CONSISTENCY DETERMINATION
STATE OF NEW YORK COASTAL ZONE MANAGEMENT PROGRAM

Project: Maintenance dredging of the Hudson River federal navigation project at Port of Albany Turning Basin (River Mile 142) and Staats Point (River Mile 138), New York.

Description of Work: The New York District proposes to perform maintenance dredging of the Hudson River federal navigation project. Approximately 100,000 cubic yards (CY) of river sediments would be removed. The dredged material would be placed in one previously used and approved upland placement site. This site, commonly referred to as U-3A, is federally owned and is located on Houghtaling Island, New Baltimore, NY (River Mile 130). Similar projects were undertaken in the Hudson River utilizing the above placement site as follows: 1986 (572,132 CY), 1988 (239,612 CY), 1992 (95,437 CY), 1995 (137,535 CY), 1998 (218,592 CY), 2001 (210,737 CY), 2003 (111,169 CY), 2007 (43,583 CY), 2010 (48,402 CY), 2012-13 (190,735 CY) and 2014 (227,897) with a total of 2,095,831 CY of river sediment having been dredged/placed to date.

Policy Assessment

Development Policies

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

Maintenance dredging of the federal navigation project will restore the authorized depth to allow for full usage of the waterfront facilities, thereby assuring continued safe and economical use by shipping interests. A well maintained channel may encourage an increase in the volume of maritime traffic in the region. Therefore this action **is consistent** with the State CMP's coastal policies.

Policy 2 Facilitate the siting of water-dependent uses on or adjacent to coastal waters.

The proposed project will not impede but will allow for the development of waterborne commerce, recreational activities, as well as the usage by the United States Coast Guard. The project will help support the sea/land transfer of goods and allow the safe waterborne transportation of raw materials or products which are difficult to transport on land. Besides the Port of Albany; there are many commercial terminals and other cargo handling facilities that will benefit from the proposed project. Therefore this action **is consistent** with the State CMP's coastal policies.

Policy 3 Further develop the State's major ports of Albany, Buffalo, New York, Ogdensburg, and Oswego as centers of commerce and industry, and encouraging the siting, in these port areas, including those under the jurisdiction of State public authorities, of land use and development which is essential to, or in support of, the waterborne transportation of cargo and people.

The Port of Albany is directly dependent on this federal navigation project for its economic viability, thru the waterborne transportation of user vessels and products. In 2014 the Port of Albany serviced 94 ships and barges (a 62% increase since 2009) and handled 572,946 tons of cargo. The proposed project would provide both a safety and economic benefit to shipping which would be passed on as enhancements to this major port's activities. Environmental impacts from maintenance dredging would be at an acceptable level according to federal and state regulations governing this activity. Therefore this action **is consistent** with the State CMP's coastal policies.

Policy 4 Not applicable

Policy 5 Encourage the location of development in areas where public services and facilities essential to such development are adequate.

The proposed project will strengthen the existing industrial and commercial activities located at the major Port of Albany, and at other shore and near shore locations that are dependent on this project. Therefore this action **is consistent** with the State CMP's coastal policies.

Policy 6 Not applicable

Fish and Wildlife Policies

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

It has been determined that maintenance dredging of the federal navigation channel has no significant adverse environmental impacts on water quality, marine resources, wildlife, recreation, aesthetics and flood protection. Although there will be a temporary increase in turbidity in the immediate vicinity of the dredging site, restoration to the ambient condition will be achieved in a short period of time. Also, all dredged material will be placed in an existing upland disposal site and will not cause shoaling of littoral areas or change circulation patterns. Additionally, dredging/placement operations will be scheduled to minimize impacts to critical periods of spawning and nursery activities. Therefore this action **is consistent** with the State CMP's coastal policies.

Policy 8 Protect fish and wildlife resources in the coastal area from the introduction of hazardous wastes and other pollutants which bio-accumulate in the food chain or which cause significant sublethal or lethal effect on those resources.

Core sampling and lab analyses was performed on the sediments in the Port of Albany Turning Basin and Staats Point dredge areas of the federal navigation project which are proposed for maintenance dredging and upland placement. It was determined that there will be no adverse impacts to water quality at either the dredging or placement sites. A NYS Water Quality Certification will be been obtained and dredging/placement operations will comply with all requirements contained therein. Therefore this action **is consistent** with the State CMP's coastal policies.

Policies 9 and 10 Not applicable

Flooding and Erosion Hazards Policies

Policies 11 thru 14 Not applicable.

Policy 15 Mining, excavation or dredging in coastal waters shall not significantly interfere with the natural coastal processes which supply beach materials to land adjacent to such waters and shall be undertaken in a manner which will not cause an increase in erosion of such land.

The proposed work is maintenance dredging that is intended to restore the existing federal navigation project to its full depth and dimension in the designated dredge areas. This type of work is performed periodically and has never demonstrated any interference with the natural coastal processes that supply beach materials to land adjacent to such waters, nor has it increased erosion of such land.

Policies 16 and 17 Not applicable.

General Policy

Policy 18 To safeguard the vital economic, social and environmental interests of the State and it's citizens, proposed major actions in the coastal area must give full consideration to those interests, and to the safeguards which the State has established to protect valuable coastal resources.

The final impact on valuable coastal waters and resources within the proposed project area will be insignificant. All applicable federal and state regulations which have been established to safeguard those waters and resources will be adhered to in the accomplishment of the proposed work. Therefore this action **is consistent** with the State CMP's coastal policies.

Public Access Polices

Policies 19 and 20 Not applicable.

Recreation Policies

Policies 21 and 22 Not applicable.

Historic and Scenic Resources Policies

Policy 23 Protect, enhance and restore structures, districts, areas or sites that are of significance in the history, architecture, archeology or culture of the State, it's communities, or the Nation.

A cultural resources investigation performed by the USACE located the remains of the Scott Brothers Ice House (Site A) in potentially close proximity to dredge disposal activities. The visible remains of an ice house, wharf and barge are located just to the south of an existing, but inactive, effluent pipeline corridor on Schodack Creek. The Government has designated this area as an area of avoidance for the duration of the Contractor's dredging and placement operations. Due to this measure of protection there will be no impact on historical, cultural, archeological or institutional uses as a result of the project. Therefore this action **is consistent** with the State CMP's coastal policies.

Policy 24 Prevent impairment of scenic resources of statewide significance.

The proposed upland placement site on Houghtaling Island (U-3A) is an existing previously used site. This site is located in the Columbia- Greene SASS, Islands Subunit (CGN-4). Furthermore, this site is located adjacent to Subunits CGN-3, CGN-5 and CGN-15. The Houghtaling Island site features a minimum 100' wide undisturbed vegetative buffer zone between the shoreline and the perimeter containment structures (earth dikes) which surround the site. With the exception of two existing 50' wide corridors and two existing 25' wide corridors which will be used for the ingress and egress of the contractor's pipelines, no further modification of landforms, or removal of vegetation, will be permitted. This site was recognized as part of CGN-4 in the July 1993 SASS document, and in conclusion it was stated that "the subunit is generally free of discordant features." Therefore this action **is consistent** with the State CMP's coastal policies.

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

This action **is consistent** with the State CMP's coastal policies (see **Policy 24** above).

Agricultural Lands Policy

Policy 26 Conserve and protect agricultural lands in the State's coastal area.

The proposed upland dredged material placement site does not include, and will not adversely impact, any agricultural lands within the State's coastal area. Therefore this action **is consistent** with the State CMP's coastal policies.

Energy and Ice Management Policies

Policies 27 thru 29 Not applicable.

Water and Air Resources Policies

Policies 30 thru 33 Not applicable.

Policy 34 Discharge of waste materials into coastal waters from vessels subject to State jurisdiction will be limited so as to protect significant fish and wildlife habitats, recreational areas and water supply areas.

The dredge and attendant plant are prohibited from discharging any solid or liquid waste materials into the waters of the Hudson River or Schodack Creek. The dredging contractor is required to submit an Environmental Protection and Waste Management Plan that describes how they will handle waste materials and prevent the spillage of pollutants. The dredging contractor must also have a Spill Response Plan to effectively mitigate any emergency involving the spillage of contaminates. All of these plans must be approved by USACE prior to the commencement of any work. Based on these preventive practices, this action **is consistent** with the State CMP's coastal policies.

Policy 35 Dredging and dredge spoil disposal in coastal waters will be undertaken in a manner that meets existing state dredging permit requirements, and protects significant fish and wildlife habitats, scenic resources, natural protective features, important agricultural lands and wetlands.

The proposed dredging and placement operations will comply with all applicable federal and state requirements which regulate those activities. Therefore this action **is consistent** with the State CMP's coastal policies.

Policy 36 Not applicable.

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

The proposed project will be managed in a manner that will comply with the requirements of the State Water Quality Certification, and those applicable federal and state regulations. The escape of dredged material from the placement site into coastal waters or onto adjacent upland or wetland areas will not be permitted. Also, the contractor is required to establish permanent vegetation for the stabilization and reclamation of all areas affected by his activities. Therefore this action **is consistent** with the State CMP's coastal policies.

Policy 38 thru 43 Not applicable.

Wetlands Policy

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

The proposed dredging site does not include any wetland areas. Operations in the proposed upland dredged material placement site will only have minimal temporary impacts to the wetland areas included in the ingress and egress corridors used for the contractor's pipeline. These affected areas will be restored to the original grade and reseeded following completion of the

placement operations. Otherwise, no contractor activities will be permitted within any regulated wetland areas. Therefore this action **is consistent** with the State CMP's coastal policies.

Based upon the above, it is determined that the proposed action will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the New York State Coastal Management Program.

AMENDMENT 1

CONSISTENCY DETERMINATION
TOWN OF SCHODACK AND VILLAGE OF CASTLETON-ON-HUDSON
LOCAL WATERFRONT REVITALIZATION PROGRAM

General: In accordance with New York State law and regulation, the project has been evaluated for consistency with a state-approved Local Waterfront Revitalization Program (LWRP). The Town of Schodack and Village of Castleton-on-Hudson is the only state-approved LWRP in the proposed project area. This assessment will only address the unique coastal policies stated in the LWRP approved on March 17, 1995 that are relevant to the proposed Hudson River maintenance dredging project.

Policy Assessment:

Policy 7B The Schodack and Houghtaling Islands and Schodack Creek habitat shall be protected, preserved and, where practicable, restored so as to maintain its viability as a habitat.

Dredging affects on Significant Coastal Fish and Wildlife Habitats (SCFWH) is addressed in the updated Environmental Assessment for the proposed project. Since 1986, hopper dredges have become the principal method of maintenance dredging. Also, the federally owned site on Houghtaling Island has become the exclusive site for placement of dredged materials. These processes have been examined repeatedly through previous solicitations of public comments, coordination with other federal and state agencies, and monitoring during dredging and placement operations. To further reduce any potential impacts to the Schodack Creek habitat; the discharge weir and pipeline has been relocated, and the treated effluent will now be discharged into the receiving waters of the Hudson River. As a result, no impacts to these SCFWHs are foreseen due to these actions. Therefore this action **is consistent** with the coastal policies of the LWRP.

Policy 34A No vessel shall discharge waste or other water unsuitable for human consumption into the coastal waters with the intent of taking on fresh water from the river to be transported elsewhere for sale or use without obtaining all required approvals and permits.

The contractor is required to submit an Environmental Protection Plan in accordance with the requirements in the Environmental Protection Section of the project specifications. This plan would prohibit the above discharges and must be approved by the Corps prior to the commencement of any work. The contractor's activities are monitored throughout the project to insure compliance with the approved plan. With regards to the taking on, transport and sale of freshwater, the contractor's vessels and plant would not be suitable for this purpose. Therefore this action **is consistent** with the coastal policies of the LWRP.

Based upon all of the above, it is determined that the proposed action will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the Town of Schodack and Village of Castleton-on-Hudson Local Waterfront Revitalization Program.

Environmental Assessment for Maintenance Dredging of the
Hudson River, NY, Federal Navigation Project

February 2016

1.0 Purpose and Need

a. The Department of Army Corps of Engineers, New York District (NYD) is authorized through the River and Harbor Acts of 1925, 1930, 1938, and 1954 to maintain the Hudson River Federal Channel (HRFC) between New York City and Waterford, New York. The authorized depth of the HRFC between New York City and the Albany Turning Basin is 32 feet below Mean Low Water (MLW); width between Kingston and the Turning Basin is 400 feet.

b. Condition cross-range survey of the HRFC performed in June 2015 have determined that the following discontinuous reaches of the HRFC have shoaled to depths less than 32 feet MLW: Reach 9 (Staats Point area) and the Port of Albany Turning Basin. Public Notice (PN) No. HR-AFO-MD16 (Published: February 22, 2016 and Expires: March 22, 2016) announced the NYD's intention to perform maintenance dredging of these features of the HRFC to return them to their authorized dimensions. It is estimated that approximately 100,000 cubic yards (CY) of dredged material will be removed from the shoaled areas of the HRFC to meet this goal. Enclosures 1-3 identify the locations of the upland placement site, and dredge areas in the HRFC that are proposed for dredging in calendar year 2016.

2.0 Alternatives

2.1 Dredging Alternatives

a. In the past, two types of hydraulic dredges have been used on the sections of the HRFC being considered here. Prior to 1986, the most often employed method involved a cutterhead dredge that uses revolving blades to loosen the river sediment and then sucks it up a vacuum line to be transported through a pipeline, as a slurry under pressure, to an upland dredge material placement site. Generally, after a mile or so of distance (or 100 feet vertical lift) the dredge pumping pressure must be augmented by a booster pump. As such additions increase cost, the placement site has to be near the dredging areas or the slurry has to be deposited into a barge which then hauls it to the placement site. Barge transport adds both time and money to the project costs, so the cutterhead pipeline operation is most often undertaken when disposal sites are available close to the project area, as was the case for the 1984 and 1990 dredging episodes of the Albany Turning Basin. Since there are no disposal sites located near enough to either dredge area; use of a cutterhead dredge is impractical.

b. More recently (1986, 1988, 1990, 1992, 1995, 1998, 2001, 2003, 2007, 2012-13 and 2014) hopper dredges have been used. These are ships with large drag arms, which agitate the bottom sediments, then suck up the sediments as a slurry and deposit

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them within large hoppers on board the vessel. The ship then sails to the placement site where the material is pumped out. This type of operation can be very time consuming, as the entire dredging plant is not operating when the vessel is in transit. However, as no pipelines have to be moved, the operation can be an efficient means of handling dredging over scattered reaches with few or one placement site, as has been the case since the 1986 dredging of the Castleton, New Baltimore and Germantown reaches of the HRFC. However, previous attempts to dredge the Port of Albany turning basin were unsuccessful in adequately restoring the turning basin to full project dimensions; leaving substantial amounts of material along the back toe and in the corners.

c. A third type of dredging is through mechanical means, by use of a clam shell bucket that physically digs sediments from the bottom. The dredged sediments are placed into a barge and transported to a placement site where they are pumped out by a hydraulic barge unloader. As with the cutterhead dredging discussed above, barge transport may add equipment/plant, time and money to project costs, and so is not generally utilized in conjunction with upland placement sites. This type of operation has been employed in the Lower Hudson (Haverstraw Bay), where dredged material is transported to an ocean-dumping site off the New York/New Jersey coasts, because suitable upland sites are not available. In the Upper Hudson, upland placement has been the standard procedure since the publication of the generic Environmental Impact Statement (EIS) for the HRFC (MPI, 1983). Barge transport, with its added costs and double handling of the material, has not typically been utilized. However, this type of dredge was used to perform maintenance dredging of the Port of Albany Turning Basin and Saugerties Harbor, with upland placement of the dredged materials, in 2010 and 2015 respectively. Due to the angular configuration of the turning basin; a mechanical dredge equipped with an environmental bucket will be used on this project. This type of dredge has proven to be the most capable and effective in restoring the turning basin to its full dimensions.

d. Dredging with barge transport or use of hopper dredge most often involves barge/hopper overflow. This is a procedure that increases the actual sediment load carried, by allowing the water to flow out the barge while denser sediment settles. A portion of the finer-grained sediment that doesn't have time to settle out is lost with the overflow water, adding to the elevated suspended sediment levels that dredging it causes. Since clamshell dredging brings material up in a coherent mass, with little added water, less sediment is likely to be lost with the overflow. However, the two hydraulic operations (cutterhead and hopper) resuspend less material during the actual dredging, as opposed to the more physical disruption of a bucket, which then travels through the entire water column to deposit the sediments into a barge. The cleanest operation is cutterhead with pipeline transport, generally losing no more than 2% of total dredging volume: barge or hopper overflow operations may lose up to 4% of total volume (MPI, 1983: Tavolaro, 1984). Materials finer than those typically occurring in the main channel, will have longer sedimentation times. However, the coarse, sandy sediments characteristic of the North Germantown Reach will settle quickly, with correspondingly lower losses of material likely. Section 3.1 contains a summary

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discussion of dredging impacts that were considered in detail in the generic EIS (MPI, 1983).

2.2 Navigational Dredged Material Management Alternative

a. The 1983 generic EIS identified upland placement as the preferred alternative. The location of placement site U-3A, is identified in this EA, and is shown on Enclosure 3. This site has been identified in the 1983 EIS (MPI, 1983), has been previously used (1986, 1988, 1992, 1995, 1998, 2001, 2003, 2007, 2010, 2012-13, 2014 and 2015) and has been discussed in earlier EAs in association with previous maintenance dredging projects. Confined upland placement (use of earthen dikes to contain the dredged material with controlled effluent discharge) design, operation and management procedures will be employed for this site. Return water (effluent) from the site's outflow to the receiving body of water would be monitored to meet water quality criteria established by DEC in their Water Quality Certification (WQC). These criteria have been consistently met by providing ample retention/settling time, but could be augmented by addition of chemical clarifiers (as needed). The EIS provides a general discussion of upland site design, construction, operation and management.

b. Based on considerations of site availability, capacity, location in relation to the proposed dredge reaches, degree of site preparation and restrictions on the use of the site, the Corps has selected site U-3A as the Government furnished site for the confined upland placement of the dredged material. A brief description of this site follows:

Site U-3A. This site is a previously used upland confined disposal facility (CDF) located on the southern end of Houghtaling Island, Town of Stuyvesant, and Columbia County. The Corps owns the CDF. Adjoining property is undeveloped woodland and a previously used dredged material placement site. The CDF was most recently used in 1986, 1988, 1992, 1996, 1998, 2001, 2003, 2007, 2010 and 2012-13. The entire active area is approximately 78 acres in size and is divided into multiple cells. The active area proposed for the placement of dredged material during this project will be approximately 57 acres. This area is subdivided into two separate CDFs; Area A and Area B (see Enclosure 3) for the placement and containment of the dredged materials. Dredged materials from the turning basin and Staats Point dredge areas will be placed in Area B. The general interior site elevations range from 30' to 48' NAVD88. The material within the site is primarily river sediments. There are existing usable dikes on the site that may require substantial rehabilitation. Perimeter dikes along the eastern, southern and western sides of the site will need to be increased in height; and interior dikes, may need to be either built or increased in height. The maximum height of all containment dikes for this project is 50' NAVD88. Spur dikes and cross dikes with weirs have been constructed in the interior of the site to improve the sedimentation process. The site has a dedicated ingress corridor that may be used by the contractor for a discharge pipeline landing from the dredge or barge unloading facility. However, alternate temporary pipeline ingress corridors from the Hudson River, using low impact flexible plastic pipe, have been previously approved on case by case basis. A pipeline egress corridor have been established for both Area A and Area B. The site has moderate to

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heavy vegetation cover, ranging from herbaceous plant cover to mature trees and shrubs. Land access is from the north, and through Schodack Island State Park, utilizing a trail that is usually only passable with four-wheel drive or track type vehicles. Water access for personnel is feasible at several shoreline locations.

3.0 Environmental Impacts

Impacts to the environment can occur from two sources: The dredging operation and the placement operation. Each will be assessed separately in terms of their impacts to the various resources of concern.

3.1.1 Dredging Effects on Water Quality

a. Enclosure 4 reports the results of sediment chemistry and physical analyses for the proposed dredging areas (see Enclosure 2 for sample site and dredging locations). The results of the analysis of the composite samples that represented the material proposed for maintenance dredging from the Turning Basin and the Staats Point dredge areas indicates that there were concerning levels of PCB Aroclor 1248 in the sediments. Based on NYSDEC Sediment Quality Thresholds for Riparian Placement (TOGS 5.1.9) the sediment proposed for dredging fell into three classes. The sediment sampling/testing results indicated that the sediment has generally Class A/B concentrations of PCB, except for two sites where the samples had Class C concentrations of PCB. Specifically, the two samples with Class C concentrations were found in samples ATB-3 and R9-1. However, these two samples were just at or over the sediment quality threshold for PCB. In general, the levels of Aroclor 1248 in all sediment samples may still be a concern (as identified by EPA and DEC), but they remain below the minimum threshold levels for hazardous waste. Although restricted; they are still eligible for riparian or upland placement on the Houghtaling Island site in Area B. Furthermore, the dredged material in the dredging subareas including ATB-3 and R9-1 will be additionally managed by requiring this material to be dredged and placed first, and then covered by the subsequent cleaner dredged materials. Further mitigation may result from NYSDEC prescribing more rigorous effluent water quality conditions and monitoring of the effluent through their Water Quality Certification in order to control the placement of the Turning Basin and Staats Point dredged material.

b. PCBs are the prime pollutant of concern in the Hudson River. These are concentrated in “hot spots” (exceeding 50 ppm) that are found between Fort Edward and Mechanicville, New York, approximately 45 miles (including 3 intervening dams) from the closest proposed dredging reach. PCBs in the upper Hudson estuarine sediments are generally low, and usually well under the 1 ppm action level set by DEC (TOGS 5.1.9). Generally, the results from analysis of the sediments from the faster flowing main channel of the Hudson River for Total PCBs (Aroclor), indicated that the North Germantown Reach dredge area contained 0.04 ug/g (ppm) of Aroclor 1248 (most prevalent). Monitoring of the North Germantown reach in 1979 showed no significant differences in PCB levels between a downstream station that was likely within the plume and an upstream station far enough away (2 miles) not to be affected

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by dredging (O'Brien and Gere, 1980). In addition, no differences were found between samples taken before and during dredging. It is anticipated that similar conditions will exist before and after dredging, in the reaches proposed for dredging in 2014. Though PCBs in the dredge plume weren't measured during the 1986 dredging, two other contaminants (mercury and nickel) were. There was no difference in their levels measured in the plume and outside its influence (North American Trailing Co. – NATCO 1987). Additionally, when it has been required as a condition of the WQC by NYSDEC, return water monitoring for PCB in the effluent discharged from the placement site at the point of compliance showed no exceedance of the maximum concentration stated in the WQC Return Water Monitoring and Reporting Requirements.

c. Effects on dissolved oxygen (DO) levels were a concern of DEC during the Haverstraw Bay dredging in 1987. Specifically, they were concerned about the effect of DO levels falling below 4.0 mg/L, thereby threatening increased stress to aquatic life, especially larval and juvenile fish. The primary effect of dredging on DO is derived from release of organics into the water, and their subsequent oxidation (BOD). An auxiliary effect could be the release of nutrients, which would trigger increased phytoplankton productivity and subsequent eutrophication when organisms are decomposed. The Hudson River in the proposed Albany Turning Basin and the Staats Point dredge area is designated as Class C. At the boundary formed by an east-west line through light no. 72 (USCG No. 180) off the south end of Houghtaling Island, the Hudson River is upgraded to Class A. This improvement makes the river in this area suitable for drinking with proper treatment. The minimum DO standard for this classification is 4.0 mg/L. The average DO within these reaches ranged from 6-8.0 mg/L during the low DO periods of August and September 1987 (Normandeau Assoc, personal communication).

d. The NYD monitored its latest dredging operation (1987) in the Haverstraw Bay reach of the Hudson River for DO impacts. The findings show that differences between the dredge and control station did not exceed 0.8 mg/L. This was within the range of natural DO variation measured just before dredging. In addition, the dredging site often had higher DO levels than the undredged control. It was concluded that dredging actually had minimal, if any, adverse impacts on DO. Even fewer impacts would be expected in the upper Hudson since currents are faster (reducing the time a given water molecule spends in the dredging plume) and grain size of the sediment is larger (effectuating a faster settling time). Given that the average ambient DO in the project area ranges from 6.0-8.0 mg/L, the 4.0 mg/L minimum standard will not be violated by proposed dredging, and monitoring should not be necessary.

e. The above assessment was based on the use of mechanical clamshell dredges; which will also be used to perform the current proposed work. Though these dredges typically release the greatest amount of suspended solids, losses amounted to no more than 4% of total dredged volume (MPI, 1983; EPA, 1987), and would be expected to be even lower when dredging the coarse-grained sediments as is typically found in the HRFC. Historically, hydraulic dredging (either cutterhead or hopper type) is the method employed in the upper estuary for maintenance work, and these operations release less than half the volume of dredged material that is suspended by a mechanical dredging

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operation (MPI, 1983; LaSalle, 1986; EPA, 1987). The 1986 dredging of the HRFC between Stuyvesant and Germantown (within the current project area) employed a hopper dredge and was monitored for numerous environmental criteria. In general, the contractor's (NATCO) environmental monitoring firm (Adirondack Environmental Services, Inc) found rapid dilution of all measured parameters within a few hundred yards of the dredge (NATCO, 1986). Further the dredged area itself rapidly returned to ambient conditions within 1-2 hours after dredging ceased.

f. Prior to the 1986 dredging the previous maintenance projects utilized cutterhead dredges and hydraulic pipeline. One such operation in the Albany Turning Basin and the North Germantown reach of the HRFC during the last half of 1979 was intensely monitored. The effort determined that there was no significant adverse impacts to water quality from dredging or dredged material placement; DO and nutrient levels showed no substantial differences between predredging and dredging (except that DO levels rose during the dredging, most likely due to decreasing river temperature). During dredging no statistical differences in DO or nutrient levels were noted between a downstream sample point and an upstream site well away from (1 ½ - 2 miles) any influence from the dredging.

g. Based on these past studies it would be reasonable to conclude that dredging impacts from all major types of operations, utilizing any of the three types of dredges described above, in a wide range of sediment types and hydrological regimes, minimally impact on the environment. However, based on the special condition issued by DEC in previous WQC it is anticipated that the some restriction would be placed on all dredging operations proposed for this project. No monitoring program is planned.

3.1.2 Dredging Effects on Aquatic Community

a. The upper Hudson estuary is heavily used for reproduction, nursery, and feeding for many species of fish, including: American Shad (*Alosa sapidissma*), blueback herring (*Alosa aestivalis*), striped bass (*Morone saxatilis*), white perch (*Morone Americana*), and the federally endangered shortnose sturgeon (*Ascipenser brevirostrum*) and Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*).

General impacts to fish are discussed in the HRFC FEIS (MPI, 1983). Basically, few impacts to fish are anticipated beyond potential indirect effects from pollutants or lowered DO (which are not expected from this operation – see 3.1.1). The major fishery impacts arise mostly from increases in suspended solids level (usually measured as increased turbidity). These in turn have lead to concerns regarding their impacts on egg/larval stages (burial, mechanical abrasion, feeding), and juveniles/adults (physical barrier to migration, clogging of gills). The Corps' Dredged Material Management Program examined the subject in detail. Their review and studies concluded that only suspended sediment levels on the order of 9 grams/liter, maintained for several consecutive days, caused any fish mortality (Corps, 1979). In general, impacts were limited to the immediate dredging area and were transitory. Only extreme sediment suspension conditions known as fluid mud had the potential for directly effecting adults

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or for blanketing spawning/nursery habitats. No such condition exists in the proposed HRFC dredge areas, nor have they been witnessed during the past, well monitored dredging operations in the Hudson River (O'Brien and Gere, 1980; NATCO, 1986; Normandeau Assoc., 1987). The US Environmental Protection Agency reaffirmed this conclusion in their EIS on the proposed dredging of PCB-contaminated sediments from the upper Hudson. LaSalle's literature review (1986), concluded that fish that utilize naturally turbid environs (like the Hudson River) are highly tolerant of elevated suspended solids levels. Such a minimal impact would be especially true for the proposed HRFC dredging, given the characteristic short-term duration and limited extent of a dredge's influence in the Hudson River (highest suspended solids levels are generally restricted to a few hundred feet downstream of the dredge, see O'Brien and Gere, 1980; NATCO, 1986; Normandeau Assoc., 1987). This tolerance for short-term elevated turbidity was further demonstrated by black bass in the tidal Esopus Creek. In DEC's Bureau of Fisheries 2011-12 Annual Report, Region 3 reported on "Tidal Esopus Creek Black Bass Monitoring". This report noted that multiple flood events from the previous fall and winter had created high levels of turbidity in the Ashokan Reservoir. The report then observed from their electro-fishing survey that even though this turbid water was released into the lower Esopus Creek resulting in poor water clarity through the winter; the bass collected appeared to be healthy (DEC, Region 3, Fisheries).

b. The Haverstraw Bay monitoring defined the extent of the dredge plume as a radius of about 750 feet from the dredge, along the bottom (Normandeau, 1987). The plume was pear shaped, oriented downstream, and very compressed laterally (often showing little or no difference between the east and west lateral stations and the upstream control). Within the faster moving upper reaches of the upper part of the river now being considered for dredging, the plume would be even more elongated and narrower. In addition, the coarser grain size of the upper river sediments would result in faster settling times and correspondingly more restricted plumes. Attempts to delineate the plume during the 1986 upriver dredging were limited to surface observations, but described it as 200-400 feet long and 80-100 feet wide (NATCO, 1986). These are consistent with past studies (LaSalle, 1986) that characterize the plume as elongated and oriented downstream, with the majority of higher turbidity readings restricted to a few hundred feet downstream of the dredge. Only a small portion of any dredge reach would thus be impacted at a time, and the recovery of the area would be rapid (hours) after the dredge moved to another section of that reach (NATCO, 1986). Shoals outside the channel (where most of the fish are found, Carlson, 1986) would not be adversely affected, since there is a minimal side spreading of the plume (Normandeau Assoc, 1987).

c. **Shortnose sturgeon.** An important exception to this would be the endangered shortnose sturgeon. Sturgeon spawn upriver, between Coxsackie and Troy, in or adjacent to the channel (Dovel, 1981). The eggs sink to the bottom, and the larval (and especially juveniles) feed off the bottom, preferring the faster moving channel waters. Consequently, the EIS established a dredging window that was designed to determine the <u>least</u> potentially harmful time to dredge that stretch of river (which includes part of the project area). Between the Troy Dam and Castleton no dredging would occur

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before July 15th (preferably after September 1st); Castleton and Coxsackie no dredging would occur before August 1st (preferably after September 1st); between Coxsackie and Kingston, no dredging would occur before August 15th (preferably after September 15th). It is important to note that the EIS does not specifically establish a dredging window south of North Germantown (RM 109). The shortnose sturgeon recovery team agreed that such restrictions would minimize impacts to the sturgeon, and the NYD has maintained such seasonal restrictions throughout all past maintenance operations since they were originally proposed in the draft EIS (1981). In a letter dated May 29, 2014, NMFS confirmed that a maintenance dredging project located in the HRFC at Nutten Hook, Stuyvesant and Staats Point would not adversely affect either the shortnose or Atlantic sturgeon as long as the seasonal restrictions are adhered to. Consequently, in order to mitigate any adverse effect on the shortnose sturgeon essential fish habitat by maintenance dredging operations; time of year restrictions will be adhered to in our proposed maintenance dredging project schedule. In the EIS's assessment of the shortnose sturgeon (Vol. 2, App. G), the life stages with the greatest risks for potential impacts in the upper estuary occur during the spawning, hatching and larval/juvenile nursery stages. Although there are no known critical nursery areas, by fall the nursery area extends from Haverstraw Bay to the Troy Dam (Dovel, July 1990), with the midsummer period the most sensitive. However, as the fish mature and disperse throughout the estuary, susceptibility to dredging activities would decrease. The Hudson River Estuary Management Program's 1995 "State of the Hudson River Report (Vol. IV, No. 4, published March 1996)" highlighted a study that began in the spring of 1995 to estimate the abundance of shortnose sturgeon in the Hudson River. Preliminary data from this study suggested that the adult spawning population is approximately 50,000 fish. When Dovel studied the shortnose sturgeon in the 1970s he estimated that the adult population to be 13,000 fish. This new data may indicate that as a result of the management of the potential impacts to the fish population (i.e. the establishment of the dredging windows for the in-water work), there has been an increase in the abundance of the adult fish in the Hudson River. Furthermore, according to the above report, this recovery has also been observed by fisherman, other scientists and through river monitoring data from the electric power utilities.

d. **Atlantic sturgeon.** Another important exception to this would be the Atlantic sturgeon. Starting on April 6, 2012, US populations of the Atlantic sturgeon were listed as "Endangered" under the Endangered Species Act. The listing included five (5) Distinct Population Segments (DPS), one of which is the New York Bight DPS which the Hudson River federal navigation channel; and the Staats Point, Stuyvesant and Nutten Hook dredge areas are located in. In 2012, several factors were identified by NOAA Fisheries Service as adversely impacting the Atlantic sturgeon population with regards to our maintenance dredging project in the North Germantown Reach. Dredging was determined to pose a "significant risk" to the New York Bight DPS. In response to comments received at that time from the National Marine Fisheries Service Northeast Regional Office NMFS), we submitted documents to assess the impacts of our project on the Atlantic sturgeon. Based on the information available on the Atlantic sturgeon and the characteristics of the dredging plant and dredging process, we believed that the Atlantic sturgeon's habitat and life stages are similar enough to the shortnose sturgeon

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that the consequence of our actions (direct or indirect) will not adversely affect the Atlantic sturgeon population providing that we maintained the same time of year restrictions provided for the Shortnose sturgeon. In their FICM comment form dated 12-June-2012, NMFS concurred in their conservations recommendations that existing Shortnose sturgeon time of year restrictions were appropriate for the Atlantic sturgeon EFH. Likewise, in a letter dated May 29, 2014, NMFS confirmed that a maintenance dredging project located in the HRFC at Nutten Hook, Stuyvesant and Staats Point would not adversely affect either the shortnose or Atlantic sturgeon as long as the seasonal restrictions are adhered to. Consequently, in order to mitigate any adverse effect on the shortnose sturgeon essential fish habitat by maintenance dredging operations; time of year restrictions will be adhered to in our proposed maintenance dredging project schedule.

e. Because of the limited nature of the plume, especially the very restricted and narrow inner zones of increased turbidity, and the even more limited area directly impacted by the cutterhead/suction arms of the dredge, no significant blockage of fish movement, or impingement/entrainment is expected. The fact that dredging would occur after spawning and early larval development is completed would avoid impacting the most susceptible stage of fish; coincidentally, it is these stages that are commonly found in the channel in high numbers (Carlson, 1986). Similarly, spawning migrations would have long been over before dredging starts. DO sags extensive enough to block fish movement will not result from the proposed action, as the impact area itself is too small to extend across the width of the river, and the effect on DO is so small as to offer no impediment to fish movement even within its inner zone of greatest concentrations (where DO reductions were still within the normal range of variation encountered at the control station, and never exceeded 1.0 mg/L – Normandeau Assoc, 1987. In letters dated June 17, 1994 from the National Marine Fisheries Service, it was confirmed that adverse impacts to anadromous fish migrations and to the reproduction and nursery of finfish would be minimized if the EIS established dredging windows for in-water work were adhered to.

f. The benthic population within each dredge reach will be lost. The loss, however, will be short-term, as organisms from adjoining areas will colonize the disturbed habitat rapidly. Based on studies in the Hudson (O'Brien & Gere, 1980) and in the lower estuary (NYD, 1983) the dredged area (whose sediment and general characteristics will not change substantially from its past condition) should be significantly recolonized within a year, with the bulk of the recolonization arising from the spring reproductive peak, of the undisturbed communities. Benthic organisms are most abundant in quieter areas with higher silt/detritus content, than in the shifting sand of the channel (O'Brien & Gere, 1980). Consequently, the channel populations lost are generally of lower productivity and diversity (less stable), and are readily repopulated from the more abundant/diverse communities outside the channels. The extent of benthic population loss is confined to the dredged reaches themselves (O'Brien & Gere, 1980).

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3.1.3 Dredging Effects on Wetlands

No wetlands are located in the three proposed dredge areas. The relatively low volume of sediment resuspended by the dredge (less than 2% total volume for hydraulic plants – MPI, 1983), and the plume's overall orientation within the channel (Normandeau Assoc, 1987) results in a minimal source of material for added sedimentation onto any wetlands that may be located along the shore areas adjacent to dredging reaches (especially compared to ambient sedimentation and suspended solids load). Past studies show that the bulk of this material settles out rapidly, mostly within the inner zone of a few hundred feet from the dredge (LaSalle, 1986; EPA, 1987). This is confirmed by all three past monitoring studies on the Hudson (O'Brien & Gere, 1980; NATCO, 1986; Normandeau, 1987). The bulk of the little material left in suspension would be carried predominately downstream, away from the shore wetlands, and at far too low a concentration to threaten them.

3.1.4 Dredging Effects on Significant Coastal Habitats and Wild and Scenic Rivers

a. The State has designated a number of coastal fish and wildlife habitats, which DEC has determined to be significant, as Significant Coastal Fish and Wildlife Habitats (SCFWH). The NYS Department of State (DOS) is responsible for ensuring the protection of these habitats as well as scenic areas, and agricultural lands pursuant to provisions under the Coastal Zone Management Act (CZM). These habitats require special consideration of potential project impacts, with adequate measures taken to assess, minimize, or avoid adverse impacts, as part of the overall criteria in determining if a project was consistent with CZM policies. Several of these SCFWH may be especially pertinent to this maintenance project due to their proximity to the proposed dredge areas: Papscanee Marsh and Creek (Staats Point) and Shad and Schermerhorn Island (Staats Point). There are no SCFWH located in proximity to the Turning Basin. No impacts to the identified SCFWH are foreseen due to this action.

b. In a letter dated October 7, 1987, the National Parks Service (NPS) informed NYD that the maintenance dredging proposed at that time encompassed two Nationwide Rivers Inventory Segments (NRIS) of the Hudson River. These segments extend from: north of Hudson four miles to south of Coxsackie; north of Coxsackie Island five miles to above New Baltimore. These segments "… are recognized for their free flowing state, relatively undeveloped character, and other outstanding values such as significant historical sites and fisheries". Impacts to such designated river segments should be avoided or mitigated; the proposed dredging will adversely impact neither area. For this proposed project, the actual dredging of the reaches within or in proximity to the two previously identified NRIS will not alter the free flowing or undeveloped character of either. Fishery impacts will be minimal (see 3.1.2) and no new areas will be dredged, thereby avoiding any historical impacts.

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3.1.5 Dredging Effects on Scenic Areas of Statewide Significance

The Turning Basin and Staats Point dredge area are not located in a SASS. As a result, the proposed action will not impair scenic quality, and the SASS will not be adversely impacted.

3.1.6 Dredging Effects on Cultural Resources

No new-work dredging will occur, therefore, disturbances will be restricted to only previously disturbed areas, avoiding impacts to historical/cultural resources that may still be contained in the river.

3.1.7 Dredging Effects on Socioeconomic Resources (including air and noise)

a. It is unlikely that the maintenance work would significantly increase commercial traffic, nor provide access to ports/facilities not presently served. Little impact would be felt on recreational boating, which shares the channel with commercial shipping now, but could utilize shallower water if necessary. Use of the channel by commercial or recreational vessels will not be restricted during dredging, as there is ample channel width to allow safe passage past the actual dredging plant (any pipeline crossing the channel would be submerged below authorized depth). Commercial fishing, which is prohibited from the placing of gill nets, pond nets, etc. in channel, would not be hindered by the proposed action except possibly in the immediate vicinity of the dredge. As dredging will not occur during major spring migratory runs, even this limited impact would be minimal. Similarly, recreational fishing will also not be affected.

b. Air and noise impacts are discussed in the FEIS (MPI, 1983), and were found to be generally short-term and intermittent. Residents within one quarter mile of a dredge reach could encounter noise levels exceeding 10-15 decibels above ambient at night (threshold of noticeability). To date no complaints specifically regarding previous dredging operations have been received.

3.2.1 Effects of Dredge Material Placement on Water Quality

Use of the previously used upland confined disposal facility on Houghtaling Island, site U-3A, identified on Enclosure 3, would entail limited restoration and modification of the existing perimeter dikes and interior containment dikes in Area B to contain the influent dredged material slurry that is pumped in from the dredge. The slurry influent flows into and through a series of three containment/sedimentation basin(s), where it is held for a retention period that permits the gravity settling of the dredged solids. The clarified water effluent may then be discharged from the site through a weir and pipeline to approved receiving waters in the Hudson River. Effluent standards, imposed by DEC as a requirement for water quality certification, are monitored through measurements at the effluent weir located in cell B.3. Corps' specifications mandate that if testing at the weir shows elevated values approaching the maximum allowable value then corrective action must be taken to improve the water quality. A number of corrective actions could

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be performed, either to increase retention time or to reduce the solids in suspension through chemical clarification. Contractor reports show compliance with this requirement in all past placement operations. Extensive monitoring data from samples taken at the weir during similar maintenance dredging/placement operations at the U-3A site (1986, 1988, 1992, 1996, 1998, 2001, 2003, 2007, 2010, 2012-13, 2014 and 2015) show that the effluent water quality standards were not contravened during controlled operations. Furthermore, the Corps, in cooperation with a request made by DEC, initiated an in-water monitoring program for turbidity and suspended solids in Schodack Creek, in conjunction with the 1992 dredging project. The results of the in-water monitoring data confirmed that the effluent discharge from the weir, at existing regulatory limits, did not result in unacceptable impacts to the receiving waters of Schodack Creek outside the mixing zone, or contravene established NYS narrative Water Quality Standards for Fresh Surface Waters. Placement procedures (Section 6.7) are discussed in the FEIS along with impacts to water quality (Section 5.4) and water supplies (Section 5.5). As stated previously, no adverse impacts are anticipated, and none have been reported or determined from past controlled placement operations, which have been monitored at various sites since 1980.

3.2.2 Effects of Dredge Material Placement on Wildlife

Impacts to aquatic organisms would arise from adverse impacts to water quality. As no adverse impacts are anticipated, the placement portion of the proposed action will not adversely impact the fishery. Terrestrial species such as deer, fox, rabbits, snakes, amphibians, and a variety of birds (including the bald eagle and cerulean warbler) have been observed using various areas of Site U-3A. None were constrained to the site itself, and the temporary loss of one such habitat would not affect the range or productivity of any. Although the US Fish and Wildlife Service removed the bald eagle from the list of threatened and endangered species under the Endangered Species Act, the bird is still protected. Existing laws prohibit killing, selling or otherwise harming eagles, their nests, or eggs. There currently are no restrictions to dredge material placement activities at Site U-3A by either federal or state agencies. Furthermore, the U-3A site has not been considered as critical habitat for this or any species. Wildlife impacts are discussed in the FEIS (Section 5.2). Though short-term habitat loss was identified, this should recover in time (as has occurred on most formerly used sites), and does not constitute any regional impact.

3.2.3 Effects of Dredge Material Placement on Wetlands

State (DEC) and Federal (COE) regulated wetlands (mostly seasonably flooded, forested wetlands) are found adjacent to the boundaries of site U-3A and its access road and trail. As in past placement operations, the use of these sites and associated access road and trail will not impinge on any wetlands except those included in the DEC approved pipeline ingress and egress corridors. These sites may have limited pockets of wetter areas that may still retain sufficient moisture to support some wetland vegetation (mostly facultative species). These areas are small and discontinuous, mostly phragmites (some black willows, dogwoods), isolated within the upland habitat

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that overwhelmingly characterizes the majority of the site, and in their final successional stages (see 2.2 for site description). All construction and placement activities would occur within the existing dikes and designated areas. Road and trail access already exists for using the site. As in the past we anticipate receiving an activity permit from NYS Office of Parks, Recreation and Historic Preservation to use the segment of the road through Schodack Island State Park to mobilize and demobilize earth moving equipment. However, due to the extremely poor condition of the U-3A access road, it will be necessary to use water access to transport personnel, supplies and small equipment to an approved landing point. No wetlands, with the exception of the existing or other temporary DEC approved pipeline ingress and egress corridors, will be filled or disturbed for access, equipment staging or site preparation. All areas impacted by the temporary ingress and egress of dredge disposal influent and effluent pipeline will be restored to their original grades and planted with an appropriate seed mixture.

3.2.4 Effects of Dredged Material Placement on Significant Coastal Habitats and Wild and Scenic River Segments

a. In their November 27, 1987 letter, NYS CZM identified concerns regarding potential direct impacts of maintenance dredging/placement projects to State designated SCFWH on Schodack and Houghtaling Islands. Dredging would impact neither, but placement site U-3A is located on Houghtaling Island, with the sites northern access road running north to south across Schodack Island State Park and the federally owned site U-3A. Based on the DEC narrative for these two areas (Oct 16, 1987), the potential impacts of dredging (outside minimal water quality impacts – see 3.2.1) could be in disturbances to mature woodlands, and human disturbances at lower Schodack Island during spring osprey migration. U-3A was recently used during the 2015 dredged material placement operation and now contains a mix of both native and cultivated grass/herbaceous/small shrub cover. Neither site U-3A nor its access road represents the mature woodland habitat of concern. As dredging and placement would not begin until August, no disturbances to migrating osprey would result.

b. The USFWS (in their letter dated April 16, 2001) expressed concerns that dredging and placement activities may disrupt the known pair of bald eagles nesting at a site located within the Schodack Island State Park near the east shoreline of the Hudson River, and the boundary between Lower Schodack Island and Houghtaling Island. This nest site is located approximately 1.5 miles north of dredged material placement site U-3A. It was concluded that the only adverse impact to the nesting bald eagles would be from use of the existing unimproved access road that runs close to the nest. Any disturbances to the bald eagles during their active breeding and incubation season could be avoided by restricting the use of the road during this period. For the dredging/placement cycle performed in 2003, the Corps followed the timing restrictions recommended by NYSDEC (Peter Nye) who was monitoring the nesting activities. Use of the access road occurred following the abandonment of the nest by the breeding pair of bald eagles. A follow-up meeting was convened on February 28, 2002, with Federal and State representatives, to discuss the establishment of seasonal restrictions for use of the access road. It was generally agreed to that the Corps or its contractors would be

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permitted to use the access road for incidental travel during the prevailing work window of September 15th thru February 1st. One exception to this window is that after August 1st the Corps or its contractor would be allowed a single one-way passage of heavy equipment via the access road to site U-3A. During this period the Corps investigated alternatives to using the Schodack-Houghtaling Island access road, and the feasibility of mobilizing and demobilizing earth moving and other equipment by barge transport. As a result of this investigation, two potential shore landing areas were under consideration. However, periodic observations made by NYSDEC during recent past nesting seasons concluded that the bald eagle nest identified above has been abandoned by the nesting pair. Consequently, since 2007, NYSDEC has not directed any timing restrictions on the movement by the Corps or its contractors on the Schodack Island State Park access road through the inclusion of a special condition in their Final Water Quality Certification issued to the Corps. However, it is assumed that this and potentially other nesting site(s) will be monitored for current nesting activity that may be impacted by the Corps dredge material placement activities, and that reinstituting timing restrictions may be a possibility in the future.

c. The NPS (in their October 7, 1987 letter) expressed concerns that use of site U-3A (which is within the land corridor of a NRIS) might impact the scenic qualities of that inventoried scenic river segment. This site has been continually used for dredged material placement since the 1930's and was used as recently as 2015. The outer periphery of trees/shrubs around this site has been maintained, extending from the bank of the river up to the exterior toe of the dikes. The existing dikes rise to a height of 45-50 feet above the river. The interior of the site is not visible from the river, or either shore. Care will be employed to maintain the vegetative buffer zone around the site when it is used again. In this manner the use of the site would not adversely impact on the land corridor of the proposed NRIS. This conclusion was transmitted to the NPS in a letter dated March 8, 1988, and has not been disputed by them.

3.2.5 Effects of Dredged Material Placement on Scenic Areas of Statewide Significance

The proposed upland dredged material placement site designated U-3A is an existing, previously used site. This site is located in the Columbia-Greene SASS, Islands Subunit (CGN-4). The U-3A site features a minimum 100 foot wide undisturbed vegetative buffer zone between the shoreline and perimeter containment structures (earth dikes) which surround the site. There is one existing DEC approved 50 foot wide corridor used for the ingress of the contractors discharge pipeline from the dredge. Two additional approved pipeline corridors have been established for the egress of the contractor's pipelines which will discharge return water from containment cells A.3 and B.3 to the Hudson River. All three are located on the Hudson River side of U-3A. In recent dredging and placement projects, DEC has approved the use of flexible HDPE pipe by the Corps' contractors to convey the dredge slurry from the dredge to the placement site. This allows the dredging contractor to select a mooring and landing site that will be safer and more efficient. The condition for approval is that impacts resulting from installation of the pipeline be minimal and temporary, with no further modification of landforms, or removal of woody vegetation. The Corps and its contractors have

succeeded in deploying this pipeline in accordance with these conditions and to the satisfaction of DEC. Based on our experience with the low impact installation of HDPE pipe, the Corps anticipates that the use and placement of HDPE pipe for the discharge of return water from the site to the Hudson River will be approved. The U-3A site was recognized as part of CGN-4 in the July 1993 SASS document, and in conclusion it was stated that "the subunit is generally free of discordant features". Thus this SASS will not be adversely impacted by the proposed placement operation.

3.2.6 Effects of Dredge Material Placement on Cultural Resources

a. All previously used upland sites identified in the EIS (those with prefix "U") were assessed for cultural impacts in the May 1985 EA prepared for the 1986 maintenance dredging (NYD, 1985). Each site contains extensive deposits of previously dredged material that should be sufficient to protect any undiscovered resources from destruction.

b. Although there are no sites on the National Register of Historical Places located in the interior of either of the potential placement sites, the Corps has completed a preliminary study of Corps-owned ice house sites on Schodack-Houghtaling Island. The Corps' report (NYD, May 1999) identified three ice house complex sites (Site A, Site B, Site C) which are located on property belonging to the Corps (See Enclosure 5 for site locations). Of the three sites, only Site A is close in proximity to the proposed disposal operations. Site A is located to the south of the existing effluent pipeline corridor, which has been used in all of the previous disposal operations since 1986. Since all work involving the effluent pipeline is confined to the corridor, there has been no damage or adverse impacts to the ice harvesting industry remains located on this site. The Corps will ensure the continued preservation and protection of these remains by identifying Site A as an area of avoidance. This will be enforced throughout the entire duration of the dredging and disposal operations.

3.2.7 Effects of Dredge Material Placement on Socioeconomic Resources (including air and noise)

a. No commercial or residential use is made of the proposed site, and recreational use is restricted. The U-3A site is occasionally used unlawfully by recreational vehicle (ATV, dirt bikes) users. This use is not encouraged or permitted by the Corps, but is uncontrollable due to the sites remote location. This type of use has been the subject of complaints by local residents (noise and erosion). It is anticipated that the traffic controls and security associated with the Schodack Island State Park will significantly reduce the illegal vehicular use of site U-3A. The placement site does not have any special wildlife value, and the loss of any habitat on the site would have no impact on game species.

b. Noise and air impacts are restricted to site construction (generally a period of 2-4 weeks before dredging) and the actual placement operation (which includes minimal diesel emissions from earth moving equipment, the dredge and attendant plant). The

nearest population center to site U-3A would be the Village of New Baltimore located across the Hudson River on the west bank approximately ¾ of a mile from the site. This site is not immediately adjacent to residential areas. Use of this site might result in minor noise impacts to local residences but would be short-term and of lower intensity than dredging impacts (which themselves are minimal – see 3.1).

3.2.8 Effects of Dredge Material Placement on Health (to residents or workers)

Health impacts will not be significant or adverse as all proposed dredged material falls below EPA criteria for hazardous material, and within the limits of NYS DEC's thresholds for on-land management of sediments (NYS DEC – November 2004).

3.3 Total Project Impacts

After evaluating the impacts discussed above, including restrictions on dredging times (3.1.2), water quality criteria (3.1.1 and 3.2.1) and site delineation (3.2.3 thru 3.2.6), it is concluded that the proposed action will not have a significant adverse impact, and an EIS will not be prepared.

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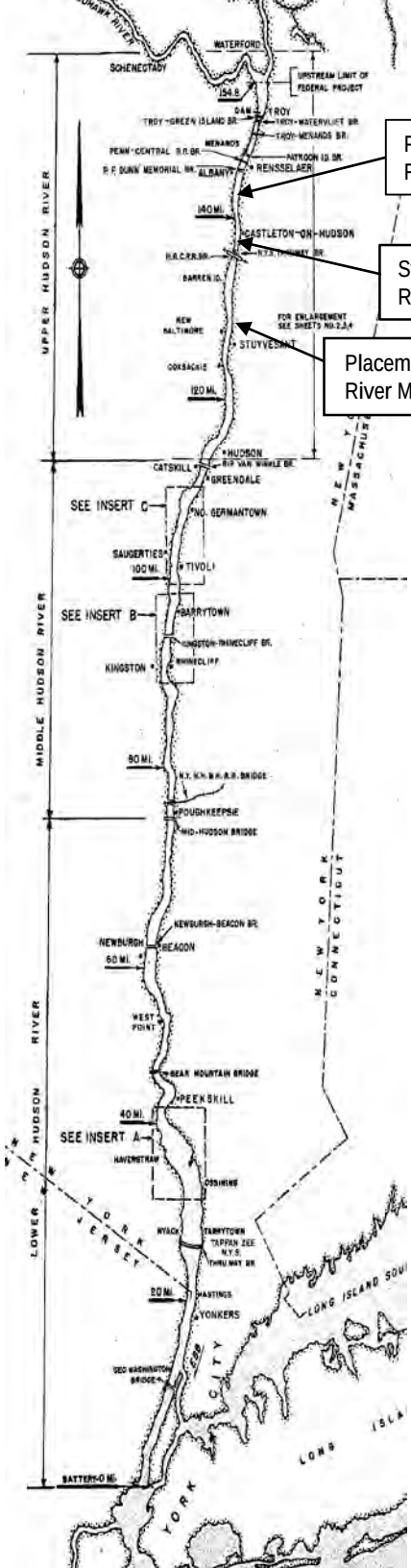
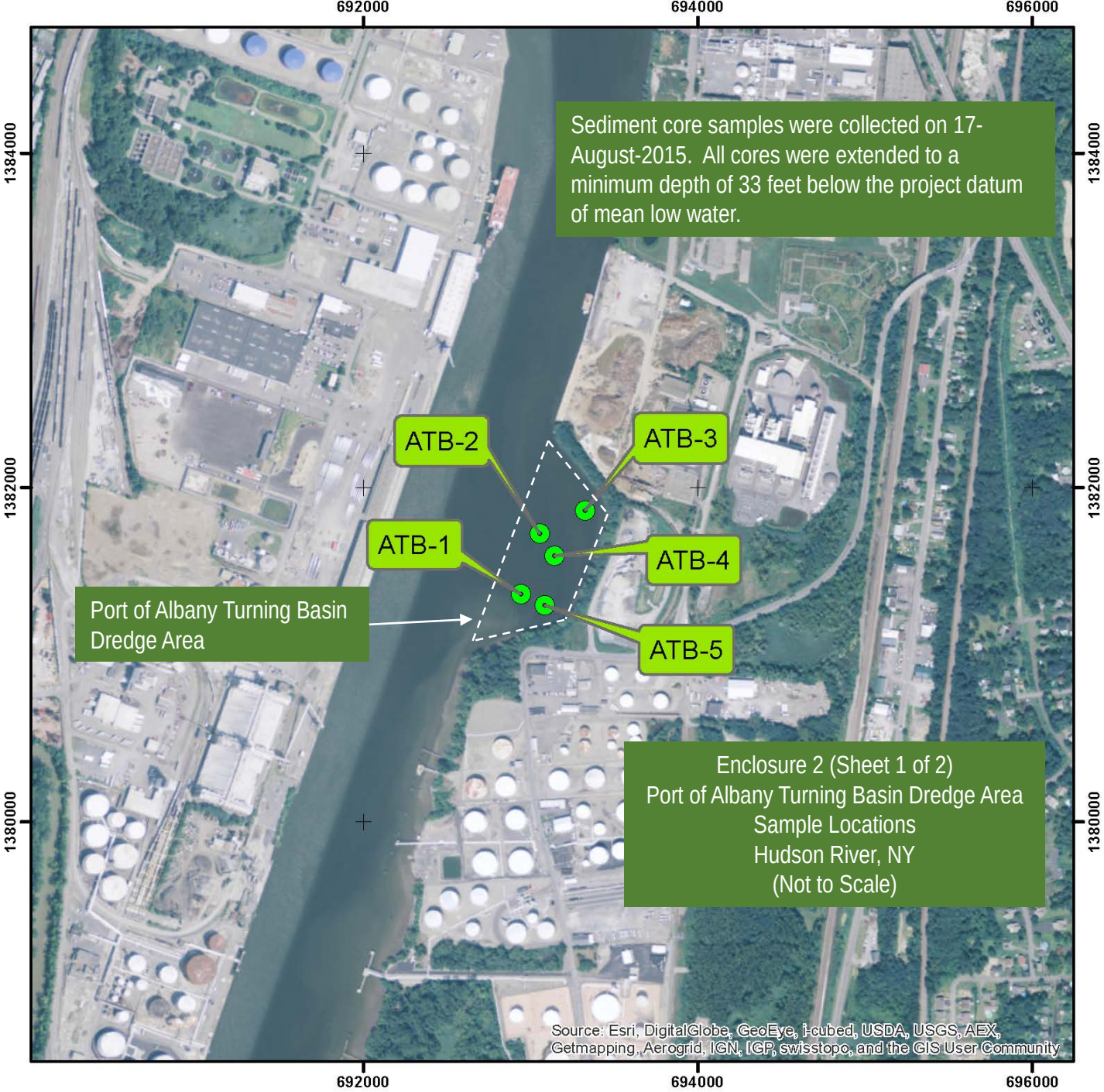
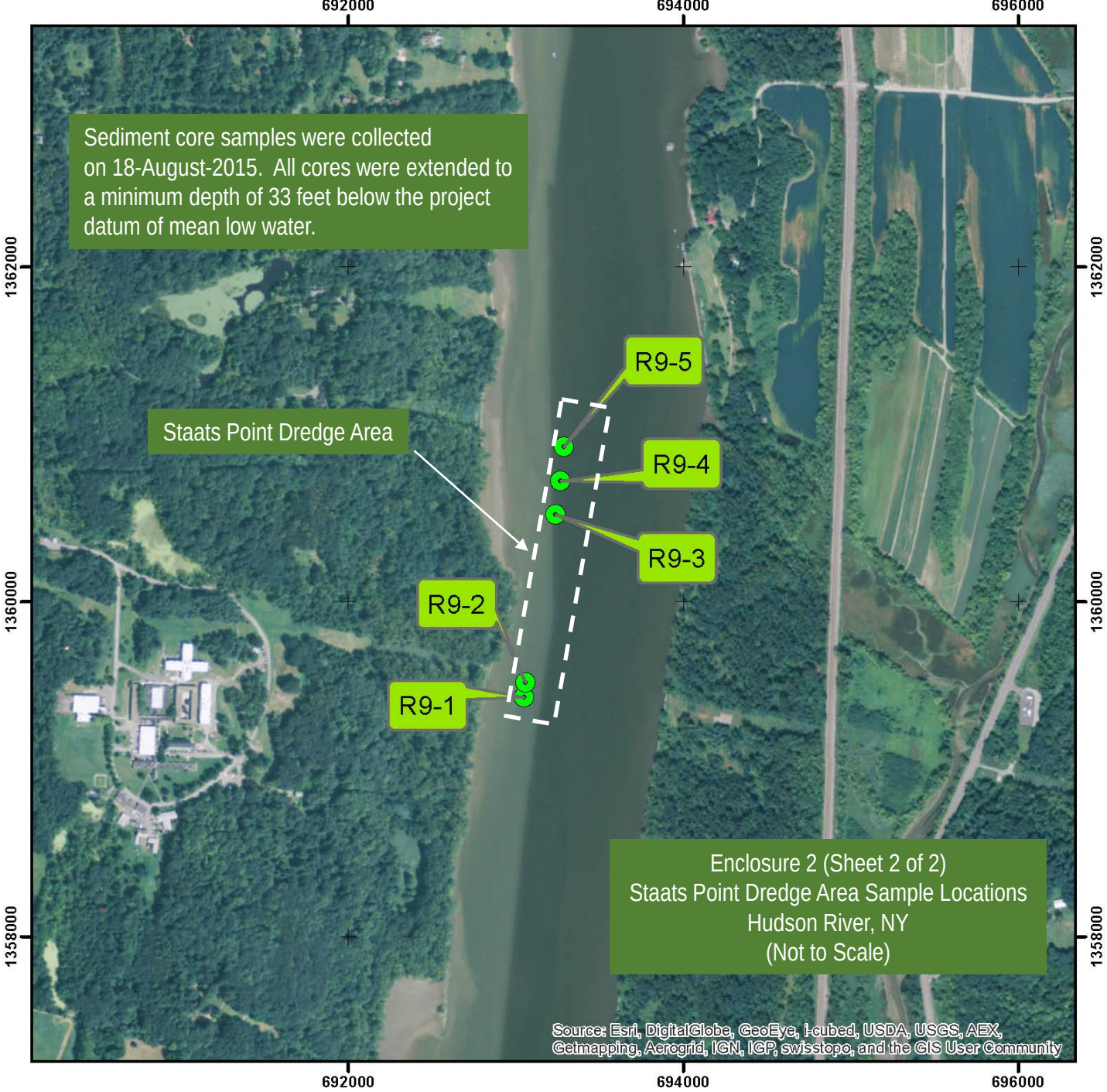


ENCLOSURE 1
LOCATION MAP OF
PROPOSED DREDGE AREA
AND
PLACEMENT SITE
(Not to Scale)


692000
694000
696000
1384000
1382000
1380000
Sediment core samples were collected on 17-August-2015. All cores were extended to a minimum depth of 33 feet below the project datum of mean low water.
ATB-1
ATB-2
ATB-3
ATB-4
ATB-5
Port of Albany Turning Basin Dredge Area
Enclosure 2 (Sheet 1 of 2)
Port of Albany Turning Basin Dredge Area
Sample Locations
Hudson River, NY
(Not to Scale)
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


692000
694000
696000
1362000
1360000
1358000
Sediment core samples were collected on 18-August-2015. All cores were extended to a minimum depth of 33 feet below the project datum of mean low water.
Staats Point Dredge Area
R9-5
R9-4
R9-3
R9-2
R9-1
Enclosure 2 (Sheet 2 of 2)
Staats Point Dredge Area Sample Locations
Hudson River, NY
(Not to Scale)
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Enclosure 3
Upland Placement Site U-3A
Houghtaling Island
Hudson River, NY
(Not to Scale)

Table 3 Grain Size Distribution, Percent Moisture, and TOC

Sample Name	ASI ID #	Total % Gravel	Total % Sand	Total % Silt	Total % Clay	% Moisture	TOC ppm	% TOC of Dry Weight
R9-1	20150619	0.0	19.2	56.5	24.3	51.9	33,747	3.37
R9-2	20150620	0.0	31.6	46.6	21.8	40.3	24,483	2.45
R9-3	20150621	0.1	68.0	24.0	7.9	30.4	9,853	0.99
R9-4	20150622	2.0	79.6	12.5	5.9	22.5	6,374	0.64
R9-5	20150623	1.9	79.7	11.0	7.4	24.2	7,672	0.77
R9 Comp	20150626	1.8	61.5	24.1	12.6	33.9	12,590	1.26
R9 Comp	20150626 dup	1.1	62.0	25.1	11.8	33.5		
R9 Comp	20150626 trip	2.2	61.3	23.9	12.6	33.2		
ATB-1	20150614	0.0	23.3	54.2	22.5	45.3	33,961	3.40
ATB-2	20150615	0.0	20.4	55.3	24.3	47.0	31,623	3.16
ATB-3	20150616	0.0	21.8	51.1	27.1	47.2	32,316	3.23
ATB-4	20150617	0.0	20.3	53.9	25.8	35.6	31,205	3.12
ATB-5	20150618	0.0	22.0	54.7	23.3	44.5	31,790	3.18
ATB Comp	20150625	0.0	23.3	54.4	22.3	46.3	33,460	3.35

Hudson River - Staats Point & Albany Turning Basin 2015
ATB Composite - Sediment Volatiles

Volatiles		Sediment (µg/kg)		MDL (µg/kg)
Field ID #		20150625		20150625
		ATB COMPOSITE	Q	ATB COMPOSITE
Chloromethane (Methyl Chloride)		9.7	U	1.7
Bromomethane		9.7	U	1.4
Vinyl chloride		9.7	U	0.91
Chloroethane		9.7	U	3
Methylene chloride (Dichloromethane)		9.7	U	1.3
Acetone		39	U *	9.7
Carbon disulfide		9.7	U	1
1,1-Dichloroethene		9.7	U	1.7
1,1-Dichloroethane		9.7	U	1.1
1,2-Dichloroethene (total)		9.7	U	2.5
Chloroform		9.7	U	1.1
1,2-Dichloroethane		9.7	U	1.2
2-Butanone (MEK)		9.7	U *	1.7
1,1,1-Trichloroethane		9.7	U	0.95
Carbon tetrachloride		9.7	U	0.87
Bromodichloromethane		9.7	U	1.1
1,2-Dichloropropane		9.7	U	1.1
cis-1,3-Dichloropropene		9.7	U	1.3
Trichloroethene		9.7	U	1.3
Dibromochloromethane		9.7	U	1.4
1,1,2-Trichloroethane		9.7	U	1.6
Benzene		9.7	U	1.3
trans-1,3-dichloropropene		9.7	U	1.2
Bromoform		9.7	U	0.86
4-Methyl-2-pentanone (MIBK)		9.7	U	1.3
2-Hexanone		9.7	U *	1.3
Tetrachloroethene		9.7	U	1.3
1,1,2,2-Tetrachloroethane		9.7	U	1.4
Toluene		9.7	U	1.4
Chlorobenzene		9.7	U	1.5
Ethyl benzene		9.7	U	1.3
Styrene		9.7	U	1.4
Xylenes(Total)		29	U	4.4
Acrolein		190	U *	14
Acrylonitrile		190	U *	20
1,2-Dibromo-3-chloropropane		9.7	U	1.5
1,2-Dibromoethane		9.7	U	1.7
Dichlorodifluoromethane		9.7	U	1.3
1,2-Dichloroethene (cis)		9.7	U	1.4
1,2-Dichloroethene (trans)		9.7	U	1.2
Methyl acetate		49	U	1.8
Methyl tert-butyl ether (MTBE)		9.7	U	1.5
Tertiary butyl alcohol (TBA)		390	U *	77
Trichlorofluoromethane		9.7	U	1.8
Combined 1,3-dichloropropenes (SUM) cis + trans				
1,4-dioxane		3300	U	190
n-propylbenzene		9.7	U	1.5
sec-butylbenzene		9.7	U	1.5
tert-butylbenzene		9.7	U	1.4
1,2,4-trimethylbenzene		9.7	U	1.3
1,3,5-trimethylbenzene		9.7	U	1.3

Hudson River - Staats Point & Albany Turning Basin 2015
ATB Composite - Sediment Semivolatiles

Semivolatiles		Sediment (µg/kg)		MDL (µg/kg)
Field ID #		20150625		20150625
		ATB COMPOSITE	Q	ATB COMPOSITE
Phenol		330	U	38
bis(2-Chloroethyl)ether		330	U	43
2-Chlorophenol		1600	U	130
1,3-Dichlorobenzene		1600	U	130
1,4-Dichlorobenzene		1600	U	120
1,2-Dichlorobenzene		1600	U	170
2-Methylphenol (o-cresol)		1600	U	110
1-Chloropropane-2,2'-oxybis/ bis(2-chloroisopropyl)ether		330	U	35
4-Methylphenol (p-cresol) [co-elutes with 3-methylphenol (m-cresol)]		1600	U	160
N-Nitroso-Di-N-Propylamine		330	U	38
Hexachloroethane		1600	U	120
Nitrobenzene		3300	U	130
Isophorone		1600	U	120
2-Nitrophenol		1600	U	180
2,4-Dimethylphenol		1600	U	250
bis(2-Chloroethoxy)methane		1600	U	110
2,4-Dichlorophenol		330	U	32
1,2,4-Trichlorobenzene		1600	U	90
Naphthalene		34	J	28
4-Chloroaniline		1600	U	130
Hexachloro-1,3-butadiene		330	U	36
4-Chloro-3-methylphenol		1600	U	150
2-Methylnaphthalene		330	U	29
Hexachlorocyclopentadiene		1600	U	170
2,4,6-Trichlorophenol		1600	U	240
2,4,5-Trichlorophenol		1600	U	170
2-Chloronaphthalene		330	U	34
2-Nitroaniline		8300	U	730
Dimethylphthalate		1600	U	180
Acenaphthylene		52	J	37
2,6-Dinitrotoluene		1600	U	170
3-Nitroaniline		8300	U	670

Hudson River - Staats Point & Albany Turning Basin 2015
ATB Composite - Sediment Semivolatiles (continued)

Semivolatiles, continued		**Sediment (µg/kg)**		**MDL (µg/kg)**
ASI ID #		**20150625**		**20150625**
		ATB COMPOSITE	**Q**	**ATB COMPOSITE**
Acenaphthene		330	U	31
2,4-Dinitrophenol		8300	U	1900
4-Nitrophenol		8300	U	590
Dibenzofuran		1600	U	160
2,4-Dinitrotoluene		1600	U	130
Diethylphthalate		1600	U	180
4-Chlorophenyl-phenylether		1600	U	180
Fluorene		330	U	43
4-Nitroaniline		8300	U	660
4,6-Dinitro-2-methylphenol		8300	U	650
N-Nitrosodiphenylamine		1600	U	150
4-Bromophenyl-phenylether		1600	U	140
Hexachlorobenzene		330	U	35
Pentachlorophenol		1600	U	140
Phenanthrene		260	J	52
Anthracene		94	J	32
Carbazole		330	U	30
Di-n-butylphthalate		1600	U	200
Fluoranthene		490		35
Pyrene		450		33
Butylbenzylphthalate		1600	U	220
3,3'-Dichlorobenzidine		1600	U	170
Benzo(a)anthracene		280	J	41
Chrysene		320	J	39
bis(2-Ethylhexyl)phthalate		3300	U	260
DI-n-octylphthalate		1600	U	170
Benzo(b)fluoranthene		350		51
Benzo(k)fluoranthene		92	J	65
Benzo(a)pyrene		260	J	32
Indeno(1,2,3-cd)pyrene		200	J	33
Dibenzo(a,h)anthracene		330	U	36
Benzo(ghi)perylene		240	J	32
Pyridine		1600	U	81
Acetophenone		1600	U	130
Atrazine		1600	U	160
Benzaldehyde		1600	U	240
Benzidine		33000	U	6800
1,1'-Biphenyl		1600	U	140
Caprolactam		8300	U	1200
1,2-Diphenylhydrazine		1600	U	210
N-Nitrosodimethylamine		1600	U	140
Total Cresol				

Hudson River - Staats Point & Albany Turning Basin 2015
ATB Composite - Sediment Chlorinated Pesticides

Chlorinated Pesticides		Sediment (µg/kg)		MDL (µg/kg)
Field ID #		20150625		20150625
		ATB COMPOSITE	Q	ATB COMPOSITE
alpha-BHC		1.6	U	0.26
beta-BHC		1.6	U	0.42
delta-BHC		3.2	p	0.25
gamma-BHC (Lindane)		1.6	U	0.28
Heptachlor		2.3	p	0.36
Aldrin		1.6	U	0.29
Heptachlor epoxide		3.4	p	0.31
Endosulfan I		0.38	J p	0.3
Dieldrin		0.96	J p	0.27
4,4'-DDE		0.93	J p	0.24
Endrin		2.6	p	0.31
Endosulfan II		0.42	J p	0.28
4,4'-DDD		0.35	J p	0.21
Endosulfan sulfate		0.62	J p	0.17
4,4'-DDT		5.5		0.24
Methoxychlor		0.49	J p	0.34
Endrin ketone		1	J p	0.25
Endrin aldehyde		0.55	J p	0.31
alpha-Chlordane		0.6	J p	0.32
gamma-Chlordane		5.4		0.32
Toxaphene		65	U	11
Mirex		1.6	U	0.15

Hudson River - Staats Point & Albany Turning Basin 2015
ATB Composite - Sediment Metals

Metals		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150625**		**20150625**
		ATB COMPOSITE	**Q**	**ATB COMPOSITE**
Aluminum		12000		2.6
Antimony		0.31	J	0.26
Arsenic		5.6		0.55
Barium		100		0.04
Beryllium		0.62		0.028
Cadmium		0.66		0.028
Calcium		13000		16
Chromium		30	B	0.042
Cobalt		12		0.07
Copper		36		0.15
Iron		24000		2.1
Lead		37		0.17
Magnesium		6600		3.5
Manganese		830	B	0.027
Mercury		0.2		0.02
Nickel		29	B	0.13
Potassium		1500		36
Selenium		0.69	J	0.31
Silver		0.48	U	0.065
Sodium		110	J	14
Thallium		1.9	U	0.27
Vanadium		22		0.28
Zinc		110		0.42
%Solids		51.3		

Hudson River - Staats Point & Albany Turning Basin 2015
R9 Composite - Sediment Volatiles

Volatiles		Sediment (µg/kg)		MDL (µg/kg)
Field ID #		20150626		20150626
		R9 COMPOSITE	Q	R9-COMPOSITE
Chloromethane (Methyl Chloride)		9.7	U	1.4
Bromomethane		9.7	U	1.2
Vinyl chloride		8.4	U	0.79
Chloroethane		8.4	U	2.6
Methylene chloride (Dichloromethane)		8.4	U	1.1
Acetone		33	U *	8.4
Carbon disulfide		8.4	U	0.86
1,1-Dichloroethene		8.4	U	1.4
1,1-Dichloroethane		8.4	U	0.96
1,2-Dichloroethene (total)		8.4	U	2.1
Chloroform		8.4	U	0.98
1,2-Dichloroethane		8.4	U	1
2-Butanone (MEK)		8.4	U *	1.5
1,1,1-Trichloroethane		8.4	U	0.81
Carbon tetrachloride		8.4	U	0.75
Bromodichloromethane		8.4	U	0.94
1,2-Dichloropropane		8.4	U	0.91
cis-1,3-Dichloropropene		8.4	U	1.1
Trichloroethene		8.4	U	1.1
Dibromochloromethane		8.4	U	1.2
1,1,2-Trichloroethane		8.4	U	1.4
Benzene		8.4	U	1.1
trans-1,3-dichloropropene		8.4	U	1
Bromoform		8.4	U	0.74
4-Methyl-2-pentanone (MIBK)		8.4	U	1.1
2-Hexanone		8.4	U *	1.2
Tetrachloroethene		8.4	U	1.1
1,1,2,2-Tetrachloroethane		8.4	U	1.2
Toluene		8.4	U	1.2
Chlorobenzene		8.4	U	1.3
Ethyl benzene		8.4	U	1.1
Styrene		8.4	U	1.2
Xylenes(Total)		25	U	3.7
Acrolein		170	U *	12
Acrylonitrile		170	U *	17
1,2-Dibromo-3-chloropropane		8.4	U	1.3
1,2-Dibromoethane		8.4	U	1.4
Dichlorodifluoromethane		8.4	U	1.1
1,2-Dichloroethene (cis)		8.4	U	1.2
1,2-Dichloroethene (trans)		8.4	U	1
Methyl acetate		42	U	1.5
Methyl tert-butyl ether (MTBE)		8.4	U	1.3
Tertiary butyl alcohol (TBA)		330	U *	66
Trichlorofluoromethane		8.4	U	1.5
Combined 1,3-dichloropropenes (SUM) cis + trans				
1,4-dioxane		2800	U	160
n-propylbenzene		8.4	U	1.3
sec-butylbenzene		8.4	U	1.3
tert-butylbenzene		8.4	U	1.2
1,2,4-trimethylbenzene		8.4	U	1.1
1,3,5-trimethylbenzene		8.4	U	1.1

Hudson River - Staats Point & Albany Turning Basin 2015
R9 Composite - Sediment Semivolatiles

Semivolatiles		Sediment (µg/kg)		MDL (µg/kg)
Field ID #		20150626		20150626
		R9 COMPOSITE	Q	R9 COMPOSITE
Phenol		280	U	33
bis(2-Chloroethyl)ether		280	U	37
2-Chlorophenol		1400	U	110
1,3-Dichlorobenzene		1400	U	110
1,4-Dichlorobenzene		1400	U	100
1,2-Dichlorobenzene		1400	U	150
2-Methylphenol (o-cresol)		1400	U	98
1-Chloropropane-2,2'-oxybis/ bis(2-chloroisopropyl)ether		280	U	30
4-Methylphenol (p-cresol) (co-elutes with 3-methylphenol (m-cresol))		1400	U	140
N-Nitroso-Di-N-Propylamine		280	U	33
Hexachloroethane		1400	U	100
Nitrobenzene		2800	U	120
Isophorone		1400	U	110
2-Nitrophenol		1400	U	150
2,4-Dimethylphenol		1400	U	220
bis(2-Chloroethoxy)methane		1400	U	92
2,4-Dichlorophenol		280	U	28
1,2,4-Trichlorobenzene		1400	U	77
Naphthalene		280	U	24
4-Chloroaniline		1400	U	110
Hexachloro-1,3-butadiene		280	U	31
4-Chloro-3-methylphenol		1400	U	130
2-Methylnaphthalene		280	U	25
Hexachlorocyclopentadiene		1400	U	150
2,4,6-Trichlorophenol		1400	U	210
2,4,5-Trichlorophenol		1400	U	150
2-Chloronaphthalene		280	U	29
2-Nitroaniline		7100	U	630
Dimethylphthalate		1400	U	150
Acenaphthylene		280	U	32
2,6-Dinitrotoluene		1400	U	140
3-Nitroaniline		7100	U	570

Hudson River - Staats Point & Albany Turning Basin 2015
R9 Composite - Sediment Semivolatiles (continued)

Semivolatiles, continued		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150626**		**20150626**
		R9 COMPOSITE	**Q**	**R9 COMPOSITE**
Acenaphthene		280	U	27
2,4-Dinitrophenol		7100	U	1700
4-Nitrophenol		7100	U	510
Dibenzofuran		1400	U	140
2,4-Dinitrotoluene		1400	U	110
Diethylphthalate		1400	U	150
4-Chlorophenyl-phenylether		1400	U	160
Fluorene		280	U	37
4-Nitroaniline		7100	U	570
4,6-Dinitro-2-methylphenol		7100	U	560
N-Nitrosodiphenylamine		1400	U	130
4-Bromophenyl-phenylether		1400	U	120
Hexachlorobenzene		280	U	30
Pentachlorophenol		1400	U	120
Phenanthrene		160	J	44
Anthracene		280	U	27
Carbazole		280	U	26
Di-n-butylphthalate		1400	U	170
Fluoranthene		360		30
Pyrene		320		28
Butylbenzylphthalate		1400	U	190
3,3'-Dichlorobenzidine		1400	U	150
Benzo(a)anthracene		180	J	35
Chrysene		220	J	33
bis(2-Ethylhexyl)phthalate		2800	U	230
DI-n-octylphthalate		1400	U	150
Benzo(b)fluoranthene		280	U	44
Benzo(k)fluoranthene		280	U	56
Benzo(a)pyrene		280	U	28
Indeno(1,2,3-cd)pyrene		280	U	29
Dibenzo(a,h)anthracene		280	U	31
Benzo(ghi)perylene		280	U	28
Pyridine		1400	U	70
Acetophenone		1400	U	110
Atrazine		1400	U	140
Benzaldehyde		1400	U	210
Benzidine		28000	U	5800
1,1'-Biphenyl		1400	U	120
Caprolactam		7100	U	1100
1,2-Diphenylhydrazine		1400	U	180
N-Nitrosodimethylamine		1400	U	120
Total Cresol				

Hudson River - Staats Point & Albany Turning Basin 2015
R9 Composite - Sediment Chlorinated Pesticides

Chlorinated Pesticides		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150626**		**20150626**
		R9 COMPOSITE	**Q**	**R9 COMPOSITE**
alpha-BHC		1.4	U	0.23
beta-BHC		1.4	U	0.36
delta-BHC		2.2	p	0.21
gamma-BHC (Lindane)		1.4	U	0.25
Heptachlor		1.7	p	0.31
Aldrin		1.4	U	0.25
Heptachlor epoxide		2.5	p	0.27
Endosulfan I		1.4	U	0.26
Dieldrin		0.5	J p	0.23
4,4'-DDE		0.91	J p	0.21
Endrin		2.3		0.27
Endosulfan II		0.25	J p	0.25
4,4'-DDD		0.33	J p	0.18
Endosulfan sulfate		0.34	J p	0.15
4,4'-DDT		3.2		0.21
Methoxychlor		2.8	U	0.29
Endrin ketone		0.47	J p	0.22
Endrin aldehyde		1.4	U	0.27
alpha-Chlordane		0.3	J p	0.28
gamma-Chlordane		3.5		0.28
Toxaphene		56	U	9.3
Mirex		1.4	U	0.13

Hudson River - Staats Point & Albany Turning Basin 2015
ATB Composite - Sediment Metals

Metals		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150625**		**20150625**
		R9 COMPOSITE	**Q**	**R9 COMPOSITE**
Aluminum		7100		2.2
Antimony		0.83	U	0.23
Arsenic		2.9		0.47
Barium		51		0.034
Beryllium		0.36		0.024
Cadmium		0.4	J	0.024
Calcium		4800		13
Chromium		17	B	0.036
Cobalt		7.5		0.06
Copper		20		0.13
Iron		15000		1.8
Lead		24		0.15
Magnesium		3600		3
Manganese		430	B	0.023
Mercury		0.1		0.017
Nickel		16	B	0.11
Potassium		810		31
Selenium		0.83	U	0.27
Silver		0.094	J	0.056
Sodium		73	J	12
Thallium		1.7	U	0.23
Vanadium		15		0.24
Zinc		73		0.36
%Solids		59.7		

Hudson River - Staats Point & Albany Turning Basin 2015
ATB-1 Sediment Aroclors

Aroclors		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150614**		**20150614**
		ATB-1	**Q**	**ATB-1**
Aroclor-1016		9.7	U	3.2
Aroclor-1221		9.7	U	3.9
Aroclor-1232		16	U	5.4
Aroclor-1242		330		4
Aroclor-1248		16	U	3.9
Aroclor-1254		99		3.7
Aroclor-1260		32		3.4
%Solids		53.1		

Hudson River - Staats Point & Albany Turning Basin 2015
ATB-2 Sediment Aroclors

Aroclors		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150615**		**20150615**
		ATB-2	**Q**	**ATB-2**
Aroclor-1016		9.7	U	3.4
Aroclor-1221		9.7	U	4.1
Aroclor-1232		17	U	5.7
Aroclor-1242		260		4.2
Aroclor-1248		17	U	4.1
Aroclor-1254		100		3.9
Aroclor-1260		33		3.6
%Solids		50.4		

Hudson River - Staats Point & Albany Turning Basin 2015
ATB-3 Sediment Aroclors

Aroclors		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150616**		**20150616**
		ATB-3	**Q**	**ATB-3**
Aroclor-1016		9.7	U	3.4
Aroclor-1221		9.7	U	4.1
Aroclor-1232		16	U	5.7
Aroclor-1242		840		4.2
Aroclor-1248		16	U	4.1
Aroclor-1254		230		3.9
Aroclor-1260		74		3.6
%Solids		50.7		

Hudson River - Staats Point & Albany Turning Basin 2015
ATB-4 Sediment Aroclors

Aroclors		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150617**		**20150617**
		ATB-4	**Q**	**ATB-4**
Aroclor-1016		9.7	U	3.4
Aroclor-1221		9.7	U	4.2
Aroclor-1232		17	U	5.8
Aroclor-1242		260		4.2
Aroclor-1248		17	U	4.2
Aroclor-1254		110		4
Aroclor-1260		36		3.7
%Solids		49.8		

Hudson River - Staats Point & Albany Turning Basin 2015
ATB-5 Sediment Aroclors

Aroclors		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150618**		**20150618**
		ATB-5	**Q**	**ATB-5**
Aroclor-1016		9.7	U	3
Aroclor-1221		9.7	U	3.7
Aroclor-1232		15	U	5.2
Aroclor-1242		370		3.8
Aroclor-1248		15	U	3.7
Aroclor-1254		130		3.5
Aroclor-1260		42		3.3
%Solids		55.6		

Hudson River - Staats Point & Albany Turning Basin 2015
R9-1 Sediment Aroclors

Aroclors		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150619**		**20150619**
		R9-1	**Q**	**R9-1**
Aroclor-1016		9.7	U	3.6
Aroclor-1221		9.7	U	4.4
Aroclor-1232		18	U	6.1
Aroclor-1242		680		4.5
Aroclor-1248		18	U	4.4
Aroclor-1254		260		4.2
Aroclor-1260		74		3.9
%Solids		47		

Hudson River - Staats Point & Albany Turning Basin 2015
R9-2 Sediment Aroclors

Aroclors		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150620**		**20150620**
		R9-2	**Q**	**R9-2**
Aroclor-1016		9.7	U	2.9
Aroclor-1221		9.7	U	3.6
Aroclor-1232		14	U	4.9
Aroclor-1242		400		3.6
Aroclor-1248		14	U	3.6
Aroclor-1254		190		3.4
Aroclor-1260		73		3.1
%Solids		58.7		

Hudson River - Staats Point & Albany Turning Basin 2015
R9-3 Sediment Aroclors

Aroclors		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150621**		**20150621**
		R9-3	**Q**	**R9-3**
Aroclor-1016		9.7	U	2.9
Aroclor-1221		9.7	U	3.5
Aroclor-1232		14	U	4.9
Aroclor-1242		260		3.6
Aroclor-1248		14	U	3.5
Aroclor-1254		81		3.4
Aroclor-1260		23		3.1
%Solids		59.1		

Hudson River - Staats Point & Albany Turning Basin 2015
R9-4 Sediment Aroclors

Aroclors		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150622**		**20150622**
		R9-4	**Q**	**R9-4**
Aroclor-1016		9.7	U	2.7
Aroclor-1221		9.7	U	3.3
Aroclor-1232		13	U	4.6
Aroclor-1242		120		3.3
Aroclor-1248		13	U	3.3
Aroclor-1254		29		3.1
Aroclor-1260		13		2.9
%Solids		62.4		

Hudson River - Staats Point & Albany Turning Basin 2015
R9-5 Sediment Aroclors

Aroclors		**Sediment (µg/kg)**		**MDL (µg/kg)**
Field ID #		**20150623**		**20150623**
		R9-5	**Q**	**R9-5**
Aroclor-1016		9.7	U	2.8
Aroclor-1221		9.7	U	3.4
Aroclor-1232		14	U	4.7
Aroclor-1242		150		3.5
Aroclor-1248		14	U	3.4
Aroclor-1254		45		3.3
Aroclor-1260		17		3
%Solids		60.4		

Data Qualifier Flags - GC/MS VOA

U	Indicates the analyte was analyzed for but not detected.
*	LCS or LCSD exceeds the control limit
F1	MS and/or MSD recovery exceeds control limits
F2	MS/MSD RPD exceeds control limits
E	Result exceeded calibration range
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

Data Qualifier Flags - GC/MS Semi VOA

B	Compound was found in the blank and sample
U	Indicates the analyte was analyzed for but not detected.
*	LCS or LCSD exceeds the control limit
F1	MS and/or MSD recovery exceeds control limits
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

Data Qualifier Flag - GC Semi VOA

U	Indicates the analyte was analyzed for but not detected.
F1	MS and/or MSD recovery exceeds control limits
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits
p	The %RPD between the primar and confirmation column/detector is >40%. The lower value has been reported.

Data Qualifier Flags - Metals

B	Compound was found in the blank and sample
U	Indicates the analyte was analyzed for but not detected.
F1	MS and/or MSD recovery exceeds control limits
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matris spike concentration; therefore, control limits are not applicable.
W	PS: Post-digestion spike was outside control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Data Qualifier Flags - General Chemistry

U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Data Qualifier Flags – Dioxins/Furans, SPLP

B	The analyte is present in the associated method blank at a detectable level.
C	Coeluting Isomer.
E	The reported result is an estimate. The amount reported is above the Upper Calibration Level.
J	The reported result is an estimate. The amount reported is below the Minimum Level.
ND	Indicates concentration is reported as 'Not Detected'
S	Ion suppression evident.
Q	Estimated maximum possible concentration.
#	Results reported from the confirmation analysis
*	Surrogate recovery is outside stated control limits.

Data Qualifier Flags – Dioxins/Furans, Sediment

J	reported value < detection limit
U	not detected
#	value from confirmation analysis
&	outside QC limits.

Figure I-3
Locations of Ice House Sites A, B, and C.

Ravena Quadrangle
New York
7.5 Minute Series (Topographic)

1000 0 1000 Feet

ENCLOSURE 5