOR ESTUARY PROGRAM SITE INFORMATION

Category: Candidate Restoration/Preservation Site
Location: On Oradell Avenue, where Oradell Avenue Crosses Hackensack River, Bergen County, NJ
Watershed: Hackensack River
Size: 1 acres
Current Ownership: New Jersey, Bergen County Parks Department
Site Description:
Current Land Use:
Available Habitat: Estuarine - tidal waterways; Riverine - open waterways; Lacustrine - open water
Proposed Project: Fish Ladder Installation
Projected/Estimated Costs: $950,000
Project Status:
Partners: Baykeeper
Project Contact: Bill Sheehan, Hackensack Riverkeeper
Phone: (201) 968-0808
Website: www.hackensackriverkeeper.org
Project Funding Source:
HEP Ratified Date: 7/1/1997

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION

Restoration Recommendations (Applicable Target Ecosystem Characteristics):

Tributary Connections- Construction of fish ladder at Oradell dam should only be considered in conjunction with assessment/construction of fish passage alternatives at North and South Dams and Van Buskirk tide gate. These activitieswould enable an extension of anadromous fish passage and use of riverine habitat to approximately x miles of river.

Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS:
B. Site History and Land Use:
C. Biological Studies/ Fauna:
D. Biological Studies/ General Environment:
E. Geotechnical:
F. Hydraulics and Hydrology:
G. Water and Sediment:
H. Historical and Cultural Resources: Water works complex is part of the New Jersey and National Registers of Historic Places.
I. Restoration Remediation and Design Plans: A fish ladder feasibility study was completed in 2006.

References:

TRC Omni Environmental Corp. Oradell Dam Fish Ladder Feasibility Study. June 2006

US Army Corps of Engineers
New York District

CRP 143 Oradell Dam

Newark Bay / Hackensack River / Passaic River

0 105 210 420 630 840 Feet

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CRP SITE 142. VAN BUSKIRK ISLAND

A. HARBOR ESTUARY PROGRAM SITE INFORMATION
Category: Candidate Restoration/Preservation Site
Location: 0.1 miles west of the intersection of Kinderkamack Road and New Milford Avenue Bergen County, NJ
Watershed: Hackensack River
Size:
Current Ownership:
Site Description:
Current Land Use:
Available Habitat: wetland, Riverine - marshes, open waterway, floodplain areas.
Proposed Project: Freshwater Wetland Restoration; Riparian Buffer
Projected/Estimated Costs:
Project Status:
Partners: Baykeeper, Hackensack Riverkeeper, Bergen County Parks Department
Project Contact: Bill Sheehan, Hackensack Riverkeeper
Phone: (201) 968-0808
Website: www.hackensackriverkeeper.org
Project Funding Source:
HEP Ratified Date: 7/1/1997

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION- TBD
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS:
B. Site History and Land Use:
C. Biological Studies/ Fauna:
D. Biological Studies/ General Environment:
E. Geotechnical:
F. Hydraulics and Hydrology:
G. Water and Sediment:
H. Historical and Cultural Resources:
I. Restoration Remediation and Design Plans:

References:

*TBD

CRP SITE 904. DUNDEE LAKE ISLANDS AT CLIFTON AND ELMWOOD PARK (FROM TRUSTEES LIST)

***ABOVE THE DUNDEE DAM.**

Category: Existing restoration, preservation, and/or mitigation site.
Location: Elmwood Park RM 18
Current Land Use:
Size:
Site Description:
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal and Maritime Forests – Invasive species control and restore grasslands habitat. Potentially enhance 4.8 acres wetlands.

EXISTING SITE SPECIFIC DATA INVENTORY

B. HUDSON RARITAN ESTUARY ECOSYSTEM RESTORATION STUDY INFORMATION- TBD
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Benefits, Cost and Comparative Restoration Ratio:

C. EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS:
B. Site History and Land Use:
C. Biological Studies/ Fauna:
D. Biological Studies/ General Environment:
E. Geotechnical:
F. Hydraulics and Hydrology:
G. Water and Sediment:
H. Historical and Cultural Resources:
I. Restoration Remediation and Design Plans:

References:

*TBD

LOWER PASSAIC RIVER

Restoration Opportunities
CRP Identification #: Site Name

865. Kearny Point
866. Oak Island Yards
867. Unnamed Tidal Creek Pulaski Skyway (Lawyer's Creek)
880. Jacobus Avenue-Kearny *TBD
868. Un-named Tidal Creek-NJ Turnpike
869. Kearny Marsh (Cedar Creek marsh)
870. Franks Creek Site (1-d Landfill)
871. Path Rail Fringe Marsh
872. Harrison Shoreline Redevelopment
881. PSE&G Shoreline *TBD
873. Newark Riverbank Park/ Joseph G. Minish park (Portion)
874. Gateway Park/Joseph G. Minish Park (portion)
875. Riverfront Park
876. Clay Street Lot
877. Franklin-Burlington Plastics Parcel (formerly incorrectly named American Strip Steel Parcel)
878. Frank Vincent Park and Boat Ramp
879. Kearny Riverbank Park
882. Saddle River Ox Bow
883. Saddle River Felician College South
884. Saddle River Lodi Cemeteries
885. Saddle River Arcola Pool Site
886. Saddle River County Park
887. First River Branch Brook Park
888. Second River Passaic-Belleville
889. Second River Bloomfield
890. Second River Watsessing Park
891. Second River Wigwam Brook Industrial
892. Second River Mills
893. Third River (Mouth)
894. Third River Clifton Pond
895. Third River Forest Hills Field Club
896. Third River JFK Parkway
897. Third River Glen Ridge Country Club
898. Third River Clarks Pond
899. Third River Alonzo F. Bonsal Wildlife Preservation

865. Kearny Point

Category: Existing restoration, preservation, and/or mitigation site.
Location: Located at the convergence of the Hackensack and Passaic rivers at river mile 1.
Current Land Use: Vacant lot, former industrial site.
Size: 3000ft. x 1600ft.
Site Description: The Kearny Point restoration site is a decommissioned industrial facility built entirely of historic fill.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands - Re-establish the degraded portion of wetlands that exist along the eastern portion of the point and create new wetlands along the western portion of the point (totaling ≈34.22 acres). Deepen and extend existing tidal channels creating ≈3,519 linear feet of connective sections, re-grade fill, remove invasive species and increase the density of indigenous species.
Sediment Contamination - Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Shorelines and Shallows - Removing the riprap and bulkhead and re-grading the shoreline with rocky structure and stable slope along the western portion of the point to restore ≈1697.09 linear feet of habitat.
Habitat for Fish, Crabs, and Lobsters – Removal of invasive species, man-made debris and unused structures will help to restore connections between mudflats, shorelines and wetlands. Assessment of ≈27.28 acres of flats for composition, level of degradation and potential enhancements such as addition of clean recycled boulders and piling material from the property as complex structure.
Public Access – Opportunity for several public access points exists at this site including an elevated path system that spans several habitats and leads to a boat launch.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphics maps and NJDEP Regional Data Inclusive of this site.

B. Real/Estate/ Ownership: BASF Corporation, Town of Kearny, Havenick Associates.

C. Site History and Land Use: Former chemical manufacturing facility.

D. Biological Studies/ Fauna: Winter and summer fish sampling, one time benthic community sampling (1, 19).

E. Biological Studies/ General Environment: Salt marsh containing *Spartina alterniflora* exists along both sides of the point, particularly the east side (Shisler, 2004) (2, 19).

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 by Aqua Survey (3). No data above high tide.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: Newark Bay Estuary Sediment Characterization 1990-1993 (4), limited surface water quality and sediment data from Passaic River Study Area Investigations (5, 6), Water Quality NJHDG 2002-present (7)

I. Historical and Cultural Resources: No data obtained.


Public Access
Public Access Trail
Shorelines & Shallows
Tidal Channel
Wetlands
Fish, Crab, Lobster
Project Boundary
US Army Corps of Engineers
New York District
CRP 865 Kearny Point
Newark Bay, Passaic River & Hackensack River
0 62.5 125 250 375 500
Feet
N
W
E
S

866. OAK ISLAND YARDS

Category: Existing restoration, preservation, and/or mitigation site.
Location: Located in the industrial district north of Port Newark, this site is situated on the west bank of the Newark Bay at river mile 0.
Current Land Use: Vacant lot/ former industrial site.
Size: 8400ft. x 2700ft.
Site Description: Oak Island Yards contains Newark's largest extent of tidal marsh, tidal creeks, and palustrine emergent wetland. This estuarine ecosystem is documented to have historic fill, build up of vacant structural elements, debris in the tidal channel, and unused pipelines running throughout. The dominant vegetative species are invasive phragmites, mugwart and sumac. Faunal species include 3 types of birds and 2 mammals. The substrate type is predominantly fine (sand/silt/clay) with some coarse cobble/gravel. Hydrologic environments include tidal, subtidal, and intertidal. The water regime is permanently and intermittently flooded with a drainage pathway on the east-west southern property.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Coastal Wetlands – Restore hydrology with ≈2,262 linear feet of tidal channels to create ≈11.84 acres of wetland. Soften shoreline, create upland buffer zone, remove fill and re-grade sediment, invasive species removal and indigenous species re-vegetation.
Tributary Connections – Removal of man-made debris and unused structures (tide gate), re-connection of ≈6,824 linear feet of water from the river to wetlands and southern creek.
Habitat for Fish, Crabs, and Lobsters – Assessment of ≈0.93 acres of flats for composition, level of degradation and potential enhancements such as addition of artificial complex structure to subtidal and intertidal zones to facilitate connections to SAV and marsh habitat.
Public Access – Upgrade existing pedestrian path on southern perimeter of property, construct floating dock for kayak and canoe launch.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: City of Newark and Motive Enterprises.

C. Site History and Land Use: Vacant forested lot, former industrial site.

D. Biological Studies/ Fauna: Qualitative data on observed fauna (8, 19).

E. Biological Studies/ General Environment: Qualitative discussion on habitat types (8, 19).

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 by Aqua Survey Inc. (3). No data above high tide.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: Newark Bay Estuary Sediment Characterization 1990-1993 (4), limited surface water quality and sediment data from Passaic River Study Area Investigations (5, 6), Water Quality NJHDG 2002-present (7).

I. Historical and Cultural Resources: No data obtained


Public Access
Tributary Connections
Public Access Trail
Tidal Channel
Wetlands
Fish, Crab, Lobster
Project Boundary
US Army Corps of Engineers
New York District
CRP 866 Oak Island Yards
Newark Bay, Passaic River & Hackensack River
0 30 60 120 180 240
Feet
N
W
E
S

867. UNNAMED TIDAL CREEK PULASKI SKYWAY (LAWYER'S CREEK)

Category: Existing restoration, preservation and/or mitigation site.
Location: Located in Essex County on the west ascending bank of the Passaic River just north of the Pulaski Skyway at river mile 2.
Current Land Use: Mixed use forested open space and hard surface lot used for storage and parking. This site is partially shaded by the Pulaski Skyway and contains some vacant degraded fringe wetland in the southern portion. Several outfall and storm drains are suspected underwater.
Size: ≈ 6.25 acres
Site Description: Pulaski Skyway (Lawyer's Creek) is one of the 5 Major Tributaries of the Lower Passaic River. This site is an estuarine system containing a degraded fringe wetland. The intertidal is narrow and filled with hard surface debris. The substrate is primarily open water mudflats with some boulder and riprap. The property immediately north of this site is an active industrial facility (Public Service Gas and Electric Co.) which contains an expanse of paved surface, building structures and equipment.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Enclosed and Confined Waters – Increase tidal flow to the marsh by dredging the existing dead-end tidal channel to create ≈1,772 linear feet of restored channel.
Tributary Connections– Removal of man-made debris (possible fill and culverts), possible stream day-lighting, re-connection of the tributary to the wetland.
Coastal Wetlands – Restoration of ≈6.25 acres of marsh, through invasive species removal and native species re-vegetation.
Sediment Contamination – Potential dredging and capping of contaminated materials based on sediment sampling.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: Public Service Gas and Electric Co. / Unknown

C. Site History and Land Use: No data available for history. Mixed use forested open space and hard surface lot.

D. Biological Studies/ Fauna: Benthic community composition and fish/crab tissue chemistry and pathology, bird community survey, Passaic River Study Area Investigations 2002 (9, 10, 11).

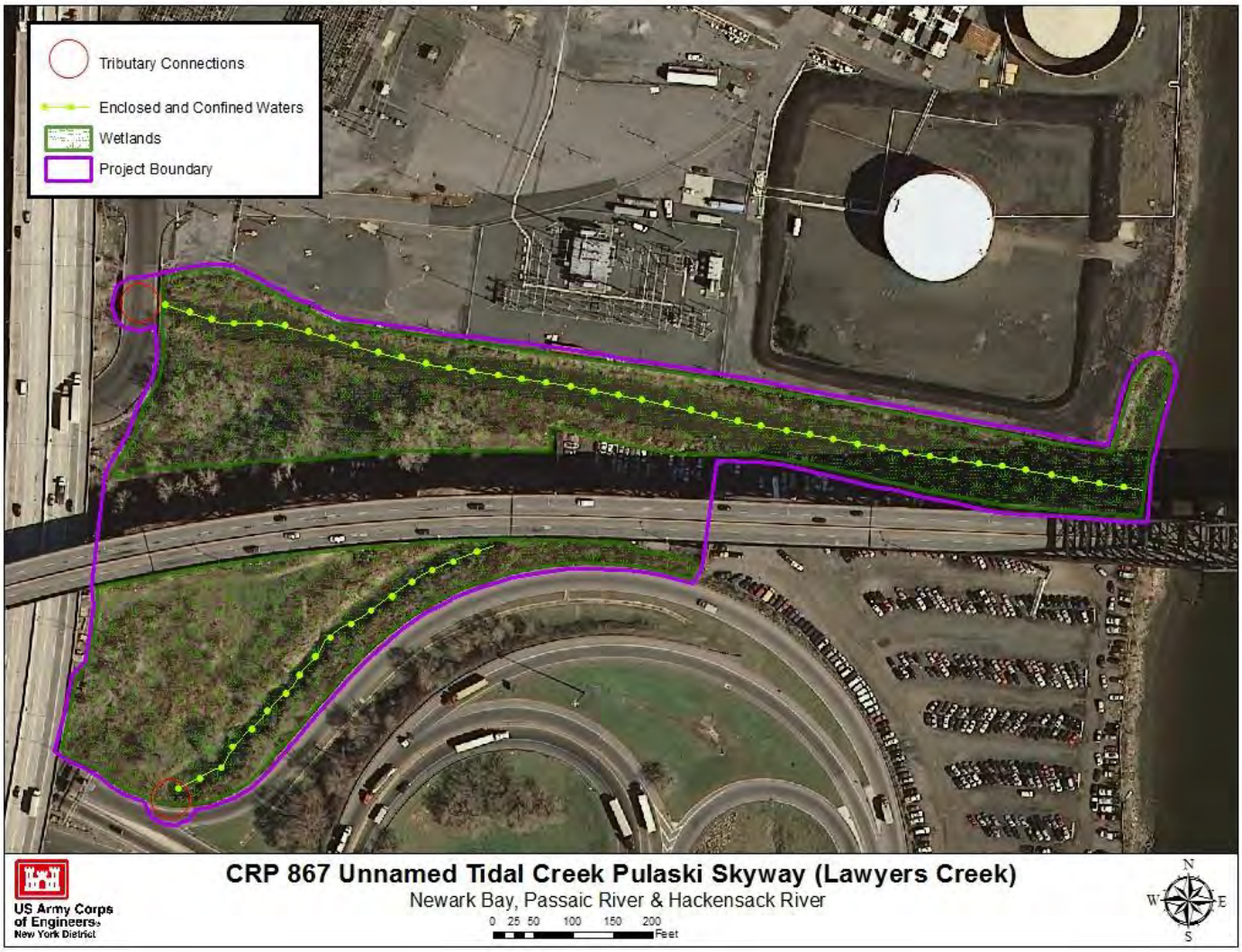
E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 by Aqua Survey Inc. (3). No data above high tide.

G. Hydraulics and Hydrology: Limited river current and tide gauge data are available from 1995 and 1996. Limited hydrodynamic data collected by Rutgers University (12).

H. Water and Sediment: Limited surface water quality and sediment data from Passaic River Study Area Investigations (5, 6). Water Quality, NJHDG 2002-present (7).

I. Historical and Cultural Resources: No data obtained.



US Army Corps of Engineers
New York District

CRP 867 Unnamed Tidal Creek Pulaski Skyway (Lawyers Creek)

Newark Bay, Passaic River & Hackensack River

0 25 50 100 150 200 Feet

N W E S

880. JACOBUS AVENUE-KEARNY

Category: Existing restoration, preservation and/or mitigation site.
Location: Located on the Kearny peninsula on the east ascending bank of the Passaic River at river mile 2.2.
Current Land Use: This site is a heavily contaminated decommissioned industrial facility which is a NJDEP Known Contaminated Site and USEPA National Priority List (NPL) Superfund site (1983). Record of decision (ROD) requires that this site only be used for industrial purposes. Adjacent land use is a RCRA Part B permitted transfer storage and disposal facility.
Size: ≈2 acres
Site Description: This site is situated within a degraded coastal wetland area. In addition to the 13 buildings on site, there were two unlined lagoons, numerous large bulk storage tanks, underground storage tanks, and at least two chemical reactor buildings housing stainless steel vessels. Prior to their removal, the site also contained approximately 12,800 55-gallon drums. Some of the 55-gallon drums had rusted, spilling their contents onto the soil. The Remedial Investigation of the site found extensive contamination of the groundwater, soil, buildings, vessels and tanks. Operable Unit 1 remedial construction activities completed in 1993 included removal of contaminated materials in storage tanks, lagoon liquids/sediments/soils, decontamination of buildings/tanks, installation of gravel cover over site and construction of contaminated water treatment facility (CWTS). Groundwater collection and treatment is currently in operation. The OU 2 September 2000 ROD was issued in 2000, Preliminary Design Investigation 2006 and Proposed Plan (2010) included excavation of contaminated soil, remove buried debris, installation of drainage layer, treatment/disposal of drained free product, backfilling, restoration of natural hydraulic conditions, discontinuation of contaminated water treatment facility (CWTS) operation and institutional controls. Information obtained during the Remedial Design showed that soil draining would be unsuccessful. Therefore, USEPA's Preferred Alternative (August 2010) for soil is excavation and off-site treatment/disposal, backfilling with imported clean fill and institutional/engineering controls.
Restoration Recommendations (Applicable Target Ecosystem Characteristics): All recommendations and restoration planning would be conducted in coordination with EPA Region 2 Superfund Project and USEPA Proposed Plan (August 2010).
Sediment Contamination – Potential dredging and capping of contaminated materials based on sediment sampling.
Shorelines and Shallows – Removal of riprap and man made debris and shoreline re-grading.
Coastal Wetlands – Removal of invasive species and re-vegetation with native species could create ≈2 acres of fringe marsh habitat along the Passaic River parcel.

EXISTING SITE SPECIFIC DATA INVENTORY

See Syncon Administrative Record including: Remedial Investigation/Feasibility Study of OU1 (1986), Remedial Construction activities (1990), NJDEP FS (1998), OU2 ROD (2000), Preliminary Design Investigation (2007), Proposed Plan (2010)

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: Farnow Inc./Syncon Resins.

C. Site History and Land Use: USEPA/NJDEP NPL Superfund Site

D. Biological Studies/ Fauna: See historic RI/FS data along Passaic River and Syncon Resin Focused Feasibility Study (FFS) (August 2010) and Administrative Record

E. Biological Studies/ General Environment: See Syncon Administrative Record

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 by Aqua Survey Inc. (3) below high tide. See Syncon Administrative Record.

G. Hydraulics and Hydrology: Limited river current and tide gauge data are available from 1995 and 1996. Hydrodynamic data were collected by Rutgers University (12). See Syncon Administrative Record

H. Water and Sediment: EPA and NJDEP soil and water contamination testing inclusive of this site. Limited surface water quality and sediment data from Passaic River Study Area Investigations (5, 6). Water Quality, NJHDG 2002-present (7). See Syncon Administrative Record.

I. Historical and Cultural Resources: See Syncon Administrative Record

* TBD* DETERMINE CURRENT US EPA STATUS FOR OU2 PROPOSED PLAN (CONTACT PAMELA BAXTER AT EPA 212-637-4416)

868. UN-NAMED TIDAL CREEK-NJ TURNPIKE

Category: Existing restoration, preservation and/or mitigation site.
Location: Located in Essex County on the west ascending bank of the Passaic River at river mile 2.1, just west of the NJ Turnpike.
Current Land Use: This site is a vacant lot, which NJDEP has zoned as forest.
Size: ≈4 acres
Site Description: This site is adjacent to the Blanchard St./Fairmont Chemical Development Area. It contains a degraded wetland and an un-named tidal creek with limited flow (possible fresh water source) which runs north to south along the center of the property. The substrate is primarily mudflats and vegetation is visible from the aerial photos.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and capping of contaminated materials based on sediment sampling.
Shorelines and Shallows – Restoration and re-grading of shorelines should take place to create a riparian zone, intertidal zone and illuminated shallow zone along ≈466.32 linear feet of habitat.
Habitat for Fish, Crabs, and Lobsters – Assessment of ≈0.64 acres of flats for composition, level of degradation and potential enhancements such as addition of complex structure to create habitat and connections between mudflats, SAV, marsh and (possible) freshwater.
Enclosed and Confined Waters – Restore hydrologic flow and up-grade water quality to create ≈728 linear feet of restored channel.
Tributary Connections– Removal of man-made debris (possible fill and culverts), possible stream day-lighting, re-connection of the tributary to the wetland.
Coastal Wetlands – Remove fill and re-grade to wetland elevations. Removing invasive vegetation and re-plant with native species to create ≈4.09 acres of coastal wetlands.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: Port Authority NY/NJ

C. Site History and Land Use: No data obtained for history. Site is a forested vacant lot.

D. Biological Studies/ Fauna: Benthic community composition and fish/crab tissue chemistry and pathology, Passaic River Study Area (9, 10).

E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 by Aqua Survey Inc. (3). No data above high tide.

G. Hydraulics and Hydrology: Limited river current and tide gauge data are available from 1995 and 1996. Limited hydrodynamic data were collected by Rutgers University (12).

H. Water and Sediment: Limited surface water quality and sediment data from Passaic River Study Area Investigations (5,6). Water Quality, NJHDG 2002-present (7).

I. Historical and Cultural Resources: No data obtained.

US Army Corps of Engineers
New York District

CRP 868 Unnamed Tidal Creek - NJ Turnpike

Newark Bay, Passaic River & Hackensack River

0 15 30 60 90 120 Feet

N W E S

869. KEARNY MARSH (CEDAR CREEK MARSH)

Category: Existing restoration, preservation and/or mitigation site. NJDEP Known Contaminated Site.
Location: This site is located in the town of Kearny at the intersection of the NJ turnpike eastern spur, the Newark turnpike and the New Jersey Transit Railroad lines.
Current Land Use: NJDEP has zoned this site as Meadows/Marsh.
Size: ≈ 31.5 acres
Site Description: This site represents the significant portion of wetland located just south of the NJ Meadowlands Commission (NJMC) redevelopment area. The Kearny Marsh system is contaminated due to current and historical inputs of landfill leachate, combined sewer overflows, and municipal storm water discharges. NJDEP mapping has indicated that there are existing wetland in this area. However, this site would benefit from increased hydrology to decrease the effects of construction impoundment. This site is functionally related to the Franks Creek site. It is part of the Hudson County conservation plan.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Enclosed and confined waterways – Alterations to the marsh hydrology including ditching, urban stormwater infrastructure, highway and rail construction. Increasing the effectiveness of existing culverts along the railway and the Newark Turnpike and adding new technology would re-connect the hydrology to the wetlands to create ≈5120 linear feet of restored channels. Storm water systems should be functioning to prevent spill over from occurring.
Coastal Wetlands – Marsh habitat could be created by re-grading and removing fill along with the removal of invasive species and re-vegetation with native emergent wetland species to create ≈34.14 acres of wetlands.
Sediment Contamination – Contaminations to the marsh sediment have been well documented in the literature. Potential dredging and capping of contaminated materials based on sediment sampling.
Habitat for Fish Crab and Lobsters – Assessment of ≈12.10 acres of flats for composition, level of degradation and potential enhancements such as addition of complex structure to create functionally related habitats amongst mudflats, low marsh and high marsh.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: NJMC, Town of Kearny.

C. Site History and Land Use: NJDEP has zoned this site as Meadow/Marsh.

D. Biological Studies/ Fauna: Various Rutgers University studies.

E. Biological Studies/ General Environment: Various Rutgers University studies.

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 by Aqua Survey Inc. (3). No data above high tide.

G. Hydraulics and Hydrology: NJMC/Rutgers University conducted hydrologic studies in the adjacent wetland. Limited river current and tide gauge data are available from 1995 and 1996. Storm water and drainage study (14). Limited river hydrodynamic data were collected by Rutgers University (12, 13).

H. Water and Sediment: NJMC redevelopment area has been analyzed for concentrations of heavy metals, PAHs, and PCBs by Rutgers University 2004, 2005, 2008 (13, 16, 17). Sediment and water sampling report 1999 (15).

I. Historical and Cultural Resources: No data obtained.

US Army Corps of Engineers
New York District

CRP 869 Kearny Marsh (Cedar Creek Marsh)

Newark Bay, Passaic River & Hackensack River

0 55 110 220 330 440 Feet

N W E S

870. FRANKS CREEK SITE (1-D LANDFILL)

Category: Existing restoration, preservation and/or mitigation site bordering a closed landfill. NJDEP Known Contaminated Site.
Location: The area is bounded by the Pennsylvania Railroad, Conrail Co., United New Jersey Railroad and Canal Tracts on the south, Interstate Route 280 and the Newark Turnpike on the North and I-95 and the Kearny Marsh on the east.
Current Land Use: This property is currently open space. NJDEP has this site zoned as a mixed use barren, urban and wetland.
Size:
Site Description: Franks Creek is one of the 5 major tributaries of the Lower Passaic River. This candidate restoration site is the property located east of Frank's Creek and north of the Passaic River. The current state of the Frank's Creek system is a result of severe alterations to its hydrologic function (ditching, highway impoundment, bulkheads and culverts), use as a storm water drainage basin and industrial contaminations.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Franks Creek has historically received drainage waters from the Diamond Head Oil Refinery Facility. In the past EPA has removed 9 million gallons of oil-contaminated water and 5 to 6 million cubic yards of oil sludge from the disposal pits. There is the potential for dredging and capping of contaminated sediment based on testing.
Tributary Connections – The 2007/2008 Hudson County comprehensive economic development strategy and NJMC plans for Franks Creek includes dredging and the construction of new tide gates equip with fish passage technology along the Passaic River side, south of the railroad and removal of old, restrictive tide gate structures. Additional culverts under the railroad, running towards the NJ Turnpike would serve to increase these connections to ≈23, 920 linear feet.
Enclosed and Confined Waters – Franks Creek should be dredged to obtain positive pitch and increase the storm water conveyance capacity of the system. Dredging and softening the edges along the existing channels and creeks would re-introduce the hydrology to the system creating ≈9710 linear feet of restored channel and re-creating historic wetlands which will further support the storm water storage capacity of this system.
Coastal Wetlands – Some re-grading should take place along the existing water bodies to re-establish wetland elevations and soften the edges along the maintenance roads. Due to the existing hilly topography on this property, re-grading should be limited to fringe marsh habitat. Density of emergent vegetation should be increased by removing invasive species and re-planting with native to create ≈44.82 acres of wetlands.
Habitat for Fish, Crabs, and Lobsters – Assessment of ≈10.15 acres of flats for composition, level of degradation and potential enhancements such as addition of complex structure to create functionally related habitats amongst mudflats, low marsh and high marsh.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: NJMC, Town of Kearny.

C. Site History and Land Use: NJDEP has this site zoned as mixed use barren, urban and wetland.

D. Biological Studies/ Fauna: No data obtained.

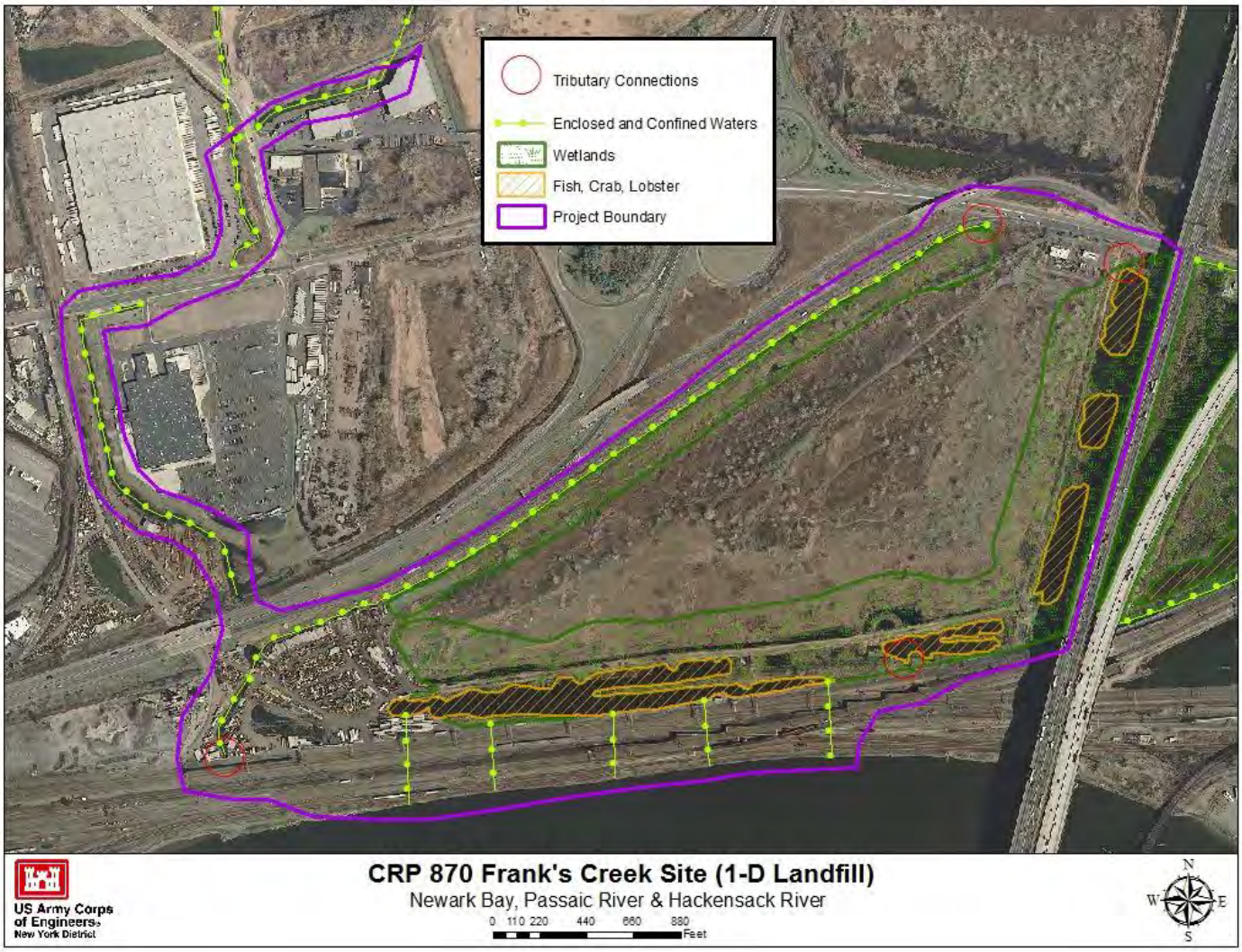
E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 by Aqua Survey Inc. (3). No data above high tide.

G. Hydraulics and Hydrology: NJMC/Rutgers University conducted hydrologic studies in the adjacent wetland. Limited river current and tide gauge data are available from 1995 and 1996. Storm water and drainage study 2001 (14). Hydrodynamic data was collected by Rutgers University in 2004 (12, 13).

H. Water and Sediment: Limited surface water quality and sediment data from Passaic River Study Area (5, 6).

I. Historical and Cultural Resources: No data obtained.



US Army Corps of Engineers
New York District

CRP 870 Frank's Creek Site (1-D Landfill)

Newark Bay, Passaic River & Hackensack River

0 110 220 440 660 880 Feet

N W E S

871. PATH RAIL FRINGE MARSH

Category: Existing restoration, preservation and/or mitigation site.
Location: Located on the east ascending bank of the Passaic River at river miles between ≈ 3.7 and 4.4. This site is adjacent to the NJ Transit PATH rail and an industrial development.
Current Land Use: Open space with rail lines along the northern border and fringe marsh habitat along the Passaic River bank. NJDEP has this site zoned as forest.
Size:
Site Description: This estuarine intertidal wetland is a model system of a persistent fringe marsh on the Lower Passaic River. It contains some native emergent plant species (*Spartina*) with substrates composed of concrete debris, gravel, and very fine silt.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Protect and restore the existing habitat. Density of emergent vegetation should be increased by removing invasive species and re-planting with native species to create ≈6.47 acres of wetland.
Sediment Contamination – Potential dredging and capping of contaminated materials based on sediment sampling.
Habitat for Fish, Crabs, and Lobsters – Assessment of ≈4.47 acres of flats for composition, level of degradation and potential enhancements such as addition of complex structure to create functionally related habitats and connections between mudflats, SAV and marsh.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: No data obtained.

C. Site History and Land Use: No data obtained on history. Parcel is vacant and contains rail lines with fringe habitat.

D. Biological Studies/ Fauna: Benthic community composition and fish/crab tissue chemistry and pathology, bird community survey, Passaic River Study Area Investigations (9, 10).

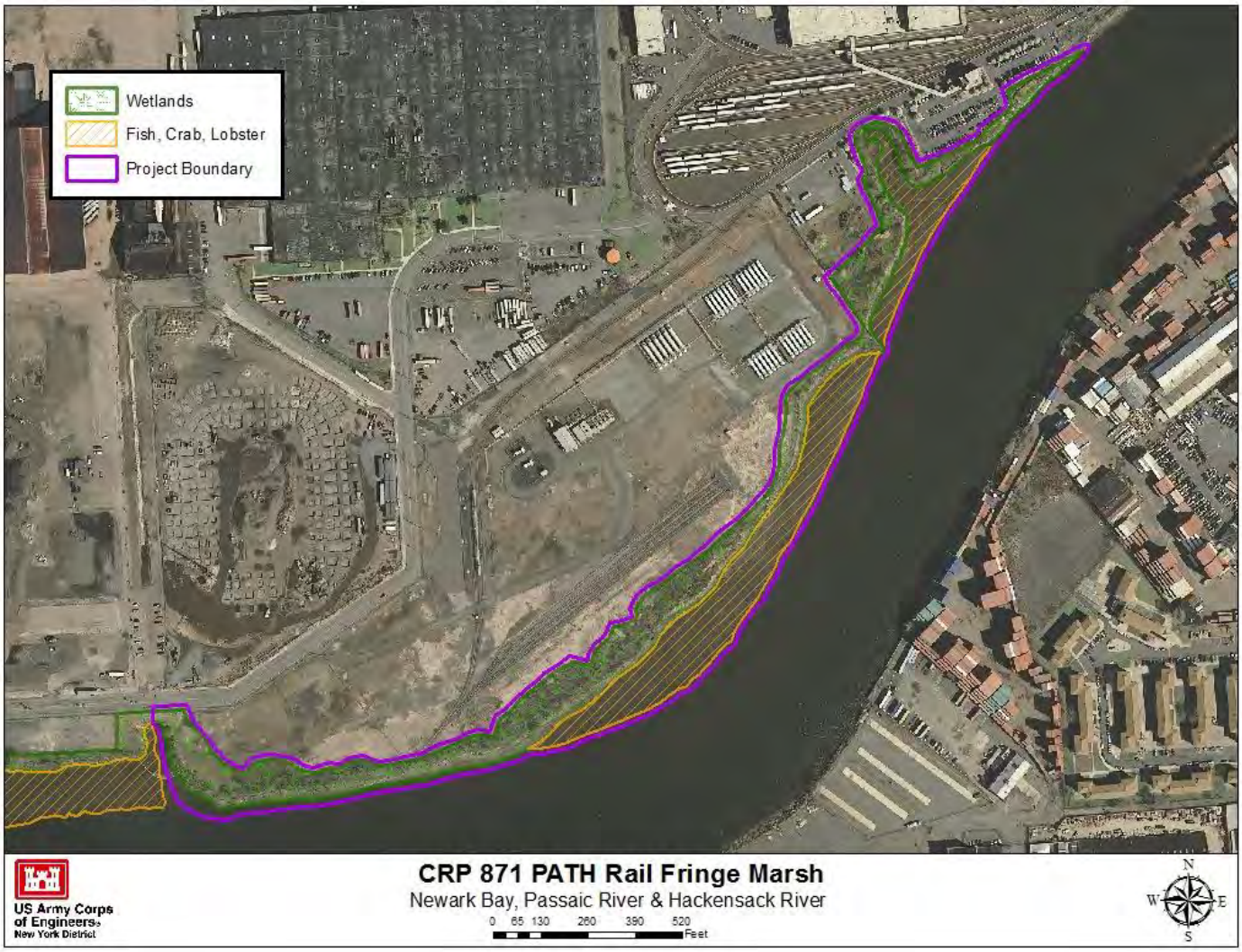
E. Biological Studies/ General Environment: Delineation and surveys. Vegetation Sampling and Wetland Delineation 2008 (18).

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 by Aqua Survey Inc. (3). No data above high tide.

G. Hydraulics and Hydrology: Limited river current and tide gauge data are available from 1995 and 1996. Hydrodynamic data were collected by Rutgers University in 2004 (12).

H. Water and Sediment: Newark Bay Estuary Sediment Characterization 1990-1993 (4), limited surface water quality and sediment data from Passaic River Study Area Investigations (5, 6). Water Quality NJHDG 2002-present (7).

I. Historical and Cultural Resources: No data obtained.



US Army Corps of Engineers
New York District

CRP 871 PATH Rail Fringe Marsh

Newark Bay, Passaic River & Hackensack River

0 65 130 260 390 520 Feet

N
W E
S

872. HARRISON SHORELINE REDEVELOPMENT

Category: Existing restoration, preservation and/or mitigation site.
Location: Located on the east ascending bank of the Passaic River between river miles ≈ 4.4−4.6. This site is bordered by Cape May St. and Frank E. Rogers Blvd. South, it is adjacent to a former industrial facility.
Current Land Use: Open space with several industrial structures bordering the northern perimeter and existing fringe marsh habitat along the Passaic River bank. NJDEP has this site zoned as forest.
Size:
Site Description: This site is adjacent to the Path Rail Fringe a model system containing fringing growth native emergent plant species. Similar vegetation is visible from aerial photographs, but lacks confirmation. It is located immediately adjacent to an industrial development
Restoration Recommendations (Applicable Target Ecosystem Characteristics:
Coastal Wetlands – Protect and restore the existing habitat. Density of emergent vegetation should be increased by removing invasive species and re-planting with natives to create ≈2.28 acres of wetlands.
Sediment Contamination – Potential dredging and capping of contaminated materials based on sediment sampling.
Habitat for Fish, Crabs, and Lobsters – Assessment of ≈2.58 acres of flats for composition, level of degradation and potential enhancements such as addition of complex structure to create functionally related habitats and connections between mudflats, SAV and marsh.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: No data obtained

C. Site History and Land Use: No data obtained on history. Site contains open space with industrial structures and fringe habitat.

D. Biological Studies/ Fauna: Benthic community composition and fish/crab tissue chemistry and pathology, Passaic River Study Area Investigations (9, 10).

E. Biological Studies/ General Environment: Delineation and surveys. Vegetation Sampling and Wetland Delineation 2008 (18).

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 by Aqua Survey Inc. (3). No data above high tide. PRSA RI, 1995.

G. Hydraulics and Hydrology: Limited river current and tide gauge data are available from 1995 and 1996. Hydrodynamic data were collected by Rutgers University in 2004.

H. Water and Sediment: [Newark Bay Estuary Sediment Characterization 1990-1993 (4)?], PRSA RI 1995 (5), limited surface water quality and sediment data from Passaic River Study Area Investigations (5,6). Water Quality NJHDG 2002-present (7).

I. Historical and Cultural Resources: No data obtained.

US Army Corps of Engineers
New York District

CRP 872 Harrison Shoreline Redevelopment

Newark Bay, Passaic River & Hackensack River

0 20 40 80 120 160
Feet

N
W E
S

881. PSE&G SHORELINE

Category: Existing restoration, preservation and/or mitigation site. Former Harrison Gas Plant Remediation Project.
Location: Located on the east ascending bank of the Passaic River at river miles ≈ 4.6−5, in the town of Harrison.
Current Land Use: Vacant lot of a recently remediated former industrial facility. NJDEP has zoned this site as urban.
Size:
Site Description: Former Harrison Gas Plant remediation project, this site is a brownfield with recently completed environmental remediation. A slurry wall contains the site from the Passaic River, the surface sediment has been capped and an internal drain system installed to maintain hydraulic control. Contaminated soil outside the wall, but adjacent to the river, was removed and disposed offsite.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and capping of contaminated materials based on sediment sampling. This remediated gas plant facility left behind coal, tar and other by-products that have contaminated soil and ground water on the sites. Although some contaminated sediments have been removed mudflats may remain contaminated.
Coastal Wetlands – This site contains a slurry wall/bulk-heading along the entire Passaic River perimeter. Wetland development would require significant modifications to this structure. Marsh creation would require re-connecting the hydrology, re-grading to wetland elevations and increasing vegetation with native plantings.

EXISTING SITE SPECIFIC DATA INVENTORY
(MUST INVESTIGATE ADMINSTRATIVE RECORD FOR HARRISON REMEDIAL ACTION)

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: PSE&G

C. Site History and Land Use: Former manufactured gas remediation site.

D. Biological Studies/ Fauna: No data obtained.

E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 by Aqua Survey Inc. (3). No data above high tide. PRSA RI, 1995.

G. Hydraulics and Hydrology: Limited river current and tide gauge data are available from 1995 and 1996. Hydrodynamic data were collected by Rutgers University in 2004 (12).

H. Water and Sediment: Newark Bay Estuary Sediment Characterization 1990-1993 (4), Passaic River Study Area Investigations (5,6). Water Quality NJHDG 2002-present (7).

I. Historical and Cultural Resources: No data obtained.

*** TBD- THIS SITE CONTAINS A NEW BULKHEAD ALONG THE ENTIRE RIVER FRONT PERIMETER OF THE PROPERTY. IT IS UNLIKELY AVAILABLE FOR TEC HABITAT RESTORATION OR CREATION. GET STATUS FROM NJDEP, PSE&G.

873. NEWARK RIVERBANK PARK/ JOSEPH G. MINISH PARK (PORTION)

Category: Existing restoration, preservation and/or mitigation site.
Location: Located along the west ascending bank of the Passaic River at river mile ≈ 4.2–4.6 in the city of Newark between Jackson and Brill St.
Current Land Use: Currently part of the USACE/NJDEP/Newark Joseph G. Minish Park Project which plans to build 6,000 ft of bulkheads, 3,200 ft of stabilized riverbank, a park along the riverfront and create 9,200ft of riverfront walkway. The City of Newark, NJDOT IBOAT NJ, NY/NJ Baykeepers along with the Trust for Public Land has recently secured some funding to speed up development of the park. Conceptual plans focus on parcels that are publically owned, available for improvement and designated for park use. This includes the area from Jackson to Oxford St. Ground breaking was scheduled for 2010.
Size:
Site Description: Former industrial parcels containing building remnants, paved surfaces, litter and fenced off container storage sites. The subtidal habitat is composed of coarse substrate. A two block stretch of riverfront park space owned by Essex County is located across from Riverbank Park. This area is underutilized as it is degraded and lacks park amenities.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands – Increase density of emergent wetland vegetation by re-grading to wetland elevations, removing invasives and re-planting native species to create ≈0.95 acres of wetland.
Habitat for Fish, Crabs, and Lobsters – Assessment of ≈1.68 acres of flats for composition, level of degradation and potential enhancements such as addition of complex structure to the small mudflat section at the intersection of Sommes St. and the riverfront to facilitate connections between the mudflats, SAV and the marsh.
Sediment Contamination – Potential dredging and capping of contaminated materials based on sediment sampling. Environmental testing should take place prior to the planned remediation phase of the project.
Shorelines and Shallows – USACE, City of Newark and NJDEP may have future plans for riverbank restoration as part of the Minish Park Project.
Public Access – The City of Newark has extensive plans for public access including; signage, benches, paths, lawns, ecology pavilion, picnic area, outdoor classrooms, science playground, art exhibit spaces, dog run, boat launch and public parking.

EXISTING SITE SPECIFIC DATA INVENTORY
(CHECK MINISH PARK PROJECT FILES AND CITY OF NEWARK)

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: Passive recreation parcels; City of Newark, Essex County Park Community. Active Recreation parcels; Orfal Property Management LLC, Rubin Gerald et al.

C. Site History and Land Use: Former industrial site.

D. Biological Studies/ Fauna: Benthic community composition and fish/crab tissue chemistry and pathology, bird community survey, Passaic River Study Area Investigations (9, 10, 11).

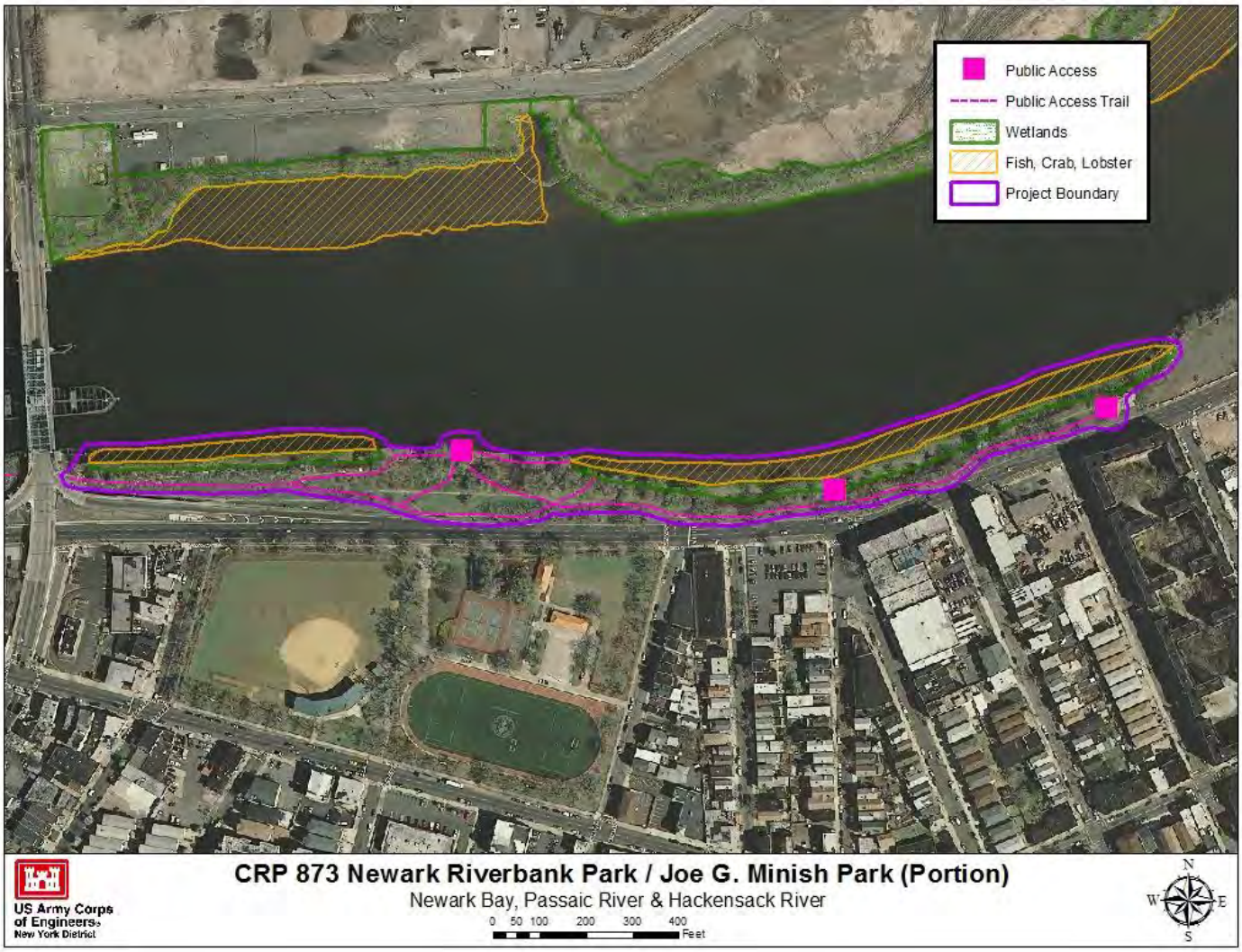
E. Biological Studies/ General Environment: Vegetation Sampling and Wetland Delineation 2008 (18).

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 by Aqua Survey Inc. (3). No data above high tide. PRSA RI, 1995.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: Newark Bay Estuary Sediment Characterization 1990-1993 (4), Passaic River Study Area Investigations (5,6). Water Quality NJHDG 2002-present (7).

I. Historical and Cultural Resources:



US Army Corps of Engineers
New York District

CRP 873 Newark Riverbank Park / Joe G. Minish Park (Portion)

Newark Bay, Passaic River & Hackensack River

0 50 100 200 300 400 Feet

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874. GATEWAY PARK/JOSEPH G. MINISH PARK (PORTION)

Category: Existing restoration, preservation and/or mitigation site. NJDEP Known Contaminated Site.
Location: Located along the west ascending bank of the Passaic River at river mile ≈ 4.6–5 in the city of Newark between Jackson St. and Penn Station.
Current Land Use: Currently part of a USACE/NJDEP/Newark Joseph G. Minish Park Project which plans to build 6,000 ft of bulkheads, 3,200 ft of stabilized riverbank, a park along the riverfront and create 9,200ft of riverfront walkway. **The City of Newark, NJDOT IBOAT NJ, NY/NJ Baykeepers along with the Trust for Public Land has recently secured some funding to speed up development of the park. Conceptual plans focus on parcels that are publically owned, available for improvement and designated for park use. This includes the area from Jefferson to Jackson St. Ground breaking is scheduled for 2010 (similar to Newark Riverfront Park?).**
Size:
Site Description: This parcel is a vacant lot which lies in between the Passaic River and Raymond Blvd. The parcel has been bulk-headed along the entire riverfront perimeter for flood protection.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Public Access – The City of Newark has extensive plans for public access including; signage, benches, paths, lawns, playground, performing arts/ outdoor theater barge, amphitheater, dance pavilion, fountain and science barge.

EXISTING SITE SPECIFIC DATA INVENTORY (CHECK MINISH PARK PROJECT DATA)

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: Public parcels; State of NJ, City of Newark. Private parcels; PSE&G Co., 50-58 Jersey St. LLC, Hartz Co.

C. Site History and Land Use: Former industrial site.

D. Biological Studies/ Fauna: No data obtained.

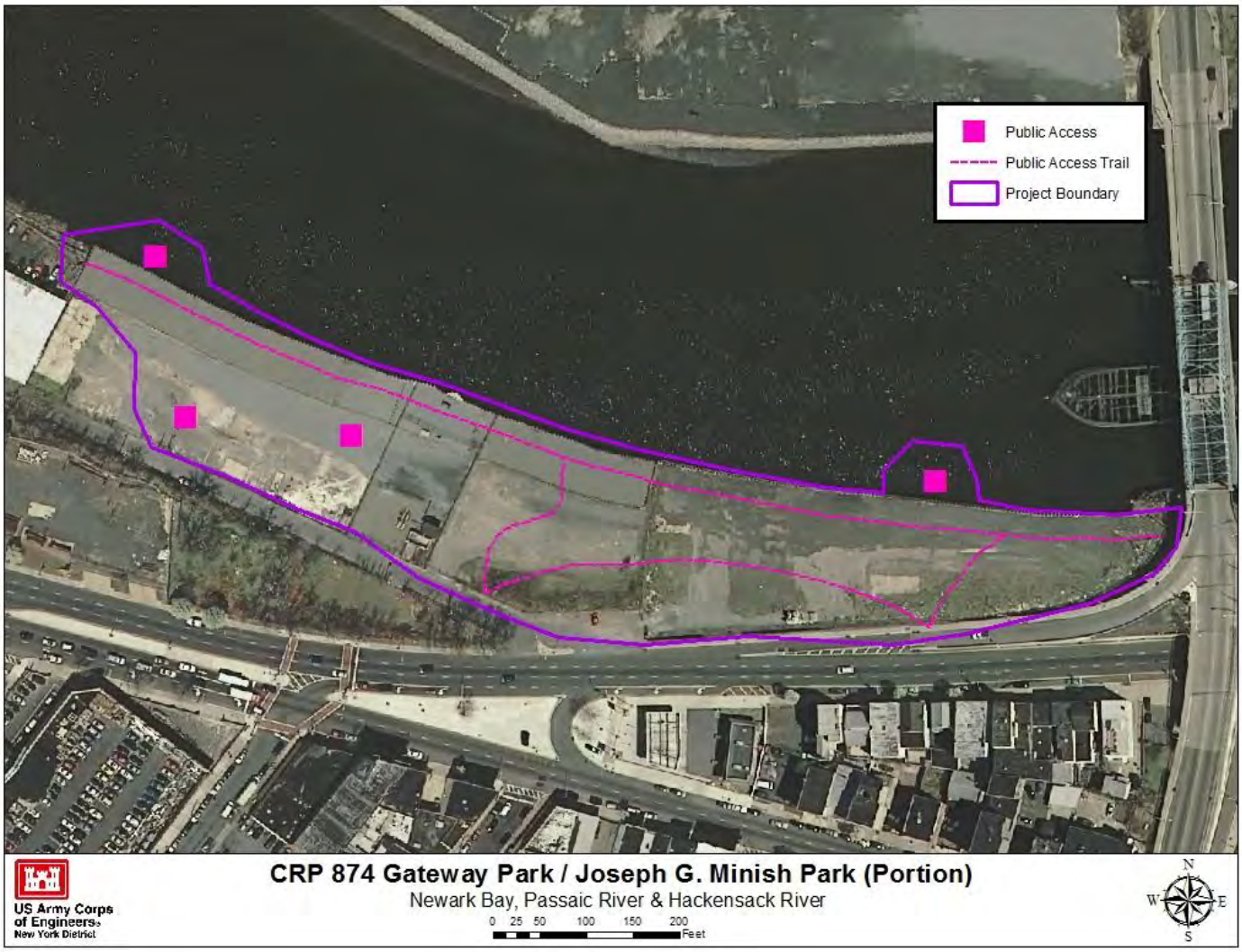
E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 by Aqua Survey Inc. (3). No data above high tide. Passaic River Study Area Remedial Investigations, 1995 (5).

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: Newark Bay Estuary Sediment Characterization 1990-1993 (4), Passaic River Study Area Investigations (5,6). Water Quality NJHDG 2002-present (7).

I. Historical and Cultural Resources: No data obtained.



US Army Corps of Engineers
New York District

CRP 874 Gateway Park / Joseph G. Minish Park (Portion)

Newark Bay, Passaic River & Hackensack River

0 25 50 100 150 200 Feet

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875. RIVERFRONT PARK

Category: Existing restoration, preservation and/or mitigation site. NJDEP Known Contaminated Site.
Location: Located along the west ascending bank of the Passaic River at river mile 5.9 in the City of Newark.
Current Land Use: This site is currently forested open space. NJDEP has zoned this site as urban.
Size:
Site Description: This site contains forested fringe habitat along the Passaic River. The site boarders an industrial facility, Interstate 280 and the colonial concrete facility. The extent of bulkhead and riprap at this site is unknown; however, there is some softened shoreline. The subtidal habitat is composed of coarse substrate with limited mudflats.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and capping of contaminated materials based on sediment sampling.
Shorelines and Shallows – Remove fill and re-grade shorelines to wetland elevations. Remove rip rap and bulkhead to allow subtidal sedimentation in an area where bulkheads have cause erosion. Re-structure shoreline with stable slope and rocky structure to restore ≈369.83 linear feet of habitat.
Coastal Wetlands – Enhance the existing habitat along the newly re-graded shoreline by increasing the density of native vegetation and removing invasives to create ≈0.60 acres of fringe marsh habitat.
Habitat for Fish, Crabs, and Lobsters – Assessment of ≈0.20 acres of flats for composition, level of degradation and potential enhancements such as addition of complex structure to the small shoreline and mudflats section just north of the Interstate 280 bridge to facilitate connections between the mudflats and the newly created marsh.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: Valenta Nichols, Norfolk Southern Corp., Colonial Concrete, unknown.

C. Site History and Land Use: No data obtained on history. Vacant forested lot adjacent to active industrial sites.

D. Biological Studies/ Fauna: Benthic community composition and fish/crab tissue chemistry and pathology, Passaic River Study Area Investigations (9, 10).

E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical:
Sediment characterization in 1995, 1996 and 2005 by Aqua Survey Inc. (3). No data above high tide.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: Newark Bay Estuary Sediment Characterization 1990-1993 (4), limited surface water quality and sediment data from Passaic River Study Area Investigations (5,6). Water Quality NJHDG 2002-present (7).

I. Historical and Cultural Resources: No data obtained.

US Army Corps of Engineers
New York District

CRP 875 Riverfront Park

Newark Bay, Passaic River & Hackensack River

0 15 30 60 90 120 Feet

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876. CLAY STREET LOT

Category: Existing restoration, preservation and/or mitigation site. NJDEP Known Contaminated Site.
Location: Located along the west ascending bank of the Passaic River at river mile 6.1-6.2, in the city of Newark, at the intersection of Clay and Passaic Streets.
Current Land Use: Former industrial site, currently a vacant lot.
Size:
Site Description: This site is a vacant lot which contains un-remediated BTEX groundwater and soil contamination. This site contains bulkhead along the entire Passaic River perimeter, remnants of building foundations and appears to contain a significant amount of fill.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination - Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Public Access – Create a park with pedestrian paths based off of existing street network and access to the waterfront and in collaboration with Newark Riverfront Development Framework. Paths will run the perimeter of the property and compliment design guidelines for waterfront public access easement.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: Passaic Clay Urban Renewal, LLC.

C. Site History and Land Use: Former industrial site.

D. Biological Studies/ Fauna: No data obtained.

E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 Aqua Survey Inc. (3). No data above high tide. PRSA RI, 1995.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: Newark Bay Estuary Sediment Characterization 1990-1993 (4), limited surface water quality and sediment data from Passaic River Study Area Investigations (5, 6). Water Quality NJHDG 2002-present (7).

I. Historical and Cultural Resources: Site of historical lost tributary.

US Army Corps of Engineers
New York District

CRP 876 Clay Street Lot

Newark Bay, Passaic River & Hackensack River

0 12.5 25 50 75 100 Feet

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877. FRANKLIN-BURLINGTON PLASTICS PARCEL (FORMERLY INCORRECTLY NAMED AMERICAN STRIP STEEL PARCEL)

Category: Existing restoration, preservation and/or mitigation site. NJDEP Known Contaminated Site.
Location: Located along the east ascending bank of the Passaic River at river mile ≈ 6.5-6.7, in the city of Kearny.
Current Land Use: Active industrial facility housing Franklin-Burlington Plastics Corp., a color and specialty compounds facility. Site contains fringe habitat on the Passaic River side.
Size:
Site Description: Estuarine low site ≈ 3 feet above high water with permanent to intermittent flooding and fringe habitat along the entire Passaic River perimeter. Contains tidal, subtidal and lower perennial habitat with mudflat, vegetation, lawn and some deciduous brush and shrub land.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Shorelines and Shallows – Bio-stabilization and re-grading of shoreline to restore ≈846.53 linear feet of habitat.
Coastal Wetlands – Protect and restore the existing fringe marsh habitat. Density of emergent vegetation should be increased by removing invasive species and re-planted with natives to create ≈0.59 acres of wetland.
Habitat for Fish, Crabs, and Lobsters – Assessment of ≈0.78 acres of flats for composition, level of degradation and potential enhancements such as addition of complex structure to the mudflat to facilitate connections to the fringe marsh habitat.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: Franklin Burlington Plastics Corp. (Spartech Polytech Inc.)

C. Site History and Land Use: No data obtained on history. Site contains fringe habitat on active industrial site.

D. Biological Studies/ Fauna: Benthic community composition and fish/crab tissue chemistry and pathology, bird community survey, Passaic River Study Area Investigations (9, 10, 11).

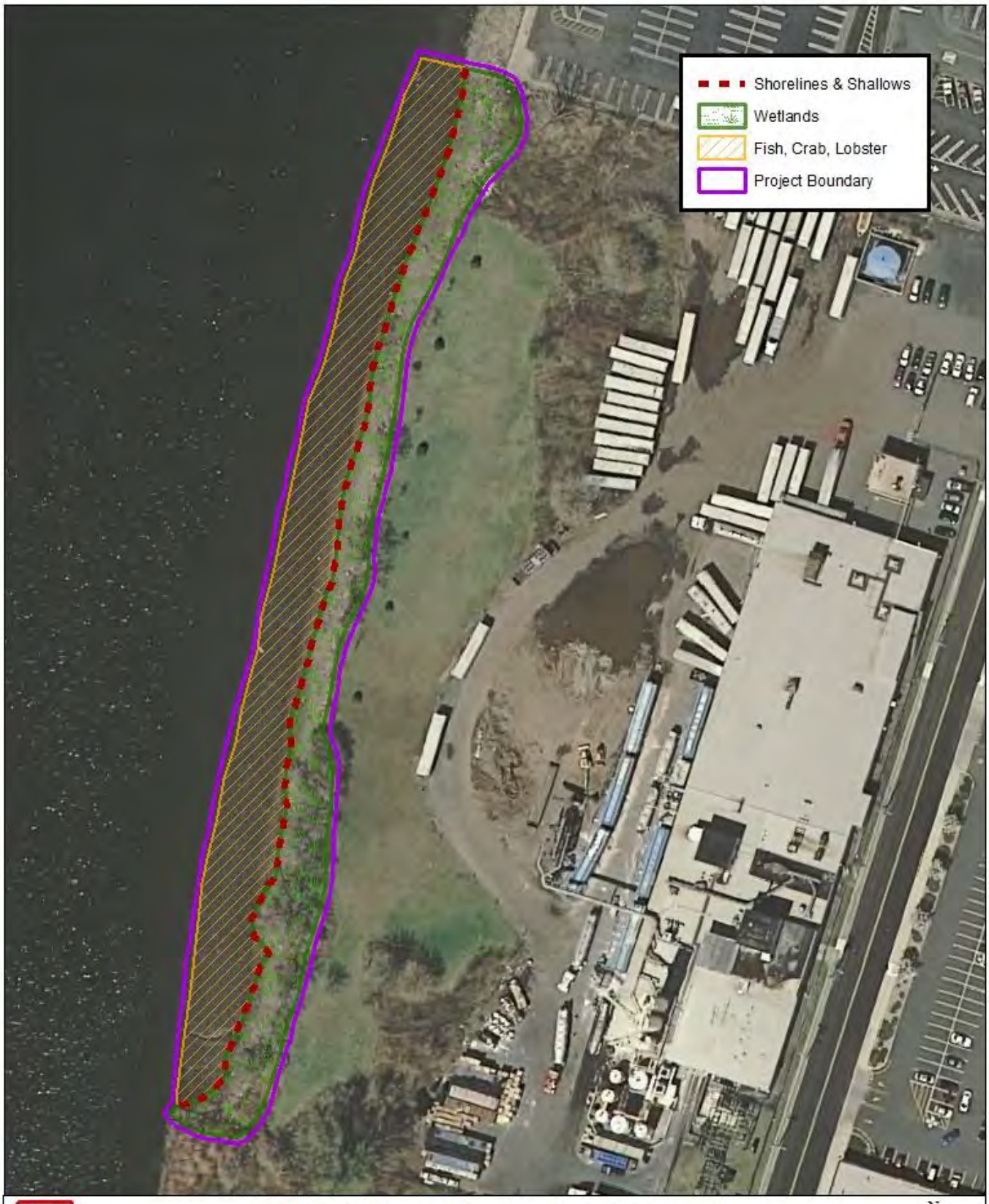
E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 Aqua Survey Inc. (3). No data above high tide.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: Limited surface water quality and sediment data from Passaic River Study Area Investigations (5,6). Water Quality, NJHDG 2002-present (7).

I. Historical and Cultural Resources: No data obtained.



US Army Corps of Engineers
New York District

CRP 877 Franklin - Burlington Plastics

Newark Bay, Passaic River & Hackensack River

0 15 30 60 90 120 Feet

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878. FRANK VINCENT PARK AND BOAT RAMP

Category: Existing restoration, preservation and/or mitigation site.
Location: Located along the east ascending bank of the Passaic River, at river mile 7.0 – 7.2, in the city of Kearny.
Current Land Use: This site is zoned as open space, it contains fringe habitat along the Passaic River and is adjacent to an empty field, Frank Vincent Marina (boat launch), a large parking lot, a basketball court and a roller skating rink.
Size:
Site Description: Estuarine system with riparian fringe and flats adjacent to a road and athletic field (school). Site is forested with a 45° slope consisting of rock and soil. Site contains dense Japanese knotweed in the riparian zone with sparse vegetation below the high tide line, including *Polygonum hydropiperoides*. Hydrologic features include; tidal, subtidal, and intertidal habitats. The water regime is permanently to intermittently flooded. There are 3 Newark City discharge points within 500-feet of the site.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Shorelines and Shallows – Bio-stabilization and re-grading of the shoreline to wetland elevations to create ≈1,158.50 linear feet of restored habitat.
Coastal Wetlands – Creation of fringe marsh by removing invasives and increasing the density of indigenous species in the subtidal and riparian zones to create ≈0.91 acres of wetland.
Habitat for Fish, Crabs, and Lobsters – Removal of manmade structures where possible. Assessment of ≈0.66 acres of flats for composition, level of degradation and potential enhancements such as addition of complex structure will facilitate connections between the mudflats and fringe marsh.
Public Access – Plans exist for a boat launch upgrade as part of the Town of Kearny Passaic Avenue Redevelopment efforts.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: Town of Kearny.

C. Site History and Land Use: No data obtained on history. Site contains recreational facilities, boat launch and fringe habitat.

D. Biological Studies/ Fauna: No data obtained.

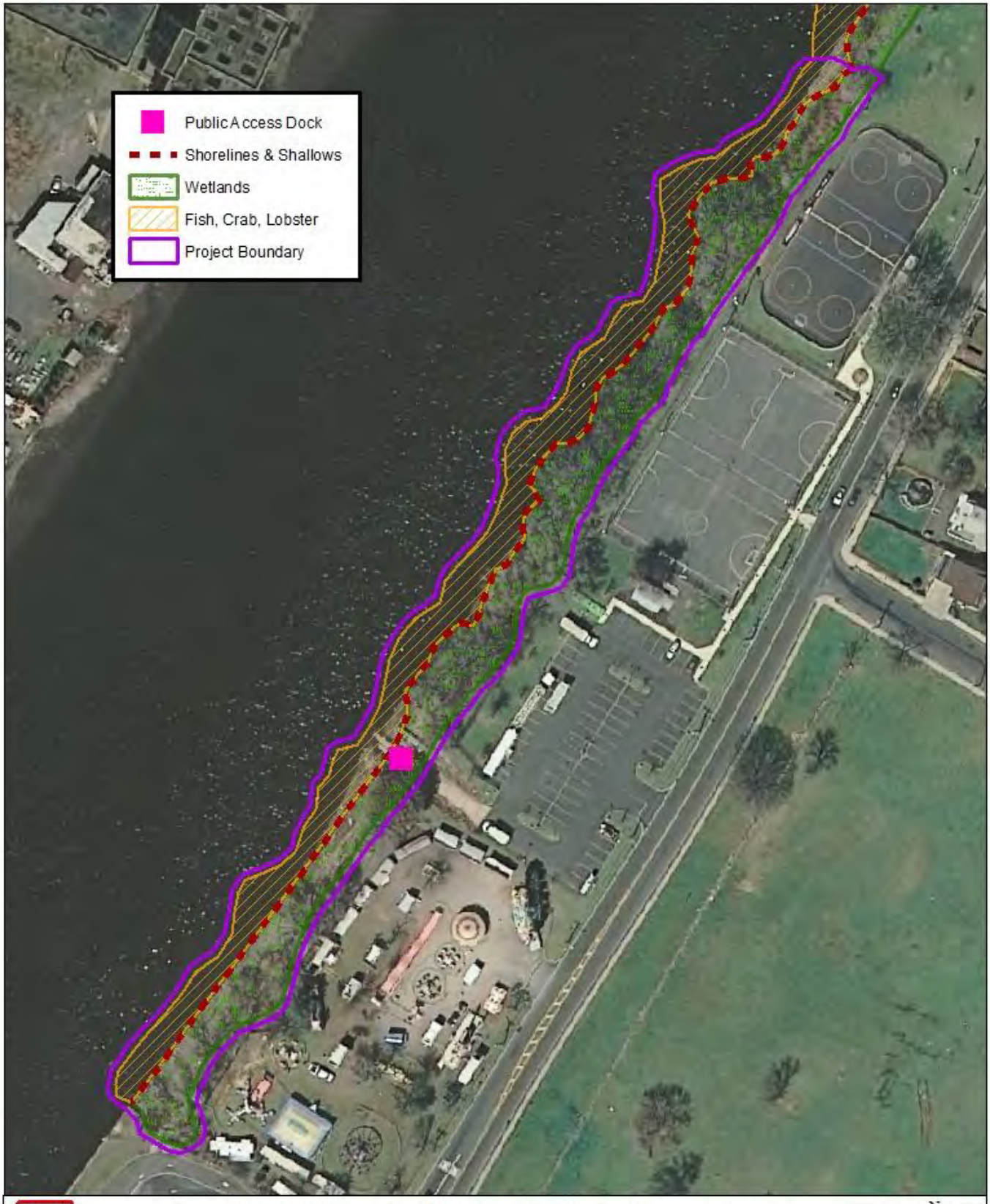
E. Biological Studies/ General Environment: Vegetation Sampling and Wetland Delineation, 2008 (18).

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 Aqua Survey Inc. (3). No data above high tide. PRSA RI, 1995.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: Newark Bay Estuary Sediment Characterization 1990-1993 (4), limited surface water quality and sediment data from Passaic River Study Area Investigations (5, 6). Water Quality NJHDG 2002-present (7).

I. Historical and Cultural Resources: No data obtained.



US Army Corps of Engineers
New York District

CRP 878 Frank Vincent Park and Boat Ramp

Newark Bay, Passaic River & Hackensack River

0 20 40 80 120 160 Feet

N W E S

879. KEARNY RIVERBANK PARK

Category: Existing restoration, preservation and/or mitigation site.
Location: Located on the east ascending bank of the Passaic River, at river mile ≈ 7.2 – 8.5, in the city of Kearny.
Current Land Use: This site is zoned as open space, it contains fringe marsh habitat along the Passaic River. Residential areas exist east and north of the site.
Size:
Site Description: Wetlands are fringe estuarine intertidal with substrate composed of concrete debris, gravel, and silty sand. They are generally un-vegetated, but sparse emergent, persistent vegetation is present. Portion of the site from RM_-_ has a steep riparian edge approximately 30' high and forested. The shoreline is filled with extensive mudflats exposed at low tide. Half of the site is densely covered with Japanese knotweed, the other half had more native herbaceous vegetation. Hydrologic features throughout the site include tidal, subtidal and intertidal habitats. Water regime is permanently to intermittently flooded.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Shorelines and Shallows – Bio-stabilization and regarding of the shoreline to restore ≈4,690.8 linear feet of habitat.
Coastal Wetlands – Removing invasive flora, replanting with indigenous species to create ≈4.3 acres of wetland.
Habitat for Fish, Crabs, and Lobsters – Removal of manmade structures (where possible). Assessment of ≈7.3 acres of flats for composition, level of degradation and potential enhancements such as addition of complex structure to facilitate connections between the mudflats and fringe marsh.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: Majority of the parcels are owned by Town of Kearny. Scattered parcels belong to Skinner Brothers Inc., John A. Magullian, HL Board of Freeholders and 855-857 Passaic LLC.

C. Site History and Land Use: No data obtained on history. Site is located in a park.

D. Biological Studies/ Fauna: No data obtained.

E. Biological Studies/ General Environment: Vegetation Sampling and Wetland Delineation, 2008 (18).

F. Geotechnical: Sediment characterization in 1995, 1996 and 2005 Aqua Survey Inc. (3). No data above high tide. Passaic River Study Area Remedial Investigations, 1995 (5).

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: Newark Bay Estuary Sediment Characterization 1990-1993 (4), limited surface water quality and sediment data from Passaic River Study Area Investigations (5,6). Water Quality NJHDG 2002-present (7).

I. Historical and Cultural Resources: No data obtained.

US Army Corps of Engineers
New York District

CRP 879 Kearny Riverbank Park North

Newark Bay, Passaic River & Hackensack River

0 37.5 75 150 225 300 Feet

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US Army Corps of Engineers
New York District

CRP 879 Kearny Riverbank Park South

Newark Bay, Passaic River & Hackensack River

0 50 100 200 300 400 Feet

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882. SADDLE RIVER OX BOW

Category: Existing restoration, preservation and/or mitigation site.
Location: Historic Saddle River ox bow, located just upstream of its confluence with the Passaic River in the town of Wallington, NJ.
Current Land Use: The upland areas around the oxbow are currently unused except for storing trucks and industrial material. There are several parking lots located just north of this section of the river.
Site Description: This area has a history of flooding. Major flooding along the lower Saddle River in recent years has adversely affected residential, commercial, and industrial establishments. This section of channel, which meanders through the most urbanized portion of the basin, consists of earthen channel bottom with little vegetation on the overbanks, and has an irregular bottom slope. USACE New York District currently has proposed a flood control project at this site that aims to straighten the Ox Bow in an effort to speed up conveyance to the Passaic River.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – These waters receive pollutants from both point and non-point sources. Potential dredging and/or capping of contaminated sediment based on sediment sampling. Heavy soil contamination, including lead, exists at 2 sites within close proximity to the oxbow. These areas are the Jasontown apartment complex and a site just below midland Avenue. Channel excavations should be avoided through these sites.
Tributary Connections – Flood control alterations to ≈ 2,007 linear feet of stream bed to accommodate increased capacity by widening and deepening the river bank, installing retention walls in highly urbanized sections and relocating sections of the river in some locations. Additionally, ≈ 2.6 acres of stream bank will be stabilized, planted with vegetation and re-grading to proper elevations. Debris removal throughout.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USACE, USGS, NJDEP regional data inclusive of this site.

B. Real/Estate/ Ownership: Real estate studies conducted in 1996. Land use is mixed residential and industrial with private and corporate ownership (Garfield Molding, Somerset Realty/Primex, Jason Town II Associates, the Wallington Group LLC).

C. Site History and Land Use: Real estate assessment 1996

D. Biological Studies/ Fauna: EIS and EA 1984, 1996.

E. Biological Studies/ General Environment: EIS and EA 1984, 1996.

F. Geotechnical: Geological and Soil assessment 1996

G. Hydraulics and Hydrology: H&H assessment 1995

H. Water and Sediment: EIS, EA, and HTRW 1984, 1996.

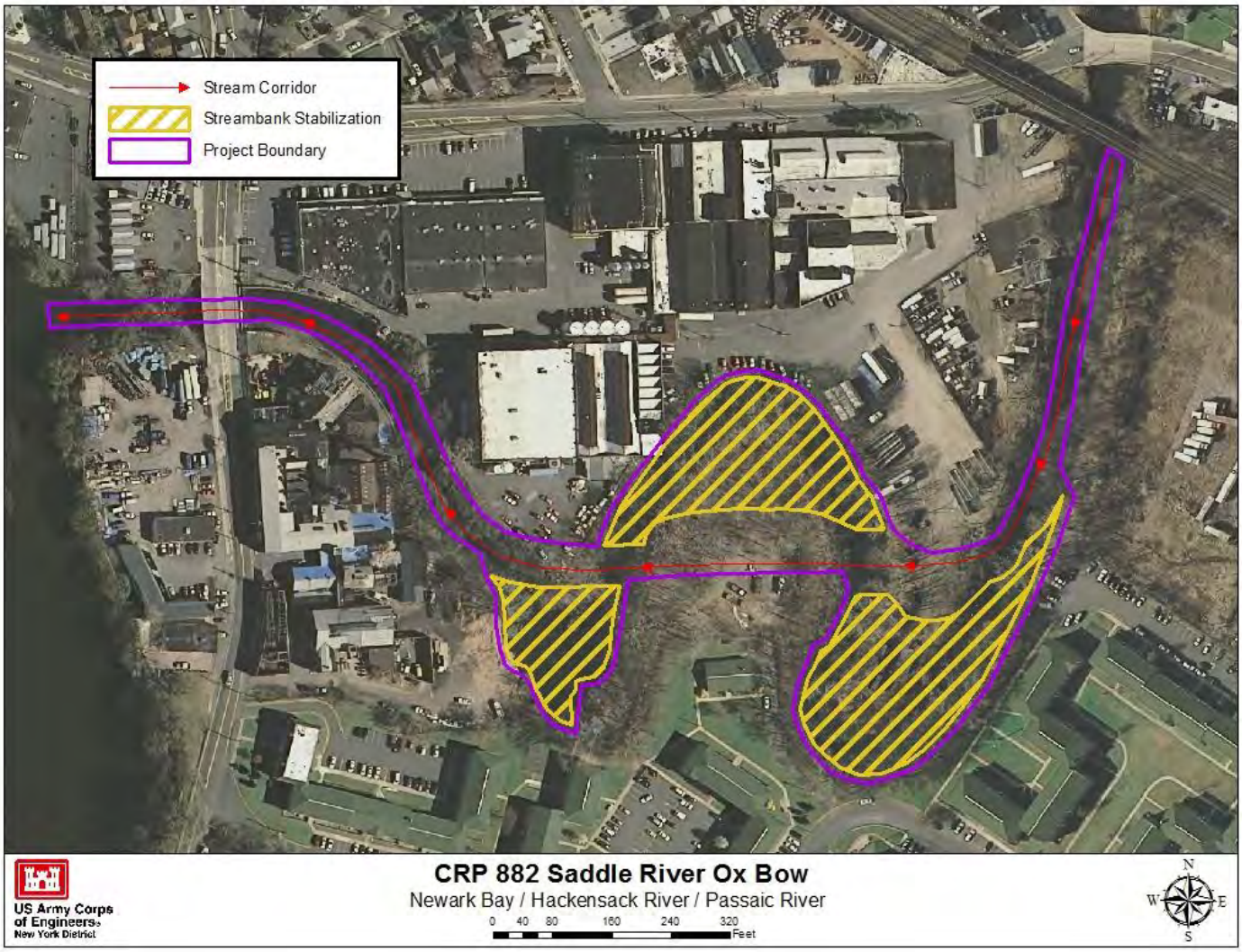
I. Historical and Cultural Resources: Cultural resources assessment 1996.

REFERENCES:

U.S. Army Corps of Engineers, NY District. 1984. General Design Memorandum (Phase I) Interim Report on Flood Protection Feasibility Lower Saddle River Bergen County, NJ.

Perazio P.A., L.C. Archibald, K. Baumgardt. 1991. Evaluation-Level Cultural Resources Investigation of the U.S. Army Corp of Engineers Proposed Saddle River/Sprout Brook Flood-Control Project Bergen County, New Jersey.

U.S. Army Corps of Engineers, NY District. 1996. General Design Memorandum (Phase II - Project Design) Lower Saddle River Bergen County, N.J. Flood Protection Project.
Appendix A&B, Hydrology and Hydraulics
Appendix C, Real Geology, Soil, and Materials
Appendix D, Hazardous Toxic and Radioactive Waste (HTRW)
Appendix E, Structural
Appendix F, Real Estate.


Stream Corridor
Streambank Stabilization
Project Boundary
US Army Corps
of Engineers
New York District
CRP 882 Saddle River Ox Bow
Newark Bay / Hackensack River / Passaic River
0 40 80 160 240 320
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883. SADDLE RIVER FELICIAN COLLEGE SOUTH

Category: Existing restoration, preservation and/or mitigation site.
Location: In the area immediately south of Felician College and adjacent to St. Michael's Cemetery, in the city of Lodi.
Current Land Use: Un-used area boarded by the Saddle River, Felician College, and a portion of St. Michaels Cemetery.
Site Description: This section of channel, which meanders through the most urbanized portion of the basin, consists of earthen channel bottom with little vegetation on the overbanks, and has an irregular bottom slope. This section of the Saddle River in Lodi is particularly damage prone, as periodic flooding occurs along Main Street.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – These waters receive pollutants from both point and non-point sources. Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Tributary Connections – Flood control alterations to ≈ 1,221 linear feet of stream bed to accommodate increased capacity by widening and deepening the river bank, installing retention walls in highly urbanized sections and relocating sections of the river in some locations. Additionally, ≈ 0.75 acres of stream bank will be stabilized, planted with vegetation and re-grading to proper elevations. Additionally, debris removal will be conducted throughout.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USACE, USGS, NJDEP regional data inclusive of this site.

B. Real/Estate/ Ownership: United Greek Rite R.C. Church. Real estate studies conducted in 1996. Land use is mixed residential and industrial with private and corporate ownership.

C. Site History and Land Use: Real estate assessment 1996

D. Biological Studies/ Fauna: EIS and EA 1984, 1996.

E. Biological Studies/ General Environment: EIS and EA 1984, 1996.

F. Geotechnical: Geological and Soil assessment 1996

G. Hydraulics and Hydrology: H&H assessment 1995

H. Water and Sediment: EIS, EA, and HTRW 1984, 1996

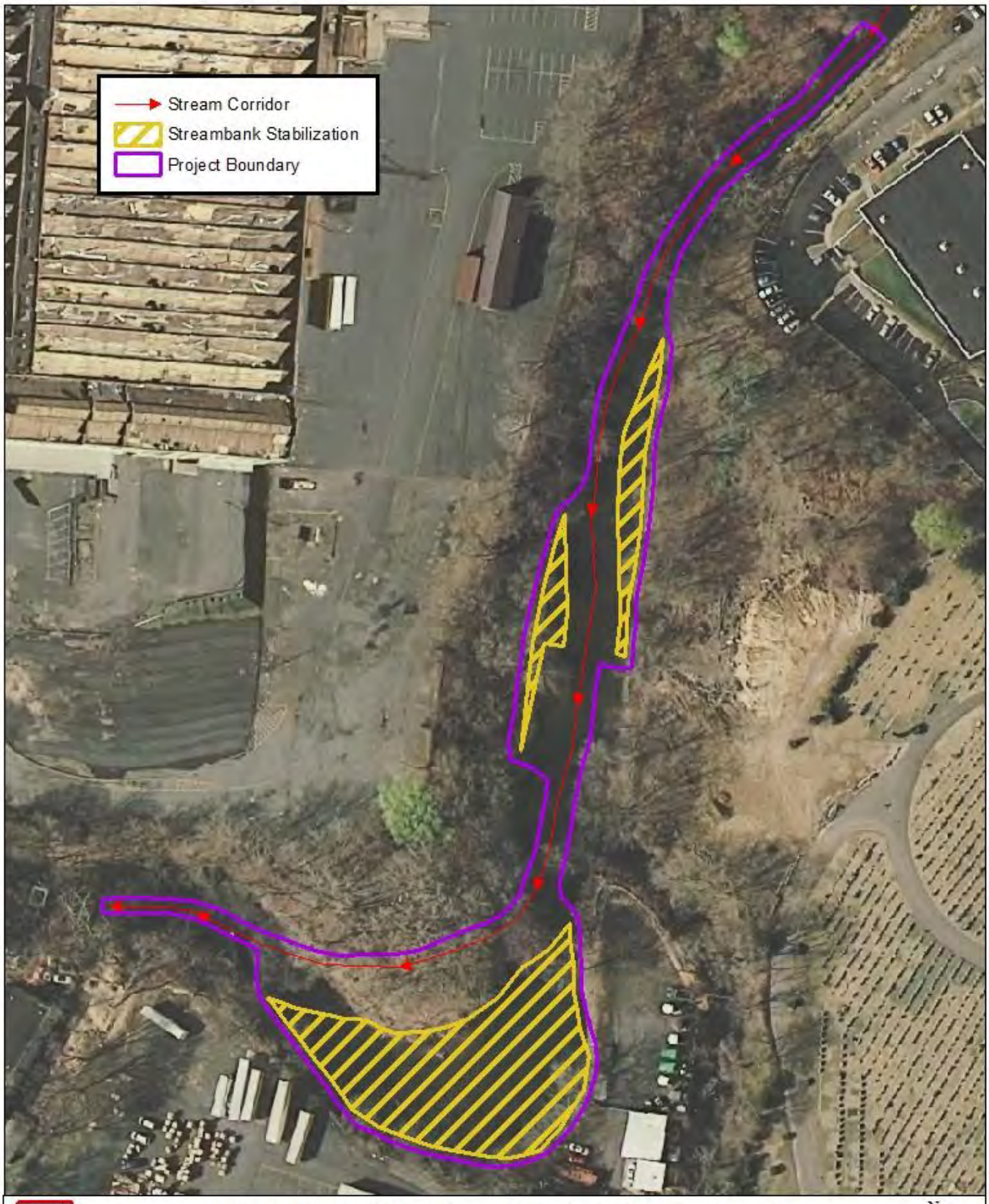
I. Historical and Cultural Resources: Cultural resources assessment 1996

REFERENCES:

U.S. Army Corps of Engineers, NY District. 1984. General Design Memorandum (Phase I) Interim Report on Flood Protection Feasibility Lower Saddle River Bergen County, NJ.

Perazio P.A., L.C. Archibald, K. Baumgardt. 1991. Evaluation-Level Cultural Resources Investigation of the U.S. Army Corp of Engineers Proposed Saddle River/Sprout Brook Flood-Control Project Bergen County, New Jersey.

U.S. Army Corps of Engineers, NY District. 1996. General Design Memorandum (Phase II - Project Design) Lower Saddle River Bergen County, N.J. Flood Protection Project.
Appendix A&B, Hydrology and Hydraulics
Appendix C, Real Geology, Soil, and Materials
Appendix D, Hazardous Toxic and Radioactive Waste (HTRW)
Appendix E, Structural
Appendix F, Real Estate



US Army Corps of Engineers
New York District

CRP 883 Saddle River Felician College South

Newark Bay / Hackensack River / Passaic River

0 20 40 80 120 160 Feet

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884. SADDLE RIVER LODI CEMETERIES

Category: Existing restoration, preservation and/or mitigation site.
Location: St. Nicholas, St. Peters, Lodi and Riverside Cemeteries located along the Saddle River in the cities of Lodi and Saddle Brook, Bergen County.
Current Land Use: Potential restoration parcels surrounding the river are zoned as urban/industrial and residential.
Site Description: This section of channel, which meanders through the most urbanized portion of the basin, consists of earthen channel bottom with little vegetation on the overbanks, and has an irregular bottom slope. This section of the Saddle River in Lodi is particularly damage prone, as severe flooding periodically occurs along Main Street.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – These waters receive pollutants from both point and non-point sources. Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Tributary Connections – Flood control alterations to ≈ 2,704 linear feet of stream bed to accommodate increased capacity by widening and deepening the river bank, installing retention walls in highly urbanized sections and relocating sections of the river in some locations. Additionally, ≈ 0.39 acres of stream bank will be created with clean fill, planted with vegetation and re-grading to proper elevations. Additionally, debris removal will be conducted throughout. Restoration of forested flood plain is un-likely due to land use, however an effort should be made to decrease sediment load from cemeteries along the river corridor and manage invasive species.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USACE, USGS, NJDEP regional data inclusive of this site.

B. Real/Estate/ Ownership: Order of Felician Sisters, St. Peters Cemetery, St. Nicholas Cemetery, Borough of Lodi. Real estate studies conducted in 1996. Land use is mixed residential and industrial with private and corporate ownership.

C. Site History and Land Use: Real estate assessment 1996

D. Biological Studies/ Fauna: EIS and EA 1984, 1996.
E. Biological Studies/ General Environment: EIS and EA 1984, 1996.

F. Geotechnical: Geological and Soil assessment 1996

G. Hydraulics and Hydrology: H&H assessment 1995

H. Water and Sediment: EIS, EA, and HTRW 1984, 1996. NJDEP's 2002 integrated list of surface water quality impairments.

I. Historical and Cultural Resources: Cultural resources assessment 1996.

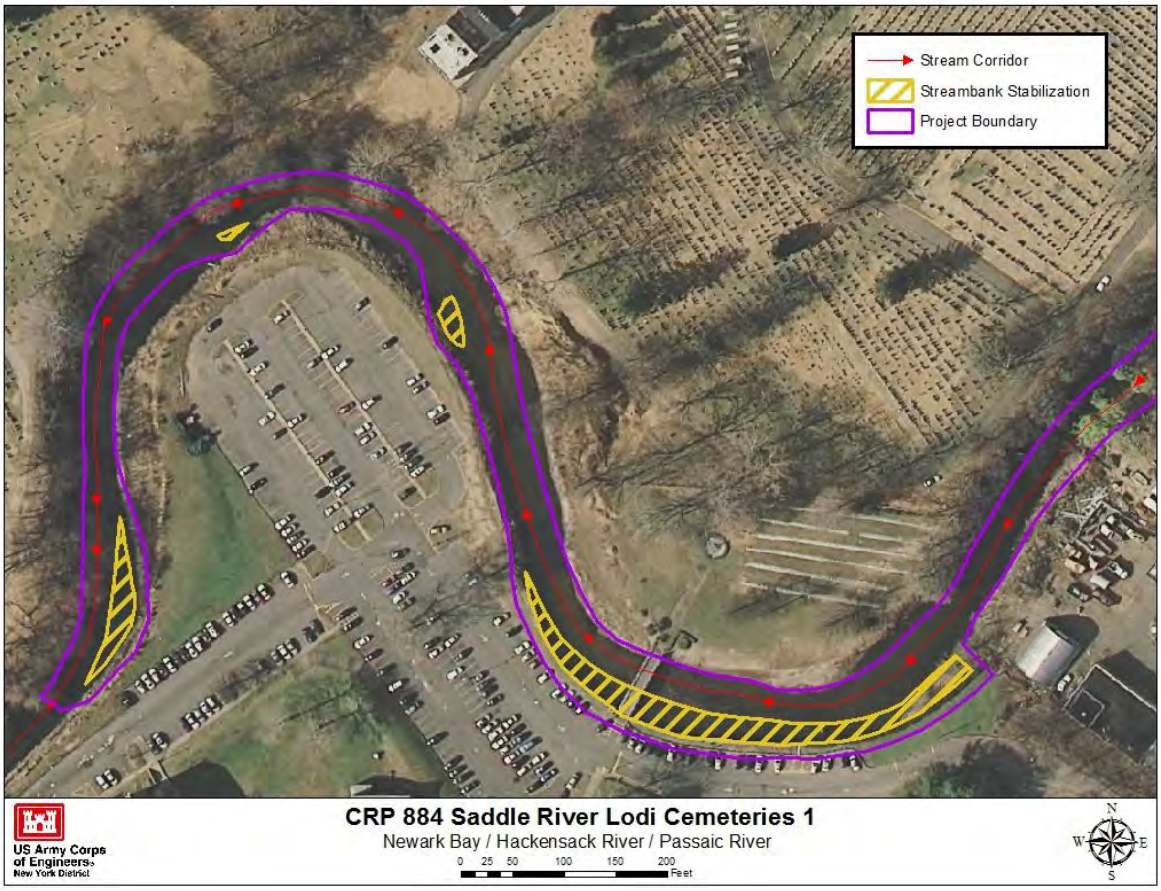
REFERENCES:

U.S. Army Corps of Engineers, NY District. 1984. General Design Memorandum (Phase I) Interim Report on Flood Protection Feasibility Lower Saddle River Bergen County, NJ.

Perazio P.A., L.C. Archibald, K. Baumgardt. 1991. Evaluation-Level Cultural Resources Investigation of the U.S. Army Corp of Engineers Proposed Saddle River/Sprout Brook Flood-Control Project Bergen County, New Jersey.

U.S. Army Corps of Engineers, NY District. 1996. General Design Memorandum (Phase II - Project Design) Lower Saddle River Bergen County, N.J. Flood Protection Project.
Appendix A&B, Hydrology and Hydraulics
Appendix C, Real Geology, Soil, and Materials
Appendix D, Hazardous Toxic and Radioactive Waste (HTRW)
Appendix E, Structural
Appendix F, Real Estate.

Surface water quality impairments from; http://www.state.nj.us/dep/


Stream Corridor
Streambank Stabilization
Project Boundary
US Army Corps of Engineers
New York District
CRP 884 Saddle River Lodi Cemeteries 1
Newark Bay / Hackensack River / Passaic River
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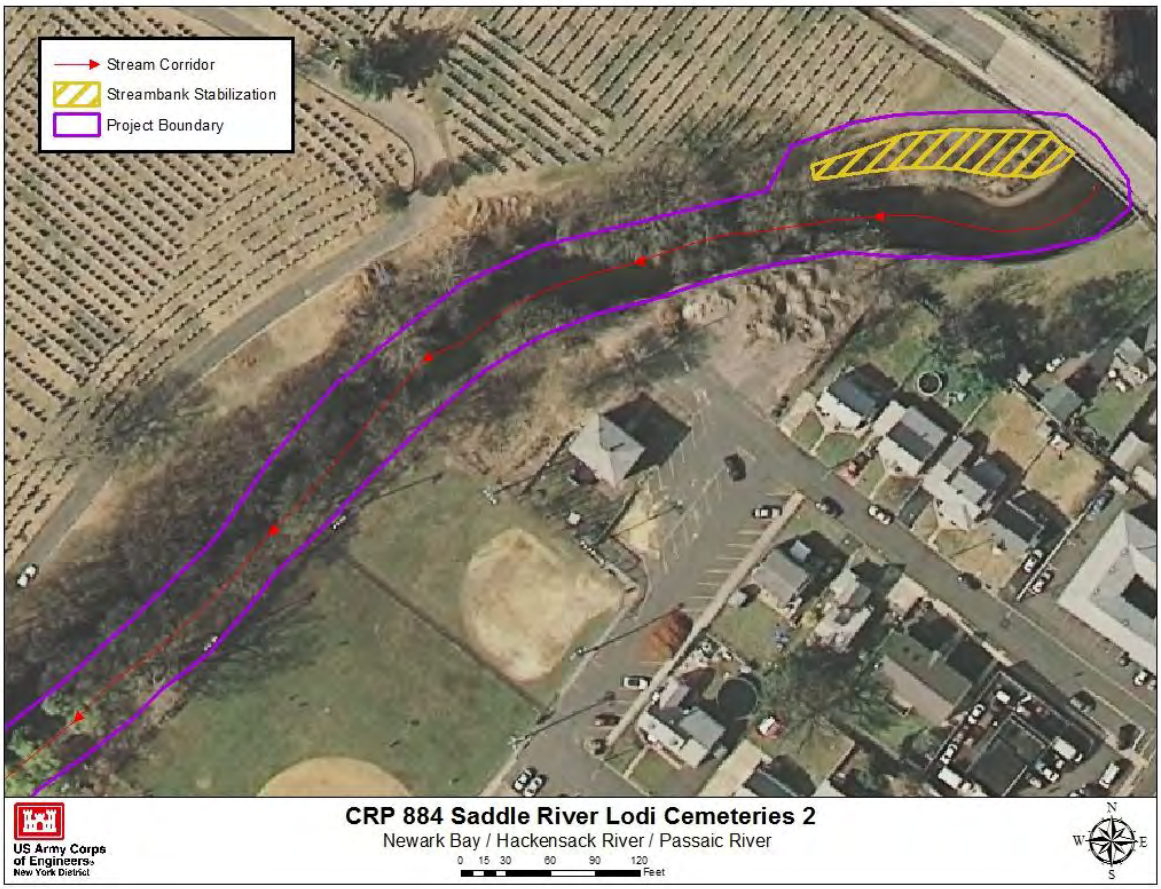
Stream Corridor
Streambank Stabilization
Project Boundary
US Army Corps of Engineers
New York District
CRP 884 Saddle River Lodi Cemeteries 2
Newark Bay / Hackensack River / Passaic River
0 15 30 60 90 120
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885. SADDLE RIVER ARCOLA POOL SITE

Category: Existing restoration, preservation and/or mitigation site.
Location: This Property is located on Paramus Road between White Pine Court and Johnson Court.
Current Land Use: Abandoned property. Location of the former Arcola Pool and Swim Club, which burned down in the 1970's.
Site Description: This reach of the Saddle River has a relatively mild channel slope. Wetland/flood retention areas can be found along the relatively undeveloped overbanks of this reach. Periodic maintenance has been performed by the local governments within this reach. The excessive backwater caused by the downstream constrictions, inadequate channel capacity and a mild bottom slope contribute to the flooding in this reach. Near the stream bank this site is predominantly suburban residential in nature. The residences are generally buffered from the banks by lands which are part of the Bergen County Park System.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – These waters receive pollutants from both point and non-point sources. Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Tributary Connections – Restoration of ≈2.72 acres of forested flood plain will re-connected this site to the adjacent habitat. This will involve excavation of remaining concrete, clean fill of the pool, and planting of native species. Removal of debris.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USACE, USGS, NJDEP regional data inclusive of this site.

B. Real/Estate/ Ownership: Bergen County

C. Site History and Land Use: Arcola pool closed in 1970 after a fire. Currently,

D. Biological Studies/ Fauna: No data obtained.

E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: No data obtained.

I. Historical and Cultural Resources: No data obtained.

US Army Corps of Engineers
New York District

CRP 885 Saddle River Arcola Pool Site

Newark Bay / Hackensack River / Passaic River

0 15 30 60 90 120 Feet

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886. SADDLE RIVER COUNTY PARK

Category: Existing restoration, preservation and/or mitigation site.
Location: The Saddle River reach between Saddle River County Park and where it joins Ho-ho-kus Brook.
Current Land Use: County park with adjacent wooded area surrounded by residential and transportation uses.
Site Description: The Saddle River County Park is a 577-acre linear park that meanders with the Saddle River and its tributary brooks. It consists of a string of five recreational locations along the Saddle River from Ridgewood south to Rochelle Park. Invasive species (eg. Japanese knotweed) are persistent within the floodplain area. This site contains a forested wetland just off Dunkerhook Road. This area should be preserved as it has the potential to be encroached on by on-going activities west of the river. This wetland could also serve as a reference site for other potential restoration sites.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands (freshwater) – Potential to create or restore fringe/pocket forested wetlands (<1acre) (location pending).
Sediment Contamination – These waters receive pollutants from both point and non-point sources. Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Tributary Connections – Restoration and preservation of the ≈ 58.67 acres of flood plain to include re-grading to proper elevations relative to site-specific variables, removal of invasive species, and re-planting with native species. Improvements to ≈ 7,551 linear feet of stream corridor including assessing the bed/sediment load for potential deepening and erosion protection measures.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS, NJDEP, Bergen County regional data inclusive of this site.

B. Real/Estate/ Ownership: Bergen County

C. Site History and Land Use: County Park

D. Biological Studies/ Fauna: No data obtained

E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: No data obtained.

I. Historical and Cultural Resources: No data obtained.

US Army Corps of Engineers
New York District

CRP 886 Saddle River County Park

Newark Bay / Hackensack River / Passaic River

0 100 200 400 600 800 Feet

N
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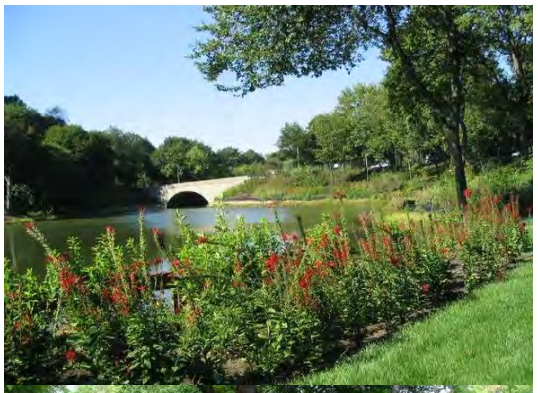
*887. FIRST RIVER BRANCH BROOK PARK



Category: Existing restoration, preservation and/or mitigation site.
Location: Located in the City of Newark and bordered at the northern end by U.S. Route 280, the park crosses Bloomfield Avenue, Park Avenue, and Heller Parkway, terminating near the Newark/Belleville line.
Current Land Use: Essex County Park.
Size: 360 acres
Site Description: This property contains a large lake, meandering streams, and in the north, the Second River channel. The property is a combination of open meadowland and small patches of woodland on gently rolling terrain. This site was historically connected to the Passaic River via the Branch Brook.
Restoration Recommendations and Applicable Target Ecosystem Characteristics:
Coastal Wetlands (freshwater) – Remove invasive vegetation (Phragmities, Ailanthus, Knotweed) and increase the density of ~5.6 acres high and low marsh and riparian vegetation along the waterways, riparian zones and the second river channel. Potential re-grading of steep slopes to create proper elevations.
Tributary Connections –

Stream Corridor- Investigate possibility of daylighting the First River and decreasing channelization throughout. (Determine location of the First River, it is approximately 6 miles long and currently runs through culvets).

Floodplain- Decrease erosion throughout ~ 4.5 acres of floodplain through management of steep slopes, planting of understory vegetation, and control of surface runoff and foot traffic.

Shorelines and Shallows- Address areas of erosion on the banks and shorelines with stormwater control and increased understory vegetation along ~ 10, 283. Re-grading may be necessary.
Storm Water Management – The current stormwater systems in place at the park bypass the hydrologic cycle cutting off vegetation and overall water quality and quantity. Management should control for cleaning of silted in storm drains, stormwater ponding in grass and wooded areas and erosion due to non-functioning stormwater systems along ~ 8 acres. Mitigation could include the use of retention basins and planting of wetland vegetation. Gravity settling in basins removes suspended solids and associated pollutants while aquatic plants and microorganisms provide uptake of nutrients and degradation of organic contaminants.
Public Access- Support to ongoing public access improvements.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: Essex County Park Commission.

C. Site History and Land Use: CLR Vol. 1 Existing Conditions, CLR Vol. 2 History.

D. Biological Studies/ Fauna: CLR

E. Biological Studies/ General Environment: CLR Vol. 5 Vegetation Report.

F. Geotechnical: CRL Vol. 3 Hydrology, Infrastructure, Historic Fabric.

G. Hydraulics and Hydrology: CLR Vol. 3 Hydrology Infrastructure Historic Fabric.

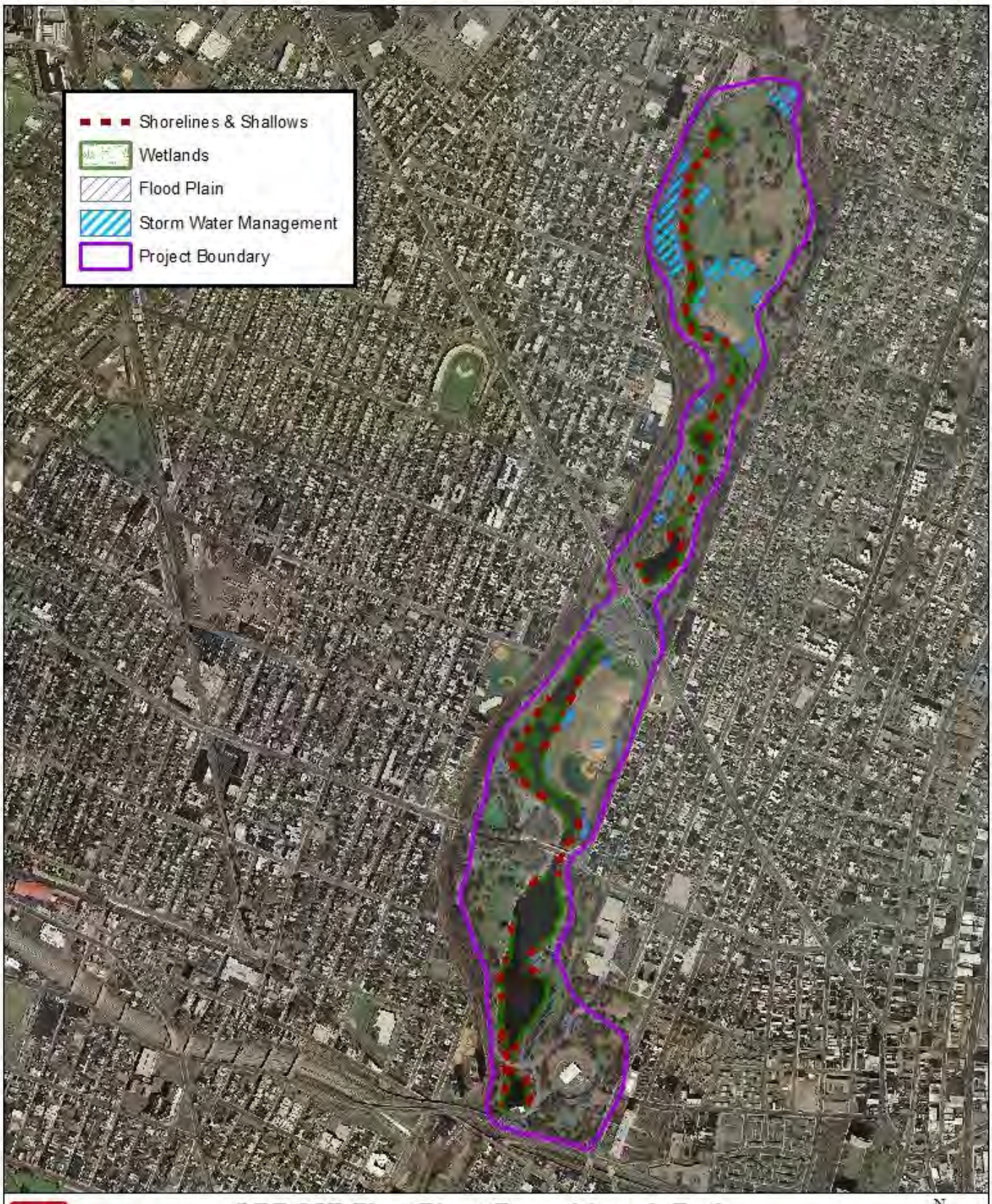
H. Water and Sediment: CRL Vol. 3 Hydrology, Infrastructure, Historic Fabric.

I. Historical and Cultural Resources: State and National registrar of historic places. CLR Vol. 2 History, CRL Vol. 3 Hydrology, Infrastructure, Historic Fabric.

REFERENCES:

Cultural Landscape Report, Treatment, and Management Plan for Branch Brook Park Newark, New Jersey Prepared for: Branch Brook Park Alliance Essex County Department of Parks, Recreation and Cultural Affairs.

Volume 1: Existing Conditions.
Volume 2: History.
Volume 3: Hydrology, Infrastructure, Historic Fabric.
Volume 4: Structures.
Volume 5: Vegetation.
Volume 7: Cost Estimate.



US Army Corps of Engineers
New York District

CRP 887 First River Branchbrook Park

Newark Bay / Hackensack River / Passaic River

0 237.5475 950 1,425 1,900
Feet

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888. SECOND RIVER PASSAIC-BELLEVILLE

Category: Existing restoration, preservation and/or mitigation site.
Location: The section of the Second River running (approximately) from South Franklin Avenue and along Mill Street, through Belleville Park into the Passaic River.
Current Land Use: A portion of this river stretch runs through Belleville Park. Just past Union Avenue to its confluence with the Passaic River the river corridor is highly urban.
Site Description: The majority of the river is channelized with concrete walls and rip rap. On the Second River in Belleville, there are some parks containing willows (lower in elevation than the areas containing the cherry blossoms) and natural stream bank.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Tributary Connections – Stream bank restoration to ≈ 3,730 linear feet in Passaic and ≈ 3,570 linear feet in Belleville should improve failing rip rap and concrete banks and create natural shoreline. Areas that contain natural stream banks (≈ 5.53 acres in Passaic and ≈ 4.35 acres in Belleville) should be preserved as floodplain areas.
Public Access – Improvements to ≈ 2,797.90 linear feet of existing pedestrian paths Belleville.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site

B. Real/Estate/ Ownership:

C. Site History and Land Use: No data obtained.

D. Biological Studies/ Fauna: No data obtained.

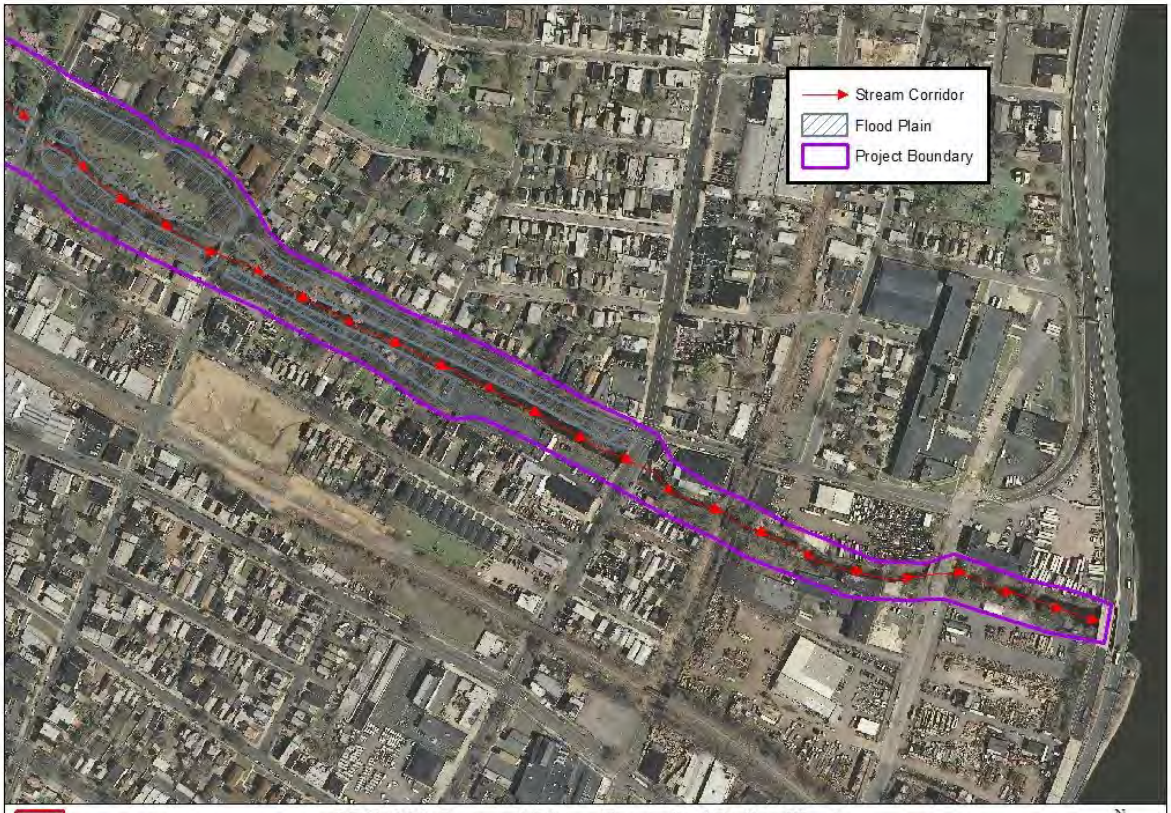
E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: No data obtained.

I. Historical and Cultural Resources: The river may coincide with the Morris Canal, possible constraints.



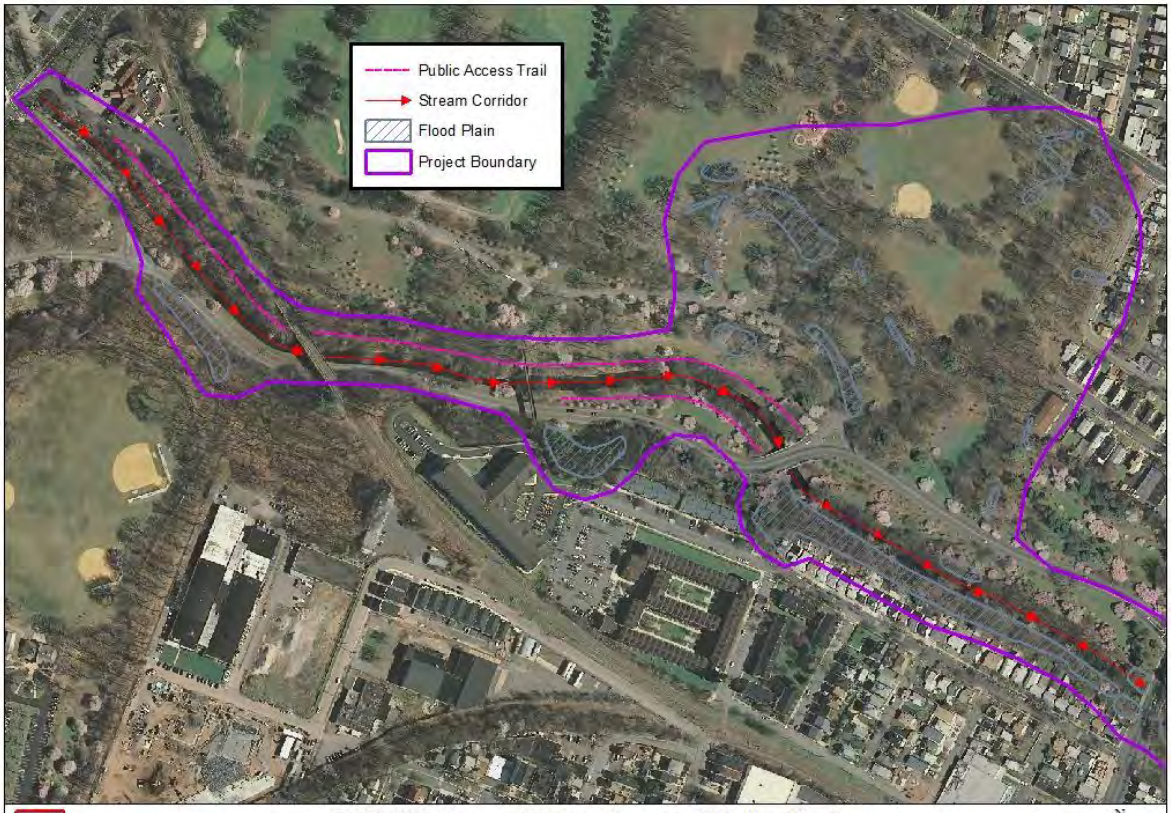
US Army Corps of Engineers
New York District

CRP 888 Second River Passaic / Belleville 1

Newark Bay / Hackensack River / Passaic River

0 85 170 340 510 680 Feet

N W E S



US Army Corps of Engineers
New York District

CRP 888 Second River Passaic / Belleville 2

Newark Bay / Hackensack River / Passaic River

0 75 150 300 450 600 Feet

N W E S

889. SECOND RIVER BLOOMFIELD

Category: Existing restoration, preservation and/or mitigation site.
Location: 0.5 miles of public land (walkway and park) between Newark Ave. and Mill St. on the southern bank of the Second River.
Current Land Use: Site is adjacent to residential and industrial properties. The Southern portion contains a forested foot path that extends from Newark Ave., through the Wrights Field ball fields to Mill St.
Site Description: This site contains a thin forested strip of public land on both sides of the river with natural slopes (no bulkhead). Concrete stream banks are deteriorating, increasing erosion. Area is highly urban so restoration of flood plain property is unlikely.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Tributary Connections – Restoration of ≈ 1.90 acres of flood plain and ≈ 1,622.72 linear feet of stream. Naturalize the stream beds through addition of rocky bottom and vegetated slopes. Re-grading of river corridor slopes to re-connect the floodplain and reduce erosion.
Public Access – Improvements to ≈ 1,209.93 linear feet of existing pedestrian paths and park.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site

B. Real/Estate/ Ownership:

C. Site History and Land Use: No data obtained.

D. Biological Studies/ Fauna: No data obtained.

E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: No data obtained.

I. Historical and Cultural Resources: The river may coincide with the Morris Canal here, possible constraints.


Public Access Trail
Stream Corridor
Flood Plain
Project Boundary
US Army Corps of Engineers
New York District
CRP 889 Second River Bloomfield
Newark Bay / Hackensack River / Passaic River
0 37.5 75 150 225 300
Feet
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890. SECOND RIVER WATSESSING PARK

Category: Existing restoration, preservation and/or mitigation site.
Location: Watsessing Park is located on 69.67 acres in the Townships of Bloomfield and East Orange, in the eastern section of Essex County bounded by the Garden State Parkway, Glenwood Avenue, Cleveland Terrace, Dodd Street, and Bloomfield Avenue.
Current Land Use: Public Park. Several public access upgrades have been made to the park from 2003-present.
Site Description: The meandering Second River is joined here by Toney's Brook, which flows through this long open park. Watsessing Park is frequently flooded during storm event. Creeks are lined with Japanese knotweed. Some natural shorelines exist east of Glenwood Ave. The river is completely contained by concrete walls through the remainder of the site. Watsessing Park was designed in 1899 by the Olmstead Brothers.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Tributary Connections – Failing concrete banks are increasing erosion. Opportunity exists to create and re-vegetate natural slopes. Enhancement and utilization of ≈ 9.03 acres of forested flood plain would decrease the severity of flooding, this may require re-grading to flood plain elevations, removal of invasive species and re-planting with natives. North of Watsessing Park the river is completely channalized and underground; restoration of ≈ 5,123.81 linear feet of stream should include naturalizing the stream bed and banks and cleaning and assessing capacity of culverts and passages.
Public Access – Improvements to 2,559 linear feet of existing paths, parks, ball fields and signage.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site

B. Real/Estate/ Ownership: Essex County

C. Site History and Land Use: No data obtained.

D. Biological Studies/ Fauna: No data obtained.

E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: No data obtained.

I. Historical and Cultural Resources: No data obtain

US Army Corps of Engineers
New York District

CRP 890 Second River Watsessing Park

Newark Bay / Hackensack River / Passaic River

0 70 140 280 420 560 Feet

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891. SECOND RIVER WIGWAM BROOK INDUSTRIAL

Category: Existing restoration, preservation and/or mitigation site.
Location: Site is located near the Wigwam Brook on Kearny St., west of NJ 444, south of Dodd St.
Current Land Use: Abandoned manufacturing and industrial areas partially function as parking lots.
Site Description: Abandoned buildings, paved surfaces. Existing commercial/ industrial/ brownfield site. Large portion of the river is channelized with concrete walls in this stretch of the river. Not indentified as a high priority restoration site.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Tributary Connections –Restoration to ≈ 1,326.52 linear feet of stream bed and banks; clear culverts and re-assess capacity, potential deepening based on flood risk assessment. Entire length of the river is channelized at this site.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site

B. Real/Estate/ Ownership:

C. Site History and Land Use: No data obtained.

D. Biological Studies/ Fauna: No data obtained.

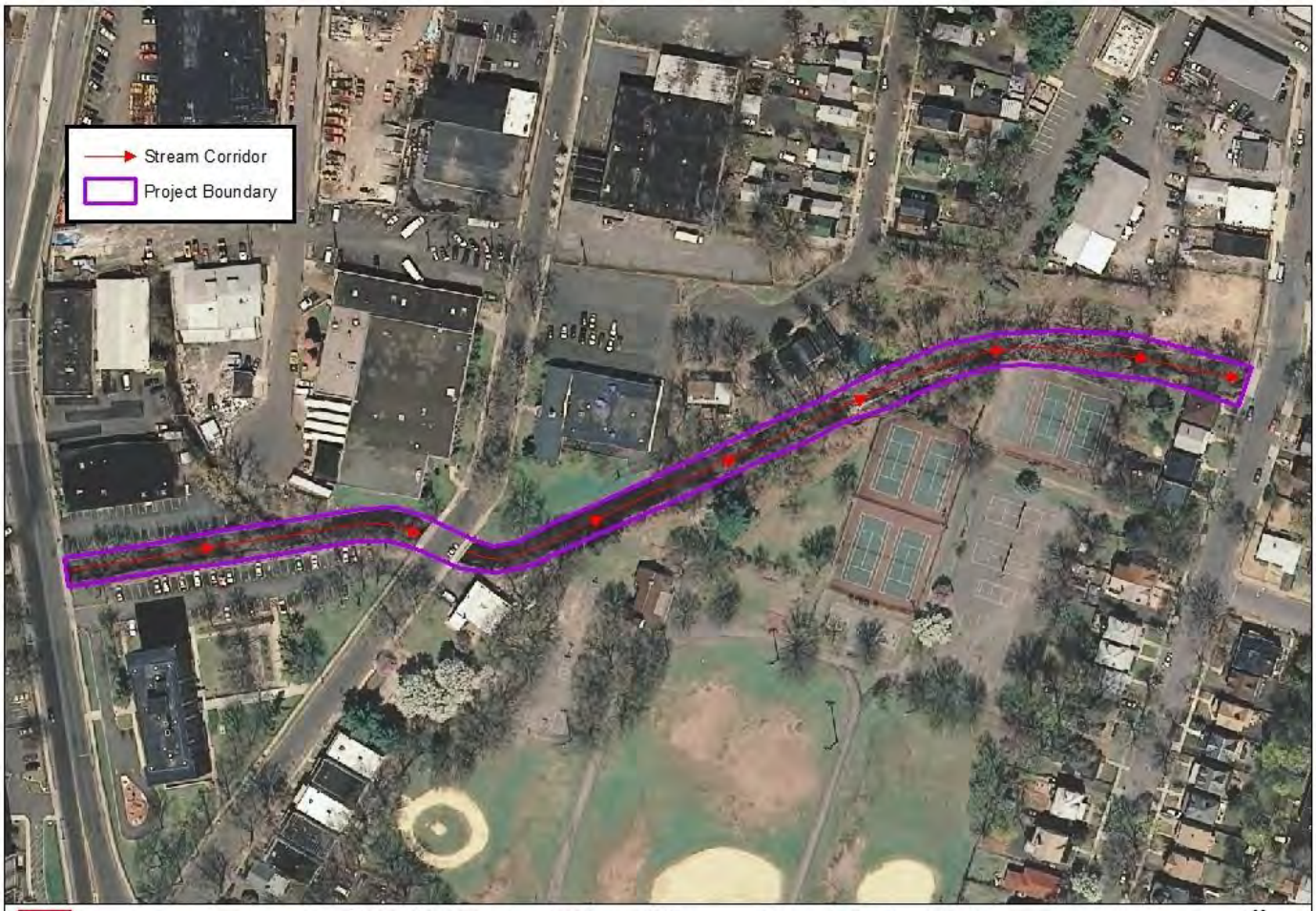
E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: No data obtained.

I. Historical and Cultural Resources: No data obtained.



US Army Corps of Engineers
New York District

CRP 891 Second River Wigwam Brook Industrial

Newark Bay / Hackensack River / Passaic River

0 30 60 120 180 240 Feet

N W E S

892. SECOND RIVER MILLS

Category: Existing restoration, preservation and/or mitigation site.
Location: Near the intersection of Ridgewood Ave. and Rte. 506/ Bloomfield Ave. in Glen Ridge, NJ.
Current Land Use:
Site Description: Current conditions are natural but disturbed. Stream banks are steep and eroded. Upstream portion of this site is located on Garfield Park.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Tributary Connections – ≈ 2,762.58 linear feet of stream bed restoration and stabilization of eroded banks. Garfield Park portion presents an opportunity for ≈ 9.33 acres of flood plain preservation/restoration. Activities would include; re-grading stream edges, re-vegetating slopes, removing invasive species and re-planting with native species.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site

B. Real/Estate/ Ownership:

C. Site History and Land Use: No data obtained.

D. Biological Studies/ Fauna: No data obtained.

E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: No data obtained.

I. Historical and Cultural Resources: No data obtaine

US Army Corps of Engineers
New York District

892 Second River Mills

Newark Bay / Hackensack River / Passaic River

0 45 90 180 270 360 Feet

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893. THIRD RIVER (MOUTH)

Category: Existing restoration, preservation and/or mitigation site.
Location: River reach between the mouth of the Third River and Route 3 in Clifton, NJ.
Current Land Use: Open space, fringe habitat bounded by NJ 21.
Site Description: The Third River generally flows un-interrupted into the Passaic River and is tidally influenced in this lower stretch. Much of the land use in this area is corporate/industrial. Route 21 runs along the Passaic through its confluence with the Third River and there is a retention wall along the Passaic River side of this site. There is a good portion of forested fringe habitat at the bottom stretch of the Third River along both banks. The area at the south west bank of the Third River has a large un-developed portion of land where an area of sedimentation has re-vegetated with invasive species.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Tributary Connections – Restoration to ≈2,503.10 linear feet of stream bed and banks and creation of ≈7.90 acres of flood plain in the vacant lot at the mouth of the Third River. Potentially, dredging and re-grading of elevations to counter balance sedimentation. Preserve and restore riparian buffer, remove invasive species and re-plant with natives.
Public Access – Creation of Greenway in collaboration with City of Clifton and Passaic River Coalition. Greenway would provide recreation and wildlife preservation.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site

B. Real/Estate/ Ownership:

C. Site History and Land Use: No data obtained.

D. Biological Studies/ Fauna: Third River Watershed Characterization Study (1999), Natural Resources Inventory (2003).

E. Biological Studies/ General Environment: Third River Watershed Characterization Study (1999), Natural Resources Inventory (2003).

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: Third River Watershed Characterization Study (1999).

H. Water and Sediment: Third River Watershed Characterization Study (1999).

I. Historical and Cultural Resources: No data obtained.

REFERENCES:

Clifton Health Department/Clifton Environmental Protective Commission. Third River Watershed Characterization Study. September 1999.

Passaic River Coalition. Natural Resources Inventory: City of Cifton. May 2003.

US Army Corps of Engineers
New York District

CRP 893 Third River (Mouth)

Newark Bay / Hackensack River / Passaic River

0 55 110 220 330 440 Feet

N
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894. THIRD RIVER CLIFTON POND*

Category: Existing restoration, preservation and/or mitigation site.
Location: Pond is located between Route 3 and Oak St. in Clifton, NJ. Site begins ≈ 0.68 miles upstream from confluence with Passaic River.
Current Land Use: Open space/wetland/pond
Site Description: Site contains a reservoir and meandering brook subject to heavy erosion and sedimentation. Site exists in an area with intense development pressure.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Coastal Wetlands (freshwater) – Investigate potential to create ≈7.60 acres of forested wetlands in highlighted areas. Low elevations in these areas may require minimal re-grading. Removal of invasive species and re-planting with natives will enhance wetland function.
Tributary Connections – Restoration of ≈ 6,383.54 linear feet of stream bed and banks and re-connection of ≈14.21acres of forested floodplain. Potentially, re-grade elevations to counter balance sedimentation. Preserve and restore riparian buffer, remove invasive species and re-plant with natives. Re-assess culvert capacity in channelized and underground portions.
Public Access – Creation of Greenway in collaboration with City of Clifton and Passaic River Coalition. Greenway would provide recreation and wildlife preservation. School is located near site with underutilized parking lots. This area has great potential for park and playgrounds.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site

B. Real/Estate/ Ownership:

C. Site History and Land Use: No Data obtained

D. Biological Studies/ Fauna: Third River Watershed Characterization Study (1999), Natural Resources Inventory (2003).

E. Biological Studies/ General Environment: Third River Watershed Characterization Study (1999), Natural Resources Inventory (2003).

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: Third River Watershed Characterization Study (1999).

H. Water and Sediment: Third River Watershed Characterization Study (1999).

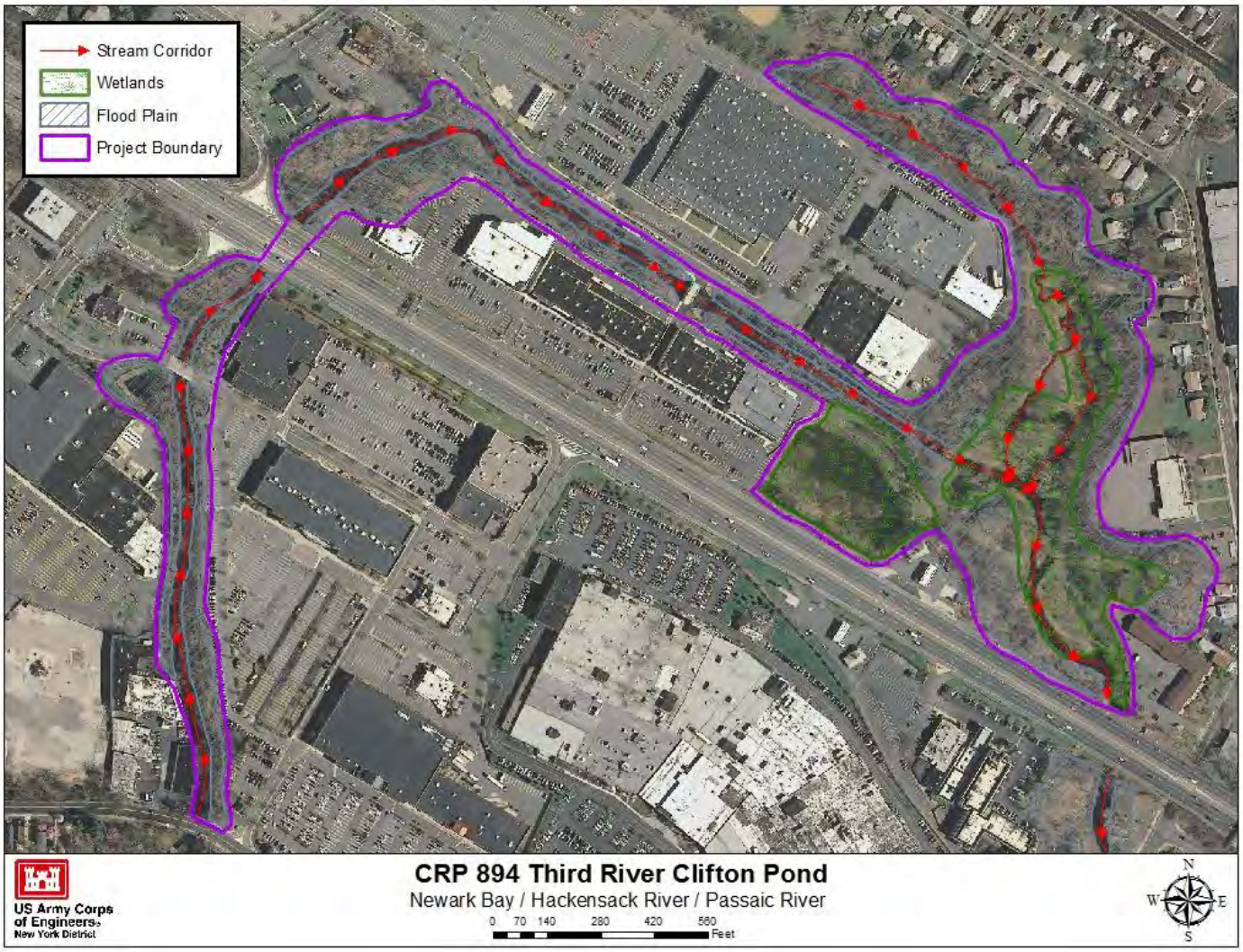
I. Historical and Cultural Resources: No Data obtained.

REFERENCES:

Clifton Health Department/Clifton Environmental Protective Commission. Third River Watershed Characterization Study. September 1999.

Passaic River Coalition. Natural Resources Inventory: City of Cifton. May 2003.

NOAA Restoration Center Passaic River Restoration Opportunities Report. July 9, 2004.


Stream Corridor
Wetlands
Flood Plain
Project Boundary
US Army Corps of Engineers
New York District
CRP 894 Third River Clifton Pond
Newark Bay / Hackensack River / Passaic River
0 70 140 280 420 560
Feet
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895. THIRD RIVER FOREST HILLS FIELD CLUB

Category: Existing restoration, preservation and/or mitigation site.
Location: Site is located between the Forest Hill Field Club and the Glendale Cemetery in Bloomfield, NJ. Site begins ≈ 4.80 miles upstream from the confluence with the Passaic River.
Current Land Use: Open space, river corridor.
Site Description: This portion of the river flows between the Forest Hill Field Club, golf course and the Glendale Cemetery. There is a large area of low-lying open space located along the river.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling. Potential leaching of fertilizers from the adjacent golf course.
Tributary Connections – Area should be preserved and restored to ≈15.99 acres of forested flood plain and planted with native species.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site

B. Real/Estate/ Ownership:

C. Site History and Land Use: No data obtained.

D. Biological Studies/ Fauna: No data obtained.

E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: No data obtained.

I. Historical and Cultural Resources:

US Army Corps of Engineers
New York District

CRP 895 Third River Forest Hills Field Club

Newark Bay / Hackensack River / Passaic River

0 105 210 420 630 840
Feet

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896. THIRD RIVER JFK PARKWAY

Category: Existing restoration, preservation and/or mitigation site.
Location: Between Bay Avenue and the Garden State Parkway, the third river parallels JFK Parkway. Downstream boundary of site begins ≈ 5.88 miles from the confluence with the Passaic River.
Current Land Use: Open space, public property, ball fields, river corridor.
Site Description: This section of the Third River runs through the recreational fields Foley Field and Brookside Park and contains concrete hardened shorelines. Frequent flooding of the ball fields and parkway has been reported during storm events.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Tributary Connections – Stream restoration/stabilization to ≈4,455.20 linear feet of stream bed and banks and re-grading of elevations to create ≈10.18 acres of functional flood plain. Remove invasive species and re-plant with natives. Soften hardened shorelines.
Public Access – Adjustments to ≈2,072.88 linear feet of access paths and ball fields in Foley Field and Brookside Park pending flood control measures to stream banks.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site

B. Real/Estate/ Ownership: Essex County

C. Site History and Land Use: No data obtained.

D. Biological Studies/ Fauna: No data obtained.

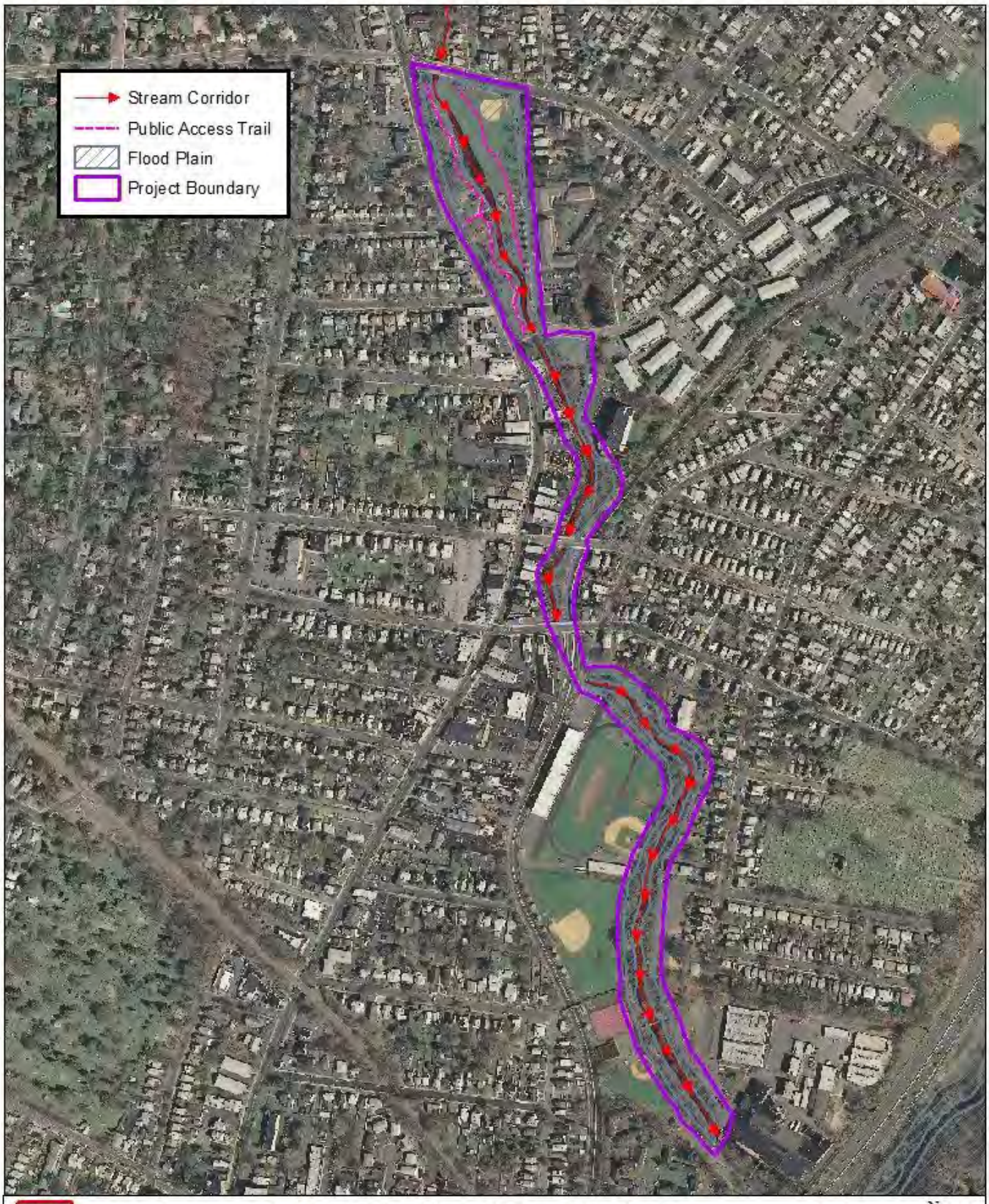
E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: No data obtained.

I. Historical and Cultural Resources: No data obtained.



US Army Corps of Engineers
New York District

CRP 896 Third River JFK Parkway

Newark Bay / Hackensack River / Passaic River

0 95 190 380 570 760 Feet

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897. THIRD RIVER GLEN RIDGE COUNTRY CLUB

Category: Existing restoration, preservation and/or mitigation site.
Location: Near Glen Ridge Country Club at the confluence of the Third River and Springer Brook. Downstream boundary of site begins ≈ 6.65 miles from the confluence with the Passaic River.
Current Land Use: Open space, residential.
Site Description: Forested strip of land lines the river and is surrounded by residential properties. At the confluence flooding is severe and the nearby homes generally have a great deal of damage. Currently, a bad rainfall will inundate only the golf course and back yards of homes of Broad St., but any flood will cause damage to the many homes on Lakewood, Clark and Augustus Streets. This area should be reserved for flood plain but there may be a COAH issue. Township of Bloomfield Master Plan (2002) has recognized the vacant land along the Third River at the end of Lionsgate Drive as an opportunity for preservation.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling. Site is in close proximity to a NJDEP mercury known contaminated site (SGA, 2003).
Tributary Connections – Restoration to ≈6,044.45 linear feet of stream banks to include stabilization of eroded and unstable hardened shorelines to create a natural shoreline, particularly on the side that is not yet developed. Preservation of riparian buffer and creation of ≈9.91acres of flood plain through re-grading of elevations, removal of invasive species, and planting of native plants.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site

B. Real/Estate/ Ownership: Glen Ridge Country Club

C. Site History and Land Use: No data obtained.

D. Biological Studies/ Fauna: No data obtained.

E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: No data obtained.

I. Historical and Cultural Resources: No data obtained.

REFERENCES:

2002 Master Plan Township of Bloomfield Essex County, NJ

SGA Scientific Inc. Technical Review Panel Decision Document, Site remediation and Waste Management Program. 2003.

US Army Corps of Engineers
New York District

CRP 897 Third River Glen Ridge Country Club

Newark Bay / Hackensack River / Passaic River

0 75 150 300 450 600 Feet

N
W E
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898. THIRD RIVER CLARKS POND

Category: Existing restoration, preservation and/or mitigation site.
Location: In Bloomfield, NJ west of the Garden State Parkway and south of Watchung Ave.
Current Land Use: Municipally preserved nature preserve with strong community group stewardship.
Site Description: Clarks Pond lies on the grounds of the North Middle School. The pond was declared a nature preserve in 2000. The area contains plant life of unique qualities and nearly sixty forms of wildlife, including the state proclaimed endangered species, the redheaded woodpecker. Clark's Pond is subject to sedimentation since it was formed by the damming of the Third River. A grant funded by NJDEP Green Acres Program, Essex County Open Space Trust Fund, Bloomfield Township Capital Fund recently enabled a neighborhood group to repair the dam, dredge the pond and clean its surroundings, stabilization of the Third River stream banks, pull out invasive growth, and plant native shrubs and trees. Plans to re-contouring the pond include the addition of a gentle slope on the west shore, to allow for better diversity of different classes of semi-aquatic and riparian wildlife and plants.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Coastal Wetlands (freshwater) – Build up existing habitat and increase native species plantings to support current pond restoration. Wetland restoration is accounted for in the Bloomfield Township Master Plan and could include re-grading to wetland elevations and planting of riparian buffer to create ≈1.80 acres of fringe marsh.
Tributary Connections – Restoration of ≈3,491.02 linear feet of stream bed, banks and pond. Re-connection of ≈11.48 acres of forested floodplain. Potentially, re-grade elevations to address sedimentation in pond and investigate the addition of a fish ladder.
Public Access – Clarks Pond is currently used for a number of educational and recreational purposes. Town of Bloomfield plans to connect Clarks Pond to the Bloomfield Greenway which will link all of the local public open spaces by means of ≈1,348.82 linear feet of walkways, bikeways and trails.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site

B. Real/Estate/ Ownership: Township of Bloomfield

C. Site History and Land Use: No data obtained.

D. Biological Studies/ Fauna: No data obtained.

E. Biological Studies/ General Environment: No data obtained.

F. Geotechnical: No data obtained.

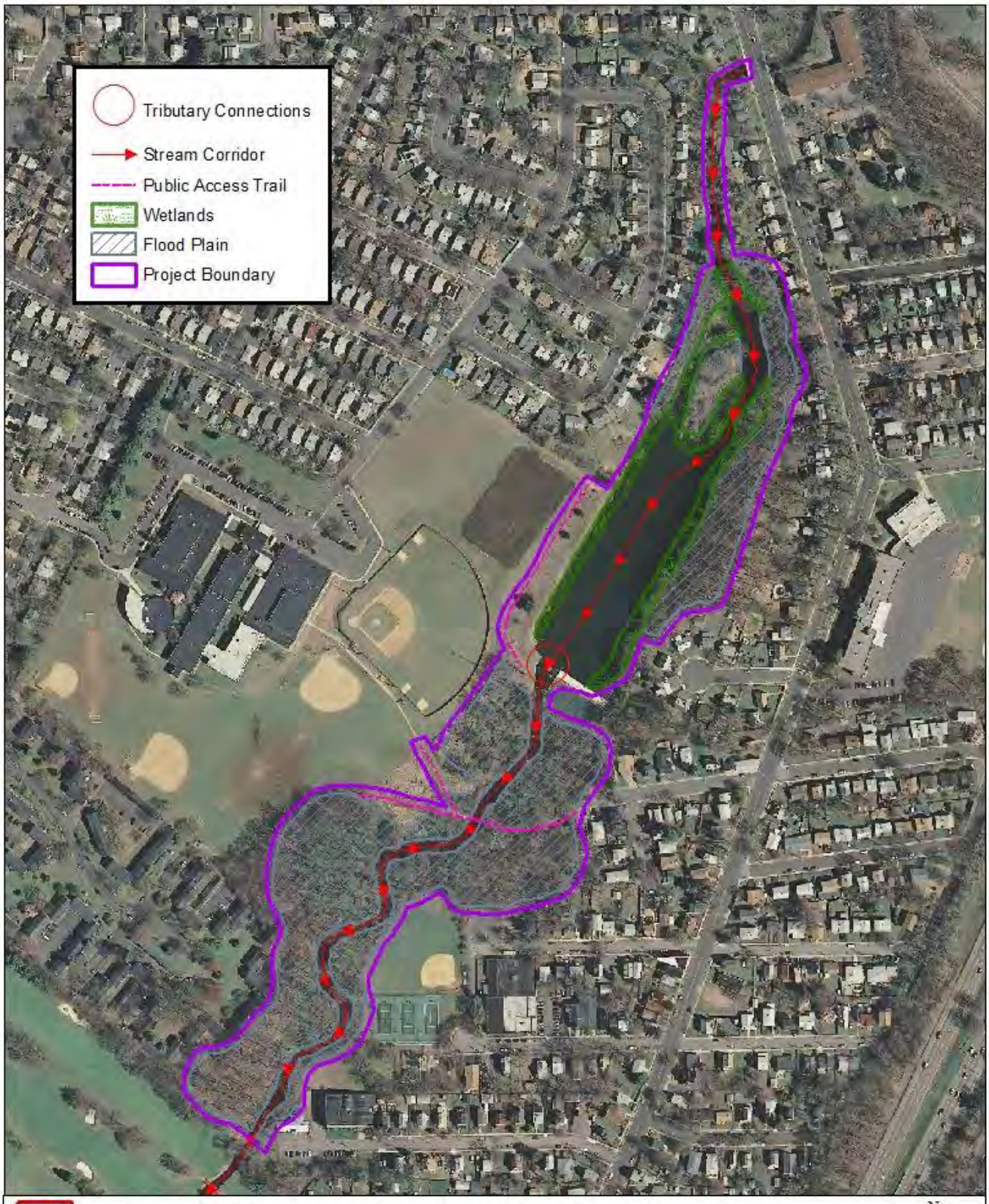
G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: NJDEP Ambient Lake Monitoring Network, surface to bottom profiles and lake profiles.

I. Historical and Cultural Resources:

REFERENCES:

HTTP://WWW.HILLTOPCONSERVANCY.ORG/CLARKSPOND.HTML



US Army Corps of Engineers
New York District

CRP 898 Third River Clarks Pond

Newark Bay / Hackensack River / Passaic River

0 62.5 125 250 375 500 Feet

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899. THIRD RIVER ALONZO F. BONSAL WILDLIFE PRESERVATION

Category: Existing restoration, preservation and/or mitigation site.
Location: In Upper Montclair, NJ near Montclair University and west of the Garden State Parkway.
Current Land Use: A forested wildlife preserve.
Site Description: A 19 acre forested habitat which holds a rich concentration of wildlife along the Third River. The preserve is home to Baltimore orioles, red-eyed vireos, wood thrushes, red-winged blackbirds, robins, song sparrows, and goldfinches. Recently the North Jersey Water District Commission removed portions of the forested floodplain to build a temporary maintenance road in response to a burst sewer pipe. Currently sewage overflow and storm drains flow into the river in the preserve.
Restoration Recommendations (Applicable Target Ecosystem Characteristics):
Sediment Contamination – Potential dredging and/or capping of contaminated sediment based on sediment sampling.
Tributary Connections – Preservation of the existing floodplain and re-vegetation of temporary maintenance road. Restoration of ≈4,439.29 linear feet of stream bank and re-connection to ≈35.32 acres of forested floodplain.
Public Access – Restoration to ≈5,251.83linear feet of existing access paths pending flood control measures to stream banks.

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site

B. Real/Estate/ Ownership: Essex County

C. Site History and Land Use: No data obtained.

D. Biological Studies/ Fauna: No data obtained.

E. Biological Studies/ General Environment: Plant list.

F. Geotechnical: No data obtained.

G. Hydraulics and Hydrology: No data obtained.

H. Water and Sediment: No data obtained.

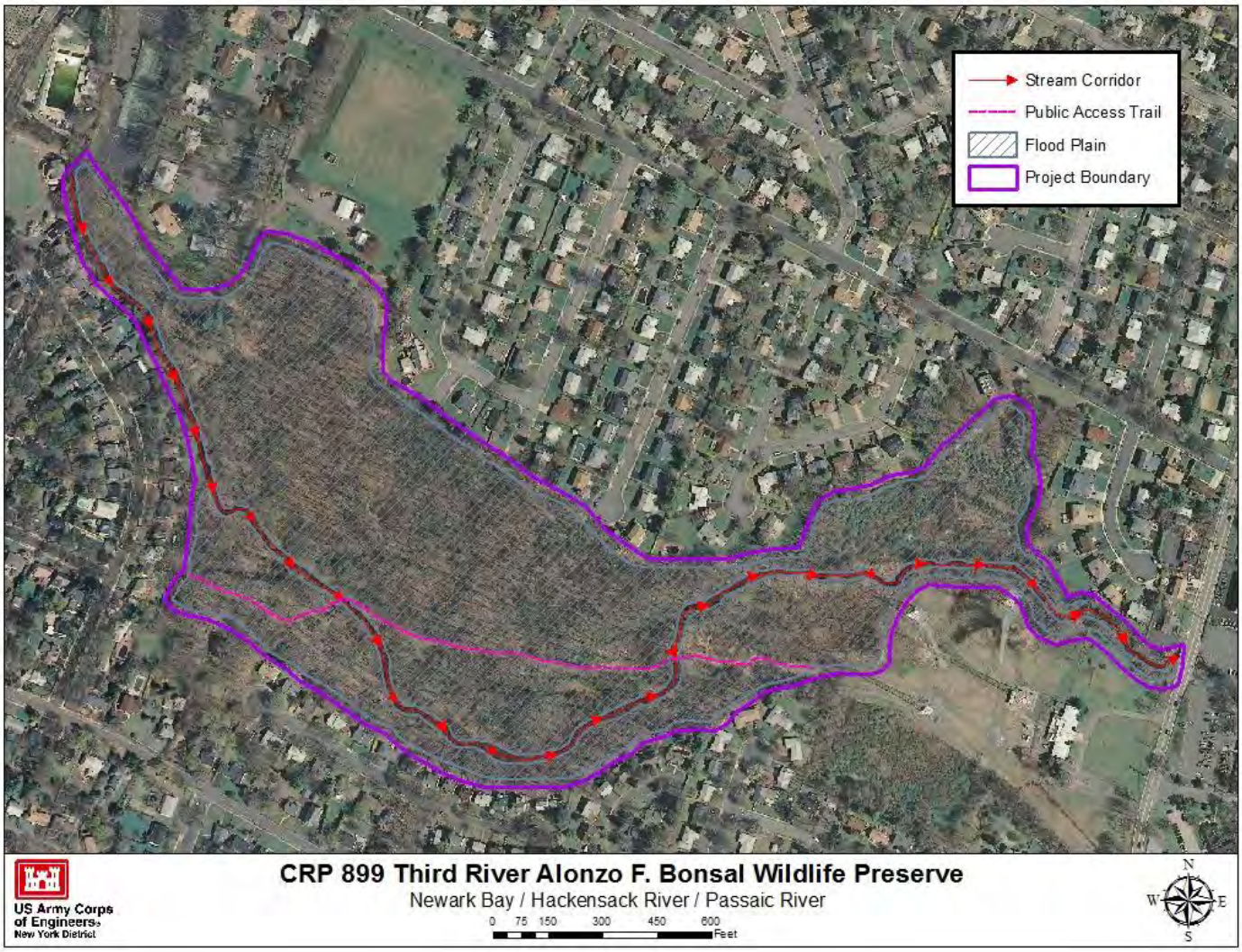
I. Historical and Cultural Resources: No data obtained.

REFERENCES:

T&M Associates. 2007. Township of Montclair Master Plan Conservation Plan Element.

Fields, Julie. 1997. Clifton prepares for a 2-year study of forgotten waterway, The Bergen Record.

Plant List by Joe Labriola: http://nynjctbotany.org/njnbtofc/bonsal.html


Stream Corridor
Public Access Trail
Flood Plain
Project Boundary
US Army Corps of Engineers
New York District
CRP 899 Third River Alonzo F. Bonsal Wildlife Preserve
Newark Bay / Hackensack River / Passaic River
0 75 150 300 450 600
Feet
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UPPER NINE MILES- PASSAIC RIVER

Restoration Opportunities
CRP Identification #: Site Name

CRP 145. DUNDEE DAM
CRP 901. SEMEL AVE & RIVER ROAD PARCEL
CRP 902. CLIFTON DUNDEE CANAL GREEN ACRES PURCHASE AND DUNDEE ISLAND PRESERVE
CRP 903. BOTANY STREET SMALL ISLANDS
CRP 900. DUNDEE ISLAND PARK/PULASKI PARK
CRP 905. JOE SESSELMAN PARK
CRP 906. JOE SESSELMAN PARK ANNEX
CRP 907. WATERFRONT ACCESS IN THE CITY OF PASSAIC
CRP 908. RUTHERFORD MEMORIAL FIELD
CRP 909. ROUTE 3 BRIDGE (PRC) PARCELS
CRP 910. RIVERSIDE CO.PARK NORTH JOE CARUCCI PARK/LYNDT PARK
CRP 911. RIVER BANK EDGE PARCELS
CRP 912. RIVERSIDE PARK (BERGEN CO.SOUTH PK.)
CRP 913. WEASEL BROOK PARK

*Work in Progress

CRP SITE 910. RIVERSIDE CO. PARK/CARDUCCI PARK/LYNDT PARK

Category: Existing restoration, preservation, and/or mitigation site.
Location: Located on the east bank at RM 10.9 in Lyndhurst, NJ.
Current Land Use: County Park
Size: ~6.9 acres (habitat only)

Site Description: Wetlands at RM 10.9 are primarily riverine intertidal with substrates composed of gravel, sand, and silty sand. Emergent, persistent vegetation is present (largely *Phragmites australis* and some *Peltandra virginica*), as well as scrub-shrub vegetation (*Amorpha fruticosa*). The location is tidal and wetlands are inundated at high tide (USACE, 2008a). Uplands adjacent to this site are county parkland (Riverside County Park).

Restoration Recommendations (Applicable Target Ecosystem Characteristics): All actions should include the collection of site specific data to more accurately guide planning efforts and, when practicable, be coupled with the removal/capping activities currently being planned for RM 10.9 pursuant the Time Critical Removal Action with the Cooperating Parties Group in Spring 2013 (per Action Memorandum 12 May 2012). Sediment remediation must be implemented prior to restoration actions for all other TECs (with the exception of public access).

Sediment Contamination – Contaminated sediment remediation consists of the removal of ~18,000 cubic yards (CY) of contaminated sediment within a 5.6 acre area at depth of approximately 2ft. A cap will be placed over the post-dredge sediment surface to physically and chemically isolate the remaining sediment contaminants from the environment by means of physical containment, chemical containment, and erosion protection (CH2MHill, 2012). The area will be capped with sand, active layer (activated carbon or organoclay), geotextile barrier, and rock armor.

Wetlands – Enhance and extend the degraded wetland patches that currently exist throughout the tidal zone of the study site through re-grading to appropriate wetland elevations, removal of debris and invasive species and replanting with appropriate wetland vegetation and transitional grass species to the riparian tree line along ~ 2.8 acres. Proposed wetlands will stabilize the shoreline and in addition to providing habitat, serve as treatment wetlands in front of 6 existing Combined Sewer Outfalls (CSOs).

Invasives within the tidal zone, primarily *Phragmites australis*, could be replaced with (1) appropriate aquatic emergent vegetation such as yellow pond-lily (*Nuphar lutea*), green arrow arum (*Peltandra virginica*), pickerelweed (*Pontederia cordata*), duck potato (*Sagittaria latifolia*), halberd-leaf tearthumb (*Polygonum arifolium*), swamp smartweed (*Polygonum hydropiperoides*), arrow-leaf tearthumb (*Polygonum sagittatum*), blue flag (*Iris versicolor*), and water plantain (*Alisma plantago-aquatica*) and ; (2) appropriate transitional species of perennial grasses, sedges and rushes such as annual wildrice (*Zizania aquatica*), Deertongue (*Dichanthelium clandestium*), shallow sedge (*Carex lurida*), broom sedge (*Carex scoparia*), fox sedge (*Carex vulpinoidea*), straw-colored flatsedge (*Cyperus strigosus*), soft rush (*Juncus effuses*), poverty rush (*Juncus tenuis*), common spikerush (*Eleocharis palustris*), hardstem bulrush (*Scirpus (Schoenoplectus) acutus*), and Chairmaker's bulrush (*Scirpus [Schoenoplectus] americanus*). These herbaceous species, along with some forbs such as crowned beggarticks (*Bidens coronata*) and marsh hibiscus (*Hibiscus moscheutos*), provide protection against surface erosion by binding and restraining soil particles (USACE, 2008b).

Tributary Connections – Upland of the proposed wetlands, **i**mprovements to the ~10-20' of existing riparian buffer include measures which support erosion control and enhanced wildlife habitat. Activities include removal of debris and invasives, re-grading to achieve a 3:1 horizontal vertical slope, re-vegetation with native species and streambank stabilization throughout ~ 2 acres.

Invasives within the riparian zone such as *Phragmites australis, Ailanthus altissima, Rosa multiflora Alliaria petiolata and Artemisia vulgaris*, should be replaced with appropriate terrestrial riparian zone plantings. Recommended plantings include (1) tree species such as red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), green ash (*Fraxinus pennsylvanica*), black willow (*Salix nigra*) and blackgum or black tupelo (*Nyssa sylvatica*) and; (2) shrub species such as common buttonbush (*Cephalanthus occidentalis*), silky dogwood (*Cornus amomum*), American black elderberry (*Sambucus canadensis*), inkberry (*Ilex glabra*), speckled alder (*Alnus rugosa*), meadowsweet (*Spiraea latifolia*), desert false indigo (*Amorpha fruticosa*), southern arrowwood (*Viburnum dentatum*) and nannyberry (*Viburnum lentago*) (USACE, 2008b).

Habitat for Fish, Crabs, and Lobsters – Assess ~2.1 acres of mudflats for composition, level of degradation and potential enhancements to increase habitat connectivity- such as debris removal and addition of complex structure as an enhancement to proposed armoring for the remedial action.

Public Access- Recommended re-contouring and structural improvements to public access deck/scenic overlook near Tontine Ave. Waterfront promenade, bike paths, educational kiosks/signage (outlining the significance of restoration of the Lower Passaic River) and improved scenic overlook/deck would be important new feature to the park. Fencing would be established along the length of the site to ensure only passive recreation and indirect access is maintained.

To integrate stormwater management requirements of the park, proposed restoration plans could also include improvements to the 6 CSOs including reduced backflow preventers (e.g., duckbill check valves). In addition, restoration actions would be coordinated and support ongoing proposed improvements by Bergen County which will involve the construction and installation of the following facilities:

- Complete reconstruction of the existing baseball fields
- Installation of artificial turf
- Replacement of the existing sports field lighting
- Replacement of the existing press box
- Removal of the three remaining existing structures
- Installation of a new comfort station
- Replacement of the asphalt pavement around the field
- Stormwater management facilities
- Grading

EXISTING SITE SPECIFIC DATA INVENTORY

A. Survey, Maps and GIS: USGS digital raster graphic maps and NJDEP Regional Data inclusive of this site.

B. Real/Estate/ Ownership: Bergen County

C. Site History and Land Use: CH2MHill 2012

D. Biological Studies/ Fauna: USACE 2008

E. Biological Studies/ General Environment: USACE 2008

F. Geotechnical: CH2MHill 2012

G. Hydraulics and Hydrology: CH2MHill 2012

H. Water and Sediment: CH2MHill 2012

I. Historical and Cultural Resources: EPA/CPG planned activities prior to spring 2013.

REFERENCES:

Bergen County Parks System- www.co.bergen.nj.us/bcparks/ParksProjects.htm

ERDC TN-DOER-C21. August 2001. Subaqueous Cap Design: Selection of Bioturbation Profiles, Depths, and Process Rates.
http://el.erdc.usace.army.mil/elpubs/pdf/doerc21.pdf

Timothy Rogers and Michael J. Costello- SERVICE Engineering Group. 2002. Wetland Caps, Remediation with Re-Use, Mitigation and Restoration.
https://www.barr.com/slridt/documents/2007%20Docs/Sed13RogersPaper.pdf

Robert S. Capers and Donald H. Les. 2005. Plant Community Structure in a freshwater Tidal Wetland. Rhodora, Vol. 107, No. 932, 386-407.

USEPA. 2005. Contaminated Sediment Remediation Guidance for Hazardous Waste Sites-
http://www.epa.gov/superfund/health/conmedia/sediment/pdfs/guidance.pdf

U.S. Army Corps of Engineers, New York District- Lower Passaic River Restoration Project. 2008a. Lower Passaic River Vegetation Sampling, Wetland Delineation and Bio-Benchmark Report.

U.S. Army Corps of Engineers, New York District- Lower Passaic River Restoration Project. 2008b. Plant Resources Document.

CH2MHill, .2012. Pre-Final River Mile 10.9 Removal Action Basis of Design Report, Lower Passaic River Study Area. Prepared for for the Cooperating Parties Group (CPG), Newark, NJ. November 30, 2012.


Delineated Wetlands
Riparian Vegetation
Coastal Wetlands
Fish, Crab, Lobster
US Army Corps of Engineers
New York District
Riverside Co. Park North/Joe Carucci Park/Lyndt Park
Newark Bay / Hackensack River / Passaic River
0 55 110 220 330 440
Feet
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Cap Considerations and Restoration Planning: The proposed cap design (CH2MHill, 2012) consists of 6 inches of sand directly on top of the remaining contaminated sediment, followed by an active cap layer (activated carbon or organoclay), the geotextile barrier and armor stone at the surface. Currently, the design is absent an appropriate growing media atop the remedial cap to accommodate the proposed restoration opportunity. Additional growing media would be needed for the wetland/riparian vegetation at depths that could be sustained above the geotextile layer maintaining cap integrity preventing bioturbation of benthic organisms and penetration of plant roots.

Appropriate root depths of freshwater wetland plants should be considered when designing the thickness of the cap's environmental medium. Very little data is available on the root depths of tidal freshwater wetland plants. The following information (Service Engineering Group, 2002) shows an example of root depths ftom four freshwater wetland communities in sandy sediment.

Submergent Community- 95% average root mass shallower than 12.89 inches
Emergent Community- 95% average root mass shallower than 7.7 inches
Herbaceous Community- 95% average root mass shallower than 22.31 inches
Shrub Community-95% average root mass shallower than 21.74 inches

In addition, an assessment of the maximum or predominant depth of bioturbation-induced sediment mixing at any given site must be based on knowledge of the biological assemblage at that particular location. A 2001 ERDC USACE technical note on subaqueous cap design suggest 7.87- 15.74 inches for bioturbation considerations in freshwater.

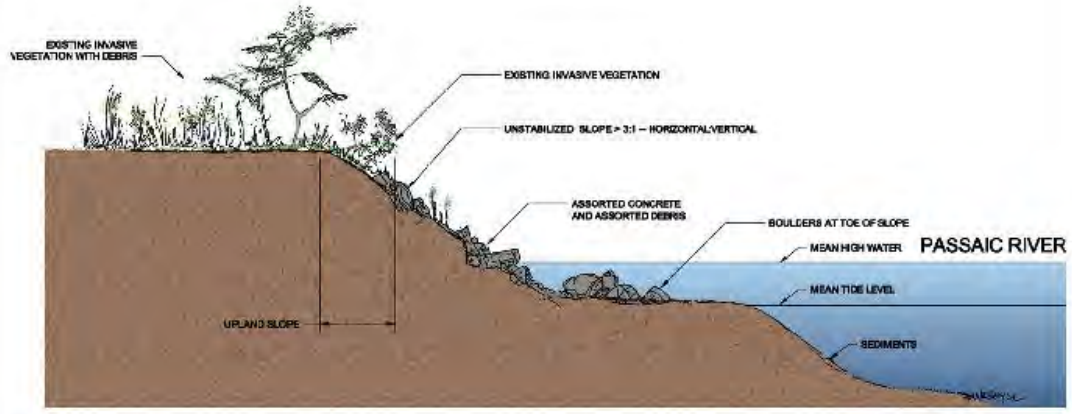
Based on the above average root depths and studies of maximum depth of bioturbation-induced sediment mixing, only submergent and emergent plant communities would be proposed and an additional cap of growing media of 18 inches is suggested. This additional depth of suitable sediment and growing media will ensure protection of the integrity of the cap and penetration of the geotextile barrier located within Armor Area B.

Recommendations for top layer cap material

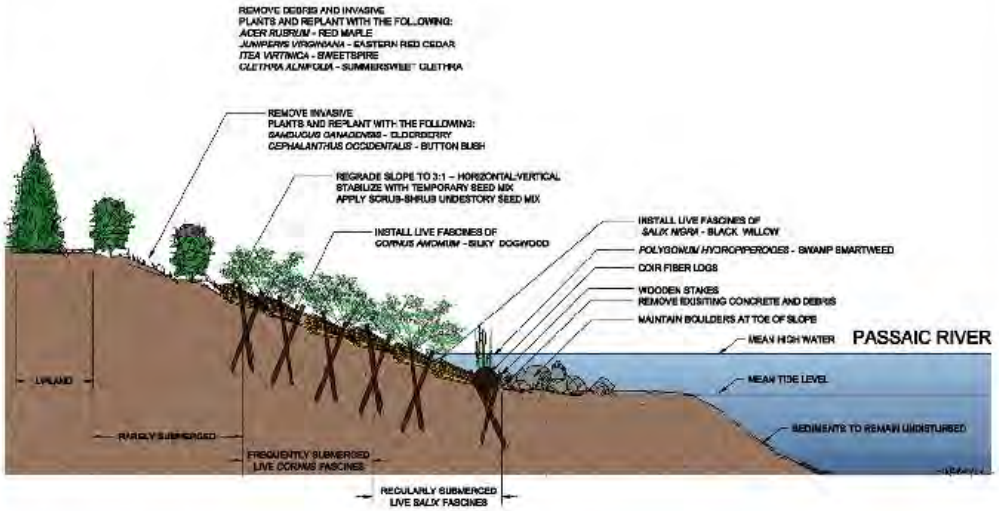
- Type 1 - Medium-Grained Material (12- 18 inch layer of medium to coarse sand)
    - Used to promote benthic macroinvertebrate recolonization and as a substrate for aquatic vegetation beds and riverine fringing wetland habitats.

- Type 2 - Coarse-Grained Material (12-18 inch layer of fine gravel)
    - Used to promote benthic invertebrate recolonization and fish habitat.

The following conceptual diagram was created to show potential restoration opportunities along the Lower Passaic River. This particular diagram is displaying the shoreline located at approximately River Mile 14 where it is degraded and in need of stabilization. It has been included to provide an example of the elevations along the shoreline where the vegetation discussed above may be planted:



RM 14 (BEFORE RESTORATION)
NOT TO SCALE



RM 14 (AFTER RESTORATION)
NOT TO SCALE