

## **Appendix 3: Hazardous Waste and Contaminated Materials**

### **APPENDIX 3: HAZARDOUS WASTE AND CONTAMINATED MATERIALS**

#### **3-A: Phase I Environmental Site Assessment**

**1 – Photographic Documentation**

**2 – Historic Aerial Photographs**

**3 – Historical Topographic Maps**

**4 – Regulatory Records Review**

**5 – Supporting Documentation**

**Appendix 3 – A**  
**PHASE I ENVIRONMENTAL SITE ASSESSMENT**



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August 12, 2015

John Brun  
National Railroad Passenger Corporation (Amtrak)  
30<sup>th</sup> Street Station  
2955 Market Street, 5<sup>th</sup> Floor South  
Philadelphia, PA 19104

**Re: Phase I Environmental Site Assessment**  
***Sawtooth Bridges Replacement Project***  
***Towns of Kearny and Harrison, Hudson County, New Jersey***  
***AKRF Project Number: 20429***

Dear Mr. Brun:

AKRF, Inc. is pleased to submit this Phase I Environmental Site Assessment (ESA) completed for the above-referenced project. This report includes the findings of a reconnaissance of the proposed project area, an evaluation of readily available historical information, and selected environmental databases and electronic records.

We appreciate the opportunity to provide you with our services. If you should have any questions, please do not hesitate to contact us.

Sincerely,  
AKRF, Inc.

A handwritten signature in black ink, appearing to read 'D. A. Kapson', enclosed in a rectangular box.

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Dustin Kapson  
Senior Technical Director

A handwritten signature in black ink, appearing to read 'Marcus Simons', enclosed in a rectangular box.

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Marcus Simons  
Senior Vice President

Enc.

## EXECUTIVE SUMMARY

AKRF, Inc. (AKRF) was retained by the National Railroad Passenger Corporation (Amtrak) to conduct an Environmental Assessment (EA) for the proposed replacement and expansion of Amtrak Bridges No. 7.80 and No. 7.96 (referred to collectively as the “Sawtooth Bridges”). The Sawtooth Bridges are located along the critical “High Line” segment of Amtrak’s Northeast Corridor (NEC) connecting Newark, New Jersey and New York, New York. In support of the EA and in accordance with the National Environmental Policy Act (NEPA) and Federal Railroad Administration (FRA) guidelines<sup>1</sup>, a Phase I Environmental Site Assessment (ESA) was performed to research and identify hazardous materials concerns associated with the Proposed Project. The Sawtooth Bridges support the NEC over four New Jersey Transit Corporation (NJ TRANSIT) rail tracks that serve the Morris & Essex Line, one Port Authority Trans-Hudson Corporation (PATH) Newark–World Trade Center (WTC) rail track, and one Conrail Center Street Branch rail track. The Sawtooth Bridges Replacement Project (referred to herein as the “Proposed Project”) includes an approximately 1.1-mile long segment of Amtrak’s NEC, located north of the Passaic River and within the southern section of the New Jersey Meadowlands District. The Proposed Project Area lies almost entirely within the Town of Kearny in Hudson County, NJ, but also includes a small portion extending slightly into the Town of Harrison to the west.

This Phase I ESA was performed to identify the presence or likely presence of any hazardous substances or petroleum products at or beneath the Proposed Project Area, due to any release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The assessment of hazardous waste and contaminated materials was based on methodology set forth in US EPA’s All Appropriate Inquiries (AAI) rule (40 CFR Part 312) and applicable sections of CERCLA. This assessment was performed in general conformance with ASTM Standard E1527-13, *Standard Practice for Environmental Proposed Alternatives Assessments: Phase I Environmental Proposed Alternatives Assessment Practice*. Any exceptions to, or deletions from, this practice are described in Section 8.0. The term “Recognized Environmental Condition” means the presence or likely presence of hazardous substances or petroleum at a property, including the ground, groundwater, or surface water at or under a property.

At the time of AKRF’s July 2015 reconnaissance, the Proposed Project Area consisted of the existing rail lines and adjacent right-of-way land associated with the NEC. The surrounding area includes a mix of transportation, industrial, utility, commercial, and environmental conservation land uses. The location of the Proposed Project Area and greater surrounding area is shown on Figure 1 and the Proposed Project Area detail is shown on Figure 2.

### **Recognized Environmental Concerns (RECs)**

This Phase I ESA revealed the following evidence of RECs within the boundary of the Proposed Project Area:

- According to historical records, the majority of the area that encompasses the Proposed Project was created as a result of filling in the adjacent wetland areas to support extensive use for railroad operations since 1891. The existing Sawtooth Bridges were constructed in 1908, and aerial photographs indicate that extensive filling of presumed wetland areas occurred north-adjacent to the central portion of the Proposed Project Area between 1946 and 1976. Historic fill of unknown origin used to raise grades beneath the Proposed Project Area may be unsuitable for re-use and may contain

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<sup>1</sup> Federal Railroad Administration (FRA) *Procedures for Considering Environmental Impacts* (64 Federal Register [FR] 28545 [May 26, 1999])

contaminant concentrations requiring regulated management. Rail usage can contaminate surrounding soils with creosote from treated rail ties, spills from diesel or other petroleum products, releases from cargo loading and unloading, and releases from maintenance and fueling activities.

This Phase I ESA identified the following evidence of RECs in the immediate vicinity, but beyond the boundary of the Proposed Project Area:

- Based on a review of available records, the Municipal Sanitary Landfill Authority (MSLA) formerly accepted municipal solid waste at the MSLA 1-D landfill located north-adjacent to the western segment of the Proposed Project Area. The landfill ceased operations in 1982 under an administrative order from the New Jersey Department of Environmental Protection (NJDEP). According to NJDEP records, releases of thousands of gallons of leachate containing elevated levels of organic compounds and metals occurred on a daily basis into adjacent wetlands and the Passaic River due to the improper closure of the landfill. Violations were subsequently reported by NJDEP during a January 1989 compliance evaluation inspection, including the release of leachate into the Passaic River and deficiencies in groundwater sampling and reporting associated with the initial closure. As part of the more recent re-closure efforts led by NJDEP in 2009 and 2010, the perimeter roadway was capped and a leachate and methane recovery system was proposed to be installed. Documented historic releases may have affected subsurface conditions at the Proposed Project Area.
- The Weldon Asphalt Plant (a.k.a Weldon Quarry Company, LLC or SOS Gases, Inc.) located north-adjacent of the western extent of the Proposed Project Area is a currently operating industrial facility that has been identified on the regulatory database as a generator of spent chlorinated solvent (F001) waste in 1996 and 2006. This facility is also listed in the NJ Underground Storage Tank (UST) database with a 2,000-gallon diesel fuel tank installed in 1969 and removed in 1993. The NJ Release database identified an explosion associated with this facility in 2001 that was related to the asphalt plant operations. No fires occurred and there was no additional information on the incident. The facility maintains an impermeable cap established as an engineering control with the state of New Jersey to address soil contamination from volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals originating from the operations of the asphalt plant. An institutional control established with New Jersey in association with the capping of the soil contaminants restricts the facility to industrial uses. None of the available documentation reviewed as part of this Phase I ESA included records discussing groundwater quality at this facility; however, documented historic releases may have affected subsurface conditions at the Proposed Project Area.
- During the reconnaissance completed as part of this Phase I ESA, the property located north-adjacent to the Proposed Project area and immediately east of the Weldon Asphalt Plant, reportedly owned and operated by Ann Martucci, Inc. (a.k.a Mad Max), was observed to be utilized as a storage facility for used trucks and miscellaneous industrial/construction machinery. This facility was not listed on the regulatory databases and is not suspected to perform substantial maintenance activities, however, metal piping runs (suspected to be associated with storm water collection) were observed to be discharging from equipment storage areas into the wetland areas abutting the Proposed Project Area. A suspected former open water wetland area was observed in the central portion of this property that had been improved with landscaping and maintained with an aeration device (use unknown) by the current operator. Suspected tidal gate structures were observed at the southern end of the wetland stream feature traversing the southwestern portion of this property. The wetland stream feature is suspected to be connected to and partially influenced by the Passaic River, and thus would travel through the subsurface of the Proposed Project Area. Undocumented releases associated with long-term heavy equipment storage may have affected subsurface conditions at the Proposed Project Area.

- The western portion of the Proposed Project Area is located immediately north of a segment of the Passaic River that is well known and documented to have been impacted from direct waste discharges from the industrial operations of the Diamond Alkali Superfund Site located on Lister Avenue in Newark, New Jersey. The contaminated sediment within the segment of the Passaic River adjacent to the Proposed Project contains elevated and hazardous concentrations of dioxins, heavy metals, polychlorinated biphenyls (PCBs), and pesticides. A seven year feasibility study conducted by the USEPA to address the contaminated sediment (in this segment of the lower Passaic River) resulted in the remedial action removal effort of 40,000 cubic yards of the most dioxin-contaminated sediment at the river bottom adjacent to the Diamond Alkali site in 2012. The proposed remedial plan recently set forth by USEPA in 2014 includes bank-to-bank dredging of an additional 4.3 million cubic yards of contaminated sediment from the lower eight miles of the Passaic (from the area immediately adjacent of the Proposed Project south toward Newark Bay) followed by capping of the river bottom. Due to the potential for tidal influence to draw waters and suspended sediment of the Passaic River beneath and into wetland areas immediately adjacent to the Proposed Project Area, the contaminants historically discharged to the Passaic River may have also affected subsurface conditions beneath the Proposed Project Area.
- During the reconnaissance, the currently active Amtrak Substation 41 was observed south-adjacent of the eastern portion of the Proposed Project Area. This structure has been utilized as a substation associated with rail operations since construction in 1931, and recently experienced heavy flooding during Hurricane Sandy in 2012. The decommissioned Pennsylvania Railroad Substation 4 building was also observed south-adjacent to the Proposed Project Area (underneath the eastern spur of the New Jersey Turnpike). Operations at this substation building supported rail operations dating back to construction in 1910. Neither of the buildings are listed on regulatory databases for documented releases or the storage of hazardous materials; however, based on the ages of the structures, former transformers or other electrical equipment may have utilized PCB-containing oils or mercury-containing switches. Undocumented releases at these structures, especially during historic storm events, may have affected subsurface conditions beneath the Proposed Project Area.

#### **Other Environmental Concerns**

- Suspect asbestos containing materials (ACM) was not observed during the reconnaissance of the Proposed Project Area, but could be present in encased conduits associated with aboveground or underground utilities, buried debris, or fill material used to raise grades within or immediately adjacent to the Proposed Project Area. Based on the age of Amtrak Substation 41 and Pennsylvania Railroad Substation 4, the building materials used during their construction in the early 1900s or any subsequent renovations or repairs may have utilized ACM and/or lead-based paint (LBP).
- Based on the age of the railway and associated Sawtooth Bridge structures, LBP may be present on structures within or immediately adjacent to the Proposed Project Area.
- The New Jersey Turnpike overpass bisects the Proposed Project Area and was constructed by 1954 and the Eastern Spur was completed by 1976. The New Jersey Turnpike overpasses are immediately adjacent to, and were built extending over the railway operations encompassing the Proposed Project. Improper management of material during excavation and backfilling activities completed during construction of the Turnpike and/or petroleum spills, or leaks from the ongoing use of the roadway have the potential to have impacted subsurface conditions of the Proposed Project Area.
- The area beyond adjacent sites to the north and east of the Proposed Project Area was historically used for industrial, transportation, utility-related and landfilling/waste disposal purposes. Numerous sites with extensive contamination including documented releases, leaking underground storage tanks, and hazardous waste generators were identified by the regulatory database search in the surrounding corridor of the Proposed Project.

***Recommendations***

- Due to the potential presence of soil and groundwater contamination beneath the Proposed Project Area from historic filling, use for rail operations, and documented cases of adjacent industrial use, AKRF recommends that site-specific plans are incorporated into all contract documents to ensure the safety of workers and the surrounding community, protect sensitive environmental conservation land areas, and adhere to all applicable regulatory requirements. The site-specific plans should include documentation of all known aboveground and underground utilities and storm water/tidal control conduits and be overlaid with proposed areas of disturbance shown on the final construction drawings. All excavated soil requiring off-site disposal (or reuse) should be characterized and managed in accordance with applicable New Jersey Department of Environmental Protection (NJDEP) regulatory requirements, including the testing requirements of any intended receiving facilities. Transportation of material within or leaving the Proposed Project Area should be completed in accordance with all applicable federal, state, local, and agency requirements covering licensing of haulers and trucks, placarding, truck routes, manifesting, etc. All construction activities and site-specific plans should also be carried out in collaboration with nearby responsible parties (or their authorized representatives) of known contaminated properties to confirm the latest available data is referenced to maintain safety for workers, the surrounding community, and nearby sensitive environmental receptors. If previously unknown or unexpected subsurface contamination is discovered during construction activities, investigation and remediation should be performed by a New Jersey Licensed Site Remediation Professional (LSRP) as required under the Site Remediation Reform Act N.J.S.A. 58:10C-1 et seq. (SRRRA), the Technical Requirements for Site Remediation N.J.A.C. 7:26E (Technical Rules), and Administrative Requirement for the Remediation of Contaminated Sites N.J.A.C. 7:26C (ARRCS).
- Although not anticipated, if petroleum tanks are encountered during any excavation completed for construction, they should be closed and removed, along with any contaminated soil, in accordance with applicable requirements. Any evidence of a petroleum spill should be reported to NJDEP and addressed in accordance with applicable requirements. If tanks are discovered, they should be properly registered, if required, with the NJDEP, and/or the Kearny/Harrison Fire Department.
- If dewatering is required during construction, water must be managed and discharged in accordance with applicable local and state regulatory permitting requirements. Preliminary testing and a feasibility study should be performed prior to construction to support any necessary permitting.
- Surfaces coated with LBP may require abatement prior to disturbance (e.g., cutting) that could generate lead-containing dust or vapors. Prior to construction or demolition, if lead-coated surfaces are expected to be disturbed, an exposure assessment must be performed to determine whether lead exposure would occur. Any activities with the potential to disturb lead-based paint must be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62—Lead Exposure in Construction).
- Prior to any renovation or demolition activities with the potential to disturb suspect ACM, an asbestos survey including the review of all known utilities should be conducted and if materials tested prove to contain asbestos, they should be properly removed and disposed of in accordance with all applicable local, state and federal regulations.
- Unless there is labeling or test data that indicates that fluorescent lights or other electrical equipment, are not mercury- and/or PCB-containing, if disposal is required, it should be performed in accordance with applicable federal, state and local regulations and guidelines during any decommissioning or demolition work during the replacement project.

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Figure 1 – Proposed Project Area Location

Figure 2 – Proposed Project Area Detail

**APPENDICES**

Appendix A – Photographic Documentation

Appendix B – Historical Aerial Photographs

Appendix C – Historical Topographic Maps

Appendix D – Regulatory Records Review

Appendix E – Supporting Documentation

## 1.0 INTRODUCTION

AKRF, Inc. (AKRF) was retained by the National Railroad Passenger Corporation (Amtrak) to conduct an Environmental Assessment (EA) for the proposed replacement and expansion of Amtrak Bridges No. 7.80 and No. 7.96 (referred to collectively as the “Sawtooth Bridges”). The Sawtooth Bridges are located along the critical “High Line” segment of Amtrak’s Northeast Corridor (NEC) connecting Newark, New Jersey and New York, New York. In support of the EA and in accordance with the National Environmental Policy Act (NEPA) and Federal Railroad Administration (FRA) guidelines<sup>1</sup>, a Phase I Environmental Site Assessment (ESA) was performed to research and identify hazardous materials concerns associated with the Proposed Project. The Sawtooth Bridges support the NEC over four New Jersey Transit Corporation (NJ TRANSIT) rail tracks that serve the Morris & Essex Line, one Port Authority Trans-Hudson Corporation (PATH) Newark–World Trade Center (WTC) rail track, and one Conrail Center Street Branch rail track. The Sawtooth Bridges Replacement Project (referred to herein as the “Proposed Project”) includes an approximately 1.1-mile long segment of Amtrak’s NEC, located north of the Passaic River and within the southern section of the New Jersey Meadowlands District. The Proposed Project Area lies almost entirely within the Town of Kearny in Hudson County, NJ, but also includes a small portion extending slightly into the Town of Harrison to the west.

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At the time of AKRF’s July 2015 reconnaissance, the Proposed Project Area consisted of the existing rail lines and adjacent right-of-way land associated with the NEC. The surrounding area includes a mix of transportation, industrial, utility, commercial, and environmental conservation land uses. The location of the Proposed Project Area and greater surrounding area is shown on Figure 1 and the Proposed Project Area detail is shown on Figure 2.

The scope of the assessment included the following:

- Observations of the Proposed Project Area (reconnaissance) to identify potential sources or indications of hazardous substances, including: aboveground storage tanks (ASTs); underground storage tanks (USTs); tank vents and fill ports; transformers and other items that could contain polychlorinated biphenyls (PCBs), drums or areas where hazardous materials were used, stored, or disposed; stained surfaces and soils; stressed vegetation, leaks, odors. In addition, neighboring properties were viewed, but only from public rights-of-way, to identify similar concerns.

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<sup>1</sup> Federal Railroad Administration (FRA) *Procedures for Considering Environmental Impacts* (64 Federal Register [FR] 28545 [May 26, 1999])

- Readily available geological and groundwater (hydrogeological) information was evaluated to assist in determining the potential for contamination migration (including in soil, soil vapor, and/or groundwater) within, from, and onto the Proposed Project Area.
- The reconnaissance of the Proposed Project Area included observation of any readily visible suspect asbestos-containing materials (ACM) and potential lead-based paint. However, no samples were collected or analyzed, and this reconnaissance provides neither definitive nor exhaustive information.
- A state database of county-level radon concentrations was used to determine typical indoor radon levels and compare them to United States Environmental Protection Agency (USEPA) guidelines.
- Historical aerial photographs and topographic maps for the Proposed Project Area and nearby properties were reviewed to evaluate historical land uses.
- The following federal regulatory databases were reviewed to determine the regulatory status of the Proposed Project Area and properties within the ASTM-specified radii: National Priority List (NPL); Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); Emergency Response Notification System (ERNS); Toxic Chemical Release Inventory System (TRIS); the Permit Compliance System of Toxic Wastewater Discharges (WWD); the Air Discharge Facilities Index (ADF) the USEPA Civil Enforcement Docket. The federal listing of facilities which are subject to corrective action under the Resource Conservation and Recovery Act (CORRACTS) is discussed with the State databases of RCRA listings.
- The compilation of state regulatory databases collectively referred to as The Known Contaminated Sites in New Jersey, updated regularly and managed by the New Jersey Department of Environmental Protection's (NJDEP's) Site Remediation Program (SRP) were reviewed to determine the regulatory status of the Proposed Project, adjacent properties, and properties within the ASTM-specified study area.

## 2.0 PHYSICAL PROJECT AREA DESCRIPTION

Visual assessment of the Proposed Project Area and adjacent areas was performed under the oversight of an Amtrak escort in accordance with Amtrak Contractor Orientation Safety Requirements on July 22, 2015 by Dustin Kapson of AKRF. The weather was partly sunny and approximately 80 °F, and the visibility was good. At the time of the reconnaissance, the Proposed Project Area was being utilized to support passenger rail services under typical weekday morning conditions within the NEC. Photographs are included in Appendix A.

The Proposed Project would include the decommissioning and removal of the existing Sawtooth Bridges; construction of new bridges along the NEC and planned adjustments including (but not limited to) relocating crossovers, increasing the total number of tracks, and allowing for an increase in current design speed.

### 2.1 General Site Conditions

The Proposed Project Area consists of the existing rail lines and adjacent railroad right-of-way. The Proposed Project is roughly bounded by the Hudson Interlocking to the west, Swift Interlocking to the east, NJ TRANSIT's Morris & Essex line to the north and PANYNJ tracks to the south (beyond which is the lower section of the Passaic River). The area encompassing the Proposed Project is used as a rail transportation right-of-way servicing passenger trains and is bisected by the New Jersey Turnpike overpass.

The reconnaissance was performed under escort by an Amtrak representative and associated flag men from safely accessible areas adjacent to the active rail lines. No evidence of any current or historic releases was identified during the visual assessment of the Proposed Project Area. Evidence of residual miscellaneous trash, plastic bottles, and debris washed up during major storm events were observed in areas along the southern boundary of the western portion of the Proposed Project.

General conditions on the western half of the Proposed Project Area include industrial and transportation uses. The area east of the New Jersey Turnpike overpass comprises undeveloped wetland and open water associated with the Cedar Creek Marsh, Amtrak Substation 41, and warehousing/distribution and freight maintenance facilities. The recently re-closed 93.8-acre Landfill 1-D that formerly accepted municipal solid waste is located immediately west of the New Jersey Turnpike overpass, and directly north of the central section of the Sawtooth Bridges. A wetland/open water feature that was surrounded by *Phragmites* and other herbaceous, overgrown vegetation at the time of the visit was identified between the perimeter roadway of Landfill 1-D and the Proposed Project Area. Two fenced-in gas control valving stations that are reportedly owned by Williams-Transco and PSE&G are west-adjacent of the New Jersey Turnpike overpass, and situated immediately north of the Proposed Project boundary.

The Proposed Project Area location is shown on Figure 1 and the Proposed Project Area detail is shown on Figure 2. The surrounding area contains a mix of transportation, industrial, utility, commercial, and environmental conservation land uses.

### 2.2 Topography, Geology, and Hydrogeology

Based on U.S. Geological Survey mapping, the elevation varies from approximately 2 feet above mean sea level (amsl) towards the eastern end of the Proposed Project Area to approximately 25 feet amsl towards the western end of the Proposed Project Area.

Based upon the topographical data and the proximity to the Passaic River, groundwater is assumed to flow in a southerly direction towards the river. The lower Passaic River, located

south-adjacent of the Proposed Project Area, is known to be tidally influenced. Additionally, actual groundwater flow can be affected by factors beyond the scope of this assessment.

## **2.3 Storage Tanks**

### **2.3.1 Underground Storage Tanks (USTs)**

No evidence of on-site USTs was observed during the reconnaissance or was identified by the regulatory database review.

Off-site USTs are further discussed in Section 5.2.2.

### **2.3.2 Aboveground Storage Tanks (ASTs)**

No evidence of on-site ASTs was observed during the reconnaissance or was identified by the regulatory database review.

Off-site ASTs are further discussed in Section 5.2.2.

## **2.4 Polychlorinated Biphenyls (PCBs) and Mercury**

Until 1979, polychlorinated biphenyls (PCBs), which provided beneficial insulating properties, were used in a variety of products, in particular electrical equipment such as transformers, capacitors, fluorescent light fixtures, and voltage regulators, but also in hydraulic fluids and some other products such as caulking.

Based on the age of the existing railway structures and Sawtooth Bridges, electrical equipment (including switchgears), hydraulic equipment, lighting fixtures, switches, and thermostats may include PCB- or mercury-containing components. No obvious leaks or odors were observed on or adjacent to the Proposed Project Area; however, PCB- or mercury-containing components may exist in underground utility vaults located within the Proposed Project Area that could not be observed or inspected during the reconnaissance.

Based on the ages of the current (Amtrak Substation 41) and former (Pennsylvania Railroad Substation 4) substation structures located adjacent to the Proposed Project, former transformers or other electrical equipment may have utilized PCB-containing oils or mercury-containing switches.

## **2.5 Lead-Based Paint**

After 1977, lead-based paint was generally not used inside structures and its use outdoors became less common, but lead-based paint may still sometimes be used on bridges, highways, and associated off-ramps/roadways.

Painted surfaces (on railways, bridges, lighting, signs, and in buried structures) within the Proposed Project Area may include lead-based paint. These surfaces may require testing prior to being disturbed. The scope of this assessment did not include any lead-based paint surveys or analytical testing. Should lead-based paint be present, special disposal techniques may be required during demolition/renovation. Painted surfaces of existing structures supporting rail operations were observed to be in good to poor condition. Activities (such as renovation or demolition) with the potential to disturb lead-based paint are subject to a variety of requirements, including US Occupational Safety and Health Administration regulation 29 CFR 1926.62 (Lead Exposure in Construction).

## 2.6 Utilities

The Proposed Project Area is currently serviced by underground and overhead electric utilities that connect to the overhead catenary poles that power trains operated by Amtrak and NJ TRANSIT. Electrical service is extended through the corridor by Amtrak Substation 41, located south-adjacent to the eastern portion of the Project Area. The only other utilities currently servicing the Proposed Project Area include drainage swales and berms which divert storm water runoff to the surrounding wetlands and open water areas.

There are numerous utilities servicing the immediate vicinity of the Proposed Project Area, including the following:

- A third rail electric service is utilized by the rail operations of the PANYNJ PATH immediately south of the Proposed Project Area.
- Utility pipelines carrying natural gas run north-south at a location immediately west of the New Jersey Turnpike alignment, and therefore beneath and through the rail beds supported by the Sawtooth Bridges. Two fenced-in gas control valving stations that service these pipelines reportedly owned by Williams-Transco and PSE&G are west-adjacent of the New Jersey Turnpike overpass, and situated immediately north of the Proposed Project boundary.
- Metal piping (suspected to be associated with storm water collection) was observed to discharge from within the truck/machinery storage facility into the wetland areas abutting the Proposed Project Area during reconnaissance. A suspected former open water wetland area was observed in the central portion of this property that had been improved with landscaping and maintained with an aeration device (use unknown) by the current operator. Suspected tidal gate structures were observed at the southern end of the wetland stream feature traversing the southwestern portion of this property. The wetland stream feature is suspected to be connected to and partially influenced by the Passaic River, and thus would travel through the subsurface of the Proposed Project Area.

Public utilities which are currently supplied within the surrounding areas adjacent to the Proposed Project include public water and sewer services, electric, telephone, and natural gas. No groundwater monitoring or production wells were observed during the reconnaissance of the Proposed Project Area.

## 2.7 Waste Management and Chemical Handling

The Proposed Project Area does currently produce waste under normal rail operations. During construction of the Proposed Project, waste would be managed in accordance with applicable guidelines and regulations and disposed of or recycled at an off-site location using a private hauler. Upon construction completion, the Proposed Project Area is not projected to produce waste associated with future rail operations. Standard maintenance and any necessary cleaning of the railways and adjacent right-of-way land are performed by Amtrak.

## 2.8 Radon

Radon is a colorless, odorless gas most commonly produced by the radioactive decay of certain rocks. According to the New Jersey Department of Health database the average level of radon found in basements in Hudson County is 1.180 picocuries/liter, below the USEPA recommended action level of 4.0 picocuries/liter.

### 3.0 ASBESTOS-CONTAINING MATERIALS (ACM)

Asbestos refers to a group of natural minerals that provide good fire resistance and insulation. Asbestos is also commonly found in vinyl flooring, plaster, sheetrock, joint compound, ceiling tiles, roofing materials, gaskets, mastics, caulks, and other products. Materials containing more than one percent asbestos are considered asbestos-containing materials (ACM). ACM are classified as either friable (i.e., more readily release fibers, such as most spray-applied fireproofing) or non-friable (such as floor tiles).

ACM may be present in existing railway surfaces or support structures that would be disturbed during the replacement project. ACM may also be present in buried structures (e.g., utility conduits) or historical fill material identified in the subsurface.

Amtrak Substation 41 located south-adjacent to the eastern portion of the Proposed Project Area was built in 1931; Pennsylvania Railroad Substation 4 Building was built in 1910. Due to their age, the structures may have utilized ACM during construction or renovations. The reconnaissance performed as part of this Phase I ESA did not constitute and cannot substitute for an asbestos survey, which includes comprehensive inspection and material sampling with laboratory testing.

Regulatory requirements for ACM (or suspect ACM until proven not to be ACM) include maintenance requirements and, prior to any renovation or demolition, inspection/sampling by a NJ-certified asbestos inspector to determine if the project will disturb ACM. Any such ACM (and any other ACM subsequently identified) must be removed prior to any renovation or demolition activities.

### 4.0 ADJACENT LAND USE

The Proposed Project Area was mixed-use manufacturing, transportation, industrial, utility, commercial, and wetland areas. While Amtrak is exempt from local regulations, including zoning, the majority of the adjacent area falls within the Hackensack Meadowlands District, which was overseen by the former New Jersey Meadowlands Commission (NJMC). The NJMC has recently merged with New Jersey Sports and Exposition Authority (NJSEA) to form the Meadowlands Regional Commission, which plans to establish an updated master plan for the surrounding area.

A small portion located south of the existing Amtrak right-of-way is outside of the Hackensack Meadowlands District. Located in the Town of Kearny, this portion of the study area is zoned as South Kearny Industrial North and permits a range of heavy industrial and transportation related uses. Another small portion of the study area is located outside of the Hackensack Meadowlands District in the Town of Harrison. The small portion of the Proposed Project Area within the Town of Harrison is zoned as industrial, and is intended for industrial, manufacturing, warehouse, and storage uses.

## 5.0 PROPOSED PROJECT AREA HISTORY AND RECORDS REVIEW

### 5.1 Historic Use

#### 5.1.1 Historical Land Use Maps

Sanborn Fire Insurance Maps were requested from EDR for the Proposed Project Area, however, coverage was not provided for the area and a review could not be completed.

### 5.1.2 Historical Aerial Photographs

AKRF reviewed aerial photographs of the Property and surrounding areas provided by EDR to identify historical land use that may have involved the use of hazardous substances and petroleum products. Copies of the aerial photographs are included in Appendix B. These photographs ranged from 1931 to 2010, as listed and described in the table below:

Year	Comments
1931 1" ≈500'	<p><b>Proposed Project Area:</b> The Proposed Project Area was developed and utilized for rail operations that are labeled as being managed by the Pennsylvania and New Jersey Rail Road Companies.</p> <p><b>Surrounding Properties:</b> A large area of apparent disturbed wetlands was shown in the area making up the approximate footprint of MSLA Landfill 1-D north of the Proposed Project Area. Apparent commercial, industrial, and/or manufacturing properties were shown beyond the Passaic River south of the Proposed Project Area. Both substation structures are shown south-adjacent of the Proposed Project Area. Additional rail operations and undeveloped wetlands were shown north and east of the Proposed Project Area, and Frank's Creek can be noted to travel toward the western section of the Proposed Project from the north prior to going underneath the rail beds.</p>
1946 1" ≈500'	<p><b>Proposed Project Area:</b> The Proposed Project Area appeared similar to the conditions depicted on the 1931 photograph.</p> <p><b>Surrounding Properties:</b> The area of land disturbance north of the Proposed Project Area was noted to cover a slightly larger overall footprint, and appeared triangular in shape.</p>
1954 1" ≈500'	<p><b>Proposed Project Area:</b> The Proposed Project Area appeared similar to the 1946 photograph.</p> <p><b>Surrounding Properties:</b> Additional land disturbance and apparent landfilling operations were shown north of the Proposed Project Area in the area of MSLA Landfill 1-D. The general surrounding area experienced an increase in commercial and industrial development (especially south of the Passaic River on the waterfront in Newark) associated with the construction of roadway infrastructure including the main spur of the New Jersey Turnpike, which was shown to bisect the Proposed Project Area.</p>
1966 1" ≈500'	<p><b>Proposed Project Area:</b> The Proposed Project Area appeared similar to the 1954 photograph.</p> <p><b>Surrounding Properties:</b> An increase in commercial, industrial, and/or manufacturing properties were shown northwest of the Proposed Project Area. Additional landfilling activities and land disturbance is shown in the areas of the MSLA Landfill 1-D and the Keegan Landfill.</p>
1970 1" ≈500'	<p><b>Proposed Project Area:</b> The Proposed Project Area appeared similar to the 1966 photograph.</p> <p><b>Surrounding Properties:</b> No significant changes were noted from the 1966 photograph; however, aerial photographs depicting conditions of the eastern portion of the Project Area in 1970 were not available for review shown on the 1970 photograph.</p>
1976 1" ≈500'	<p><b>Proposed Project Area:</b> The Proposed Project Area appeared similar to the 1970 photograph; however, due to the poor resolution of the 1976 aerial photograph, a detailed review could not be completed.</p> <p><b>Surrounding Properties:</b> The surrounding area appeared generally similar to the 1970 photograph; however, due to the poor resolution of the 1976 photograph, additional details could not be determined.</p>
1977 1" ≈750'	<p><b>Proposed Project Area:</b> The Proposed Project Area appeared similar to the 1976 photograph.</p> <p><b>Surrounding Properties:</b> The area encompassing MSLA 1-D north of the Proposed Project Area appeared to have been filled in completely, with the exception of a small strip of land/wetlands north-adjacent to the Proposed Project Area. The Eastern Spur of the New Jersey Turnpike was constructed and shown in its current configuration. Due to the scale of this aerial photograph, additional industrial and commercial development is visible in the areas to the west, south, and east of the Proposed Project.</p>
1984 1" ≈500'	<p><b>Proposed Project Area:</b> The Proposed Project Area appeared similar to the 1977 photograph, with the exception of an area at the southeastern boundary of MSLA 1-D. An oval-shaped berm of land surrounded by water is shown that is consistent with the area of reported discharges from the</p>

Year	Comments
	landfill into adjacent wetlands (and toward the Proposed Project). <b>Surrounding Properties:</b> The surrounding properties appeared generally similar to the conditions depicted on the 1977 aerial photograph.
1991 1" ≈500'*	<b>Proposed Project Area:</b> No significant changes were noted from the 1984 photograph. <b>Surrounding Properties:</b> The operations at the Weldon Asphalt Plant are first shown on this aerial photograph; otherwise, no significant changes from the 1984 photograph were noted.
1995 1" ≈500'*	<b>Proposed Project Area:</b> No significant changes were noted from the 1991 photograph. <b>Surrounding Properties:</b> The land north of the Proposed Project Area encompassing MSLA 1-D was now largely covered by grassy vegetation, and storage operations at the heavy machinery yard east of the Weldon Asphalt Plant had begun. Construction of the Exit 17 I-280 Interchange had been completed north of MSLA 1-D.
2006 1" ≈500'*	<b>Proposed Project Area:</b> No significant changes were noted from the 1995 photograph. <b>Surrounding Properties:</b> Additional growth and coverage of vegetation over MSLA 1-D had occurred, and the closure, cleanup and capping of the Diamond Alkali Superfund site (beyond the Passaic River to the south) had been completed.
2010 1" ≈500'*	<b>Proposed Project Area:</b> No significant changes were noted from the 1995 photograph. <b>Surrounding Properties:</b> A small structure and roadways leading around the perimeter and to the top of MSLA 1-D had been constructed. An algal bloom is shown in the open water wetland area between MSLA 1-D and the Proposed Project Area. A decrease in the density of the industrial development beyond the Passaic is shown along with an increase in commercial development to the north and northwest of the Proposed Project Area.

Note: \*See photographs in Appendix B for actual scale.

The aerial photographs identified that the Proposed Project Area has been developed and utilized for rail operations since at least 1931. Extensive filling occurred north-adjacent to the Proposed Project Area in association with MSLA 1-D between 1946 and 1976. Dense commercial, industrial, and/or manufacturing operations were shown south, northeast, and northwest of the Proposed Project Area between 1954 and 2010. The New Jersey Turnpike overpass was constructed on the eastern portion of the Proposed Project Area by 1954 and the Eastern Spur of the New Jersey Turnpike was constructed by 1976. Copies of the aerial photographs are included in Appendix B.

### 5.1.3 Historical Topographic Maps

AKRF reviewed available historical USGS Topographic Quadrangles for information regarding past uses of the Proposed Project Area. Copies of the historical USGS topographic maps are included in Appendix C. The following table summarizes descriptions and interpretations from the historical USGS maps:

Year	Comments
1891: Staten Island Quadrangle 1:62,500	<p><b>Proposed Project Area:</b> The Proposed Project Area is developed with rail operations (approx. 2-3 tracks) labeled to be managed by Delaware Lackawanna and Western Railroad and the Pennsylvania Railroad. The rail operations are depicted immediately adjacent to the Passaic River and a tributary leading to the Passaic River is shown to pass through the Proposed Project Area from the north. Based on the scale of the map, the Proposed Project Area elevation cannot be determined.</p> <p><b>Surrounding Properties:</b> The Site is located north-adjacent to the Passaic River. Wetland areas are shown south and southwest of the Proposed Project Area. Land to the north and east of the Proposed Project Area is undeveloped. Additional railroads are shown north and south of the Proposed Project Area and sparse development is shown south across the Passaic River. Land to the west is labeled as Meadows.</p>
1900: Staten Island and Passaic Quadrangles 1:62,500 and 1:125,000	<p><b>Proposed Project Area:</b> The Proposed Project Area is shown to be serviced by a total of approximately 5-6 railroad tracks, indicating an increase in track capacity in comparison to the 1891 USGS map.</p> <p><b>Surrounding Properties:</b> Sparse development is shown north of the Proposed Project Area. Land to the south and west has been further developed. Additional railroads are shown in the greater surrounding area.</p>
1905: Passaic Quadrangle 1:125,000	<p><b>Proposed Project Area:</b> The Proposed Project Area appears similar to the 1900 USGS map.</p> <p><b>Surrounding Properties:</b> The surrounding area appears similar to the 1900 USGS map.</p>
1925: Flushing Quadrangle 1:24,000	<p><b>Proposed Project Area:</b> The Proposed Project Area appears similar to the 1905 USGS map.</p> <p><b>Surrounding Properties:</b> The surrounding area appears similar to the 1905 USGS map.</p>
1947: Elizabeth and Jersey City Quadrangles 1:25,000	<p><b>Proposed Project Area:</b> The elevation of the Proposed Project Area is shown as approximately 20 feet above sea level along the western portion and approximately 10 feet above sea level along the eastern portion, which is generally consistent with the current elevation of the Proposed Project Area.</p> <p><b>Surrounding Properties:</b> The Newark Turnpike, wetlands, and sparse development are shown north of the Proposed Project Area. A facility referred to as "A Chem Co.", additional railroads, highways, and unspecified development are shown south of the Proposed Project Area beyond the Passaic River. The surrounding area to the northwest, southwest, and east are shown with dense commercial and infrastructure developments. The Meadow Yards for the railroads was shown southeast of the Proposed Project Area.</p>
1955: Elizabeth and Jersey City Quadrangles 1:24,000	<p><b>Proposed Project Area:</b> The Proposed Project Area appears generally similar to the 1947 map.</p> <p><b>Surrounding Properties:</b> The Passaic River south of the Proposed Project Area is labeled as the Harrison Reach with a projected depth of 20 feet. Additional manufacturing, commercial, and/or industrial properties are shown south, northwest, southwest, and southeast of the Proposed Project Area. Several substations, parking lots, and chemical companies are shown in the area surrounding the eastern portion of the Proposed Project Area. The New Jersey Turnpike is shown running in a north/south direction, bisecting the Proposed Project Area. Landfilling appears to have occurred north of the Proposed Project Area based on the change in elevation shown. The general areas to the east and west are shaded pink, indicating unspecified urban development.</p>
1967: Elizabeth and Jersey City Quadrangles 1:24,000	<p><b>Proposed Project Area:</b> The Proposed Project Area is labeled to be utilized by the Erie-Lackawanna Railroad and the Trans-Hudson Railroad.</p> <p><b>Surrounding Properties:</b> Additional landfilling has occurred north and southwest of the Proposed Project Area.</p>

Year	Comments
1981: Elizabeth and Jersey City Quadrangles 1:24,000	<b>Proposed Project Area:</b> The Proposed Project Area is labeled to be utilized by Conrail. <b>Surrounding Properties:</b> Industrial, manufacturing, and/or commercial structures and roads are shown northeast and southeast of the Proposed Project Area. I-95 has expanded to the east.
1995: Elizabeth Quadrangle 1:24,000	<b>Proposed Project Area:</b> The Proposed Project Area is no longer labeled, but appears in the same configuration as the previous USGS topo maps. The eastern portion of the Proposed Project area is not shown. <b>Surrounding Properties:</b> Additional landfilling occurred north of the Proposed Project Area and ponds and streams appear to have replaced former wetlands. Interstate 280 was constructed to the north and additional industrial, manufacturing, and/or commercial properties are shown to the south of the Proposed Project Area.

A review of the historical USGS Topographic Quadrangles revealed that the Proposed Project Area was developed for use by rail operations by 1891, and was expanded by 1900. The wetlands immediately north, east, and west of the Proposed Project Area underwent extensive landfilling between 1947 and 1995. Unspecified industrial, manufacturing, and/or commercial properties were developed south of the Proposed Project Area, including a chemical company. The New Jersey Turnpike (I-95) was constructed by 1947 and expanded eastward by 1981. Several substations, the Meadow Yards, railroads, and highways were shown in the greater surrounding area.

#### 5.1.4 Local Street Directories

A historical City Directory search was performed by EDR as part of this Phase I ESA, however, no historical listings for the Proposed Project Area or nearby addresses were identified during the search.

## 5.2 Regulatory Review

Regulatory database reports were obtained from EDR and are provided in Appendix D. The reports include summaries of the databases searched, their radii around the Proposed Project Area, and limitations of the data. The databases searched and associated radii were consistent with ASTM E1527-13 outlined standards.

### 5.2.1 Federal

The federal databases searched included the National Priority List (NPL); Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); Emergency Response Notification System (ERNS); Toxic Chemical Release Inventory System (TRIS); Record of Decision (ROD); U.S. Engineering Controls; and U.S. Institutional Controls. The federal listing of facilities which are subject to corrective action under the Resource Conservation and Recovery Act (CORRACTS) is discussed with the State databases of RCRA listings.

#### National Priority List (NPL)

The NPL is the USEPA's list of sites that require remedial action under the Superfund Program. Nearby NPL sites can sometimes pose a risk of stigmatizing surrounding properties and thus impacting site values.

Four NPL sites were identified within a one-mile radius of the Proposed Project Area. The Diamond Alkali Company, located at 80 Lister Avenue, Newark (south of the Project Area beyond the Passaic River) is undergoing investigation due to former pesticide and herbicide manufacturing at the site, including those used to formulate the defoliant "Agent Orange," a primary polluter of the Passaic River, which borders the Proposed Project Area to the south. Between 1914 until at least 1977, the site was owned by various chemical, pesticide, and herbicide manufacturing companies. By 1983, the site was being used for waste disposal operations for a neighboring plant. The USEPA collected samples revealing high levels of "Agent Orange" and the site was transferred to the NJDEP. In 1984, the NJDEP and the Diamond Alkali Company entered into an Administrative Order on Consent for a remedial investigation and feasibility study for on-site cleanup. The site is currently listed on the Final NPL. The Diamond Alkali Company is also listed in the CERCLIS, U.S. Engineering Controls, Consent, ROD, ICIS, and PRP databases. Due to observed tidal influence drawing waters of the Passaic River through tidal gates and into wetland areas immediately adjacent to the Proposed Project Area, the Diamondhead Alkali Superfund site is a potential environmental concern associated with the Proposed Project Area.

The Diamond Head Oil Refinery facility, located at 1401 Harrison Turnpike, Kearny (north of the Project Area) operated under several company names including PSC Resources, Inc., Ag-Met Oil Service, Inc., and Newtown Refining Corporations between 1946 and 1979. EPA added the site to the Superfund NPL in 2002. Extensive remediation including the removal of millions of gallons of oil-contaminated water, millions of cubic yards of oily sludge, and millions of tons of contaminated soil occurred in the late 1970s and early 1980s. Recent sampling was performed in 2009, and EPA is in the process of determining the need for additional action. The site is currently listed on the Final NPL. The Diamond Head Oil Refinery is also listed in the CERCLIS, RCRA NonGen/NLR, U.S. Engineering Controls, ROD, NJ Manifest, and NJ Release databases.

Based on regulatory status and distance, the remaining facilities are not anticipated to represent a significant environmental concern.

Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)

CERCLIS is a compilation of sites which the USEPA has investigated, or plans to investigate, pursuant to the Superfund Act of 1980 (CERCLA). As such, some of these sites may ultimately present concerns and others may not (but could still pose a perceived concern). Former CERCLIS sites that have been granted the status of No Further Remedial Action Planned (NFRAP) are also included in this database.

Eight CERCLIS sites were identified within a ½-mile of the Proposed Project Area. As discussed previously, the Diamond Alkali Company and the Diamond Head Oil Refinery facilities are potential environmental concerns associated with the Proposed Project Area. Based on details in the regulatory database including distance, the remaining facilities are not anticipated to represent a significant environmental concern.

Emergency Response Notification System (ERNS)

This federal database, compiled by the Emergency Response Notification System, records and stores information on certain reported releases of petroleum and other potentially hazardous substances.

The Proposed Project Area was not listed as an ERNS site.

Toxic Chemical Release Inventory System (TRIS)

The TRIS contains information reported by a variety of industries on their annual estimated releases of certain chemicals.

The Proposed Project Area was not listed as a TRIS site.

Record of Decision (ROD)

This federal database includes documents that mandate permanent remedies at Superfund sites that includes technical and health information to aid in the remedy.

Three ROD facilities were identified within one mile of the Proposed Project Area. As discussed previously, the Diamond Alkali Company and the Diamond Head Oil Refinery facilities are potential environmental concerns associated with the Proposed Project Area.

Based on details in the regulatory database information including distance and direction, the remaining facility is not anticipated to represent a significant environmental concern.

U.S. Engineering Controls

This database includes sites with engineering controls in place.

Three U.S. Engineering Control sites were listed within ½-mile of the Proposed Project Area. Diamond Alkali Company was issued Records of Decision in 1987 for decontamination, demolition, disposal, and recycling of an existing building; groundwater monitoring, pump and treat, residuals disposal, and a slurry wall; and the disposal, solidification, and stabilization of solid waste; and the placement of a soil cap at the site. Diamond Head Oil Refinery was issued Records of Decision in 2009 for bioremediation; excavation, disposal, treatment, and monitoring of site soil; and the placement of a soil cap at the site. As discussed previously, the Diamond Alkali Company and the Diamond Head Oil Refinery facilities are potential environmental concerns associated with the Proposed Project Area.

Based on details in the regulatory database information including distance and direction, the remaining facility is not anticipated to represent a significant environmental concern.

U.S. Institutional Controls

This database includes sites with institutional controls in place. Institutional controls include administrative measures such as use and construction restrictions and post-remedial requirements intended to prevent human exposure to contaminants left on the site after remediation. Deed restrictions are usually required as part of the institutional control measures.

One U.S. Institutional Control site was listed within ½-mile of the Proposed Project Area. Based on details in the regulatory database information including distance and direction, this facility is not anticipated to represent a significant environmental concern.

### **5.2.2 State**

The state records reviewed included listings of New Jersey Leaking Underground Storage Tanks (LUST); New Jersey Historic LUST; New Jersey UST; Resource Conservation and Recovery Act (RCRA) Notifiers Listings; Solid Waste Facilities (SWF); State Inactive Hazardous Waste Disposal Site Registry (SHWS); Voluntary Cleanup Program;

Brownfield Cleanup Program (BCP); New Jersey Historic Landfill; New Jersey Chromate Sites; New Jersey Historic Major Facilities; New Jersey, New York, and Pennsylvania Manifest Facilities; New Jersey HWS Re-Eval; New Jersey Industrial Site Recovery Act (ISRA); and New Jersey Manufactured Gas Plants (MGP).

*New Jersey Leaking Underground Storage Tanks (LUST)*

This database includes regulated USTs that have cleanup underway.

Six NJ LUST sites were listed within ½-mile of the Proposed Project Area. Based on the distance and location of these facilities, they are not anticipated to represent a significant environmental concern.

*New Jersey Historic LUST*

This database includes regulated USTs that were previously undergoing cleanup but are no longer updated or maintained by NJDEP.

Twenty NJ LUST sites were listed within ½-mile of the Proposed Project Area. SOS Gases Inc., located at 1100 Harrison Avenue, was listed in the database with one 2,000-gallon diesel UST removed in 1993. The site was issued a letter of No Further Action for Areas of Concern in 1993. SOS Gases, Inc. is also listed in the NJ SHWS, HS Historic HWS, NJ UST, NJ Release, NJ Engineering and Institutional Controls, NJ Brownfield Cleanup Program, and NJ Financial Assurance databases.

Based on the distance and location of the remaining facilities, they are not anticipated to represent a significant environmental concern.

*New Jersey UST*

This database includes registered USTs under RCRA.

Seven NJ UST sites were listed within ¼-mile of the Proposed Project Area. The following are sites with some potential to impact the Proposed Project Area:

- As discussed previously, SOS Gases Inc. is listed with one 2,000-gallon diesel UST removed in 1993.
- Meadowlands Maintenance, located at 1148 Newark Turnpike, was listed with one 4,000-gallon and one 1,000-gallon waste oil UST removed in 2004. This facility is also identified as Bombardier Transportation and CSX Transportation in the database listings.
- Goody Products, Inc., located at 969 Newark Turnpike, was listed in the database with one 7,500 gallon No. 4 fuel oil UST removed in 1990. Goody Products is also listed in the RCRA NonGen/NLR, NJ SHWS, NJ UST, NJ Release, NJ Institutional Control, NJ ISRA, NJ NPDES, and NJ Financial Assurance databases.

Based on the distance and location of the remaining facilities, they are not anticipated to represent a significant environmental concern.

*Resource Conservation and Recovery Act (RCRA) Notifiers Listings*

This database lists sites that have filed notification forms regarding hazardous waste activity, including: treatment, storage and disposal facilities (TSDs); small-quantity (SQG) and large-quantity generators (LQG); and transporters regulated under RCRA.

The discussion below includes any CORRACTS listings of facilities that are subject to corrective action under RCRA.

Eleven TSDs and sixteen CORRACTS facilities were listed within one mile of the Proposed Project Area. There is a low potential that these facilities have affected subsurface conditions beneath the Proposed Project Area given their distance and location, and information in the regulatory database.

- Bombardier Transportation, located at 1148 Newark Turnpike, was listed in the regulatory database as a LQG of spent halogenated solvents (F002) in 1988, as a non-generator in 2006, and as a small SQG of ignitable waste (D001) and spent nonhalogenated solvents (F003) in 2008 with no reported violations. CSX Transportation, located at 1150 Newark Turnpike, was listed as a SQG of ignitable waste (D001) in 2004, as a Conditionally Exempt SQG in 2006, and as a non-generator in 2007 with no reported violations. Based on regulatory information, these facilities appear to be located at the same site.
- Transformer Lab Service, located at 1800 Harrison Avenue, was listed as a CESQG in 1994 and 2006 of ignitable waste (D001) corrosive waste (D002), and PCBs (X002) with no reported violations. This site is also listed in the regulatory database as a historic landfill, NJ NPDES, ICIS, NJ & PA Manifest, NJ Release, NJ VCP, and US Airs. The site has also operated under the name G & S Motor Equipment Company and former operated as the MSLA-1A Landfill and part of the P & M Egan Landfill, which was capped in 2011.

Based on their locations or listing details (e.g., waste type), the remaining RCRA facilities are not anticipated to represent a significant environmental concern.

#### Solid Waste Facilities (SWF)

This database includes certain landfills, incinerators, transfer stations, recycling centers, and other Sites which manage solid waste.

One Solid Waste Facility was identified within ½-mile of the Proposed Project Area. Based on the distance, location, and operating status of this facility, it is not anticipated to represent a significant environmental concern.

#### State Inactive Hazardous Waste Disposal Site Registry (SHWS)

This program lists known contaminated sites except those associated with the Bureau of Underground Storage Sites (BUST).

One hundred and thirty-three SHWS sites were identified within one mile of Proposed Project Area. The following sites have potential to affect the Proposed Project Area:

- SOS Gases, Inc. was listed as a facility shipping hazardous waste with on-site sources of contamination in 1997.
- Diamond Head Oil Refinery was listed as a facility with on-site sources of contamination shipping hazardous waste in 1994.
- Goody Products Inc., located at 969 Newark Turnpike, was listed as a closed facility in 2012.
- Diamond Alkali Company was listed as an active facility in 2012.

Based on details in the regulatory database information including distances from the Proposed Project Area, the remaining sites are not anticipated to represent a significant environmental concern.

#### Voluntary Cleanup Program

The Voluntary Cleanup Program (VCP) is a NJDEP program for investigation and remediation of (generally) privately-owned sites. Some sites in this program have known contamination, whereas others have not had sufficient investigation to determine whether contamination is present.

Twenty VCP sites were identified within ½-mile of the Proposed Project Area.

Warehouse and Distribution Center, located at 1800-1806 Harrison Avenue, was listed as a historical VCP site in 2002. No further details are listed. G & S Motor Equipment, located at 1800 Harrison Avenue, was listed as a historical VCP site in 2002 with no further details. Based on the address, Warehouse Distribution Center and G & S Motor Equipment are likely located at the same site.

There is a low potential that the remaining facilities have affected subsurface conditions beneath the Proposed Project Area given their distance and location, and information in the regulatory database.

#### Brownfield Cleanup Program (BCP)

This NJ Brownfields program is the successor to the Voluntary Cleanup Program. Again, some sites have known contamination, whereas others have not had sufficient investigation to determine whether contamination is present.

Fifty-two Brownfield Cleanup Program (BCP) sites were identified within ½-mile of the Proposed Project Area. SOS Gases Inc., located at 1100 Harrison Avenue, was entered into the BCP in 1997 due to potential groundwater contamination at the site. No formal remedial design was identified in the database listing. SOS Gases Inc. is also listed in the NJ SHWS, NJ Historic HWS, NJ Historic LUST, NJ UST, NJ Release, NJ Engineering and Institutional Controls, and NJ Financial Assurance databases.

There is a low potential that the remaining facilities have affected subsurface conditions beneath the Proposed Project Area given their distance and location, and information in the regulatory database.

#### New Jersey Historic Landfill

The NJ Historic Landfill database identified properties that are old or non-permitted solid waste facilities or landfills that are not included in the current solid waste facilities/landfills database.

Three Historic Landfill sites were identified within ½-mile of the Proposed Project Area. The following sites have potential to affect the Proposed Project Area:

- The MSLA 1-D Landfill, located at 1500 Harrison Avenue, is a municipal waste landfill formerly operated by the Municipal Sanitary Landfill Authority (MSLA). The landfill ceased operations in 1982 under an administrative order from the NJDEP. Due to improper management, documented releases occurred in the 1970s and 1980s into the wetland areas immediately adjacent to the Proposed Project Area. Violations were reported by NJDEP during a January 1989 compliance evaluation inspection, including the release of leachate into the

Passaic River and deficiencies in groundwater sampling and reporting. As part of the more recent re-closure efforts, the perimeter roadway was capped and a methane recovery system was installed.

- G & S Motor Equipment Company Inc., located at 1800 Harrison Avenue, operated as the MSLA 1-A Landfill. The site is a municipal waste landfill formerly operated by the MSLA, which operated under the names HMDC 1-A and included part of the P & M Egan Landfill. This 13-acre former landfill was capped and has been operating as the PSE&G Solar Farm since 2011.

There is a low potential that the remaining facility has affected subsurface conditions beneath the Proposed Project Area given its distance and location, and information in the regulatory database.

#### New Jersey Chromate Sites

The NJ Chromate database identified properties with known chromate waste.

Four NJ Chromate sites were identified within ½-mile of the Proposed Project Area. There is a low potential that these facilities have affected subsurface conditions beneath the Proposed Project Area given its distance and location, and information in the regulatory database.

#### New Jersey Historic Major Facilities

The NJ Historic Major Facilities database identified properties located on one or more contiguous or adjacent properties owned or operated by the same entity with a total combined storage capacity of: 20,000 gallons or more of hazardous substances, other than petroleum or petroleum products; or 200,000 gallons or more of hazardous substances of any type.

Six NJ Historic Major Facilities were identified within ½-mile of the Proposed Project Area. There is a low potential that these facilities have affected subsurface conditions beneath the Proposed Project Area given their distance and location, and information in the regulatory database.

#### New Jersey, New York, and Pennsylvania Manifest Facilities

The Manifest databases identified properties with documented waste generated in proximity to the Project Area in New Jersey and disposed of at permitted facilities in New Jersey, New York, and Pennsylvania.

Sixteen Manifest sites (seven in NJ, three in PA, and six in NY) were identified within ¼-mile of the Proposed Project Area.

- The Diamond Head Oil Refinery was listed in the NJ Manifest database in 2009 for benzene (D018).
- G & S Motor Equipment, located at 1800 Harrison Avenue, was identified in the NJ and PA manifest database for: 11,585 pounds of lead (D008) in 2012, 1,845 pounds of cadmium (D006) and D008 in 2012, 230 kilograms of cadmium (D006) and lead (D008) in 2012, 2,245 pounds of cadmium (D006) in an unreported year, and 5,805 pounds of lead (D008) in an unreported year.
- Transformer Lab Services Inc. was listed in the NJ and PA databases with 150 kilograms of ignitable waste (D001) in 2007, 91 kilograms of ignitable waste

(D001) in 2007, 179 kilograms of ignitable waste (D001) in 2008, 180 kilograms of ignitable waste (D001) in 2009, 386 kilograms of ignitable waste (D001) in 2010, 189 kilograms of corrosive waste (D002) in 2012, 376 kilograms of ignitable waste (D001) in 2012, 598 pounds of corrosive waste (D002) in 2013, 278 kilograms of corrosive waste (D002) in 2013, 181 kilograms of ignitable waste (D001) in 2013, and 387 pounds of ignitable waste (D001) in 2013. Based on regulatory information, these facilities appear to be located at the same site.

- CSX Transportation Inc., located at 1150 Newark Turnpike, was listed in the database with an unspecified amount and type of waste in 2004 and 55 gallons of ignitable waste (D001) in 2008. NJ Transit Meadows, located at 1148 Newark Turnpike, was listed in the NY manifest database for 450 pounds and 55 gallons of mercury (D009) in 1989 and 22 tons of lead (D008) in 2011. Based on regulatory information, these facilities appear to be located at the same site.
- Weldon Quarry Company LLC, located at 1100 Harrison Avenue, was listed in the NY manifest database for 99 gallons of unknown waste (F001) in 1994, 101 gallons of unknown waste (F001) in 1995, and 52 gallons of unknown waste (F001) in 1996.

There is a low potential that the remaining facilities have affected subsurface conditions beneath the Proposed Project Area given their distance and location, and information in the regulatory database.

#### New Jersey HWS Re-Eval

The NJ HWS Re-Eval database applies to sites removed from the known contaminated site list, due to a variety of reasons including inactivity, lack of contamination, or they were not assigned a case worker. These sites are being re-evaluated, by visual and/or investigation methods by NJDEP to determine if contamination still exists at the site.

Twelve NJ HWS Re-Eval sites were identified within one mile of the Proposed Project Area. G & S Motor Equipment is under investigation with no further details listed.

There is a low potential that the remaining facilities have affected subsurface conditions beneath the Proposed Project Area given their distance and location, and information in the regulatory database.

#### New Jersey Industrial Site Recovery Act (ISRA)

The NJ ISRA database applies to industrial properties operating after December 21, 1983 where the place of business involves the generation, manufacture, refining, transportation, treatment, storage, handling, or disposal of hazardous substances or hazardous wastes.

Eighteen NJ ISRA sites were identified within ½-mile of the Proposed Project Area. Goody Products, Inc. was assigned to ISRA in 1994. The site is currently listed with a historic NFA due to the cessation of hazardous waste activities.

There is a low potential that the remaining facilities have affected subsurface conditions beneath the Proposed Project Area given their distance and location, and information in the regulatory database.

New Jersey Manufactured Gas Plants (MGP)

The NJ MGP database includes records of coal gas plants, which were used in the United States between the 1800's to 1950's to produce gas that could be used as fuel.

One NJ MGP was identified within one-mile of the Proposed Project Area. There is a low potential that this facility has affected subsurface conditions beneath the Proposed Project Area given its distance and location, and information in the regulatory database.

## 6.0 USER-PROVIDED INFORMATION

In preparing this Phase I ESA, AKRF requested that the client or assigned representatives provide any pertinent information regarding the Proposed Project Area, specifically:

- Whether they were aware of any pertinent current or historical activities at or near the Proposed Project, including but not limited to: hazardous substances or petroleum, waste management practices, filling or disposal drains, septic/sewer systems, and potable and non-potable wells;
- Owner and occupant information and whether they were aware of any previous Hazardous Waste/Contaminated Materials Assessments or other potentially pertinent reports, plans or information;
- Whether any *environmental liens* or *activity and land use limitations* are in place or filed or recorded against the Proposed Project Area or whether there was pending, threatened, ongoing or past violations, litigation or enforcement action relevant to hazardous substances or petroleum products;
- Whether they had any specialized knowledge or experience related to the Proposed Project or nearby properties (e.g., specialized knowledge of the chemicals used by this type of business); and
- Whether they were aware of commonly known or reasonably ascertainable information about environmental conditions of the Proposed Project including current/past uses of the Proposed Project Area and adjacent properties.

This Phase I ESA was conducted to provide preliminary environmental information as part of the overall EA being completed for the Sawtooth Bridges Replacement Project in the Towns of Kearny and Harrison, New Jersey. To the extent that pertinent additional information was provided, it has been summarized elsewhere in this report or is described in Section 7.0, below.

## 7.0 PREVIOUS STUDIES

No previous studies completed on the Proposed Project Area were provided to AKRF for specific inclusion in this Phase I ESA. Pertinent supporting documentation obtained through online research or from records maintained by NJDEP has been referenced in applicable sections throughout this report and included in Appendix E.

## 8.0 LIMITATIONS AND DATA GAPS

This assessment generally met the requirements of the American Society for Testing and Materials (ASTM) as established by ASTM Standard E1527-13 at the time it was performed, with the following limitations:

- Results of this ESA are valid as of the dates on which the investigation was performed.
- Interviews and user provided information were limited to those discussed in Section 6.0. To the extent that interviews were not conducted with the list of interviewees cited in the ASTM Standard (past and present owners, operators, and occupants of the Proposed Project Area and local government officials), AKRF does not believe that this represents a significant data gap likely to result in additional or significantly changed recognized environmental conditions or conclusions.

Portions of the Proposed Project Area history were not conducted in five-year intervals. However, sufficient information about the history could be obtained from the available historical aerial photographs, historic topographic maps, and NJDEP records, and this data gap is not likely to alter the conclusions of this report.

## 9.0 FINDINGS

A summary of the findings identified during this Phase I ESA are presented below:

### Recognized Environmental Concerns (RECs)

This Phase I ESA revealed the following evidence of RECs within the boundary of the Proposed Project Area:

- According to historical records, the majority of the area that encompasses the Proposed Project was created as a result of filling in the adjacent wetland areas to support extensive use for railroad operations since 1891. The existing Sawtooth Bridges were constructed in 1908, and aerial photographs indicate that extensive filling of presumed wetland areas occurred north-adjacent to the central portion of the Proposed Project Area between 1946 and 1976. Historic fill of unknown origin used to raise grades beneath the Proposed Project Area may be unsuitable for re-use and may contain contaminant concentrations requiring regulated management. Rail usage can contaminate surrounding soils with creosote from treated rail ties, spills from diesel or other petroleum products, releases from cargo loading and unloading, and releases from maintenance and fueling activities.

This Phase I ESA identified the following evidence of RECs in the immediate vicinity, but beyond the boundary of the Proposed Project Area:

- Based on a review of available records, the Municipal Sanitary Landfill Authority (MSLA) formerly accepted municipal solid waste at the MSLA 1-D landfill located north-adjacent to the western segment of the Proposed Project Area. The landfill ceased operations in 1982 under an administrative order from the NJDEP. According to NJDEP records, releases of thousands of gallons of leachate containing elevated levels of organic compounds and metals occurred on a daily basis into adjacent wetlands and the Passaic River due to the improper closure of the landfill. Violations were subsequently reported by NJDEP during a January 1989 compliance evaluation inspection, including the release of leachate into the Passaic River and deficiencies in groundwater sampling and reporting associated with the initial closure. As part of the more recent re-closure efforts led by NJDEP in 2009 and 2010, the perimeter roadway was capped and a leachate and methane recovery system was proposed to be installed. Documented historic releases may have affected subsurface conditions at the Proposed Project Area.

- The Weldon Asphalt Plant (a.k.a Weldon Quarry Company, LLC or SOS Gases, Inc.) located north adjacent of the western extent of the Proposed Project area is a currently operating industrial facility that has been identified on the regulatory database as a generator of spent chlorinated solvent (F001) waste in 1996 and 2006. This facility is also listed in the NJ UST database with a 2,000-gallon diesel fuel tank installed in 1969 and removed in 1993. The NJ Release database identified an explosion associated with this facility in 2001 that was related to the asphalt plant operations. No fires occurred and there was no additional information on the incident. The facility maintains an impermeable cap established as an engineering control with the state of New Jersey to address soil contamination from volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals originating from the operations of the asphalt plant. An institutional control established with New Jersey in association with the capping of the soil contaminants restricts the facility to industrial uses. None of the available documentation reviewed as part of this Phase I ESA included records discussing groundwater quality at this facility; however, documented historic releases may have affected subsurface conditions at the Proposed Project Area.
- During the reconnaissance completed as part of this Phase I ESA, the property located north-adjacent to the Proposed Project area and immediately east of the Weldon Asphalt Plant, reportedly owned and operated by Ann Martucci, Inc. (a.k.a Mad Max), was observed to be utilized as a storage facility for used trucks and miscellaneous industrial/construction machinery. This facility was not listed on the regulatory databases and is not suspected to perform substantial maintenance activities, however, metal piping runs (suspected to be associated with storm water collection) were observed to be discharging from equipment storage areas into the wetland areas abutting the Proposed Project Area. A suspected former open water wetland area was observed in the central portion of this property that had been improved with landscaping and maintained with an aeration device (use unknown) by the current operator. Suspected tidal gate structures were observed at the southern end of the wetland stream feature traversing the southwestern portion of this property. The wetland stream feature is suspected to be connected to and partially influenced by the Passaic River, and thus would travel through the subsurface of the Proposed Project Area. Undocumented releases associated with long-term heavy equipment storage may have affected subsurface conditions at the Proposed Project Area.
- The western portion of the Proposed Project Area is located immediately north of a segment of the Passaic River that is well known and documented to have been impacted from direct waste discharges from the industrial operations of the Diamond Alkali Superfund Site located on Lister Avenue in Newark, New Jersey. The contaminated sediment within the segment of the Passaic River adjacent to the Proposed Project contains elevated and hazardous concentrations of dioxins, heavy metals, polychlorinated biphenyls (PCBs), and pesticides. A seven year feasibility study conducted by the USEPA to address the contaminated sediment (in this segment of the lower Passaic River) resulted in the remedial action removal effort of 40,000 cubic yards of the most dioxin-contaminated sediment at the river bottom adjacent to the Diamond Alkali site in 2012. The proposed remedial plan recently set forth by USEPA in 2014 includes bank-to-bank dredging of an additional 4.3 million cubic yards of contaminated sediment from the lower eight miles of the Passaic (from the area immediately adjacent of the Proposed Project south toward Newark Bay) followed by capping of the river bottom. Due to the potential for tidal influence to draw waters and suspended sediment of the Passaic River beneath and into wetland areas immediately adjacent to the Proposed Project Area, the contaminants historically discharged to the Passaic River may have also affected subsurface conditions beneath the Proposed Project Area.
- During the reconnaissance, the currently active Amtrak Substation 41 was observed south-adjacent of the eastern portion of the Proposed Project Area. This structure has been utilized as a substation associated with rail operations since construction in 1931, and recently experienced heavy flooding

during Hurricane Sandy in 2012. The out-of-service Pennsylvania Railroad Substation 4 building was also observed south-adjacent to the Proposed Project Area (underneath the eastern spur of the New Jersey Turnpike). Operations at this substation building supported rail operations dating back to construction in 1910. Neither of the buildings are listed on regulatory databases for documented releases or the storage of hazardous materials; however, based on the ages of the structures, former transformers or other electrical equipment may have utilized PCB-containing oils or mercury-containing switches. Undocumented releases at these structures, especially during historic storm events, may have affected subsurface conditions beneath the Proposed Project Area.

#### **Other Environmental Concerns**

- Suspect asbestos containing materials (ACM) was not observed during the reconnaissance of the Proposed Project Area, but could be present in encased conduits associated with aboveground or underground utilities, buried debris, or fill material used to raise grades within or immediately adjacent to the Proposed Project Area. Based on the age of Amtrak Substation 41 and Pennsylvania Railroad Substation 4, the building materials used during their construction in the early 1900s or any subsequent renovations or repairs may have utilized ACM and/or lead-based paint (LBP).
- Based on the age of the railway and associated Sawtooth Bridge structures, LBP may be present on structures within or immediately adjacent to the Proposed Project Area.
- The New Jersey Turnpike overpass bisects the Proposed Project Area and was constructed by 1954 and the Eastern Spur was completed shortly after by 1976. The New Jersey Turnpike overpasses are immediately adjacent to, and were built extending over the railway operations encompassing the Proposed Project. Improper management of material during excavation and backfilling activities completed during construction of the Turnpike and/or petroleum spills, or leaks from the ongoing use of the roadway have the potential to have impacted subsurface conditions of the Proposed Project Area.
- The area beyond adjacent sites to the north and east of the Proposed Project Area was historically used for industrial, transportation, utility-related and landfilling/waste disposal purposes. Numerous sites with extensive contamination including documented releases, leaking underground storage tanks, and hazardous waste generators were identified by the regulatory database search in the surrounding corridor of the Proposed Project.

## 10.0 RECOMMENDATIONS

AKRF understands that the Proposed Project Area is being evaluated for proposed replacement of Amtrak Bridges No. 7.80 and No. 7.96, collectively referred to as the “Sawtooth Bridges” along a 1.1-mile segment of the NEC in the towns of Kearny and Harrison, New Jersey. Based on the conclusions of this Phase I Environmental Site Assessment, AKRF recommends the following:

- Due to the potential presence of soil and groundwater contamination beneath the Proposed Project Area from historic filling, use for rail operations, and documented cases of adjacent industrial use, AKRF recommends that site-specific plans are incorporated into all contract documents to ensure the safety of workers and the surrounding community, protect sensitive environmental conservation land areas, and adhere to all applicable regulatory requirements. The site-specific plans should include documentation of all known aboveground and underground utilities and storm water/tidal control conduits and be overlaid with proposed areas of disturbance shown on the final construction drawings. All excavated soil requiring off-site disposal (or reuse) should be characterized and managed in accordance with applicable New Jersey Department of Environmental Protection (NJDEP) regulatory requirements, including the testing requirements of any intended receiving facilities. Transportation of material within or leaving the Proposed Project Area should be completed in accordance with all applicable federal, state, local, and agency requirements covering licensing of haulers and trucks, placarding, truck routes, manifesting, etc. All construction activities and site-specific plans should also be carried out in collaboration with nearby responsible parties (or their authorized representatives) of known contaminated properties to confirm the latest available data is referenced to maintain safety for workers, the surrounding community, and nearby sensitive environmental receptors. If previously unknown or unexpected subsurface contamination is discovered during construction activities, investigation and remediation should be performed by a New Jersey Licensed Site Remediation Professional (LSRP) as required under the Site Remediation Reform Act N.J.S.A. 58:10C-1 et seq. (SRRRA), the Technical Requirements for Site Remediation N.J.A.C. 7:26E (Technical Rules), and Administrative Requirement for the Remediation of Contaminated Sites N.J.A.C. 7:26C (ARRCS).
- Although not anticipated, if petroleum tanks are encountered during any excavation completed for construction, they should be closed and removed, along with any contaminated soil, in accordance with applicable requirements. Any evidence of a petroleum spill should be reported to NJDEP and addressed in accordance with applicable requirements. If tanks are discovered, they should be properly registered, if required, with the NJDEP, and/or the Kearny/Harrison Fire Department.
- If dewatering is required during construction, water must be managed and discharged in accordance with applicable local and state regulatory permitting requirements. Preliminary testing and a feasibility study should be performed prior to construction to support any necessary permitting.
- Surfaces coated with LBP may require abatement prior to disturbance (e.g., cutting) that could generate lead-containing dust or vapors. Prior to construction or demolition, if lead-coated surfaces are expected to be disturbed, an exposure assessment must be performed to determine whether lead exposure would occur. Any activities with the potential to disturb lead-based paint must be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62—Lead Exposure in Construction).
- Prior to any renovation or demolition activities with the potential to disturb suspect ACM, an asbestos survey including the review of all known utilities should be conducted and if materials tested prove to contain asbestos, they should be properly removed and disposed of in accordance with all applicable local, state and federal regulations.

- Unless there is labeling or test data that indicates that fluorescent lights or other electrical equipment, are not mercury- and/or PCB-containing, if disposal is required, it should be performed in accordance with applicable federal, state and local regulations and guidelines during any decommissioning or demolition work during the replacement project.

### 11.0 SIGNATURE PAGE

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312.

We have the specific qualifications based on education, training, and experience to assess a Proposed Alternatives of the nature, history, and setting of the Proposed Project Area for which the assessment was performed. We have performed all the appropriate inquiries in conformance with standards and practices set forth in 40 CFR Part 312.



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Dustin Kapson  
Senior Technical Director



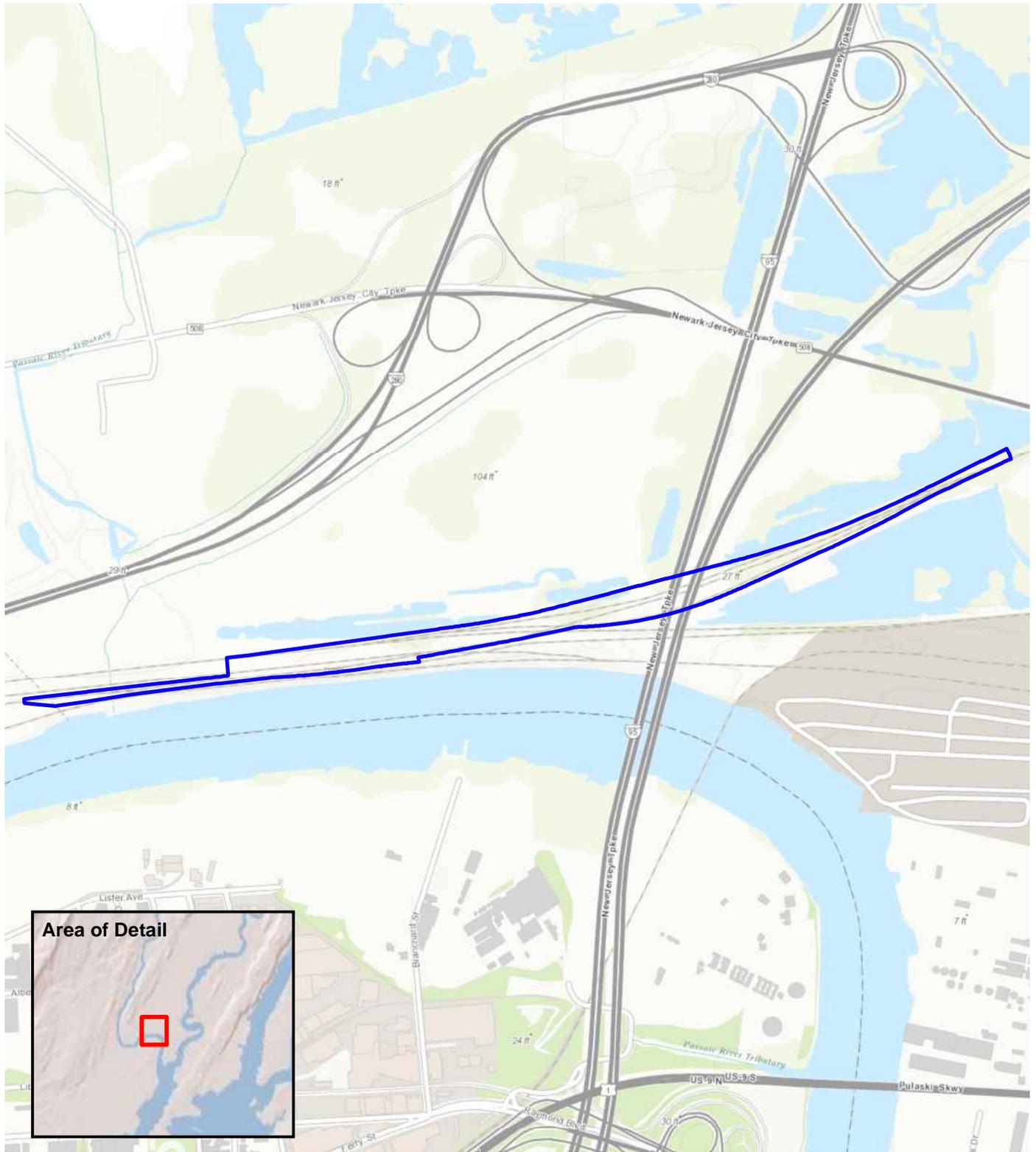
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Marcus Simons  
Senior Vice President

## 12.0 REFERENCES

1. EDR “Amtrak Sawtooth Bridges – Hudson County, Kearny, New Jersey” *Regulatory Radius Search*, June 22, 2015.
2. U.S. Geological Survey; *Kearny, New Jersey. Quadrangle, 7.5 minute Series (Topographic)*, Scale 1:24,000; 2011.
3. Topographic Maps dated 1891, 1900, 1905, 1925, 1947, 1955, 1967, 1981, and 1995.
4. Historical Aerial Photographs dated 1931, 1946, 1954, 1966, 1970, 1976, 1977, 1984, 1991, 1995, 2006, and 2010.

## FIGURES



**SOURCE**  
 USGS 7.5 Minute Topographic Map  
 Elizabeth and Jersey City Quad



Kearny, New Jersey



DATE  
**2/16/2016**

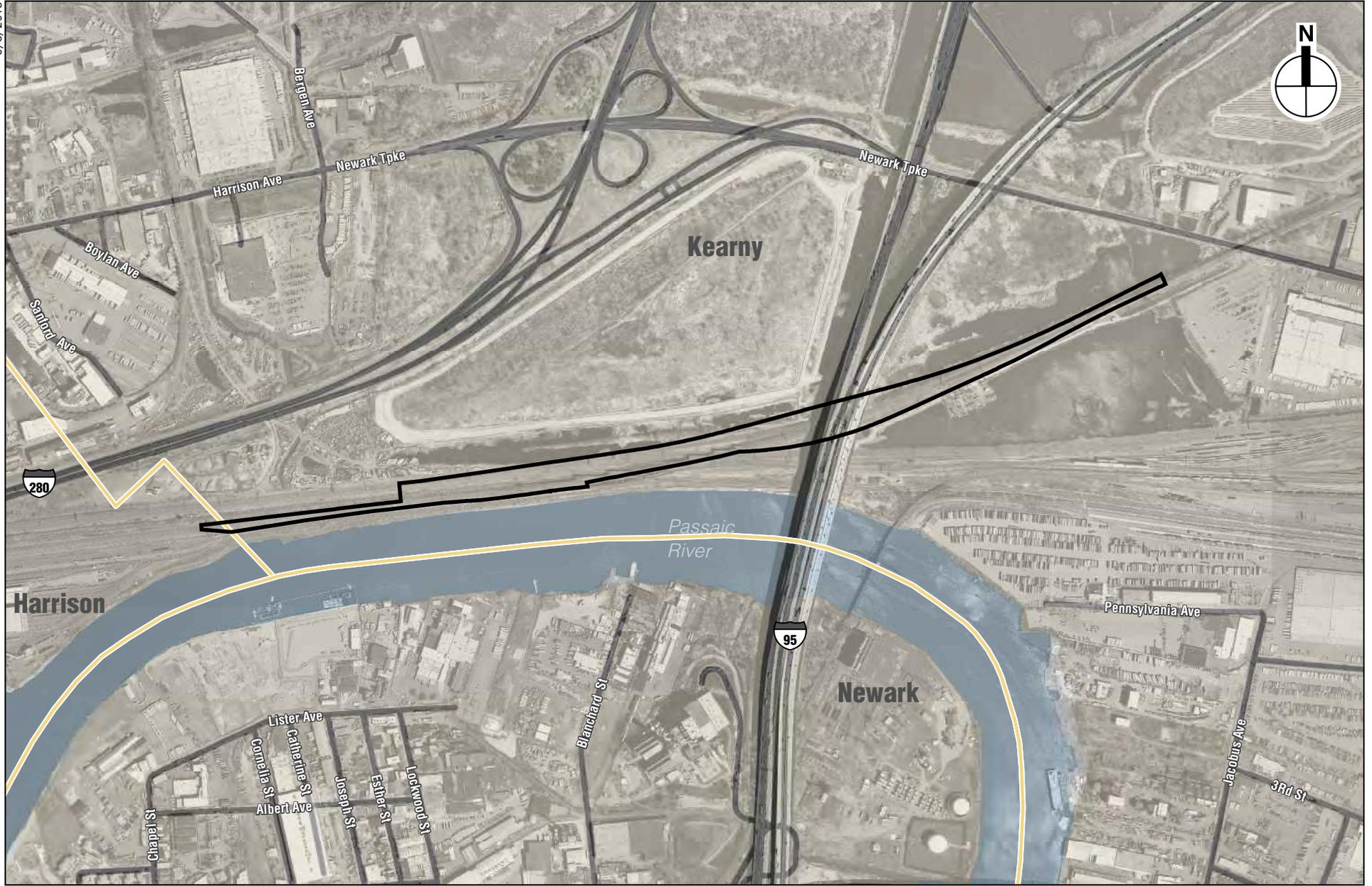
PROJECT No.  
**20429**

**Proposed Project Area Location**

**Environmental Consultants**  
 440 Park Avenue South, New York, N.Y. 10016

FIGURE  
**1**

8/6/2015



-  Project Site
-  Municipal Boundary

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**Appendix 3 – A – 1**  
**PHOTOGRAPHIC DOCUMENTATION**



Photograph 1: View west from the northern side of the project site; one of the Sawtooth Bridges (Amtrak Bridge No. 7.96) is located at the left of the photo, leading to the elevated embankment that carries the NEC and south of the built-up area on which the NJ TRANSIT tracks are located.



Photograph 2: View east from the northern side of the project site towards one of the Sawtooth Bridges (Amtrak Bridge No. 7.80 at the center of the photograph.)



Photograph 3: View east from a point near the western end of the project site, showing the changes in grade along the NEC (at right) and the NJ TRANSIT lines (center).



Photograph 4: Looking west at the western end of the project site. The elevated embankment that carries the NEC line (at left) slopes down towards the ground surface in this location.



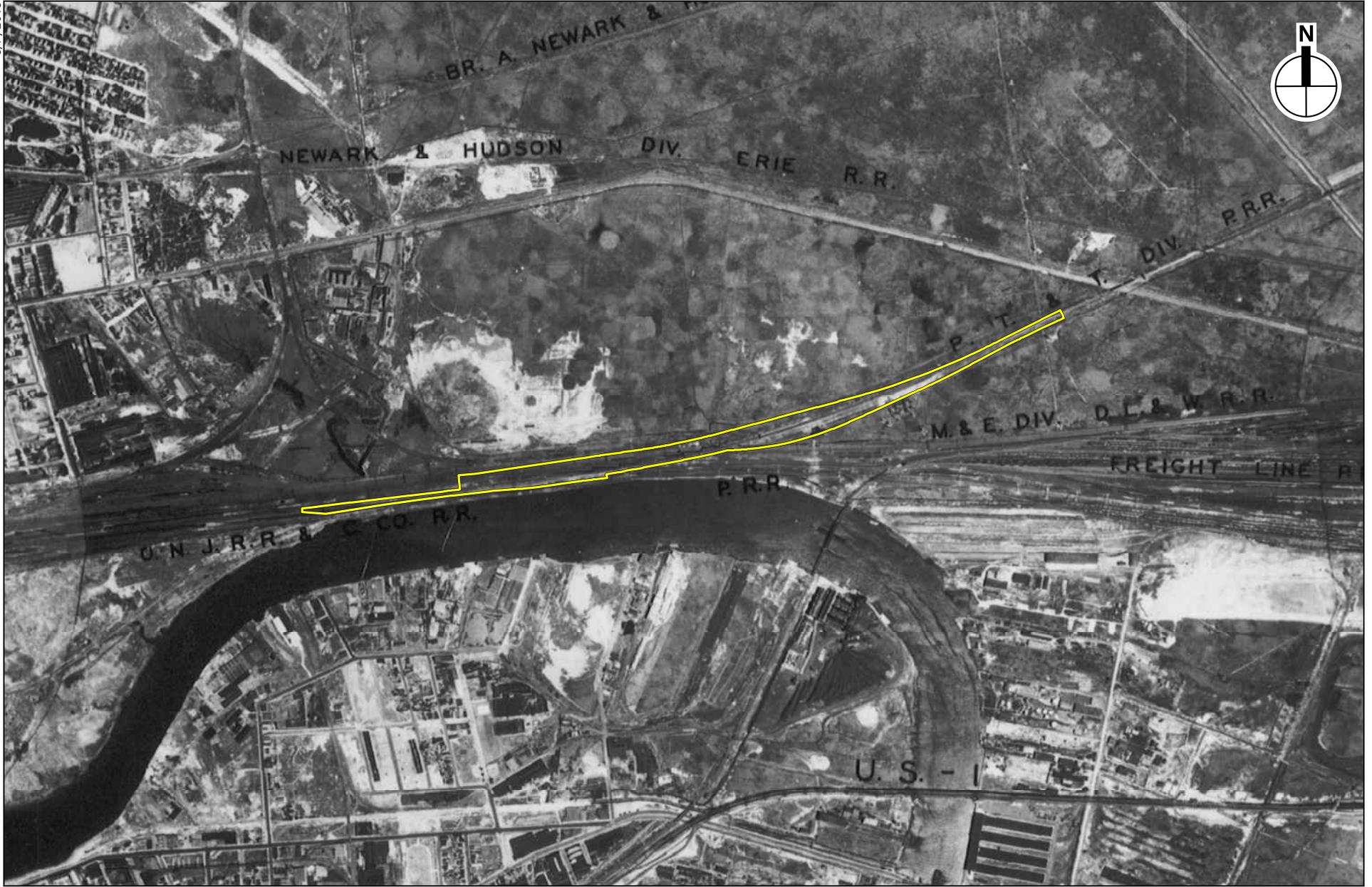
Photograph 5: View south of the change in grade between the NEC and the NJ TRANSIT tracks in the vicinity of a brick and concrete drainage culvert that carries Frank's Creek to the Passaic River.



Photograph 6: The northern side of the project site in the vicinity of the New Jersey Turnpike Viaduct, with Substation No. 4 visible in the background of the photograph.

**Appendix 3 – A – 2**  
**HISTORIC AERIAL PHOTOGRAPHS**

8/7/2015



 Project Site

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8/7/2015



 Project Site

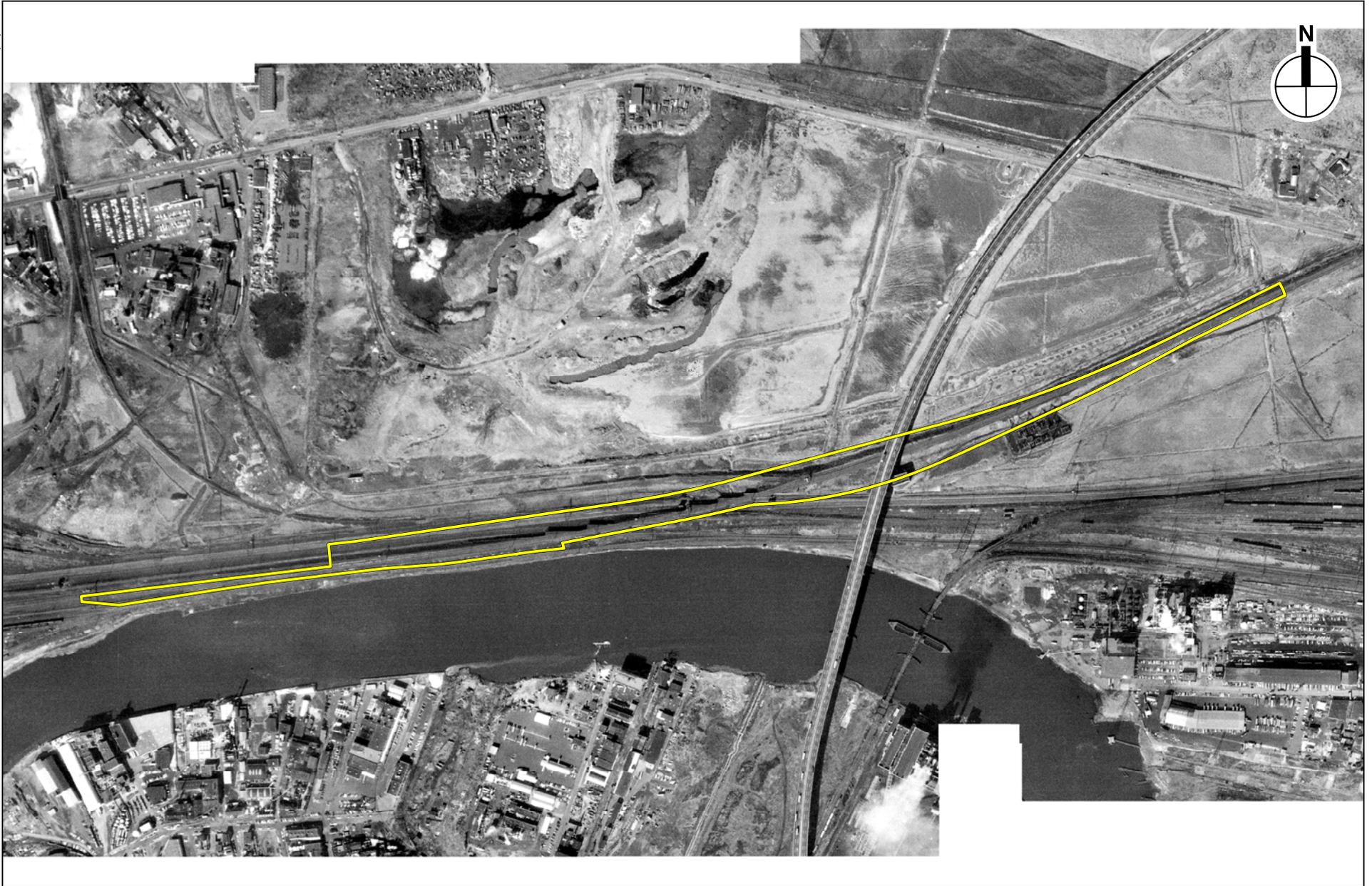
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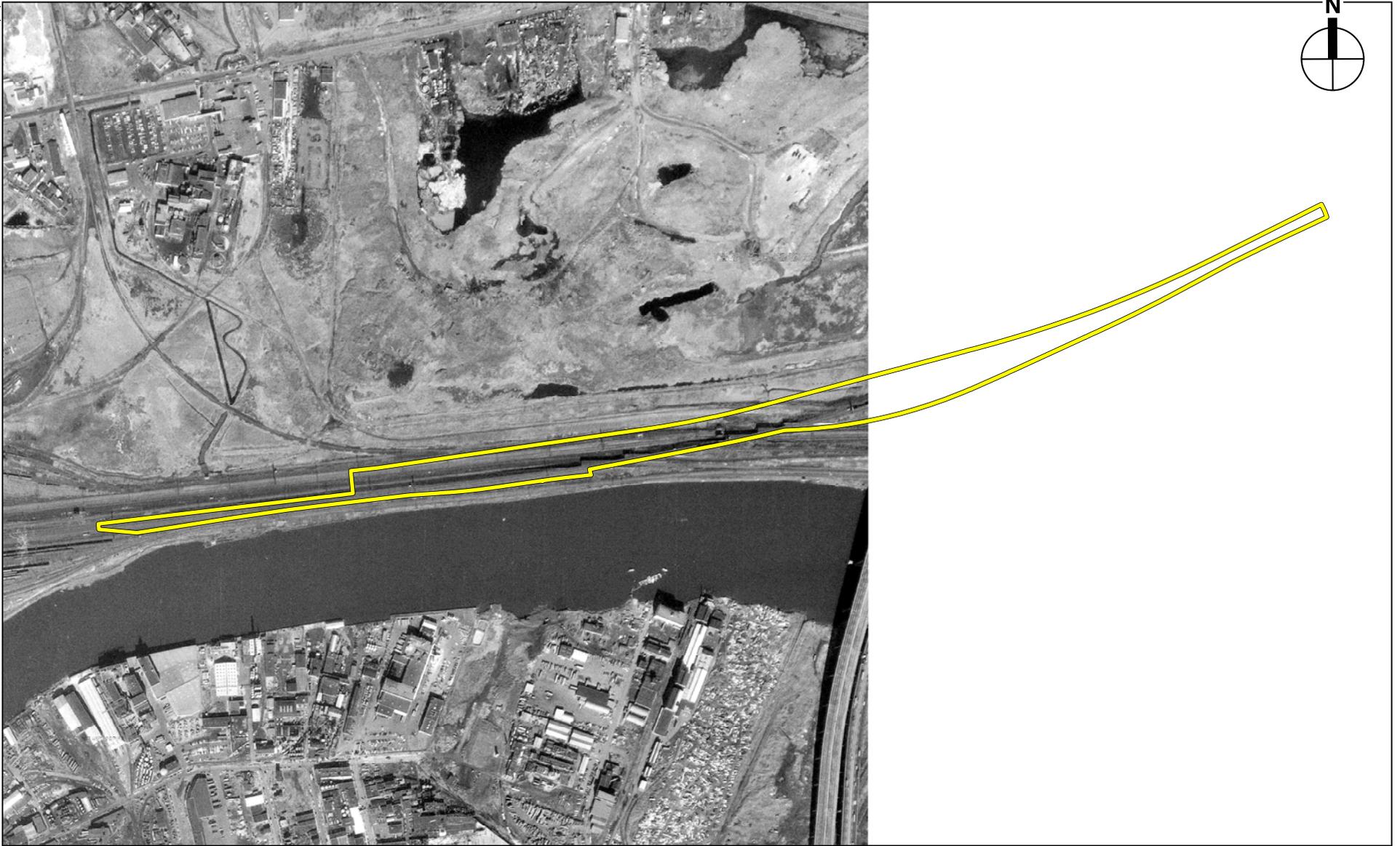

8/7/2015



 Project Site

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 Project Site

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 Project Site

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8/7/2015



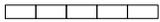
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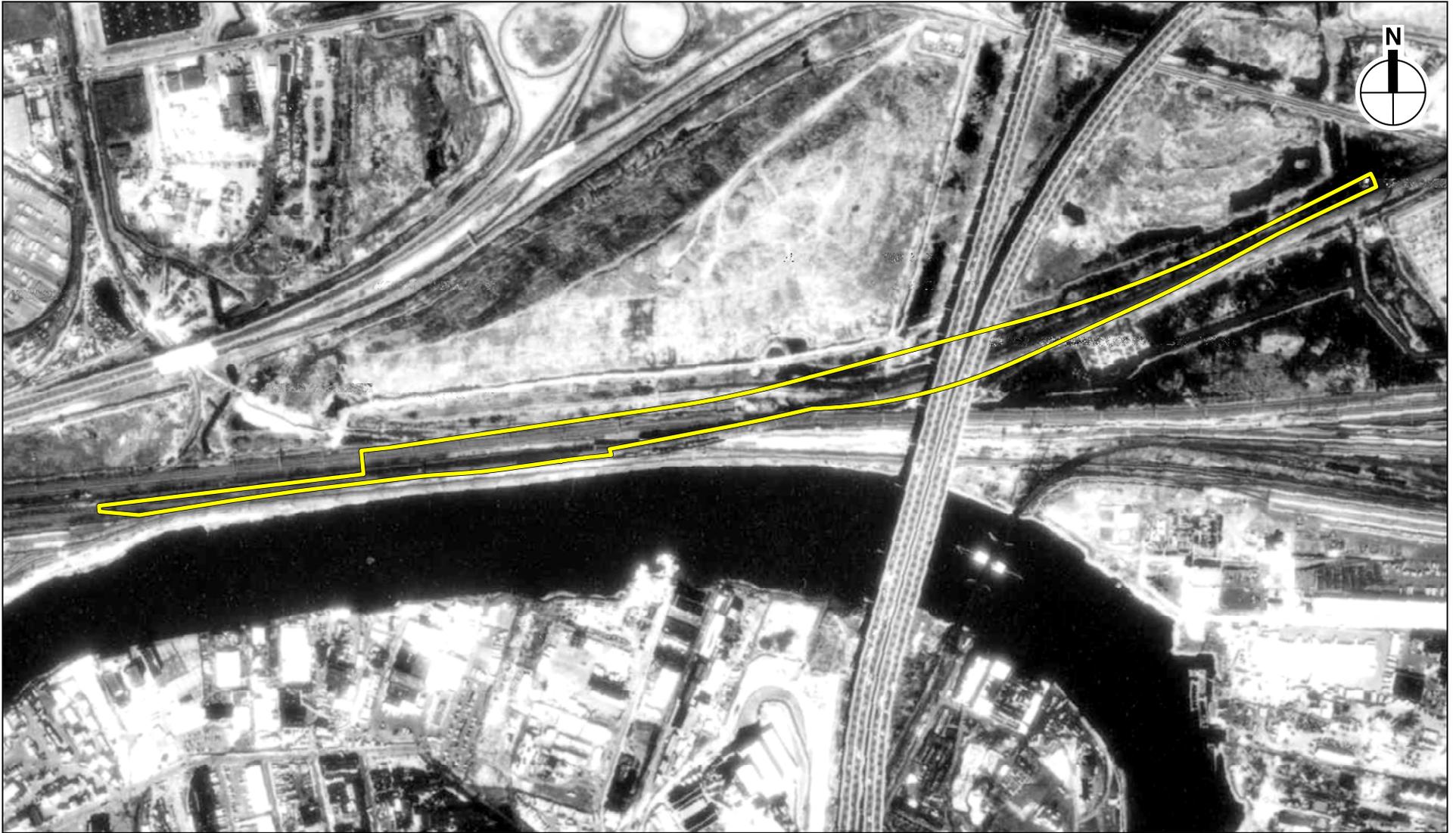
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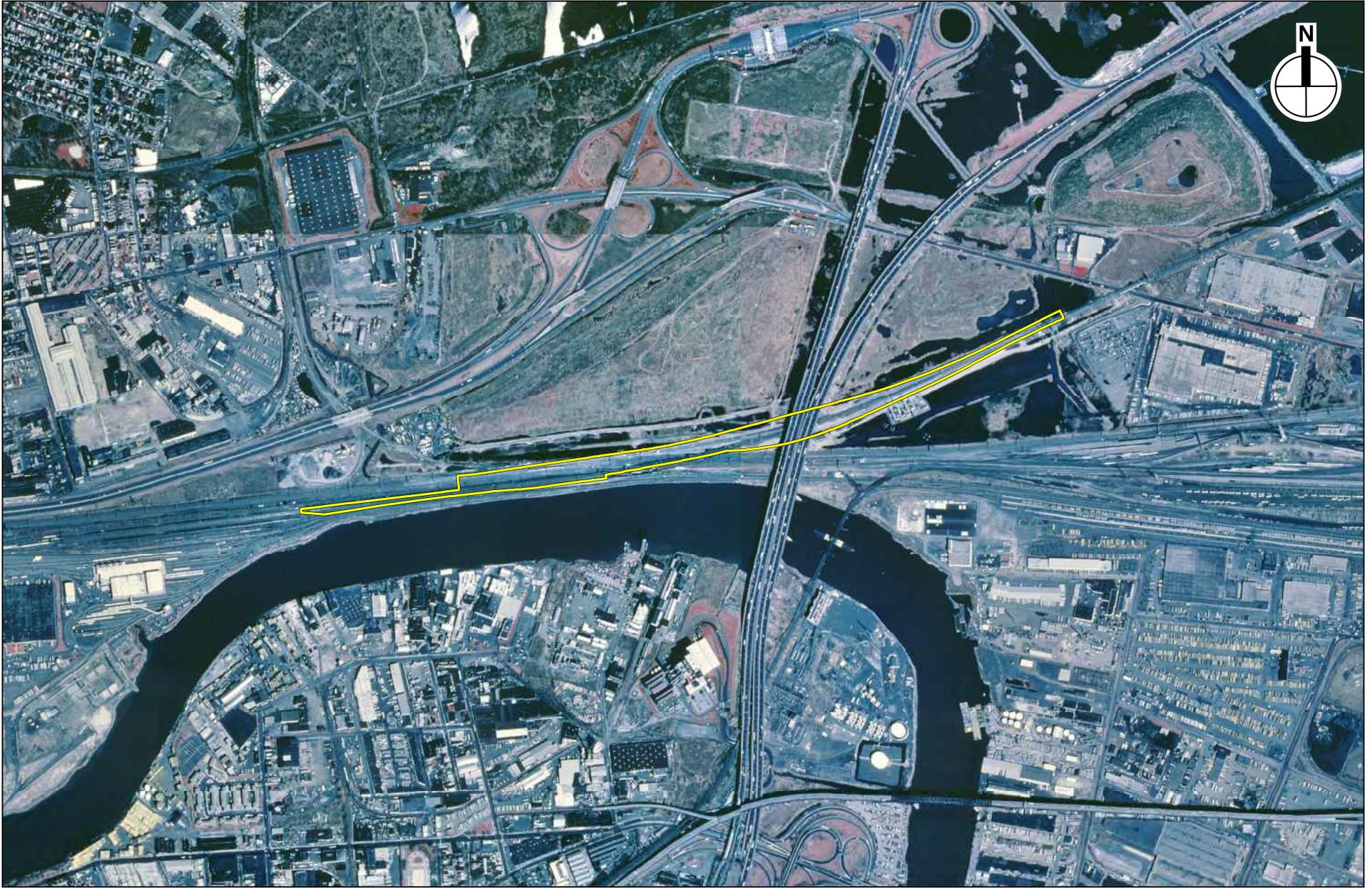
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 Project Site

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 Project Site

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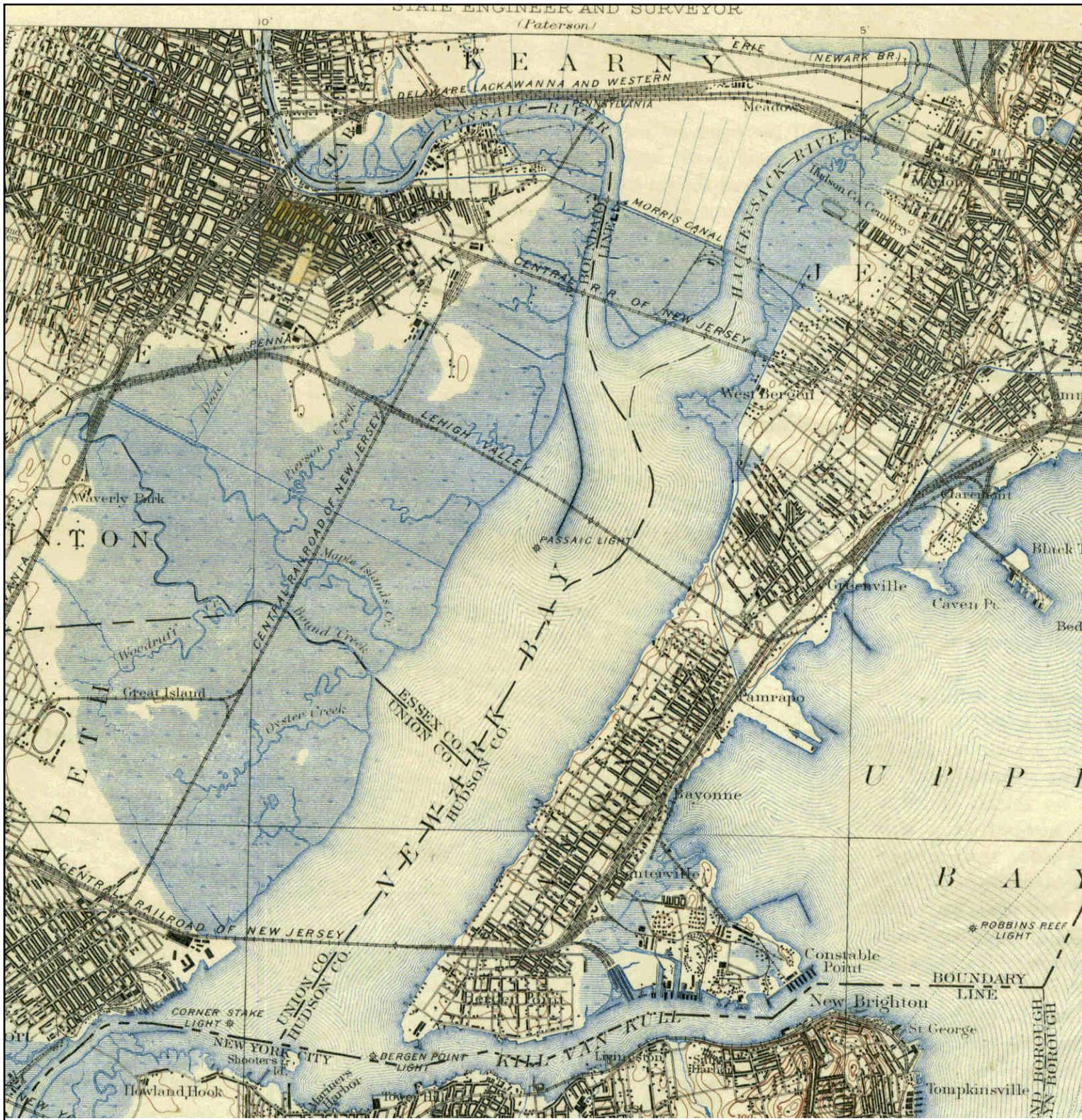

**Appendix 3 – A – 3**  
**HISTORICAL TOPOGRAPHIC MAPS**

# Historical Topographic Map



<p>N</p>	<p><b>TARGET QUAD</b></p>	<p><b>SITE NAME:</b> Amtrak Sawtooth Bridges</p>	<p><b>CLIENT:</b> AKRF, Inc.</p>
	<p>NAME: STATEN ISLAND</p>	<p>ADDRESS: Hudson County</p>	<p>CONTACT: Amy Jordan</p>
	<p>MAP YEAR: 1891</p>	<p>Kearny, NJ 07032</p>	<p>INQUIRY#: 4350946.6</p>
	<p>SERIES: 15</p>	<p>LAT/LONG: 40.7446 / -74.1215</p>	<p>RESEARCH DATE: 07/14/2015</p>
	<p>SCALE: 1:62500</p>		

# Historical Topographic Map



<p>N</p>	<p><b>TARGET QUAD</b></p> <p>NAME: STATEN ISLAND</p> <p>MAP YEAR: 1900</p>	<p>SITE NAME: Amtrak Sawtooth Bridges</p>	<p>CLIENT: AKRF, Inc.</p>
	<p>SERIES: 15</p> <p>SCALE: 1:62500</p>	<p>ADDRESS: Hudson County Kearny, NJ 07032</p>	<p>CONTACT: Amy Jordan</p>
		<p>LAT/LONG: 40.7446 / -74.1215</p>	<p>INQUIRY#: 4350946.6</p>
			<p>RESEARCH DATE: 07/14/2015</p>

# Historical Topographic Map



<p>N</p>	<p><b>TARGET QUAD</b></p> <p>NAME: PASSAIC</p> <p>MAP YEAR: 1900</p>	<p>SITE NAME: Amtrak Sawtooth Bridges</p> <p>ADDRESS: Hudson County Kearny, NJ 07032</p> <p>LAT/LONG: 40.7446 / -74.1215</p>	<p>CLIENT: AKRF, Inc.</p> <p>CONTACT: Amy Jordan</p> <p>INQUIRY#: 4350946.6</p> <p>RESEARCH DATE: 07/14/2015</p>
	<p>SERIES: 30</p> <p>SCALE: 1:125000</p>		

# Historical Topographic Map



	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Amtrak Sawtooth Bridges	<b>CLIENT:</b> AKRF, Inc.
	<b>NAME:</b> PASSAIC	<b>ADDRESS:</b> Hudson County Kearny, NJ 07032	<b>CONTACT:</b> Amy Jordan
	<b>MAP YEAR:</b> 1905	<b>LAT/LONG:</b> 40.7446 / -74.1215	<b>INQUIRY#:</b> 4350946.6
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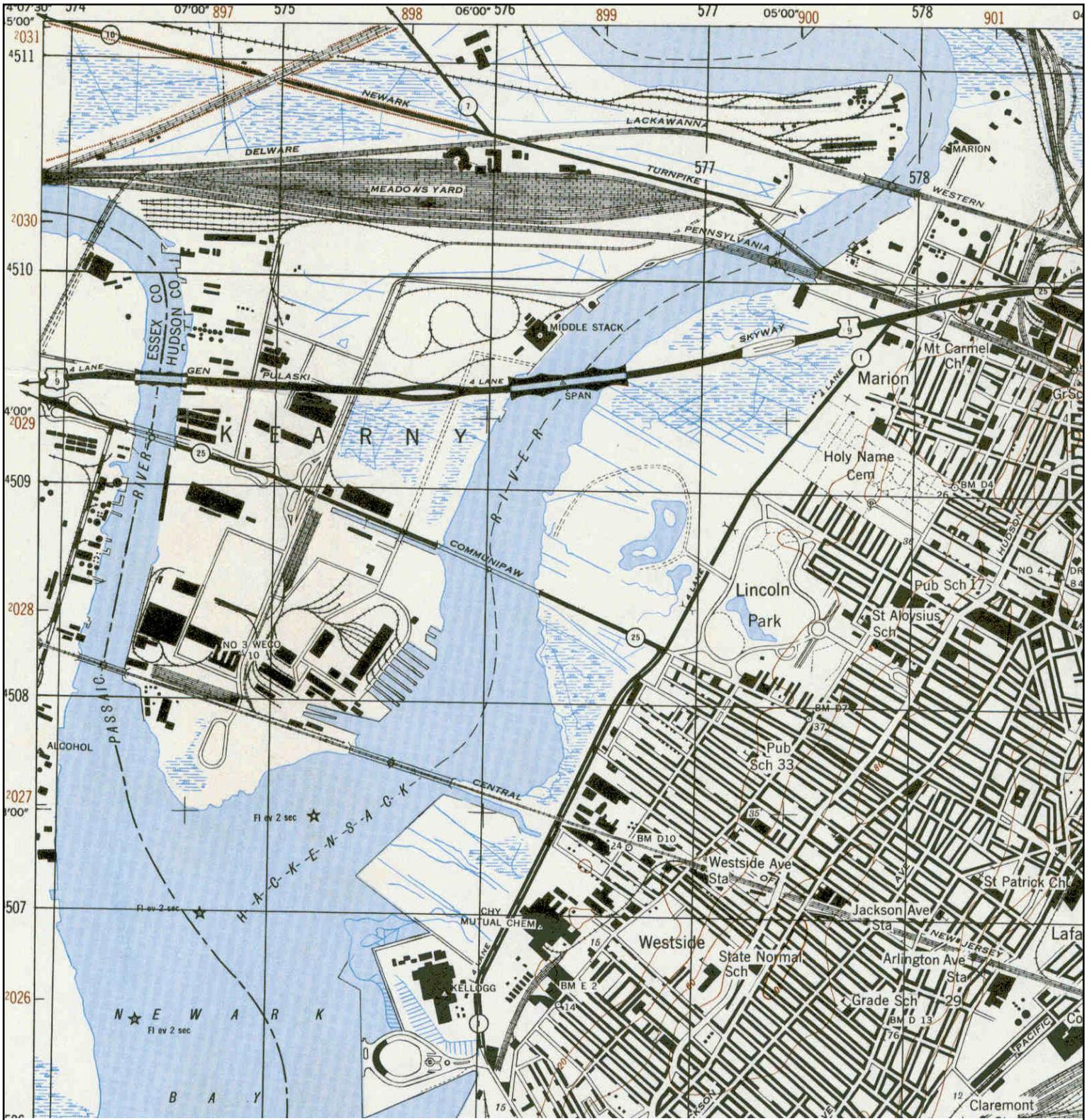
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	NAME: STATEN ISLAND	ADDRESS: Hudson County	<b>CONTACT:</b> Amy Jordan
	MAP YEAR: 1925	ADDRESS: Kearny, NJ 07032	<b>INQUIRY#:</b> 4350946.6
	REVISED FROM :1900	<b>LAT/LONG:</b> 40.7446 / -74.1215	<b>RESEARCH DATE:</b> 07/14/2015
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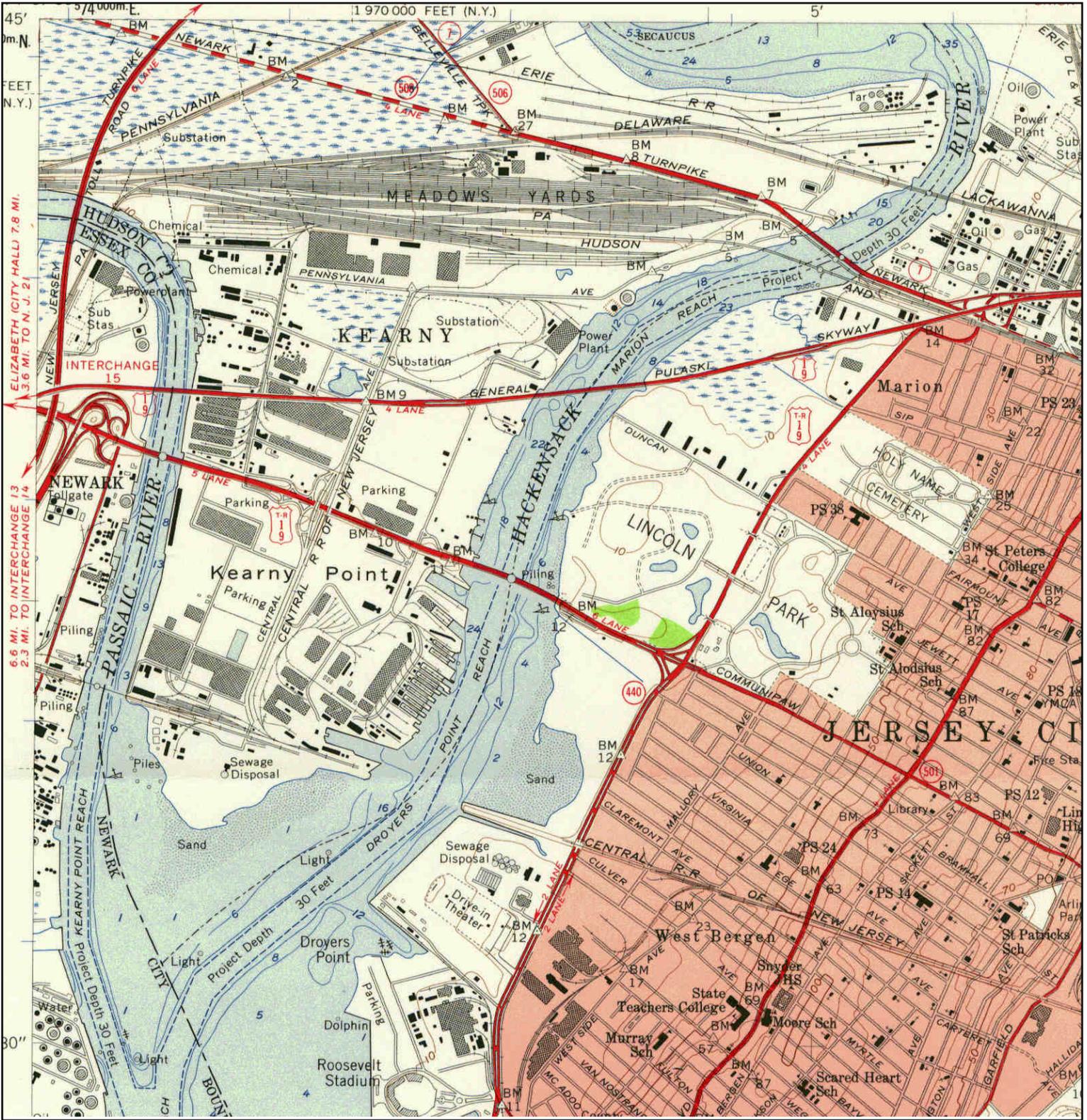
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	<p>NAME: ELIZABETH</p>	<p>ADDRESS: Hudson County Kearny, NJ 07032</p>	<p>CONTACT: Amy Jordan</p>
	<p>MAP YEAR: 1947</p>	<p>LAT/LONG: 40.7446 / -74.1215</p>	<p>INQUIRY#: 4350946.6</p>
	<p>SERIES: 7.5</p>		<p>RESEARCH DATE: 07/14/2015</p>
	<p>SCALE: 1:25000</p>		

# Historical Topographic Map



<b>N</b> 	<b>TARGET QUAD</b> NAME: JERSEY CITY MAP YEAR: 1947	<b>SITE NAME:</b> Amtrak Sawtooth Bridges <b>ADDRESS:</b> Hudson County Kearny, NJ 07032	<b>CLIENT:</b> AKRF, Inc. <b>CONTACT:</b> Amy Jordan <b>INQUIRY#:</b> 4350946.6 <b>RESEARCH DATE:</b> 07/14/2015
	SERIES: 7.5 SCALE: 1:25000	<b>LAT/LONG:</b> 40.7446 / -74.1215	

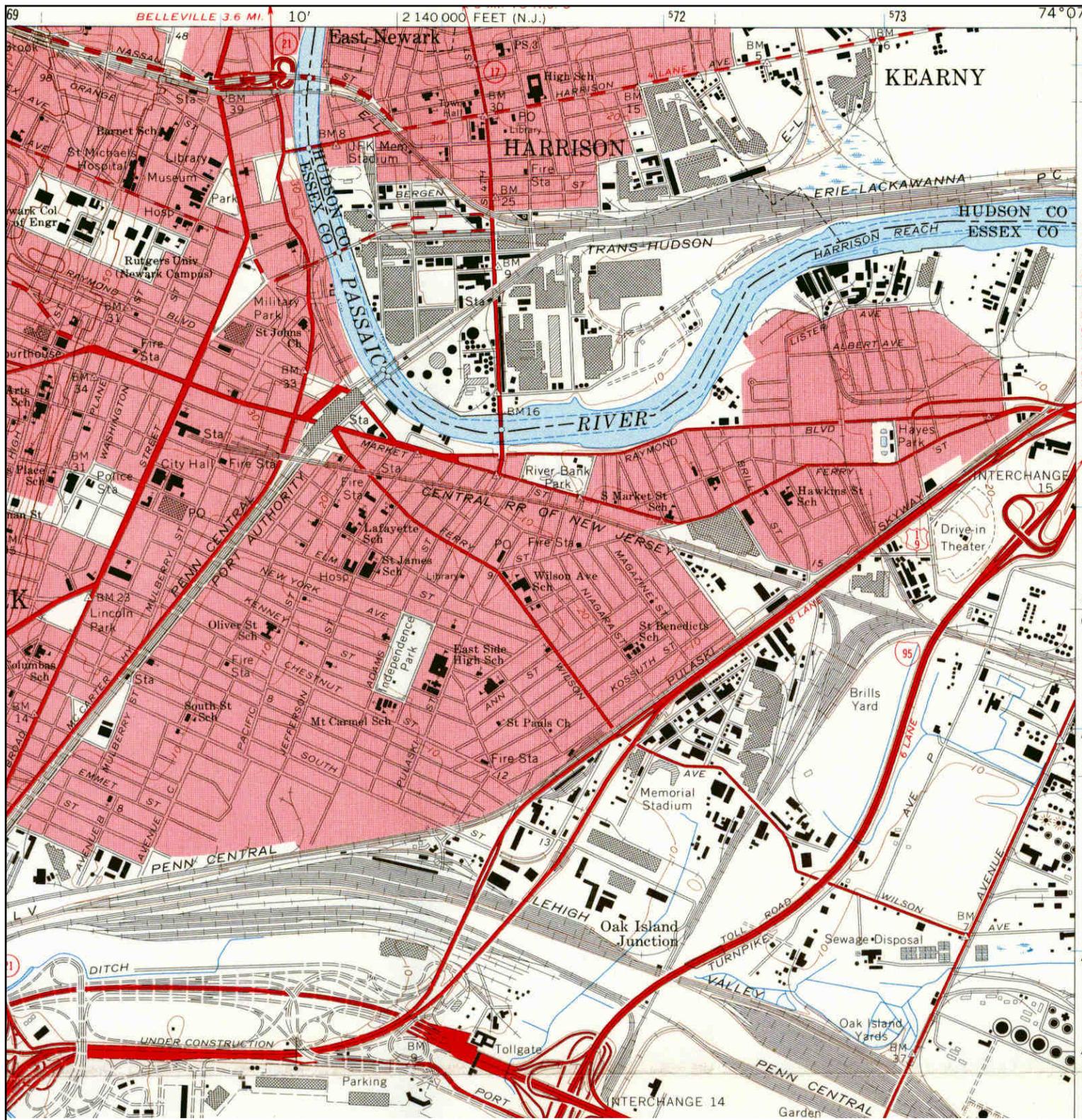
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	<p>SERIES: 7.5</p> <p>SCALE: 1:24000</p>		

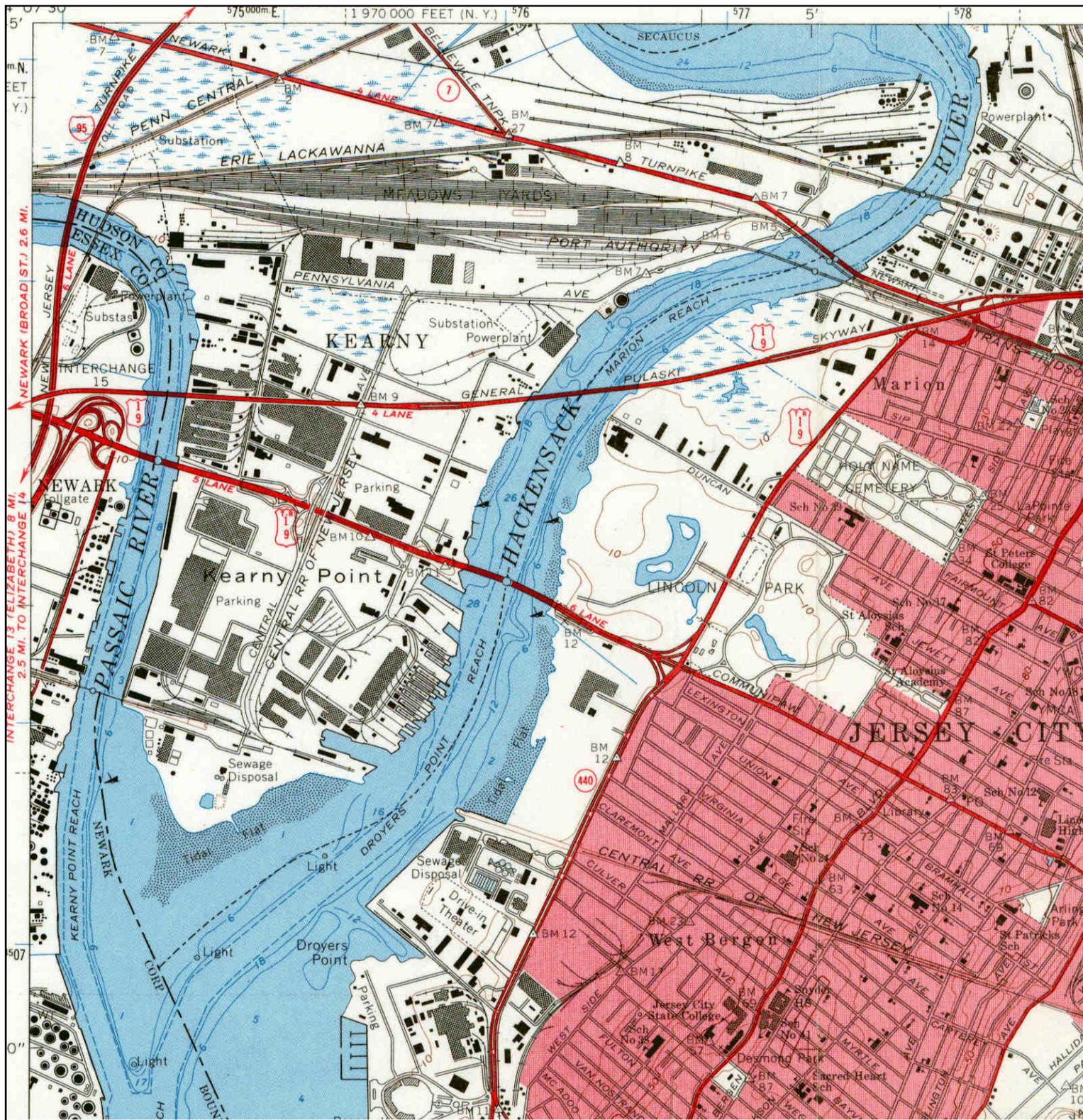


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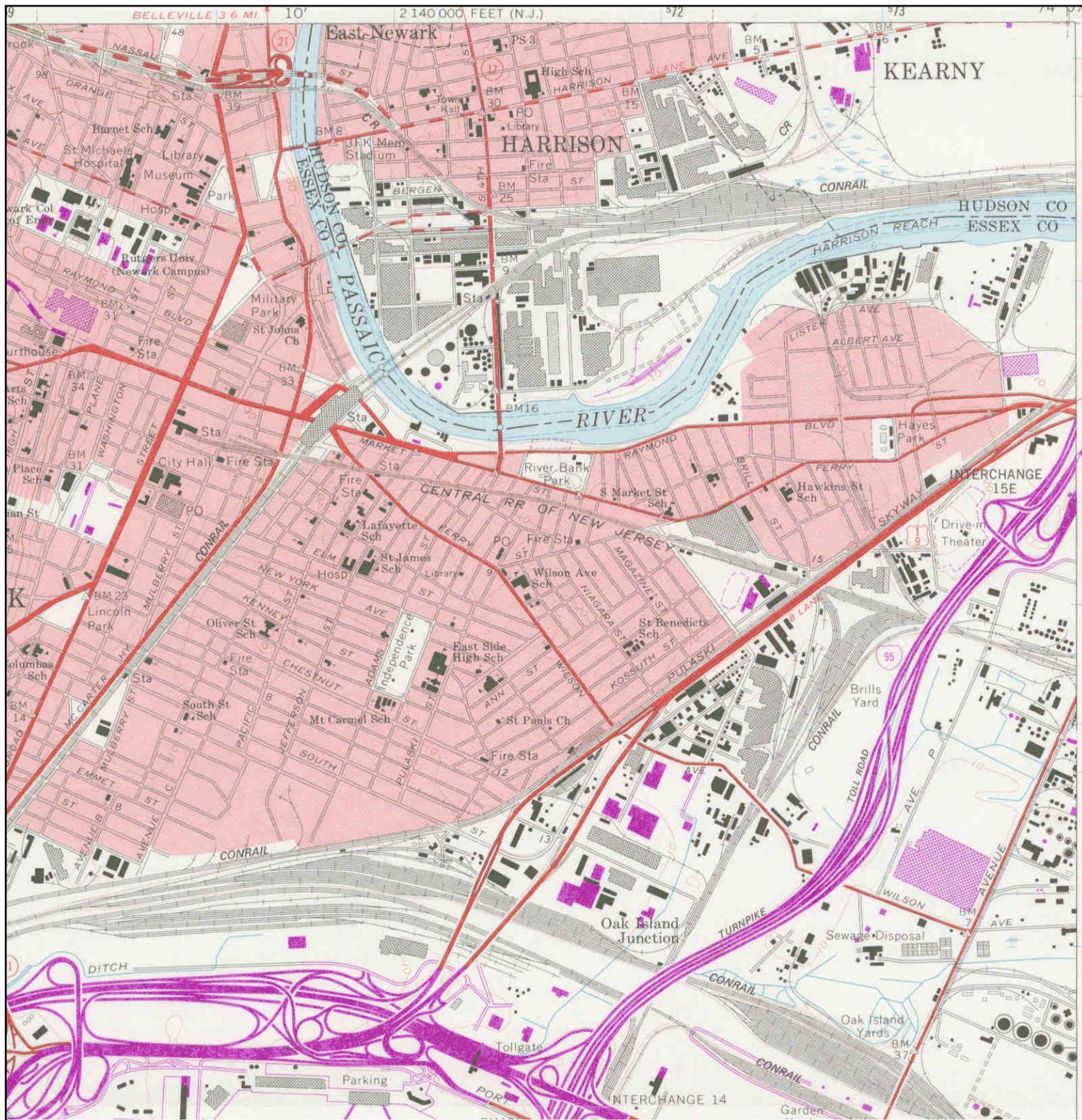
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	<p>NAME: ELIZABETH</p>	<p>ADDRESS: Hudson County Kearny, NJ 07032</p>	<p>CONTACT: Amy Jordan</p>
	<p>MAP YEAR: 1967</p>	<p>LAT/LONG: 40.7446 / -74.1215</p>	<p>INQUIRY#: 4350946.6</p>
	<p>SERIES: 7.5</p>		<p>RESEARCH DATE: 07/14/2015</p>
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# Historical Topographic Map



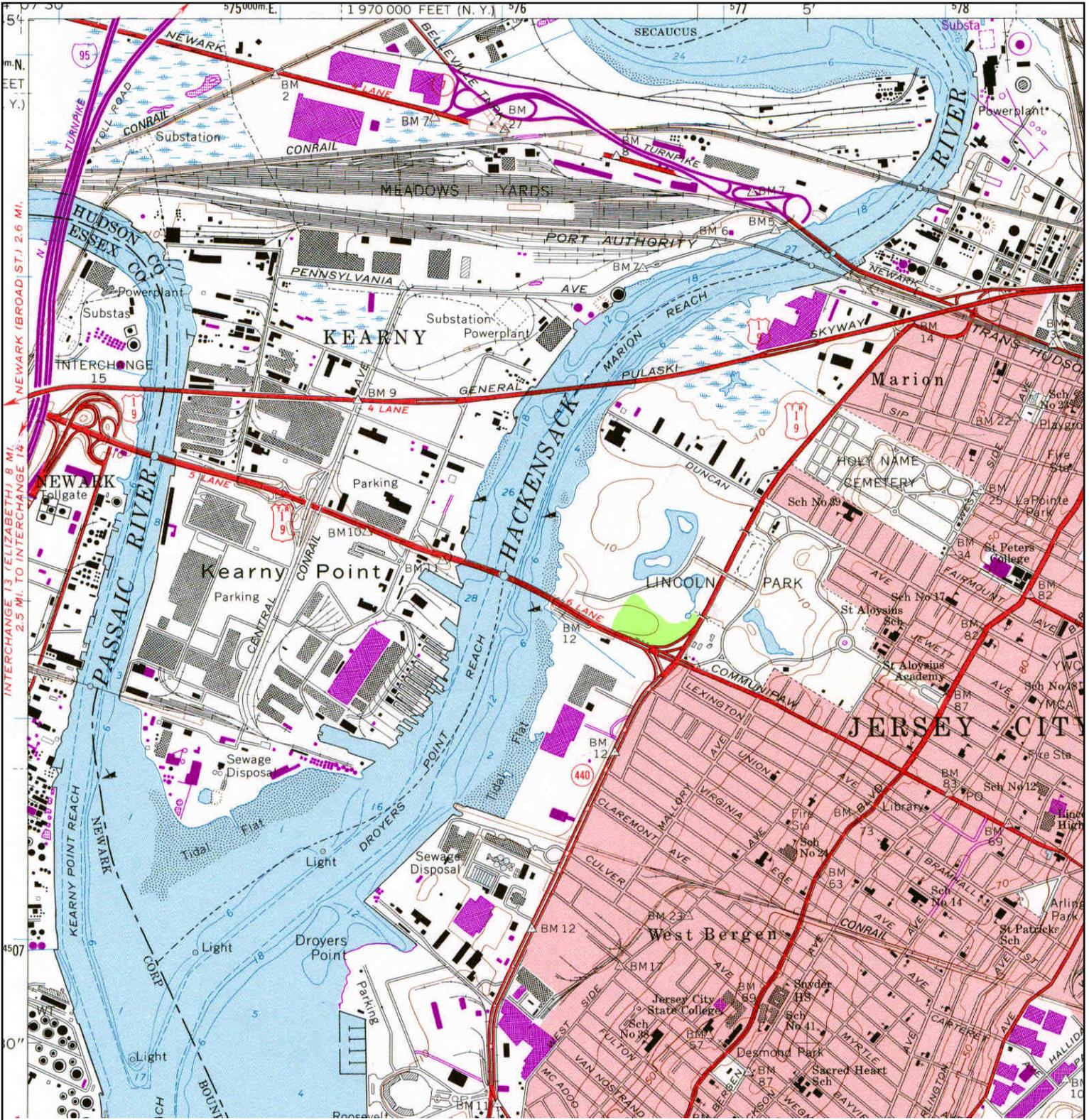
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	<p>SERIES: 7.5                  SCALE: 1:24000</p>	<p><b>LAT/LONG:</b> 40.7446 / -74.1215</p>	<p><b>RESEARCH DATE:</b> 07/14/2015</p>

# Historical Topographic Map



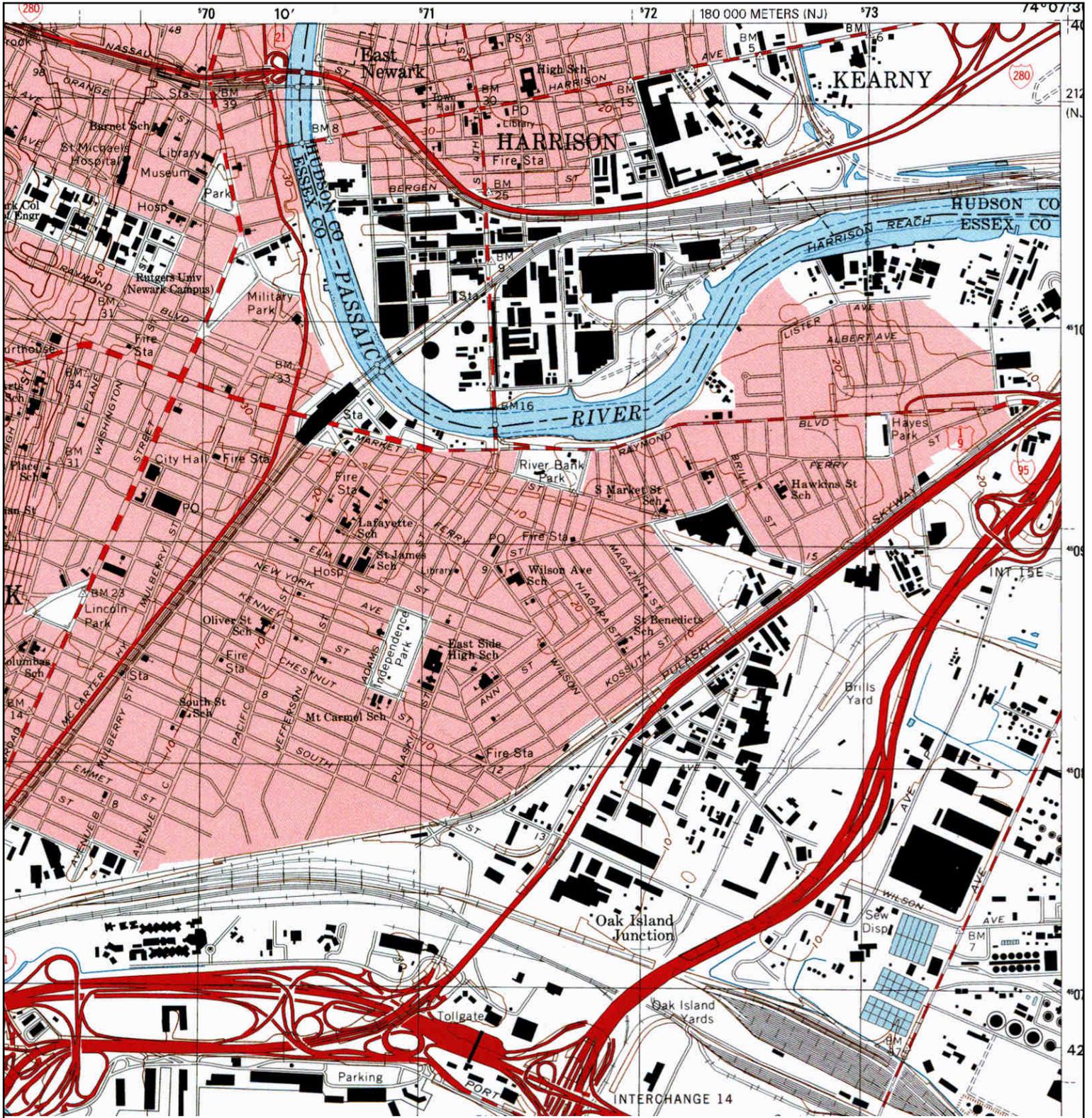
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	<b>NAME:</b> ELIZABETH	<b>ADDRESS:</b> Hudson County Kearny, NJ 07032	<b>CONTACT:</b> Amy Jordan
	<b>MAP YEAR:</b> 1981	<b>LAT/LONG:</b> 40.7446 / -74.1215	<b>INQUIRY#:</b> 4350946.6
	<b>PHOTOREVISED FROM :</b> 1967		<b>RESEARCH DATE:</b> 07/14/2015
	<b>SERIES:</b> 7.5		
	<b>SCALE:</b> 1:24000		

# Historical Topographic Map



<p>N ↑</p>	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Amtrak Sawtooth Bridges	<b>CLIENT:</b> AKRF, Inc.
	NAME: JERSEY CITY	ADDRESS: Hudson County	<b>CONTACT:</b> Amy Jordan
	MAP YEAR: 1981	KEARNY, NJ 07032	<b>INQUIRY#:</b> 4350946.6
	PHOTOREVISED FROM :1967	LAT/LONG: 40.7446 / -74.1215	<b>RESEARCH DATE:</b> 07/14/2015
	SERIES: 7.5		
	SCALE: 1:24000		

# Historical Topographic Map



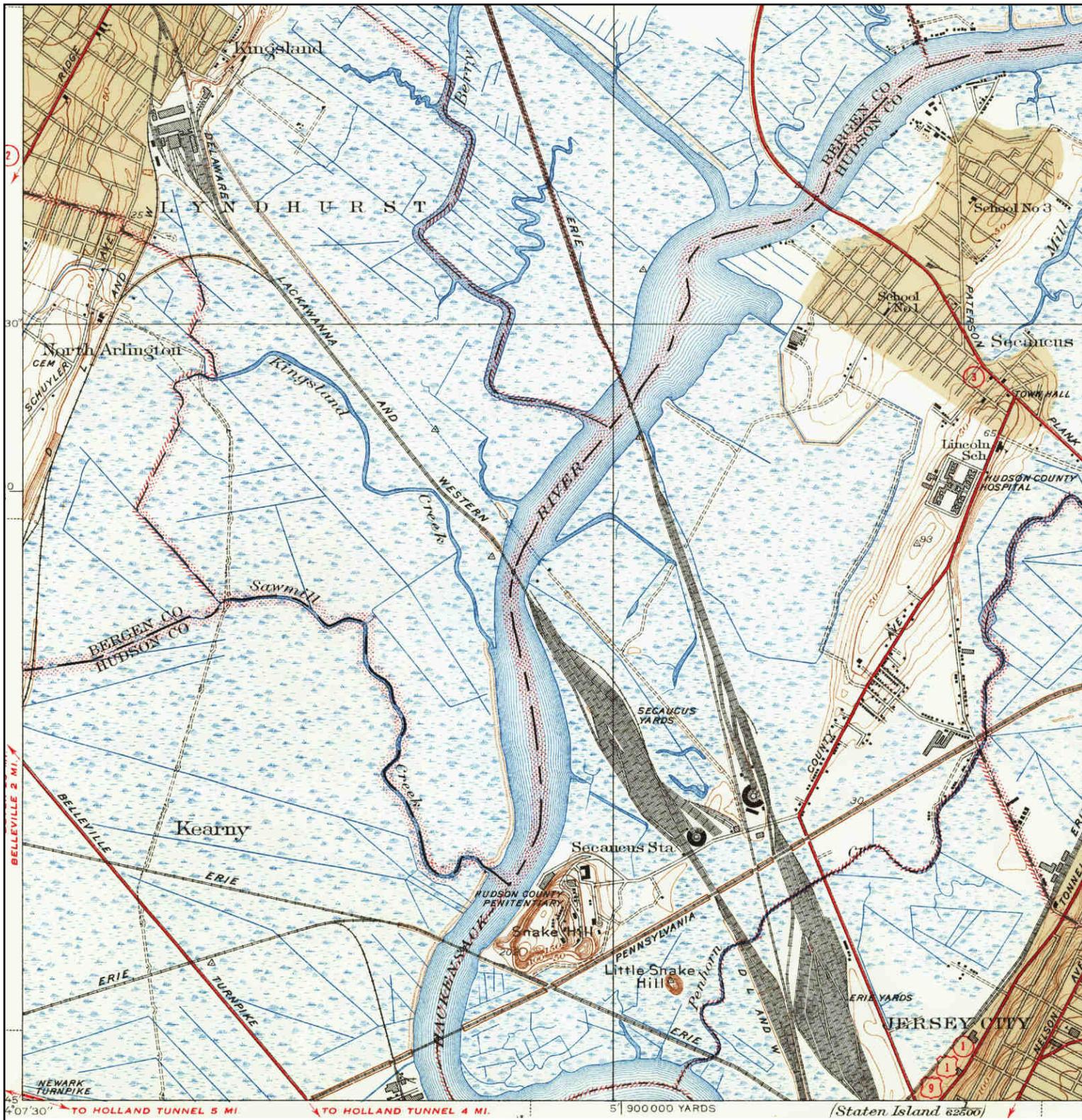
<b>N</b> 	<b>TARGET QUAD</b>	<b>SITE NAME:</b> Amtrak Sawtooth Bridges	<b>CLIENT:</b> AKRF, Inc.
	<b>NAME:</b> ELIZABETH	<b>ADDRESS:</b> Hudson County Kearny, NJ 07032	<b>CONTACT:</b> Amy Jordan
	<b>MAP YEAR:</b> 1995	<b>LAT/LONG:</b> 40.7446 / -74.1215	<b>INQUIRY#:</b> 4350946.6
	<b>SERIES:</b> 7.5		<b>RESEARCH DATE:</b> 07/14/2015
	<b>SCALE:</b> 1:24000		

# Historical Topographic Map



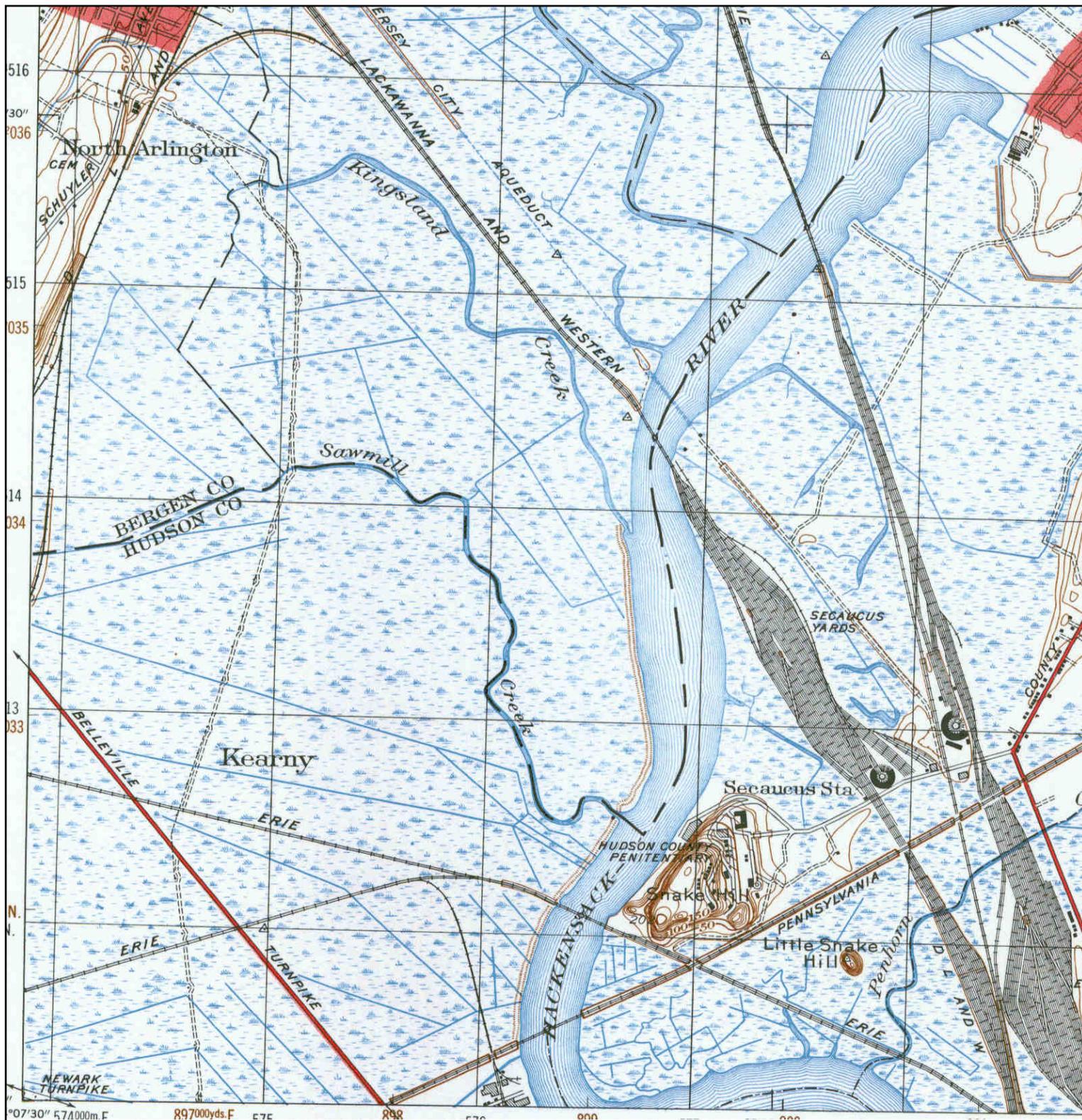
<b>N</b> 	<b>ADJOINING QUAD</b>	<b>SITE NAME:</b> Amtrak Sawtooth Bridges	<b>CLIENT:</b> AKRF, Inc.	
	<b>NAME:</b> PATERSON	<b>ADDRESS:</b> Hudson County	<b>CONTACT:</b> Amy Jordan	
	<b>MAP YEAR:</b> 1903	<b>LAT/LONG:</b> 40.7446 / -74.1215	<b>INQUIRY#:</b> 4350946.6	<b>RESEARCH DATE:</b> 07/14/2015
	<b>SERIES:</b> 15			
	<b>SCALE:</b> 1:62500			

# Historical Topographic Map



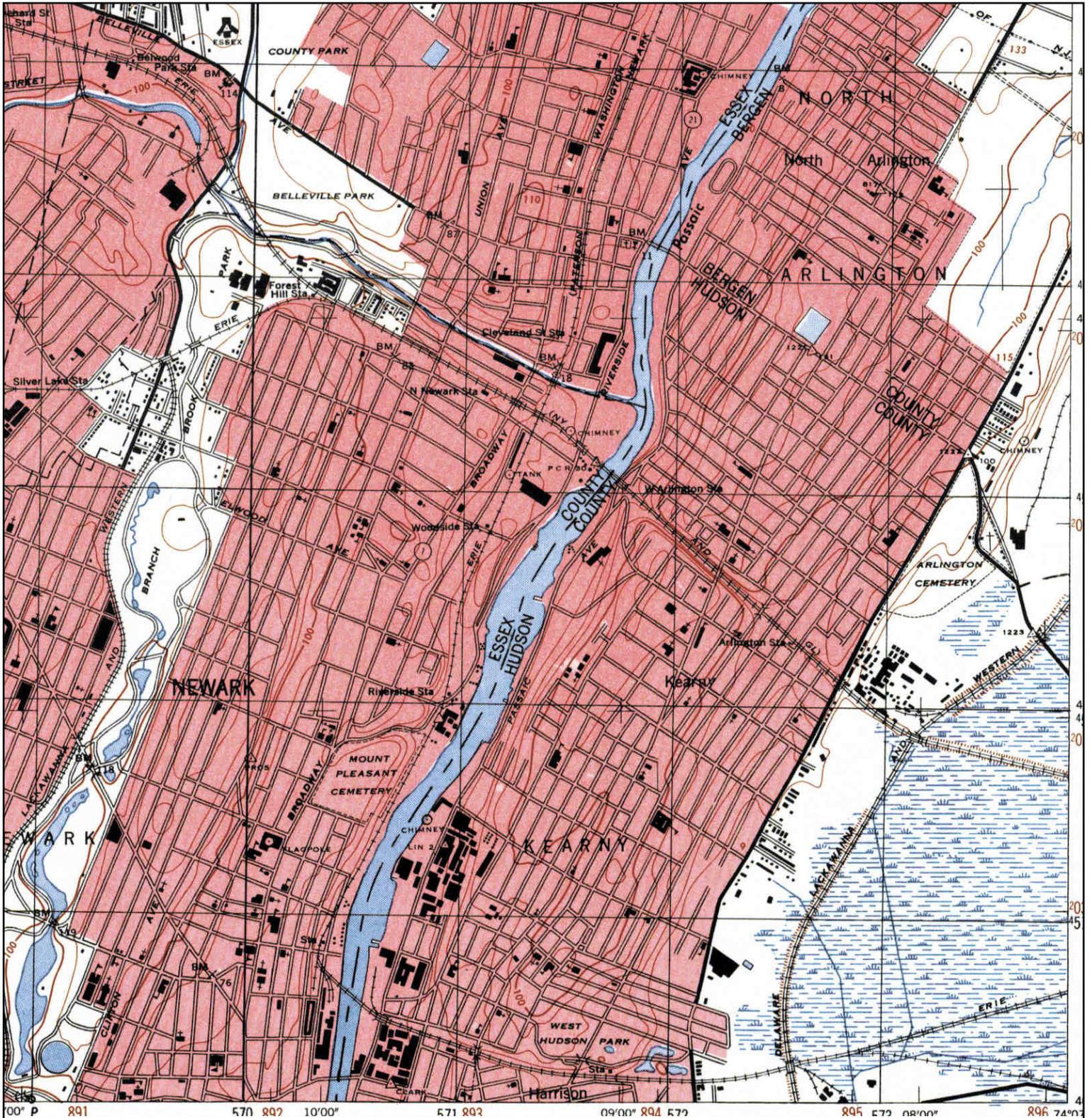
<p>N</p>	<p><b>ADJOINING QUAD</b></p> <p>NAME: WEEHAWKEN</p> <p>MAP YEAR: 1940</p>	<p>SITE NAME: Amtrak Sawtooth Bridges</p> <p>ADDRESS: Hudson County Kearny, NJ 07032</p> <p>LAT/LONG: 40.7446 / -74.1215</p>	<p>CLIENT: AKRF, Inc.</p> <p>CONTACT: Amy Jordan</p> <p>INQUIRY#: 4350946.6</p> <p>RESEARCH DATE: 07/14/2015</p>
	<p>SERIES: 7.5</p> <p>SCALE: 1:31680</p>		

# Historical Topographic Map



	<b>ADJOINING QUAD</b>			
	NAME:	WEEHAWKEN		<b>SITE NAME:</b> Amtrak Sawtooth Bridges
	MAP YEAR:	1947		<b>ADDRESS:</b> Hudson County Kearny, NJ 07032
	SERIES:	7.5		<b>LAT/LONG:</b> 40.7446 / -74.1215
	SCALE:	1:25000		<b>CLIENT:</b> AKRF, Inc. <b>CONTACT:</b> Amy Jordan <b>INQUIRY#:</b> 4350946.6 <b>RESEARCH DATE:</b> 07/14/2015

# Historical Topographic Map



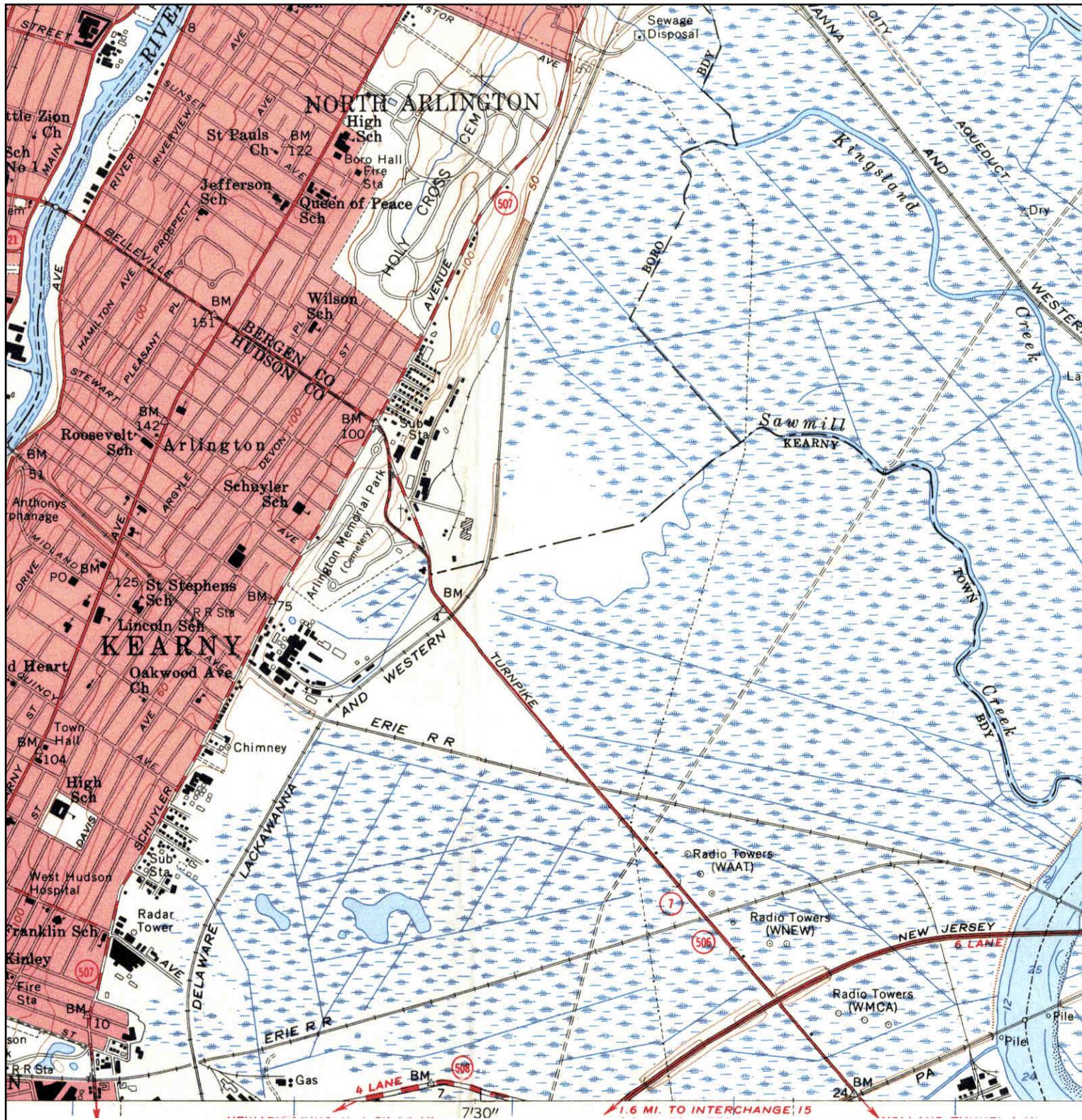
	<b>ADJOINING QUAD</b>				
	NAME:	ORANGE		SITE NAME:	Amtrak Sawtooth Bridges
	MAP YEAR:	1947		ADDRESS:	Hudson County Kearny, NJ 07032
	SERIES:	7.5		LAT/LONG:	40.7446 / -74.1215
	SCALE:	1:25000		CLIENT:	AKRF, Inc.
		CONTACT:	Amy Jordan		
		INQUIRY#:	4350946.6		
		RESEARCH DATE:	07/14/2015		

# Historical Topographic Map



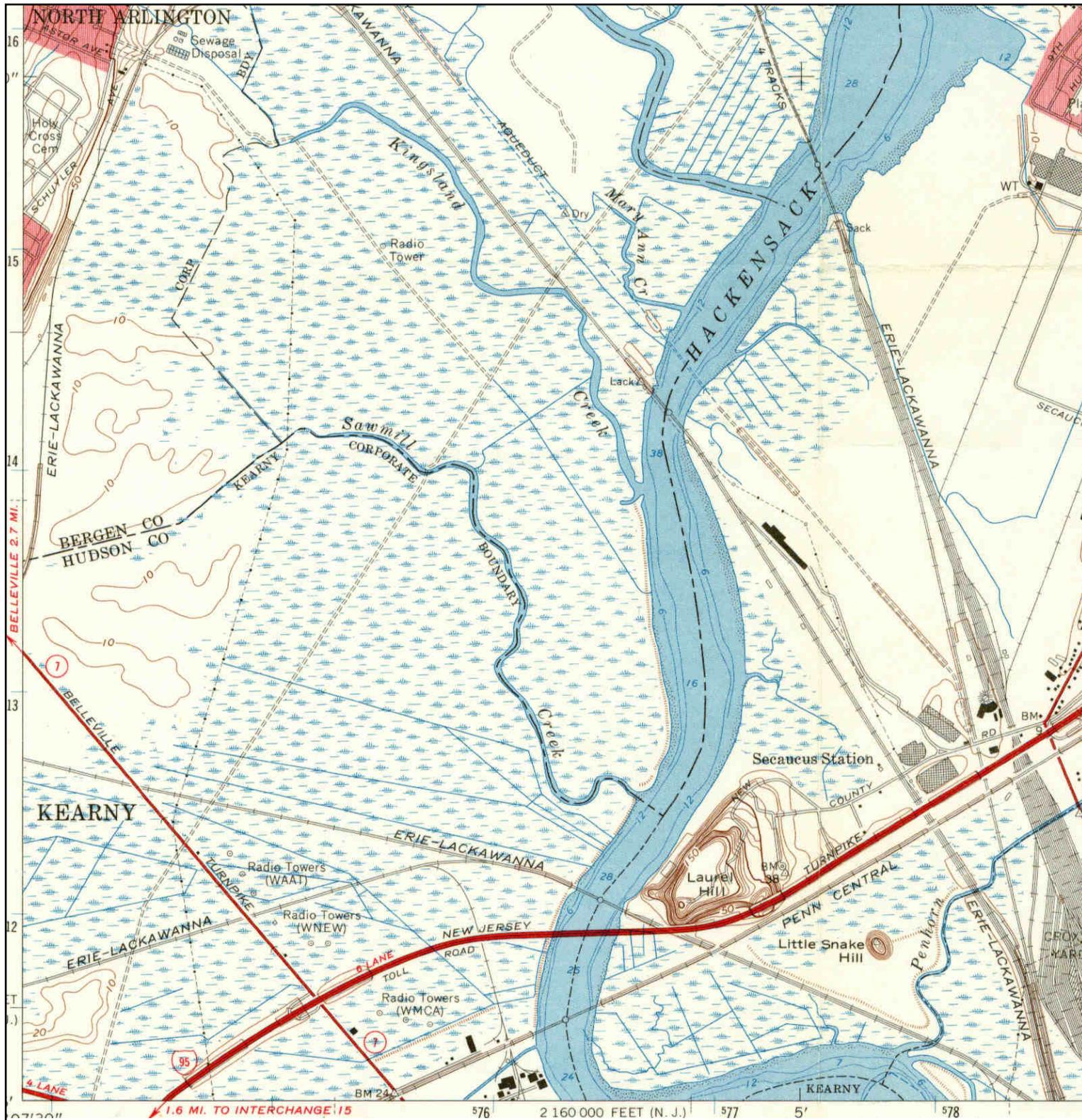
<p>N</p>	<b>ADJOINING QUAD</b>		<p><b>SITE NAME:</b> Amtrak Sawtooth Bridges</p> <p><b>ADDRESS:</b> Hudson County Kearny, NJ 07032</p> <p><b>LAT/LONG:</b> 40.7446 / -74.1215</p>	<p><b>CLIENT:</b> AKRF, Inc.</p> <p><b>CONTACT:</b> Amy Jordan</p> <p><b>INQUIRY#:</b> 4350946.6</p> <p><b>RESEARCH DATE:</b> 07/14/2015</p>
	<b>NAME:</b> ORANGE			
	<b>MAP YEAR:</b> 1955			
	<b>SERIES:</b> 7.5			
	<b>SCALE:</b> 1:24000			

# Historical Topographic Map



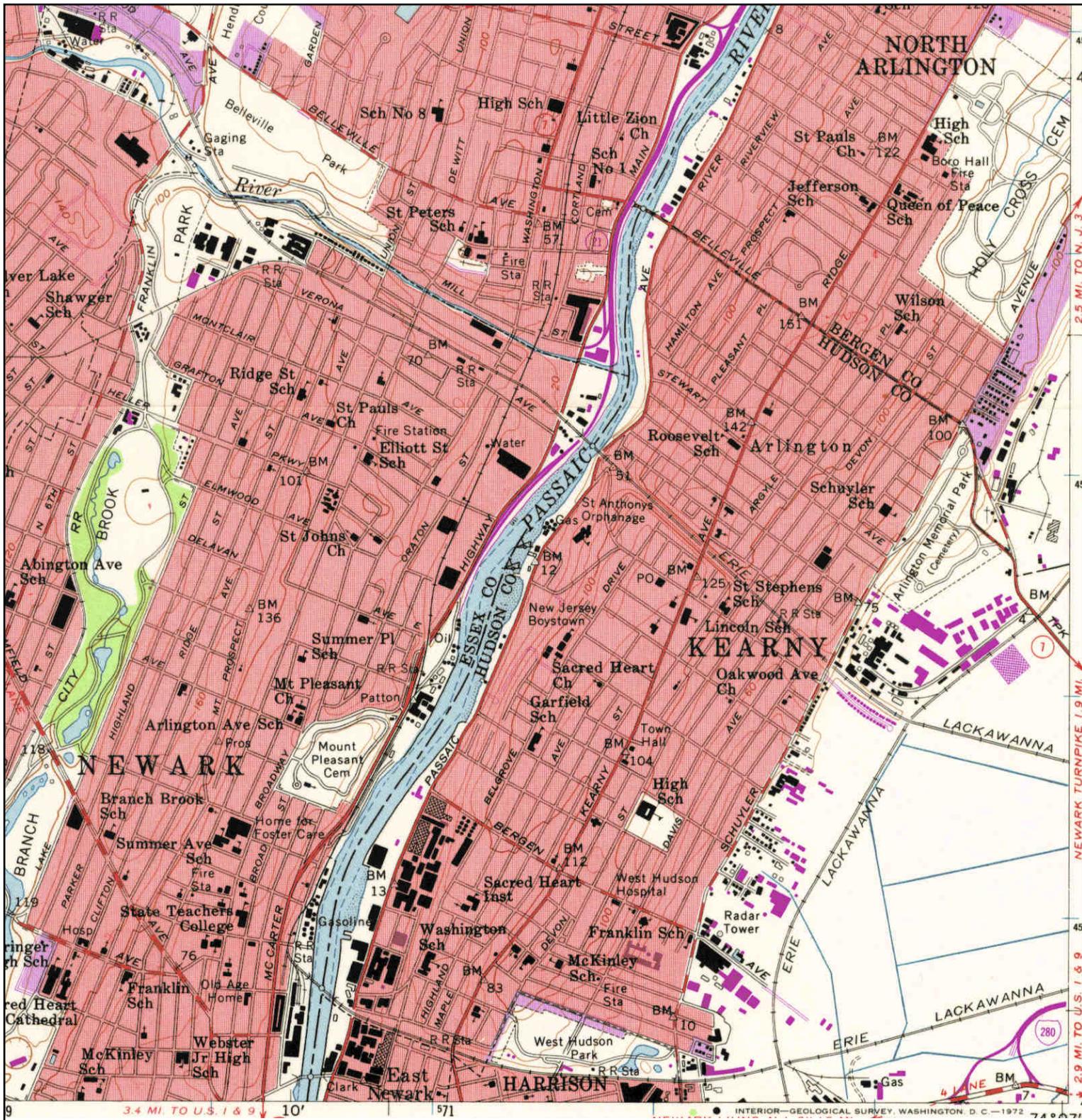
<p>N</p>	<b>ADJOINING QUAD</b>		<b>SITE NAME:</b> Amtrak Sawtooth Bridges	<b>CLIENT:</b> AKRF, Inc.					
	<b>NAME:</b>	PATERSON AND VICINITY			<b>ADDRESS:</b> Hudson County Kearny, NJ 07032	<b>CONTACT:</b> Amy Jordan			
	<b>MAP YEAR:</b>	1955					<b>LAT/LONG:</b> 40.7446 / -74.1215	<b>INQUIRY#:</b> 4350946.6	
	<b>SERIES:</b>	7.5							<b>RESEARCH DATE:</b> 07/14/2015
	<b>SCALE:</b>	1:24000							

# Historical Topographic Map



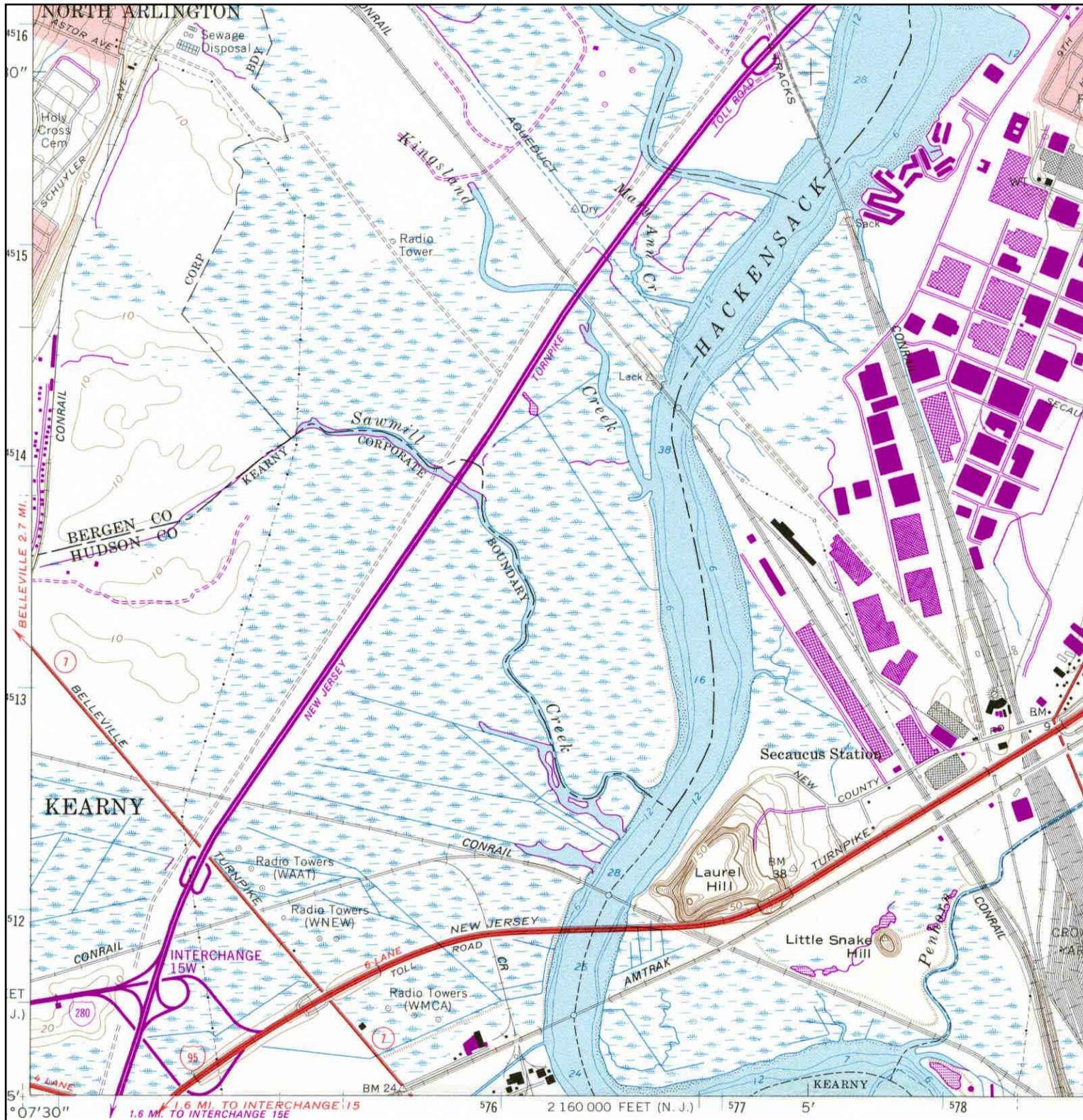
<b>N</b> 	<b>ADJOINING QUAD</b>			
	NAME: WEHAWKEN	SITE NAME: Amtrak Sawtooth Bridges		CLIENT: AKRF, Inc.
	MAP YEAR: 1967	ADDRESS: Hudson County Kearny, NJ 07032		CONTACT: Amy Jordan
	SERIES: 7.5	LAT/LONG: 40.7446 / -74.1215		INQUIRY#: 4350946.6
	SCALE: 1:24000		RESEARCH DATE: 07/14/2015	

# Historical Topographic Map



<p>N</p>	ADJOINING QUAD	SITE NAME:	CLIENT:
	NAME: ORANGE	Amtrak Sawtooth	AKRF, Inc.
	MAP YEAR: 1970	Bridges	CONTACT: Amy Jordan
	PHOTOREVISED FROM :1955	ADDRESS: Hudson County	INQUIRY#: 4350946.6
	SERIES: 7.5	Kearny, NJ 07032	RESEARCH DATE: 07/14/2015
	SCALE: 1:24000	LAT/LONG: 40.7446 / -74.1215	

# Historical Topographic Map



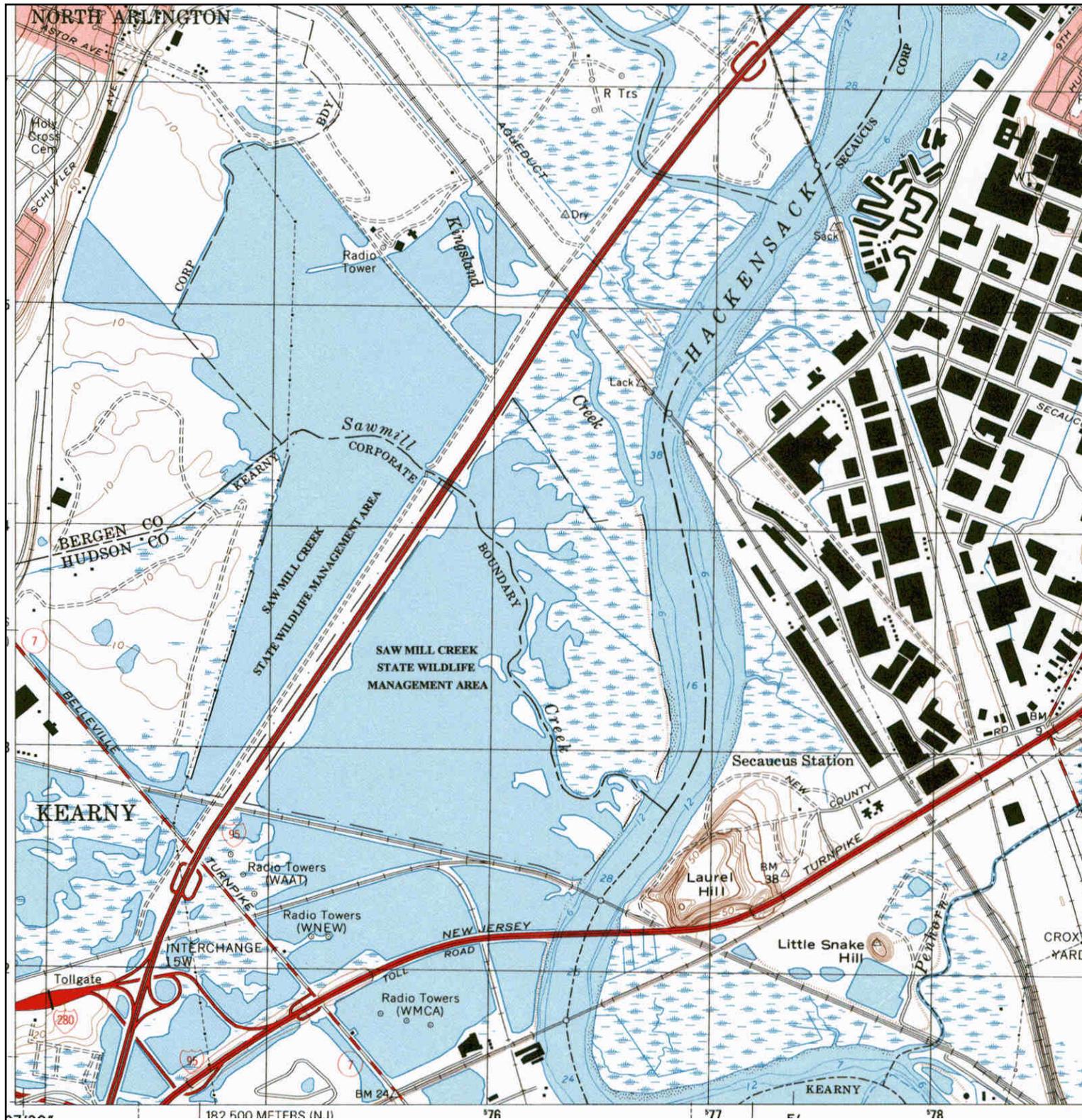
	<b>ADJOINING QUAD</b>		CLIENT: AKRF, Inc. CONTACT: Amy Jordan INQUIRY#: 4350946.6 RESEARCH DATE: 07/14/2015	
	NAME:	WEEHAWKEN		SITE NAME: Amtrak Sawtooth Bridges ADDRESS: Hudson County Kearny, NJ 07032 LAT/LONG: 40.7446 / -74.1215
	MAP YEAR:	1981		
	PHOTOREVISED FROM :	1967		
	SERIES:	7.5		
	SCALE:	1:24000		

# Historical Topographic Map



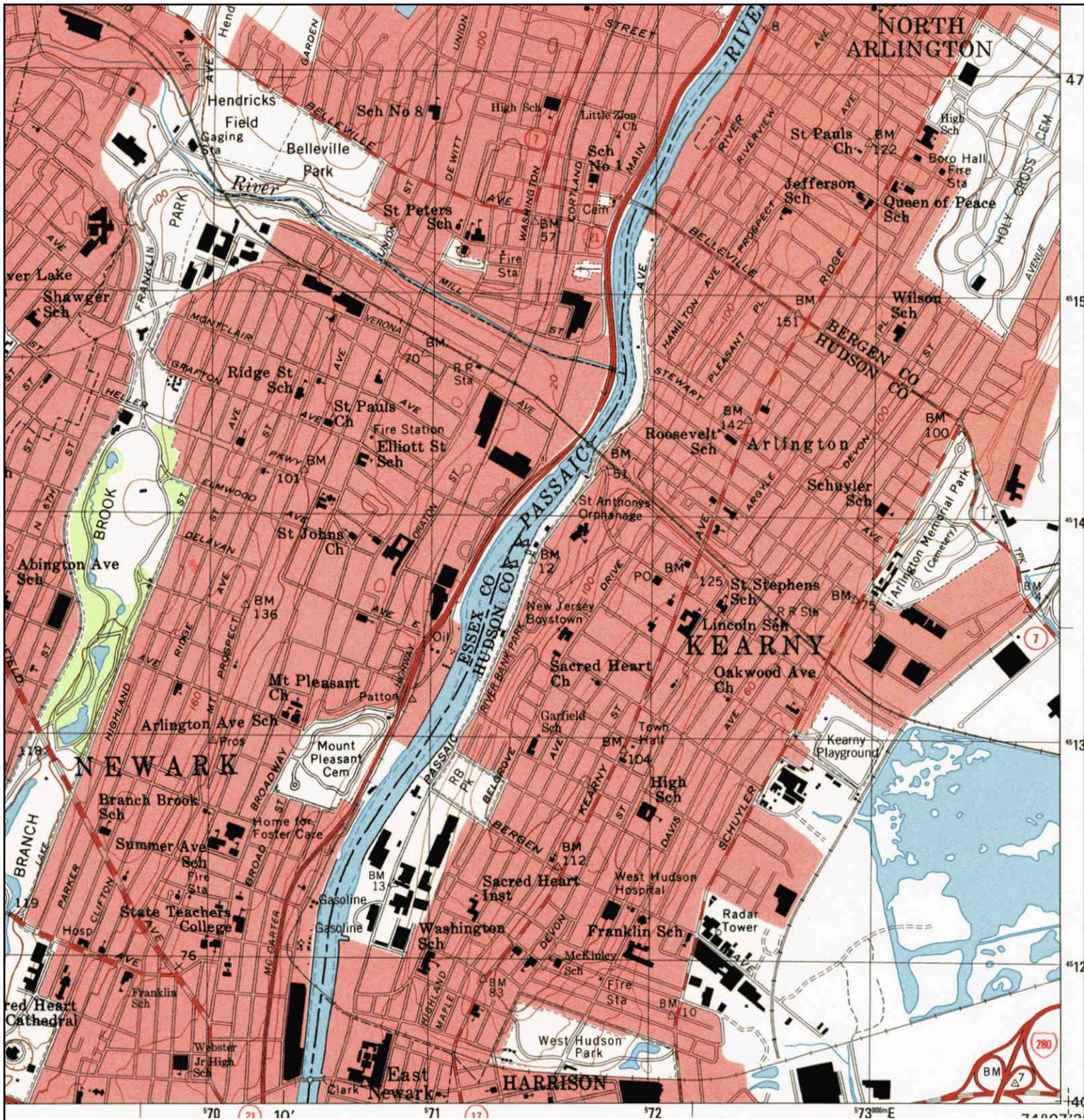
	<b>ADJOINING QUAD</b>	<b>SITE NAME:</b>	<b>CLIENT:</b>
	NAME: ORANGE	Amtrak Sawtooth Bridges	AKRF, Inc.
	MAP YEAR: 1981	ADDRESS: Hudson County	CONTACT: Amy Jordan
	PHOTOREVISED FROM :1955	Kearny, NJ 07032	INQUIRY#: 4350946.6
	SERIES: 7.5	LAT/LONG: 40.7446 / -74.1215	RESEARCH DATE: 07/14/2015
SCALE: 1:24000			

# Historical Topographic Map



<p>N</p> 	<b>ADJOINING QUAD</b>			
	NAME:	WEEHAWKEN		<b>SITE NAME:</b> Amtrak Sawtooth Bridges
	MAP YEAR:	1995		<b>ADDRESS:</b> Hudson County Kearny, NJ 07032
	SERIES:	7.5		<b>LAT/LONG:</b> 40.7446 / -74.1215
	SCALE:	1:24000	<b>CLIENT:</b> AKRF, Inc.	
			<b>CONTACT:</b> Amy Jordan	
			<b>INQUIRY#:</b> 4350946.6	
			<b>RESEARCH DATE:</b> 07/14/2015	

# Historical Topographic Map



	<b>ADJOINING QUAD</b>					
	NAME:	ORANGE	SITE NAME:	Amtrak Sawtooth Bridges	CLIENT:	AKRF, Inc.
	MAP YEAR:	1995	ADDRESS:	Hudson County Kearny, NJ 07032	CONTACT:	Amy Jordan
	SERIES:	7.5	LAT/LONG:	40.7446 / -74.1215	INQUIRY#:	4350946.6
	SCALE:	1:24000			RESEARCH DATE:	07/14/2015