U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 2

August 13, 2020

BY ELECTRONIC MAIL

Robert Law, Ph.D.
de maximis, inc.
186 Center Street, Suite 290
Clinton, New Jersey 08809

Re: Re: Lower Passaic River Study Draft Feasibility Study (FS***)*** – Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study (Agreement) CERCLA Docket No. 02-2007-2009

Dear Dr. Law:

The U.S. Environmental Protection Agency (EPA) has reviewed the response to comment file received from the Cooperating Parties Group (CPG) on July 21, 2020 and the CPG's ***Draft Upper 9-Mile Source Control Interim Remedy Feasibility Study (FS) Revision 1*** dated May 15, 2020 for the Lower Passaic River Study Area (LPRSA) and has additional comments. On August 7, 2020, the CPG submitted the ***Draft Final Upper 9-Mile Source Control Interim Remedy Feasibility Study (FS)*** dated August 7, 2020. The enclosed evaluation includes text from this version of the IR FS; however, EPA has not conducted a full review of the document and there may be additional comments in the future. In accordance with Section X, Paragraph 44(d) of the Agreement, EPA has enclosed an evaluation of CPG's response to comment file with this letter.

Please proceed with revisions to the ***Draft Final IR FS*** within 30 calendar days consistent with the enclosed comment evaluations. If there are any questions or clarifications needed, please contact me to discuss.

Sincerely,

Diane Salkie, Remedial Project Manager
Lower Passaic River Study Area RI/FS
Enclosure

616116

Cc: Zizila, F. (EPA)
Sivak, M. (EPA)
Hyatt, B. (CPG)
Potter, W. (CPG)
Nickerson, J. (NJDEP)

Additional Comments on LPRSA OU4 IR FS Report
Based on Track Back to IR FS from Preliminary Review of IR Proposed Plan

2x Subsurface RALs

Revisions to IR FS Section 7.2.1:

Revise the text in Section 7.2.1 specifically as follows:

3. Target Areas for RAO 2:
    - Selection of a subsurface (0.5–1.5 ft) RAL for RAO 2: A higher subsurface RAL was used in areas that exhibited erosion because the probability of further erosion in these areas is less than 100 percent. The subsurface RAL was set to 2 times the surface RAL (established for RAO 1), which is analogous to assuming that there is a 50 percent chance of enough additional erosion to expose the subsurface (0.5–1.5 ft) sediment. Bathymetry differences indicate that areas that exhibited 0.5 ft or more of erosion between 2008 and 2010 had approximately a 25 percent probability of eroding another 0.5 ft or more during a time period that included Hurricane Irene. This supports using a 4x multiplier for the RAO 2 subsurface RAL, but a 2x multiplier was adopted to be conservative. Section 4.2.1 and Attachment 1 of Appendix B provide additional details. Although the assessment of erosion probability is used to support a 2x multiplier for subsurface RALs, the selection of the 2x multiplier is a site management decision, based on lines of evidence, reached by EPA in consultation with~~,~~ NJDEP.
    - Evaluation of untargeted decision unit polygons: Untargeted decision unit polygons within erosional areas were evaluated for remediation based on subsurface total PCB and 2,3,7,8-TCDD concentrations in the 0.5–1.5 ft interval. Erosional areas were defined using bathymetric survey data where available (mainly in the channel, using the 2007 to 2012 bathymetric change categories developed in RI Section 4) and model predictions for remaining areas between RM 8.3 and RM 15 (specifically, areas experiencing maximum predicted erosion of ~~15 cm~~6 inches or more over the 2007 to 2012 period,[54] which included Hurricane Irene). For decision unit polygons with centerpoint subsurface total PCB concentration greater than or equal to 2 mg/kg or centerpoint subsurface 2,3,7,8-TCDD concentration greater than or equal to twice the RAL (determined in Step 2b above), the portion of the decision unit within erosional areas was added to the footprint.[55]

The above procedure was applied to a base map (Conditional Simulation 37 [CS 37], selected as a central tendency map across several characteristics) to develop the IR alternatives.[56] The footprints for the four active remedial alternatives considered in the IR FS are presented in Section 7.3. Additional details of the approach are provided in Appendix B. It is noted that the footprint delineations used in model projections differ somewhat from those described above. The main difference is that the identification of erosional areas for the RAO 2 targeting was based only on the model-predicted long-term erosion rate (see Appendix B).

Discussion of the uncertainty associated with the selection of CS 37 as the base map to estimate important components of each active remedial alternative (including RALs, remedial footprint acreages, construction quantities, and construction durations) is presented in Section 8.2 and Appendix C. A sensitivity evaluation of the assumptions underlying the RAO 2 RAL multiplier selection is presented in Appendix B, considering the potential impact to 2,3,7,8-TCDD SWACs of erosion in the RAO 2 footprint area exposing subsurface concentrations up to twice the surface RAL (i.e., exposing sediment that would

be targeted if the RAO 2 subsurface RAL were instead set equal to the surface RAL). The analysis in Section 4.2.2 of Appendix B indicates that the target SWAC would likely still be met even under highly conservative assumptions of erosion within the RAO 2 footprint area, thereby further supporting the use of twice the surface RAL as the trigger for remediation for subsurface sediments in erosional areas.

[54] Erosion predicted to occur during the 2007 to 2012 period may include sediment deposited prior to 2007.
[55] The Thiessen polygon-based delineation assigns the centerpoint concentrations to the entire polygon. This means that the portion of the polygon that is erosional is assumed to have the centerpoint concentrations and the decision of whether to include it in the delineation is based on those concentrations.
[56] The development of the mapping procedure and the selection of CS 37 was performed collaboratively with EPA.

Revisions to IR FS Section 8.2.3:

Revise the text in Section 8.2.3 specifically as follows:

Delineation of remedial action areas to address RAO 2 includes selection of a RAL for subsurface sediment in areas potentially subject to erosion but not remediated to address RAO 1 ~~(Appendix B)~~. The relatively sparse information on subsurface sediment contaminant concentrations and limited (spatially and temporally) bathymetric data limit the ability to definitively identify potential erosional areas and to characterize the potential impact of these areas on SWACs. For the IR FS, a subsurface RAL of twice the surface RAL was selected as a site management decision, supported by the assessment of erosion probability and the sensitivity analysis of SWAC impact resulting from theoretical erosion as presented in Appendix B, to delineate remedial action areas for RAO 2.[66] To characterize the effect of the selection of the subsurface RAL on remedial footprints, subsurface RALs were calculated for active alternatives in the 100 maps for factors of 1 and 2 of the surface RAL (Table 8-6).

Sediment and bathymetry data collection would be performed as part of the PDI and would support a refined characterization of subsurface sediment contaminant concentrations and erosional areas during the remedial design. The subsurface RAL would be reevaluated during the PDI, and the final subsurface RAL would be selected based on an evaluation of exposure likelihood and erosion potential. The maximum value of the factor of the surface RAL to be used for establishing the subsurface RAL, as a final site management decision, will be 2.

[66] The multiplier for the subsurface RAL was selected in collaboration with EPA and NJDEP.

Revisions to IR FS Appendix B Section 4.2.1:

Revise the text in Section 4.2.1 of Appendix B specifically as follows:

The subsurface RAL for RAO 2 was established by USEPA and CPG and was set to twice the surface RAL for both 2,3,7,8-TCDD and total PCBs (USEPA 2019a) as a site management decision. As described in Anchor QEA (2019b) (included herein as Attachment 1), the rationale for using a higher subsurface RAL in areas that exhibited erosion is that the probability of further erosion is less than 100%. Setting the subsurface RAL to two times the surface RAL is analogous to assuming that there is a 50% chance of enough additional erosion to expose the subsurface (0.5 to 1.5 feet) sediments. The likelihood of erosional areas experiencing subsequent erosion was evaluated using changes in bathymetry between multibeam bathymetric surveys. To this end, areas with at least 0.5 feet of erosion between the 2008 and 2010 surveys were identified as test locations (this period included a 25-year high flow event in March 2010, shortly before the 2010 survey). The change in bathymetry between 2011 and 2012 at these test locations was also examined to assess the impact of Hurricane Irene, a 90-year flow event that occurred shortly before the 2011 survey. These comparisons indicate that areas that exhibited 0.5 feet or more of

erosion between 2008 and 2010 had approximately a 25% probability of eroding another 0.5 feet or more during Hurricane Irene. This supports using a 4x multiplier for the RAO 2 subsurface RAL, but a 2x multiplier was adopted to be conservative. See Attachment 1 for additional details of the analysis and the rationale for the subsurface RAL multiplier.

Design Considerations and Lessons Learned from RM 10.9

Revisions to IR FS Section 7.1.4:

Revise the text in Section 7.1.4 specifically as follows:

For the purposes of the IR FS, it is assumed that cap material will be transported via barge and placed with a mechanical bucket. Upstream of RM 13.9, land-based cap material placement is assumed for the IR FS to accommodate fixed, low-clearance bridge constraints that preclude barge and tug operations upstream of RM 13.9.

Consistent with the RM 10.9 design (CH2M Hill 2013), a 1-ft isolation layer was evaluated over a 100-year time frame to determine the cap composition that would be effective at limiting migration of underlying sediment contaminants (Appendix F). An evaluation of potential armor size and thickness was performed with flows associated with a 100-year return period, consistent with EPA guidance (USEPA 2005). For the purposes of the feasibility-level cap stability analysis, armor is assumed to be placed throughout the cap footprint, to a thickness of 1 ft (Appendix F). Armor thickness would be refined in the remedial design. In shoal areas, habitat reconstruction material similar to existing substrate is assumed to be placed throughout the shoals, as the top 1 ft of the cap. Further consideration and refinement of the ecological and recreational function of the cap would be considered during the remedial design, at which time its composition would be determined. Cap types and thickness would vary depending on location and armoring requirements. Bathymetric data, geomorphic evaluations, and hydrodynamic and sediment transport model results would be used to determine erosional areas that would be proposed for armored cap placement. Additional design considerations, such as the addition of in situ reactive amendments would be established during remedial design. It is anticipated that one important cap design consideration would be the potential for an engineered cap to exacerbate erosion in adjacent uncapped areas. Placement of caps on slopes greater than 3:1 would require additional geotechnical analyses and design to evaluate feasibility. For the IR FS, it is assumed that cap thicknesses would vary from approximately 2 ft (in low-energy areas) to approximately 2.5 ft (in areas subject to greater erosion potential). A 2.5 ft cap is assumed throughout the remedial footprint for the purpose of the IR FS cost estimate.

Further evaluation of capping methods would be performed during remedial design to develop appropriate performance requirements for cap placement. RM 10.9 physical and chemical cap performance monitoring data will continue to be assessed to inform the capping approach for an IR (and possibly a final remedy). Data and lessons learned from cap construction and cap construction monitoring at the RM 10.9 removal action area would also be relied on to inform the capping approach. The remediation contractor would select appropriate methods and equipment to satisfy the performance requirements in the design.

Monitoring Elements and Lessons Learned from RM 10.9

Revisions to IR FS Section 7.1.6:

Revise the text in Section 7.1.6 specifically as follows:

Monitoring consists of baseline, construction, operation and maintenance (O&M), and long-term monitoring. In the IR FS, long-term monitoring is assumed to occur for 30 years spanning two phases. These include a system response and recovery assessment phase following IR completion and a subsequent phase of long-term monitoring following selection of a final remedy and issuance of the final ROD. The Current Conditions sampling of biota and surface water (under way in 2019 to 2021) and the PDI of sediment will establish pre-remediation baseline conditions for comparison purposes and provide data to support the remedial design. Monitoring assumptions for the IR FS include:

An IR completion assessment process would be performed to verify that RAO 1 has been achieved. The assessment would consider construction monitoring conducted during remediation to evaluate compliance with the performance requirements specified by the remedial design (i.e., water quality monitoring, bathymetric surveys, discharge monitoring, inspection surveys, sediment sampling to evaluate the residuals management measures being employed[50]) and post-remedy confirmatory sediment sampling. These monitoring activities, together with a multi-stage PDI and a robust design process and footprint delineation, comprise the multiple lines of evidence that will be evaluated to verify attainment of RAO 1. The remedy completion assessment process is described in Appendix H. Anticipated monitoring activities, as assumed for this IR FS, are summarized below.

- The PDI is anticipated to include:
  - Sediment sampling on a spatially dense grid (approximately 2,000 locations) from RM 8.3 to Dundee Dam to evaluate surface and subsurface conditions (the spatial density of sampling may be less in areas of coarse sediment)
  - A second round of sediment sampling to refine the delineation of the remedial footprint, better constrain data variability, and minimize the potential for targeting errors in the IR footprint, as needed
  - Sediment sampling is anticipated to include coring to a depth of 4ft. Anticipated coring intervals are 0 to 0.5 ft, 0.5 to 1.5 ft, 1.5 to 2.5 ft, and 2.5 to 4 ft.[51] Core depths and intervals may be refined during the PDI to ensure achievement of the data use objectives:
    - Characterization of the surface sediment interval
    - Characterization of subsurface sediment for (a) waste characterization of sediment above the dredge depth and (b) characterization of sediment below the dredge depth for cap design
    - Characterization of sediment that may be removed following the cost break-even evaluation for dredging without capping (see Section 7.1.1)
  - Bathymetry/LiDAR survey
  - Debris identification survey
  - Geotechnical evaluations
  - Supporting surveys (e.g., habitat, cultural, fish spawning)

- Construction monitoring is anticipated to include confirmatory bathymetric surveys to verify dredge depths and cap placement thicknesses, water quality monitoring, and sediment sampling to evaluate the efficacy of residuals management measures. Construction monitoring is also anticipated to include sediment coring to verify cap layer(s) thickness(es) and composition as prescribed by the IR design, and to evaluate potential mixing of cap layers with underlying sediment during cap placement. Performance metrics would be established during the remedial design to ensure achievement of dredging and capping extents and ~~water quality~~ other ~~criteria~~performance standards. Data and lessons learned from cap construction, cap construction monitoring, and physical and chemical cap performance monitoring at the RM 10.9 removal action area would be relied on to inform the IR cap construction monitoring approach.

- Post-IR confirmation sampling would include sufficient samples to provide a statistically unbiased estimate of the post-IR SWACs, and is anticipated to include not less than 400 and not more than 800 sediment sample locations at which three closely spaced samples will be collected and composited.

- O&M monitoring of cap areas would be conducted following construction to ensure long-term effectiveness. Bathymetry surveys and chemical monitoring would be performed to assess the continued stability and chemical isolation performance of the cap and any potential need for maintenance to ensure continued performance (e.g., replacement of eroded cap material and/or armor stone). Chemical monitoring ~~would be performed~~ to evaluate contaminant isolation~~.~~ may consist of sediment coring and sample analysis and/or the use of passive samplers. Data and lessons learned from cap performance monitoring at the RM 10.9 removal action area would be relied on to inform the IR cap O&M monitoring approach. Cap O&M monitoring would continue until 30 years after the end of construction.[52]

- Long-term monitoring to evaluate effectiveness of the interim remedy would start with recovery assessment monitoring upon completion of construction and will continue for a period of 30 years.[53] The long-term monitoring activities are described in Appendix D.

[50] Limited sediment sampling would be performed after the completion of the dredging season, targeting newly deposited sediment on top of capped areas and/or areas that have received RMC, for the objective of evaluating the efficacy and potential improvement of dredging BMPs. The utility of the sediment sampling would be evaluated and this monitoring may be discontinued after the first season or a subsequent season if (a) sampling of newly deposited sediment proves impracticable, (b) the concentrations of newly deposited sediment are consistent with or lower than near-field water column concentrations measured during active dredging and the water column monitoring demonstrates compliance with the performance standards, or (c) the variability and complexity of the system limits the ability to ascertain the cause of any elevated concentrations in newly deposited sediment and consequently limits the ability to revise BMPs any further than what is concluded using the water column data.
[51] Subsurface cores would be archived for future analysis within the delineated remedial footprint.
[52] Issuance of a final ROD would replace the cap monitoring and maintenance requirements of the IR.
[53] Issuance of a final ROD would replace the recovery assessment monitoring requirements of the IR with a second phase of long-term monitoring.

Revisions to Appendix G:

Make the following revisions to Appendix G:

Revise Tables G-1i, G-2i, G-3i, and G-4i to reflect that Cap Monitoring would consist of chemical monitoring in addition to bathymetric surveying. EPA is not requesting changes to the costs themselves at this time, but the cost tables should indicate that chemical monitoring is an expected component of the cap monitoring process.

Implementability and Lessons Learned from RM 10.9

Revisions to IR FS Section 8.4.2.4:

Revise the text in Section 8.4.2.4 specifically as follows:

The technologies and methods to perform the active alternatives are well established. Necessary equipment, materials, facilities, and transportation capacity would be available for the active alternatives with sufficient lead times. The active alternatives would require BMPs during implementation to manage dredge residuals and potential recontamination. The construction of an IR would face implementability challenges in the upper 9 miles of the LPR due to the urban environment. Specific challenges that could

impact dredging and would need to be considered during remedial design and implementation include utility crossings, existing shoreline structures, in-water bridge structures, and hard river bottom. For example, designing and implementing the remedy where the footprint abuts hardened or engineered shoreline could require significant effort to avoid damaging engineered shoreline structures or to rebuild or replace failing structures, and/or result in lower production rates or unanticipated delays. Alternative 2 abuts an estimated 37,792 linear feet of hardened shoreline, compared with 39,551 and 41,454 linear feet abutted by Alternatives 3 and 4, or 5 and 10 percent additional hardened shoreline, respectively.

The transport of materials up and down the LPR would also present implementability challenges due to low clearance and/or narrow bridges, which could necessitate custom or specialized equipment, as well as transiting tugs and barges through the lower 8.3 miles during active remediation of that reach of the river. Implementation of an IR could require additional removal ~~adjacent to~~in and/or around the RM 10.9 removal area, which could introduce additional implementability challenges associated with protecting the existing armored cap over the remediated area. The extent of remediation in and/or around the RM 10.9 area will be determined during the remedial design when the remedial footprint is finalized.

While the alternatives can be designed to address these challenges, the active alternatives with the larger remedial footprints would present greater challenges and constraints simply by the need to dredge in more areas and over a longer time frame. Although implementability challenges would be similar in type for all active alternatives, the degree of the challenges can be anticipated to increase in general proportion to the size of the remedial footprint.

Adaptive Management

Revisions to Appendix D:

Make the following revisions to Appendix D:

Change the title of Appendix D to "Adaptive Management Implementation Approach" instead of "Adaptive Management Plan". EPA would prefer to not identify this appendix as the adaptive management plan, given the intent of the appendix is to convey a framework for adaptive management that will be further developed and given that EPA will have forthcoming guidance for adaptive management plans that may differ structurally from the current document. As noted in the final paragraph of Section 1.2 of the current appendix, the appendix "is a first iteration that is expected to be revised and expanded into a more comprehensive plan". In making this revision, also review the appendix for other uses of "plan" to ensure that the terminology used is consistent with this comment. Specifically:

- Revise the use of "Adaptive Management Plan" in the body of the appendix (and the appendix header) to instead be "Adaptive Management Implementation Approach" (pages 1-1, 1-4 [three instances], 2-2, 3-5, and 5-6 and the callout box on page 2-1)
- On page 1-4, in the final sentence of the third paragraph of Section 1.2, change "The structure of the plan" to "The structure of this appendix"
- On page 1-4, in the second sentence of the final paragraph of Section 1.2, change "It is anticipated that the plan" to "It is anticipated that the approach (and comprehensive plan, as available)"
- On page 2-2, in the last sentence of the third paragraph of Section 2, revise "Section 2.4 of this plan" to be "Section 2.4 of this appendix"
- On page 2-2, in the sixth paragraph of Section 2, revise "This plan" at the beginning of the second sentence to be "This appendix", and revise "Finally, the plan" at the beginning of the last sentence to be "Finally, this appendix"

- On page 2-3, in the final sentence of the last paragraph of Section 2, revise "addressed by this plan" to be "addressed by this appendix"
- In Sections 2.2 and 2.3 (pages 2-3 through 2-5) and Section 5.1.2 (page 5-4), revise the several references to "this plan" to be "this appendix"

In Section 1 of Appendix D, include, either as a new paragraph or by way of a footnote (e.g., at the conclusion of the sentence reading "The first step would be the design and implementation of a source control interim remedy (IR) for the upper 9 miles") that other actions have been performed in the LPRSA that have generated information that has facilitated learning about the system and ongoing adaptive management. These other actions include the Phase 1 removal at the Lister Avenue facility and the RM 10.9 removal action. Acknowledging these other actions, despite them not being performed under a formal adaptive management plan, acknowledges that prior learning has occurred on which is predicated the adaptive management process currently being followed.

On Figure 2-4, for Adaptive Element 3, revise each milestone that currently reads "Assess PRGs and Recovery to PRGs" to instead read "Assess Recovery to PRGs" with a figure footnote that reads "PRGs may be refined if additional information is available that suggests uncertainty can be further constrained for particular PRG inputs and that refinement of PRGs is warranted". Make similar edits to Figures 5-2a and 5-2b, revising the milestones that currently read "Assess recovery to PRGs, reevaluate as warranted, ***Adaptive Element 3***" to instead read "Assess recovery to PRGs, ***Adaptive Element 3***" and including the same footnote.

In addition, below please find EPA's additional edits to the ARAR table,

Table 4-1. Potential Action-Specific ARARs

Act/Authority	Citation	Brief Description	Applicability and Anticipated Requirements
Toxic Substances Control Act of 1976 (TSCA), 15 U.S.C. 2601 et seq.			
Management of PCB wastes	40 CFR Part 761	Regulates PCBs and other toxic substances from manufacture to disposal. Subpart D regulates storage and disposal of PCB waste. Establishes requirements for handling, storage, and disposal of PCB-containing materials, including PCB remediation wastes, and sets performance standards for disposal technologies for materials/wastes with concentrations in excess of 50 mg/kg. Establishes decontamination standards for PCB-contaminated debris. Prohibits the use of dilution to avoid TSCA requirements.	ARAR. Potentially applicable to environmental media containing PCBs at concentrations exceeding 50 mg/kg which may be considered bulk PCB remediation waste.
Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6921 et seq.			
Management of Non-Hazardous Solid Waste Program (Subtitle D)	40 CFR 239-299 40 CFR 243, 40 CFR 256	Establishes requirements for generators, transporters, and facilities that manage non-hazardous solid waste.	ARAR for solid waste generated as part of the remediation project. The CERCLA Off-Site Rule (40 CFR 300.440) applies to any CERCLA response action involving the off-site transfer of any hazardous substance, pollutant, or contaminant (CERCLA wastes). The Off-Site Rule requires CERCLA wastes to be placed only in a facility operating in compliance with RCRA or other applicable federal or state requirements. These facilities include, but are not limited to, treatment, storage, and disposal facilities that are regulated under RCRA, TSCA, or any other applicable federal or state environmental law.
Management of Hazardous Waste (Subtitle C)	40 CFR 260-265, 40 CFR 268	Establishes requirements for generators, transporters, and facilities that manage hazardous solid waste. Provides for evaluation and control of materials that contain a listed waste, or that display a hazardous waste characteristic based on the toxicity characteristic leaching procedure (TCLP) test. Regulates storage, treatment, and disposal of listed or characteristic waste unless an exemption applies. Also establishes treatment standards (land disposal restrictions) for hazardous waste prior to disposal.	ARAR. Contaminated sediments that exhibit characteristics of hazardous waste (e.g., the characteristic of toxicity, based on testing according to the TCLP test) will be managed as hazardous waste. Prior to disposal as a hazardous waste, dredged material may require treatment. Requirements of the Off-Site Rule (see above) are also applicable for offsite transfer of hazardous wastes designated in accordance with RCRA Subtitle C.

Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq.			
Management of Solid Waste	N.J.A.C. 7:26-2.1 Solid Waste	Establishes requirements for generators, transporters, and facilities that manage non-hazardous solid waste.	ARAR for solid waste generated as part of the remedial action. In New Jersey, dredged material is typically excluded from the definition of solid waste.
Management of Hazardous Waste	N.J.A.C. 7:26-G-1 et seq. Hazardous Waste Facilities	Establishes requirements for generators, transporters, and facilities that manage hazardous waste, and for thermal destruction facilities.	ARAR. Relevant and appropriate to sediment that is managed as hazardous waste generated as part of the remedial action.
Brownfield and Contaminated Site Remediation Act, N.J.S.A 58:10.3-1 et seq.			
Technical Requirements for Site Investigation and Remediation	N.J.A.C. 7:26 D, 7:26 E	Establishes minimum regulatory requirements for investigation and remediation of contaminated sites being addressed under New Jersey authorities and oversight..	ARAR. Substantive requirements for remedial action potentially relevant and appropriate for some aspects of remedial alternatives. TBC: NJDEP's "Technical Guidance on the Capping of Sites Undergoing Remediation," published pursuant to these requirements, provides general technical considerations, describes cap types and applications, and outlines monitoring considerations for the design and implementation of sediment caps for remediation of contaminated sediments.

Table 4-2. Potential Location-Specific ARARs

Act/Authority	Citation	Brief Description	Applicability and Anticipated Requirements
Fish & Wildlife Coordination Act, 16 U.S.C. 661			
Protection of Wildlife	40 CFR 2 6:302(g)	Requires consideration of the effects of a proposed action on wetlands and areas affecting streams (including floodplains), as well as other protected habitats. Federal agencies must consult with USFWS prior to authorizing any modification of any stream or other water body, and requires adequate consideration to protect fish and wildlife resources and their habitats. Wildlife and wildlife resources include birds, fish, mammals, and all other classes of wild animals and all types of aquatic and land vegetation upon which wildlife is dependent.	ARAR. The Passaic River is a migratory pathway, nursery, and forage area for anadromous fish. NOAA will be consulted to determine if conservation measures are appropriate for the riverbed where dredging activities are occurring.

Migratory Bird Treaty Act, 16 U.S.C. 703-712			
Protection of Native and Migratory Birds	50 CFR 10	Requires that federal agencies consult with USFWS during remedial design and remedial construction to ensure that the cleanup of the site does not unnecessarily impact migratory birds. Protects native birds and migratory birds, as listed in 50 CFR 10.13, their nests, and eggs from unregulated "take," which can include disturbing active nests. Managed by USFWS.	ARAR. Bird activity has been observed along the LPR. Active bird nests cannot be removed without ~~permit equivalent~~ approval.
Endangered Species Act, Section 7, 16 U.S.C. 1531			
Protection of Threatened and Endangered Species	50 CFR Part 17 50 CFR Part 402	The Endangered Species Act provides broad protection for species of fish, wildlife, and plants that are listed as threatened or endangered in the U.S. or elsewhere. Applicable if any action may have an impact on an endangered species.	ARAR potentially applicable. The NJDEP Division of Fish and Wildlife Service will be consulted. Threatened, endangered, and of concern species have been identified along the LPR.
The Endangered and Non Game Species Conservation Act, N.J.S.A. 23:2A-1 to 23:2A-1:15			
Protection of Endangered, Threatened, or of Special Concern Species	Title 23 Fish and Game Wild Birds and Animals	Restricts activities where endangered, threatened, or of special concern species may be present	ARAR potentially applicable. The NJDEP Division of Fish and Wildlife Service will be consulted. Threatened, endangered, and of concern species have been identified along the LPR.
National Historic Preservation Act, 16 U.S.C. 470			
Historic Resources	36 CFR 800	Requires federal agencies to take into account the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object that is included in or is eligible for inclusion in the National Register of Historic Places. If the undertaking results in adverse effects, the agency must consult with the New Jersey Historic Preservation Office and other parties to develop ways to avoid, reduce, minimize, or mitigate any adverse impacts to those identified properties.	ARAR. A cultural survey will be conducted during the remedial design that will comply with the National Historic Preservation Act and aid in consultations with New Jersey Historic Preservation Office.

Table 4-2. Potential Location-Specific ARARs

Act/Authority	Citation	Brief	Applicability and Anticipated

		Description	Requirements
New Jersey Register of Historic Places, N.J.S.A. 13:1B-15.128 et seq.			
Historic Resources	N.J.A.C. 7:4	Requires that actions by state, county, or local governments, which may impact a property listed in the New Jersey Register of Historic Places, be reviewed and authorized through the Historic Preservation Office.	ARAR potentially applicable. If federally assisted undertaking on any district, site, building, structure or object included in, or eligible for inclusion in, the National Register of Historic Places results in adverse effects, the agency must consult with the New Jersey Historic Preservation Office and other parties to develop ways to avoid, reduce, minimize, or mitigate any adverse impacts to those identified properties. A cultural resource survey (Phase I and II) will be conducted during the remedial design that will comply with the National Historic Preservation Act and aid in consultations with the New Jersey Historic Preservation Office.
Coastal Zone Management Act, 16 U.S.C. §§ 1451 et seq., §307 Coordination and Cooperation			
Coastal Resources	15 CFR Part 930	Requires that any federal agency undertaking a project in the coastal zone of a state shall ensure that the project is, to the maximum extent practicable, consistent with the enforceable policies of approved state management plans.	ARAR. Work will occur in areas that require substantive conformance with New Jersey Waterfront Development Law and New Jersey Coastal Zone Management Program and rules.
Section 10 Rivers and Harbors Act of 1899, 33 U.S.C. §403			
Wetlands; Navigable Waters	33 CFR 320-330	Regulates activities such as dredging and filling, and other construction in navigable waters of the U.S. Congressional approval required for any obstruction of the navigable capacity of the waters of the United States. Placement of pilings, or discharge of dredged material where the flow or circulation of waters of the United States may be impaired or the reach of such waters reduced must comply with Section 10.	ARAR for reaches of the river where dredging or capping will occur within navigable waters, as defined in 33 CFR 329. While permits are not required for on-site work, ~~S~~substantive requirements ~~are~~ can be found in the General Permit and Regional Conditions.
New Jersey Waterfront Development Law (N.J.S.A. 12:5-3)			

Waterfront Development	Coastal Permit Program N.J.A.C. 7:7	Regulates any waterfront development, including sediment removal and fill, at or below mean high water and up to 500 ft from mean high water in the coastal zone and tidal waters of the state. Implemented through the Coastal Zone Management Program (N.J.A.C. 7:7), which provides rules and standards for use and development of resources in New Jersey's coastal zone.	ARAR. Dredging and filling projects require substantive conformance with Coastal Zone Management Program and rules. While permits are not required for on-site work, ~~F~~for alternatives that include an onsite sediment processing facility, an Acceptable Use Determination Permit-equivalent ~~will also~~may be sought, to establish substantive requirements. Substantive requirements and BMPs include measures to minimize scouring and resuspension of sediment during dredging and placement of cap materials, slope management, and monitoring upstream and downstream.
Coastal Zone Management Rules/Standards	Coastal Zone Management N.J.A.C. 7:7	Provides standards for use and development of resources in New Jersey's coastal zone including those performed in accordance with the Waterfront Development Law. The rules are used in the review of water quality certificates subject to Section 401 of the Federal Clean Water Act, and federal consistency determinations under Section 307 of the Federal Coastal Zone Management Act, 16 U.S.C. § 1456. The rules also provide a basis for riparian grants, leases, and licenses.	ARAR. The Coastal Zone Management rules are considered in developing substantive requirements; ~~for the~~ Waterfront Development Permit/ Water Quality Certificate Permit Equivalents may be sought to establish compliance with substantive requirements.
Tidelands Act (Riparian Lands Leases, Grants, and Conveyances [N.J.S.A. 12:3-1 et seq.])			
Riparian lands owned by the State of New Jersey		Requires a tidelands lease, grant, or conveyance for the use of state-owned riparian lands, including sediment removal from rivers. The State of New Jersey owns riparian lands flowed by the mean high tide of a natural waterway, except for those lands in which it has already conveyed its interest in the form of a riparian grant.	ARAR. Sediment removal and backfill activities ~~can~~ will require a tidelands lease. The application for the Tidelands Lease can be included in ~~the~~ a Waterfront Development Permit- equivalent package. Substantive requirements include that development plans must be prepared by a professional engineer, and must depict the limits of the tidelands instrument, and notice to upland property owners.