



Engineering
& Design

Environmental Impact Assessment

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Unami Park Playground Reconstruction

Block: 614, Lot 26

Borough of Garwood, Union County, New Jersey

Prepared for:

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CED Project No. 24012642A

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Introduction

Purpose of Document

This report has been prepared in accordance with the Environmental Impact Assessment Requirements of the Green Acres Program Park Development Application which requires the preparation and submittal of an Environmental Impact Assessment (EIA) for certain applications.

Union County is seeking \$1,000,000 in grant funding, with an additional 25% match commitment of \$250,000, for a total project budget of \$1,250,000, to enhance Unami Park. The park is located at 1301 Columbus Avenue, 215 Hickory Avenue, and 301 Hickory Avenue in Westfield and Garwood, New Jersey (Block 614, Lots 26 and 20; Block 4903, Lot 1). The proposed project will improve this 27.957-acre open space owned by Union County, which currently features baseball fields, a soccer field, softball fields, a tennis court, restrooms, a playground, and a rentable picnic area. These amenities serve residents, businesses, and organizations in the surrounding community.

This EIA documents environmental resources on the project site, potential impacts to these resources resulting from the proposed activities and measures to avoid or reduce impacts.

Methods

Various sources of background information including databases, maps, plans, and reports referenced herein were utilized in preparing the EIA. The New Jersey Department of Environmental Protection's (NJDEP) NJ-GeoWeb (NJDEP, 2024) database was an important source of information in this EIA. Background information was supplemented with observations from Colliers Engineering and Design staff regarding site characteristics and biological resources observed during field visits. Land use related areas of investigation include, but are not limited to, natural resources, community resources, water quality (stormwater management), and assessment of impacts from the proposed development.

Staff from Colliers Engineering and Design (CED) visited the subject property on December 18, 2024, to make field observations regarding site character and biological resources. CED staff (**Appendix B**) utilized the information gathered from the field visits and background sources to develop the descriptions, analyses, and interpretations provided herein.

Report figures including maps are presented in Appendix A; photographs are presented in Appendix C; and the results of a Natural Heritage Program Database search are pending.

Site Location and Characteristics

The subject property, Unami Park, is a public park in Borough of Garwood, Union County, New Jersey. Site access is provided by Lexington Avenue. Unami Park, owned by the Borough of Garwood, is located within an area characterized mainly by residential properties. See **Figures 1-3** in Appendix A for Site Location.

Zoning and Land Use

Zoning

The site is depicted within the Public Open Space (POS) per the Borough of Garwood Zoning Map (**Figure 4**). Permitted principal uses in this zone includes public parks, playgrounds, athletic fields, open space and other publicly owned recreational areas whether developed or undeveloped.

The proposed Completely Inclusive Playground is allowed in the POS Zone as it is a public playground in an existing public park owned by Borough of Garwood.

Present Land Use

The Site, Unami Park, currently exists as a public park. The State Planning Area Map indicates that the project site is located within the Metropolitan Planning Area (PA-1) (**Figure 5**). The Metropolitan Planning Area (PA-1) of the State Development and Redevelopment Plan includes those communities, that have strong ties to major metropolitan centers, such as the New York/Newark/Jersey City region. Most of these communities are fully developed, or almost fully developed, and typically new developments involve the redevelopment of properties.

The State Planning Commission's New Jersey State Development and Redevelopment Plan states the intent of the Metropolitan Planning Area is to:

- (1) provide for much of the state's future redevelopment;
- (2) revitalize cities and towns;
- (3) promote growth in compact forms;
- (4) stabilize older suburbs;
- (5) redesign areas of sprawl; and
- (6) protect the character of existing stable communities

Improvements to the existing Unami Park fulfills the intentions of the Metropolitan Planning Area.

Project Description

Project Objectives

Union County is seeking \$1,000,000 in grant funding, with an additional 25% match commitment of \$250,000, for a total project budget of \$1,250,000, to enhance Unami Park. The park is located at 1301 Columbus Avenue, 215 Hickory Avenue, and 301 Hickory Avenue in Westfield and Garwood, New Jersey (Block 614, Lots 26 and 20; Block 4903, Lot 1). The new playground will replace an existing, inadequate and aging playground.

Licenses/Permits

Permits or approvals from Local, State, and/or Federal departments or agencies may be required for the proposed project, examples of which included the following:

- Soil Conservation District for Soil Erosion and Sediment Control Plan Certification

Description of Proposed Improvements

Union County proposes to create the following new facilities at Unami Park:

- Construction of a Fully Inclusive Playground
 - Includes features such as spinning, sliding, climbing, swinging, sensory activities, and overhead elements.
 - Additional components may include sensory panels, rocking and bouncing equipment, balancing structures, crawl tunnels, bridges, ramps, and nature-inspired play areas.
- Installation of an ADA-Accessible Walkway
 - Constructed using pavers or concrete, the pathway will connect parking areas to the playground, ensuring accessibility.

Environmental Setting

The environmental setting of a region is the sum of the physical and biological features and processes that characterize the region. The physical conditions including the location, topography, geology, soils, water resources, and other features directly influence the overlying biotic communities that occur in an area. The constraints on the property resulting from the interaction of physical and biological features directly influence the design of the development plan proposed for the site and analyzed herein. An aerial map of the site is included in Appendix A (**Figure 6**).

Photographs of the subject property and project area can be found in **Appendix C**.

Physical Resources and Conditions

Physiographic Landscape

Areas that have similar rock types, geologic structures, landforms, and histories are organized into regions called Physiographic Provinces. New Jersey has four provinces, which make it a rather complex state for its small size. From northwest to southeast across the State, the provinces are (1) Ridge and Valley, (2) Highlands, (3) Piedmont, and (4) Coastal Plain. The project area is situated within the **Piedmont** Physiographic Province of New Jersey.

The **Piedmont Province** is characterized as a low rolling plain divided by a series of higher ridges and makes up approximately one-fifth of the state (Dalton 2003). It is mainly underlain by slightly folded and faulted sedimentary rocks of Triassic and Jurassic age, and igneous rocks of Jurassic age (Dalton 2003).

Based on site observations, there are no bedrock formations at or near the surface in the project area, which is expected for this physiographic province. There are no critical geological areas located on the project site.

Landform/Topography

Unami Park is partially developed and therefore, the natural topography has partially been altered. The location of proposed activities in the existing playground area is generally flat with elevations of 80 to 85 feet. Elevations in surrounding wooded areas on-site are higher in elevation.

Based on the site topography and soil survey data, steep slopes do not exist in the location of proposed activities involving the replacement of the existing playground with a Completely Inclusive Playground.

Geologic Characteristic

The bedrock geology for the entire subject property is characterized by Passaic Formation Mudstone facies (JTrpms) (**Figure 7**). Passaic Formation Mudstone facies dates from the Early Jurassic to the Late Jurassic and is reddish-brown to brownish-red in color and comprised of silty to sandy mudstone and siltstone.

Soils

The Natural Resource Conservation Service (NRCS) Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey, including information that is useful at the planning level to draw general conclusions about the suitability of a site for certain land uses.

A review of the Web Soil Survey shows the proposed project area is underlain by the following soil types described below (**See Figure 8**):

Boonton Loam, 3 to 8 percent slopes (BogB): This soil has a parent material of coarse-loamy basal till derived from basalt and is classified as well drained with depth to the water table at more than 80 inches from the surface. This soil is classified in Hydrologic Soil Group C.

Haledon Loam, 0 to 3 percent slopes (HakA): This soil has a parent material of coarse-loamy basal till derived from basalt and is classified as somewhat poorly drained with depth to the water table at about 6 to 18 inches. This soil is classified in Hydrologic Soil Group C.

Hydrology and Drainage

The project site is located in the Robinsons Brook Rahway River (below Lake Ave) and Rahway River (Robinsons Br to Kenilworth Blvd) sub-watersheds of the Rahway River / Woodbridge Creek Watershed of the Raritan River drainage basin (**Figure 9**).

Groundwater Quality and Quantity

Groundwater is all water within the soil and subsurface strata that is not at the surface of the land. It includes water that is within the earth that supplies wells and springs. It includes groundwater basins and water in perched water tables that lies above restrictive subsurface layers. Groundwater resources are often functionally linked to overlying land areas and surface water bodies; groundwater is often recharged through “outcrop” areas at the land surface and ground water discharges (“seeps”) may contribute to base flows of streams and rivers.

The groundwater yields of any particular geological formation or soil horizon are a function of the porosity and permeability of the material comprising the formation (consolidated rock or unconsolidated deposits and soils). Porosity describes the water-containing spaces between individual mineral grains, while permeability is the ease or difficulty with which water is transmitted through interconnecting spaces in the formation. Formations lacking open spaces between the mineral grains have both low porosity and low permeability. Weathering and cracking of the parent bedrock can induce secondary porosity in the formation; water can accumulate and move through these fractures in the primary rock formation.

Brunswick aquifer (Ba) is mapped for the subject property by NJ-GeoWeb (**Figure 10**). Brunswick Aquifer consists of sandstone, siltstone, and shale. The water within this confining unit is normally fresh, slightly alkaline, non-corrosive and hard. (Herman et al 1998).

New Jersey aquifers are ranked based on their ability to yield groundwater to high-capacity wells, including water supply, irrigation, and industrial supply wells. According to this resource, the aquifer recharge rank of the Brunswick Aquifer is “C”, or 100 gallons to 250 gallons per minute.

Based on NJ-GeoWeb mapping, the subject property is ranked “B” and “C” with 11 to 15 inches per year of groundwater recharge and 8 to 10 inches per year of groundwater recharge, respectively (**See Figure 11**).

Surface Water Quality

Per the NJ-GeoWeb, there are no waterbodies mapped on the subject property. Off-site, an unnamed/un-coded tributary is mapped outside the site’s western property boundaries. According to the NJDEP Surface Water Quality Standards (N.J.A.C. 7:9B), this un-coded tributary is classified as FW2-NT, a non-trout freshwater.

Biological Resources

Impacts to biological resources on-site are expected as a result of the proposed development. The proposed development is largely concentrated in an area that has been previously disturbed with its current development. Unavoidable adverse impacts to biological resources include loss of native vegetation and wildlife habitat. Information on the biological resources of the project area was compiled from previous reports, database searches, and personal observation from field visits conducted by staff members from Colliers Engineering & Design.

Vegetation

The vegetation of the site is influenced by and reflects the geographic location (Coastal Plain Physiographic Province), topography and exposure, bedrock geology and soils, landscape processes, hydrogeology (i.e., the streams, ponds, high water tables, etc.), and land use history.

Unami Park is an active and passive recreational park. The area of the proposed improvements is in the active recreational area of the park. The forested portions of the site includes Pin oaks, red oaks, sweetgums, red maples, and white pines.

Wildlife

The term wildlife pertains to zoological (non-plant) resources, such as insects and animals. Terrestrial wildlife includes insects and animals that are not primarily aquatic. Terrestrial wildlife includes species that primarily occur on land and also includes avian species. Aquatic wildlife includes species that spend the majority of time in aquatic environments. Aquatic wildlife also describes certain life stages of insects and animals, as is the case for most species of salamanders, frogs, and toads within this region which require aquatic habitats for breeding, egg, and larval life stages.

The project site is currently developed as a public park. Based on the disturbed nature of the site and surrounding disturbances associated with roadways and development, wildlife species that may utilize the site are expected to be common and somewhat tolerant of human disturbances.

Wildlife species expected to utilize the property include species tolerant to the disturbed nature of the project site and surrounding area. Species that may utilize the site are common mammals found in New Jersey which includes but is not limited to various species of squirrels, mice, rats, foxes, raccoon, opossum, eastern cottontail, eastern chipmunk, and white-tailed deer. Common bird species are also expected to occur on the project site and may include geese, doves, hummingbirds, hawks, owls, woodpeckers, swallows, wrens, warblers, sparrows, and other bird species.

Rare Species and Species of Special Concern

A request was sent to the Natural Heritage Program (NHP) for a list of rare plant and/or wildlife species that may occur on or within the vicinity of the project site. A response is currently pending.

The New Jersey Landscape Project data accessed through the NJ-GeoWeb (**Figure 12**) did not depict any rare wildlife species on-site nor in the immediate vicinity (0.25 mile) of the subject property. No threatened or endangered species are mapped on the subject property; nor were any rare wildlife species observed during field visits.

The proposed project involves improvements to the existing public park. Therefore, adverse impacts to rare wildlife species are not anticipated.

Critical Environmental Resources and Features

Critical or "sensitive" environmental resources and features are those that either have more inherent environmental value, or are more susceptible to perturbation, or both. These resources and features

include those with special ecosystem functions such as wetlands; those with special regulatory status such as endangered species; those with special permitting needs such as steep slopes to be graded or floodplains planned for development; and those with special socio-economic value such as long-established trails for public access and view sheds.

Wetlands/Waters

Wetlands are those areas that are inundated or saturated with surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. Wetlands are recognized for their many important ecosystem functions and socio-economic values and are provided protection pursuant to the New Jersey Freshwater Wetlands Protection Act of 1987.

The NJ-GeoWeb does not depict freshwater wetlands nor any state open waters on the subject property (**Figure 13**). Freshwater wetlands have been delineated on the site and will be regulated by the NJDEP under the Freshwater Wetlands Protection Act, N.J.S.A. 13:9B-1 et seq. and Freshwater Wetlands Protection Act Rules at N.J.A.C. 7:7A. The NJDEP not only regulates wetlands as defined above, but also regulates ditches, swales, State open waters, and transition areas (i.e. wetland buffers) under these Rules. Under the Freshwater Wetlands Protection Act Rules, exceptional resource value wetlands are assigned a 150 ft. transition area, intermediate resource value wetlands are assigned a 50 ft. wide transition area and ordinary resource value wetlands are not assigned a transition area.

The proposed replacement of the existing playground for the construction of a Completely Inclusive Playground is not anticipated to disturb any freshwater wetlands on site but may encroach into freshwater wetland transition areas. It is anticipated they the proposed activities will be permissible by the NJDEP, as has been permitted in the past.

Critical Wildlife Habitat

The New Jersey Landscape Project uses geographic information system (GIS) technology to map critical wildlife habitat throughout the State based on species location data, land cover data and species life history and habitat requirements. Habitat patches are assigned a numbered rank based on the criteria listed below.

- Rank 5 is assigned to patches containing one or more occurrences of at least one wildlife species listed as endangered or threatened on the Federal list of endangered and threatened species.
- Rank 4 is assigned to patches with one or more occurrences of at least one State endangered species.
- Rank 3 is assigned to patches containing one or more occurrences of at least one State threatened species.

- Rank 2 is assigned to patches containing one or more occurrences of species considered to be species of special concern.
- Rank 1 is assigned to patches that meet habitat-specific suitability requirements such as minimum size criteria for endangered, threatened or priority wildlife species, but that do not intersect with any confirmed occurrences of such species.

The New Jersey Landscape Project data accessed through the NJ-GeoWeb identified Rank 1 patch on-site but did not depict any rare wildlife species on-site nor in the immediate vicinity (0.25 mile) of the subject property. No threatened or endangered species are mapped on the subject property; nor were any rare wildlife species observed during field visits.

A request was sent to the Natural Heritage Program (NHP) for a list of rare plant and/or wildlife species that may occur on or within the vicinity of the project site. A response is currently pending.

The proposed project involves improvements to the existing public park. Therefore, adverse impacts to rare wildlife species are not anticipated.

Floodplains

The geomorphic area inundated by flood waters of rivers or streams is the floodplain, which has a series of structural subdivisions defined largely by elevation, position and the periodicity of inundation. Floodplains provide important ecosystem functions and socio-economic values including the dissipation of flood waters, groundwater recharge, water quality improvement, wildlife habitat, etc.

Flood Insurance Rate Map (FIRM) Map Number 34039C0031F, prepared by the Federal Emergency Management Agency (FEMA), dated effective 9/20/2006, identifies the proposed project area within Flood Zone X, an area of minimal flood hazard (**Figure 14**).

Cultural and Aesthetic Resources

Historic and Archaeological Resources

According to the *New Jersey & National Registers of Historic Places – Union County (2024)*, the following sites are identified for Garwood Borough:

- Central Railroad of New Jersey Main Line Corridor Historic District (ID#3500)
- **Union County Park System Historic District (ID#4424)**

The subject property is located within the Union County Park System Historic District as listed on the NJ & National Registers of Historic Places list for Garwood Borough. A review of the NJ-GeoWeb mapping confirms this historic district on-site and identifies the site as a historic property (Unami Park) which is not listed on the NJ & National Registers of Historic Places (**Figure 15**).

Aesthetic Features

The project site, Unami Park, is currently developed as a public recreational park. Aesthetics of the park will improve with the replacement of the existing playground for the development of a Completely Inclusive Playground.

Community Resources and Conditions

Population Density and Distribution

Due to the non-residential nature of the proposed project, the proposed replacement of the existing playground with a Completely Inclusive Playground within the existing park is not expected to have an impact on the local population density and distribution.

Social and Economic Effects

The proposed project would generate construction jobs during peak construction. No significant socioeconomic effects are anticipated with the proposed project construction and operation.

Traffic and Transit

The proposed replacement of the existing playground for the development of a Completely Inclusive Playground within the existing recreational park is not anticipated to cause a significant increase in traffic. The proposed construction would have a very minor impact on the surrounding area in terms of traffic when compared to the No-Build Conditions.

Traffic in the vicinity of the site is typically related to the residential development found within the Township. Significant adverse impacts to traffic movement are not anticipated from the proposed activities.

Schools

The proposed project involves the replacement of the existing playground with a Completely Inclusive Playground in an existing public park. This use will not generate any school age children; therefore, no impacts to private or public schools are anticipated.

Public Safety

Negligible impacts are anticipated for police, fire, and rescue services. The proposed replacement of the existing playground with a Completely Inclusive Playground within the public park is a land use consistent with the existing use.

Assessment of Environmental Impacts

The proposed development will result in some temporary and permanent impacts to existing land covers/land uses and natural resources. Potential impacts are identified below according to specific site characteristics set forth in the previous sections of this document. Mitigation measures to avoid or minimize these impacts are identified for the construction and operational phases of the proposed project and are also summarized in the following section on steps to minimize environmental impacts.

Impacts to Physical Conditions

Topography, Geology, and Soils

Unami Park is partially developed and therefore, the natural topography has partially been altered. The location of proposed activities in the existing playground area is generally flat with elevations of 80 to 85 feet. Elevations in surrounding wooded areas on-site are higher in elevation.

The topography and existing soils of the project site will be further altered as part of the proposed development through grading and placement of the Completely Inclusive Playground. Considering the geographic location of the site, no bedrock outcrops exist on the site. The NJ-GeoWeb does not show any bedrock outcrop existing onsite; therefore, impacts to these features are not anticipated.

Should acid soils be encountered during construction, the guidelines recommended by the Soil Conservation Service will be followed when handling these soils. The implementation of a Soil Erosion and Sediment Control Plan during the construction phase followed by the placement of either impervious surface or grass cover will reduce the potential for erosion.

Impacts to topography, soil, and geology, as a result of the development, are expected to be minor and typical of this type of development project.

Effects on Hydrology/Water Quality

The proposed development is not anticipated to alter the current hydrology of the site, as the development is not proposed to significantly increase impervious cover on-site. Non-point source pollutants that may be associated with the proposed project primarily include pollutants that would be generated by runoff from rooftops, parking areas, and landscaped areas.

No long-term, adverse water quality impacts are expected to affect surface water or groundwater because of the proposed project.

Temporary short-term impacts to surface water quality during construction will be minor when erosion, runoff, and sedimentation are controlled. The temporary impacts on surface water quality will be minimized by implementing standard construction methods that control stormwater runoff and sediment and soil erosion, prevent soil compaction, and reduce non-point source pollution. Construction activities will follow an approved Soil Erosion and Sediment Control Plan to avoid adverse impacts of displaced soil and sediment on adjacent land, particularly the wetlands and

surface water. Grading activities will be staged during construction to minimize the amount of bare soil exposed at any one time.

Groundwater

Impacts to groundwater quality as a result of the proposed activities are not expected. The proposed project also does not include any thermal discharges to surface water or groundwater. Thus, no environmental effects from thermal discharges are anticipated.

Impacts to Biological Resources

Vegetation and Flora

The proposed activities will occur in the existing developed portion of the public park. Other areas of the subject property include forested land which will remain as part of the proposed development.

Aquatic and Terrestrial Wildlife

Significant impacts to aquatic biota and wildlife species are not expected as a result of the replacement of the existing playground with the Completely Inclusive Playground. Most wetland and wetland transition areas will continue to be utilized by wildlife post-construction and during the construction for some species. Additionally, portions of the site to be landscaped will provide habitat value to common wildlife species, namely passerine birds, after construction.

The proposed project does not include any discharges to surface water, and construction will be outside of critical environmental resources. Temporary short-term impacts to surface water quality during construction will be minor when erosion, runoff, and sedimentation are controlled.

No long-term adverse impacts related to noise, dust, lighting, and turbid discharges to surface water are expected to affect aquatic and terrestrial wildlife because of the proposed project.

Rare Species and Species of Special Concern

A request was sent to the Natural Heritage Program (NHP) for a list of rare plant and/or wildlife species that may occur on or within the vicinity of the project site. A response is currently pending.

The New Jersey Landscape Project data accessed through the NJ-GeoWeb (**Figure 12**) did not identify rare wildlife species on the subject property or immediate vicinity of the site. No threatened or endangered species are mapped on the subject property; nor were any rare wildlife species observed during field visits. Therefore, adverse impacts to rare wildlife species and/or their habitats are not anticipated.

Impacts to Critical Environmental Resources

Wetlands

Freshwater wetlands are not mapped on the site. During CED's site reconnaissance, no wetlands and/or their associated transition areas were identified in the vicinity of the proposed improvements.

Critical Wildlife Habitat

A request was sent to the Natural Heritage Program (NHP) for a list of rare plant and/or wildlife species that may occur on or within the vicinity of the project site. A response is currently pending.

The New Jersey Landscape Project data accessed through the NJ-GeoWeb (**Figure 12**) did not identify rare wildlife species on the subject property or immediate vicinity of the site. No threatened or endangered species are mapped on the subject property; nor were any rare wildlife species observed during field visits. Therefore, adverse impacts to rare wildlife species and/or their habitats are not anticipated. No adverse impacts to critical wildlife habitat are anticipated.

Floodplains

The project avoids encroachments into the flood hazard area and riparian zone. The proposed project will not be impacted by sea level rise.

Aquifer Recharge Areas

Brunswick aquifer (Ba) is mapped for the subject property by NJ-GeoWeb and has a recharge rank of "C", or 100 gallons to 250 gallons per minute.

Based on NJ-GeoWeb mapping, the subject property is ranked "B" and "C" with 11 to 15 inches per year of groundwater recharge and 8 to 10 inches per year of groundwater recharge, respectively (**See Figure 11**).

Impacts to Cultural Resources

The subject property is located within the Union County Park System Historic District as listed on the NJ & National Registers of Historic Places list for Garwood Borough. A review of the NJ-GeoWeb mapping confirms this historic district on-site and identifies the site as a historic property (Unami Park) which is not listed on the NJ & National Registers of Historic Places (**Figure 15**).

Impacts to cultural resources are not anticipated as the project involves the proposed replacement of the existing playground within a public park, as has been permitted in the past.

Impacts to Aesthetic Resources

The project site, Unami Park, is currently developed as a public recreational park. Because the site is currently developed, aesthetics of the park will improve with the replacement of the existing playground with a Completely Inclusive Playground.

A Landscape Plan has been included in the site design to mitigate for aesthetic impacts during the operational phase. Proper site construction sequences and proper maintenance of the site during the construction phase will be implemented to avoid adverse visual impacts during construction.

Impacts to Air Quality

The proposed Completely Inclusive Playground may have minor impacts on air quality during the construction and operational phases. The overall impact to air quality in the local atmosphere is expected to be negligible.

Minor, localized, short-term effects on air quality will occur during the construction phase of the proposed project. Potential air pollutants generated during the construction phase include carbon monoxide (CO) from the exhaust of vehicles and construction equipment and particulates from dust generated during construction activities. Earth moving and excavation have the highest engine emissions and dust generation (SAEFL, 2004). The levels of CO and particulates are expected to be greatest during the land clearing and site preparation stages of the construction phase, which is when diesel construction vehicles and heavy equipment will be the most prevalent. The CO and particulate levels are expected to diminish upon completion of earthwork and during the construction phase of the project. The minor impacts to air quality during the construction phase are not anticipated to be significant.

The acceptable air quality standards are not anticipated to be impacted by the proposed project due to its relatively small scale. While air quality may be locally impacted during construction and operation, no significant net-impacts to air quality are anticipated to result from the proposed project.

Measures that can be taken to minimize air quality impacts during the construction phase include:

- Dust control
- No vehicle idling policy
- Maintenance of vehicles and equipment in accordance with manufacturer's specifications
- Use of licensed and experienced contractors

Once the project is complete, and during the operational phase, the anticipated outdoor air pollution will primarily be that of vehicle exhaust from those entering and leaving the park, which is consistent with existing impacts associated with the site and surrounding land uses.

Steps to Minimize Environmental Impacts

Development Schedule and Construction Phase

The areas designated for clearing of vegetation, earthwork, and land disturbances has been minimized to the smallest possible extent in order to reduce adverse impacts, as described elsewhere in this EIA. Construction activities will follow an approved Soil Erosion and Sediment Control Plan to avoid adverse impacts of displaced soil and sediment on adjacent land, particularly the wetlands and surface water.

Construction noise will cause a temporary and short-term increase to the ambient sound environment within the affected area. Noise levels could be expected to temporarily increase to approximately 90 decibels during construction. Noise generated during construction will be limited to daylight hours in accordance with Borough of Garwood ordinances, and the contractor will comply with OSHA noise level requirements. Dust particulates generated by heavy construction equipment if the weather is dry during construction will be mitigated by best management practices and appropriate controls (e.g., wetting, covers, etc.) to control fugitive dust.

Planning Phase Measures

The planning phase is perhaps the most important aspect of proposing measures or controls that will minimize or eliminate negative impacts. The proposed project includes a series of design features included to reduce impacts to regulated resources such as waters and wetlands; and aesthetic values such as views. These include but are not limited to the following:

- Obtain Soil Erosion and Sediment Control Plan certification;
- Preparation of a Landscape Plan associated with the proposed Site Plan.

Construction Phase Measures

Construction phase impacts may include noise, dust, traffic, environmental safety, and other short-term potential impacts. Some measures to reduce construction phase impacts include, but are not limited to:

- Implementation of the Soil Erosion and Sediment Control Plan;
- Designated construction vehicle access routes;
- Dust control;
- Vehicle idling policies;
- Construction in accordance with local ordinances and requirements, including work hours;
- Adherence to OSHA and other required workplace safety protocols;
- Construction in accordance with local, State, and/or Federal permits and conditions
- If any resources are discovered during excavations and grading of the site, the State Historic Preservation Office will be contacted for guidance.

Construction Traffic

Construction traffic will consist of typical truck and heavy equipment that will utilize local roadways and enter and exit the site from a stabilized construction entrance in accordance with the "Standards for Soil Erosion and Sediment Control in New Jersey".

Precautions Taken

All necessary precautions and preventative measures will be implemented during construction to prevent adverse environmental impacts to the greatest extent practicable. An approved Soil Erosion and Sediment Control Plan will be followed to reduce erosion and sedimentation. The Contractors, during dry weather, will water areas prone to dust, especially areas used by trucks, to control dust. Construction will be performed in accordance with local, State and Federal OSHA safety regulations.

Noise Levels

Short-term impacts on sound levels will be related to the operation of construction equipment. The decibel (dBA) scale ranges from 0 for the threshold of perception of sound to approximately 130 dBA for the threshold of pain at the ear. To minimize adverse impacts to ambient noise levels, construction equipment will be operated during daylight hours only.

Most construction equipment will maintain a noise level of 75 dB(A). Pneumatic tools, scrapers and pavers may be as loud as 80 dB(A). Occupational noise levels of 90 dB(A) for periods of eight hours are permitted. All Township ordinances dictating the times and conditions for such activities will be complied with. The use of construction equipment will be limited to the hours permitted by Borough of Garwood.

Operational Phase Measures

Operation phase impacts include traffic, noise, environmental health and safety, landscape maintenance, and other long-term potential impacts. The project will maintain all landscaping, setbacks, and buffers for the maximum aesthetic effect including replacement of landscape and buffer trees and other plantings as needed.

Unavoidable Adverse Impacts

Unavoidable adverse impacts are those residual impacts that remain after the implementation design control measures and specific mitigation measures, as listed and discussed herein, to reduce or eliminate, as feasible, the identified adverse impacts. Unavoidable, residual adverse impacts can include alteration of soils, topography and vegetation or loss of vegetation.

Short-term impacts to air quality may occur during the construction phase of the project which will be mitigated by best management practices and appropriate controls. Site development would also result in short-term localized increases in noise from construction, heavy machinery, and temporary

construction-related traffic. Noise generated during construction will be limited to daylight hours in accordance with Borough of Garwood ordinances, and the contractor will comply with OSHA noise level requirements.

Other than these impacts, no significant or long-term adverse impacts to environmental resources are anticipated from the construction of the Completely Inclusive Playground. The Landscape Plan will provide mitigation for the loss of vegetation, aesthetic values, and loss of wildlife habitat.

Negative Impacts

The project site currently exists as a public park. Therefore, there are no negative impacts associated with the proposed replacement of the existing playground for the construction of a Completely Inclusive Playground.

Beneficial Impacts

The construction phase will generate short term job opportunities which will stimulate the local economy. Due to the short duration of the construction phase of the project, construction workers will likely not seek permanent housing and therefore not result in long-term or permanent changes to the demographics of the community. However, construction workers are expected to contribute to the local economy on a short-term basis through procurement of goods and services from the local community, examples of which may include the purchase of short-term housing, food and entertainment, construction equipment, and building materials.

Alternatives

The proposed replacement of the existing playground with the Completely Inclusive Playground is consistent with the current site use and has been designed to be constructed away from critical environmental resources. The site development layout reflects best management practices to avoid or minimize adverse impacts to environmental resources and wildlife habitat on the Site. The site currently exists as a developed public park and therefore, an alternate site would cause more disturbance than the proposed site. A no action alternative would deny the applicant and property owner fair, reasonable use of the property that would benefit the public.

Unami Park was selected ultimately due to poor equipment nearing the end of its life as well as having ample space to expand. Other feasible land uses are anticipated to require a similar commitment of resources and would be anticipated to have potential impacts of the same nature as the currently proposed development.

Construction will be on previously disturbed areas and an expansion on open space next to that previously disturbed area. There is no construction proposed on a new, undisturbed area nor are any trees or vegetation expected to be removed. Landscaping, trees, and/or shrubbery around the park may be added around the park at a later date.

Conclusion

The proposed Completely Inclusive Playground will have minimal impact on environmental resources at the Site. There will be some short-term and long-term environmental impacts associated with the project; however, most of the environmental impacts can be minimized, avoided, or mitigated for through site design elements and best management practices which reduce the likelihood of significant adverse impacts occurring as a result of the project.

As previously stated, construction will be on previously disturbed areas and an expansion on open space next to that previously disturbed area. There is no construction proposed on undisturbed areas nor are any trees or vegetation expected to be removed. Landscaping, trees, and/or shrubbery around the park may be added around the park at a later date.

Construction activities will adhere to an approved Soil Erosion and Sediment Control Plan and best management practices to diminish negative consequences that are associated with environmental impacts that cannot be avoided. Careful planning, construction, and site management of the improvements will limit the potential for negative environmental impacts at the Site.

References

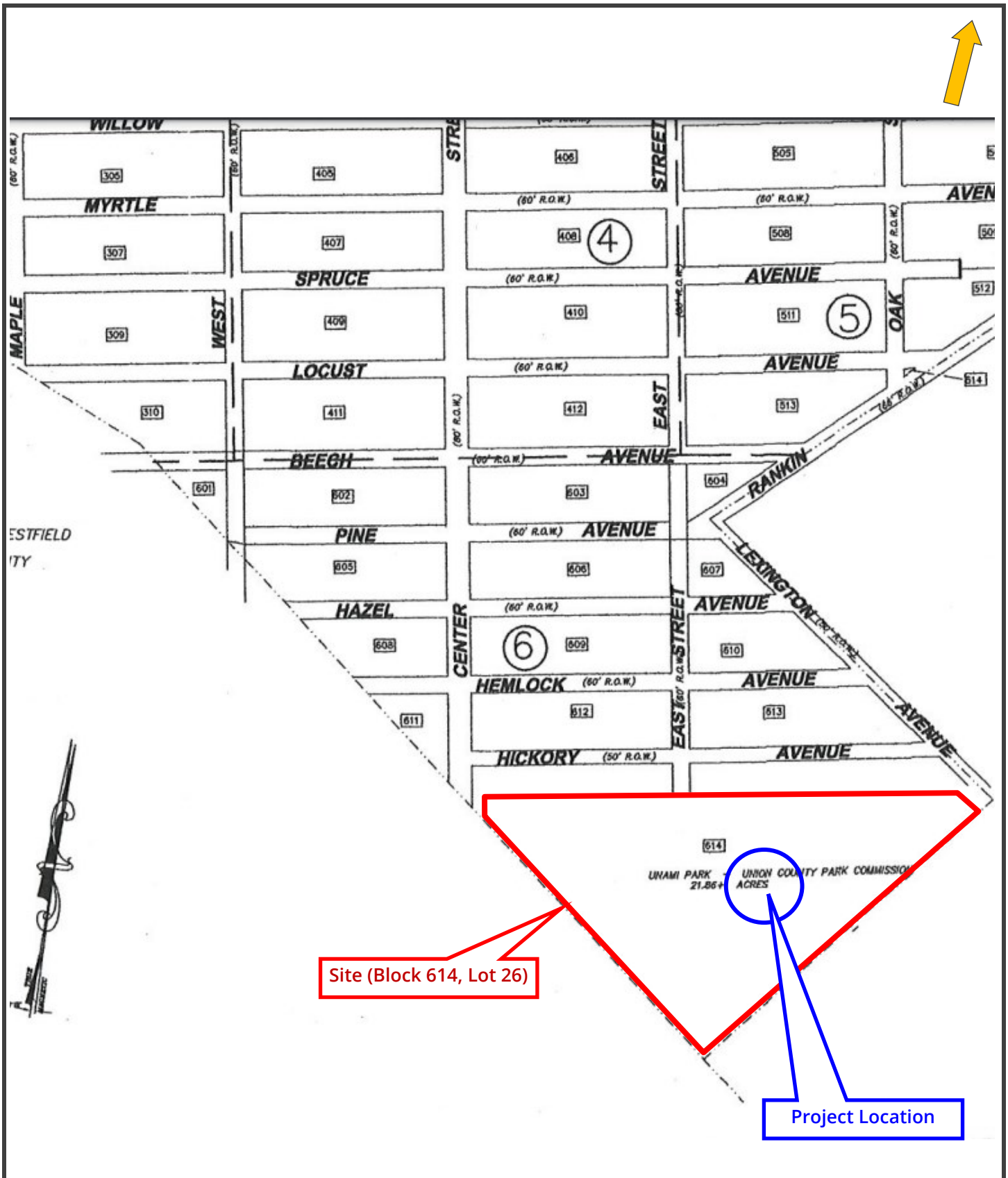
- Dalton, R. 2003. "Physiographic Provinces of New Jersey". New Jersey Geological Survey Information Circular. 2 pp
- Herman, G.C., R.J. Canace, S.D. Stanford, R.S. Pristas, P.J. Sugarman, M.A. French, J.L. Hoffman, M.S. Serfes, and W.J. Mennel. 1998. Aquifers of New Jersey. New Jersey Geological Survey and the New Jersey Department of Environmental Protection.
- Natural Resource Conservation Service (NRCS). 2024. Web Soil Survey. (<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>). (Accessed December 2024)
- New Jersey Department of Environmental Protection (NJDEP). 2016. Stormwater Management Rules N.J.A.C. 7:8. Last Amended June 20, 2016.
- New Jersey Department of Environmental Protection (NJDEP) Bureau of Air Monitoring. 2018. 2018 Air Quality Report.
- New Jersey Department of Environmental Protection, Bureau of GIS. 2024. NJ-GeoWeb (<http://www.nj.gov/dep/gis/geoweb splash.htm>). (Accessed December 2024)
- New Jersey Department of Environmental Protection N.J.A.C. 7:13 Flood Hazard Area Control Act Rules. Statutory authority: N.J.S.A. 12:5-3; 13:1D-1 et seq.; 13:1D-29 et seq., specifically 13:1D-33; 13:9A-1 et seq.; 13:19-1 et seq.; 13:20-1 et seq.; 58:10A-1 et seq.; 58:11A-1 et seq.; and 58:16A-50 et seq. Date last amended: July 8, 2021
- New Jersey Department of Environmental Protection N.J.A.C. 7:7A New Jersey Freshwater Wetlands Protection Act Rules. Statutory authority: N.J.S.A. 13:9B-1 et seq. Date last amended: October 5, 2020.
- New Jersey Department of Environmental Protection (NJDEP). 2020. Surface Water Quality Standards N.J.A.C. 7:9B. Last Amended April 6, 2020.
- New Jersey Department of Environmental Protection (NJDEP) Historic Preservation Office (HPO). 2023. New Jersey and National Registers of Historic Places: Union County. https://www.nj.gov/dep/hpo/1identify/nrsr_lists/UNION.pdf Accessed January 2, 2025.
- New Jersey State Planning Commission. 1992. Communities of Place: The New Jersey State Development and Redevelopment Plan.
- Owens, J.P., P.J. Sugarman, N.F. Sohl, R.A. Parker, H.F. Houghton, R.A. Volkert, A.A. Drake Jr., and R.C. Ornduff. 1999. Bedrock geologic map of central and southern New Jersey. U. S. Geologic Survey in cooperation with the New Jersey Geological Survey. Miscellaneous Investigation Series Map 1-2540-B. http://ngmdb.usgs.gov/Prodesc/proddesc_19458.htm.

Swiss Agency for the Environment, Forests and Landscape SAEFL. 2004. Guideline Air Pollution Control at Construction Sites. Construction Guideline Air. SAEFL, Berne, Switzerland.

Appendix A

Report Figures

- Figure 1: Tax Map
- Figure 2: Road Map
- Figure 3: U.S.G.S. Map
- Figure 4: Zoning Map
- Figure 5: State Planning Area Map
- Figure 6: Aerial Map
- Figure 7: Bedrock Geology Map
- Figure 8: Soil Survey Map
- Figure 9: HUC14 & C1 Waters Map
- Figure 10: Bedrock Aquifer Map
- Figure 11: Groundwater Recharge Map
- Figure 12: Landscape Project Map
- Figure 13: State Wetlands & Waters Map
- Figure 14: FEMA Flood Insurance Rate Map
- Figure 15: Historical Resources Map



Site (Block 614, Lot 26)

Project Location



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 Road | Suite 3400
 Holmdel, New Jersey
 07733

**Engineering
 & Design**

Main: 877 627 3772

Figure 1: Tax Map

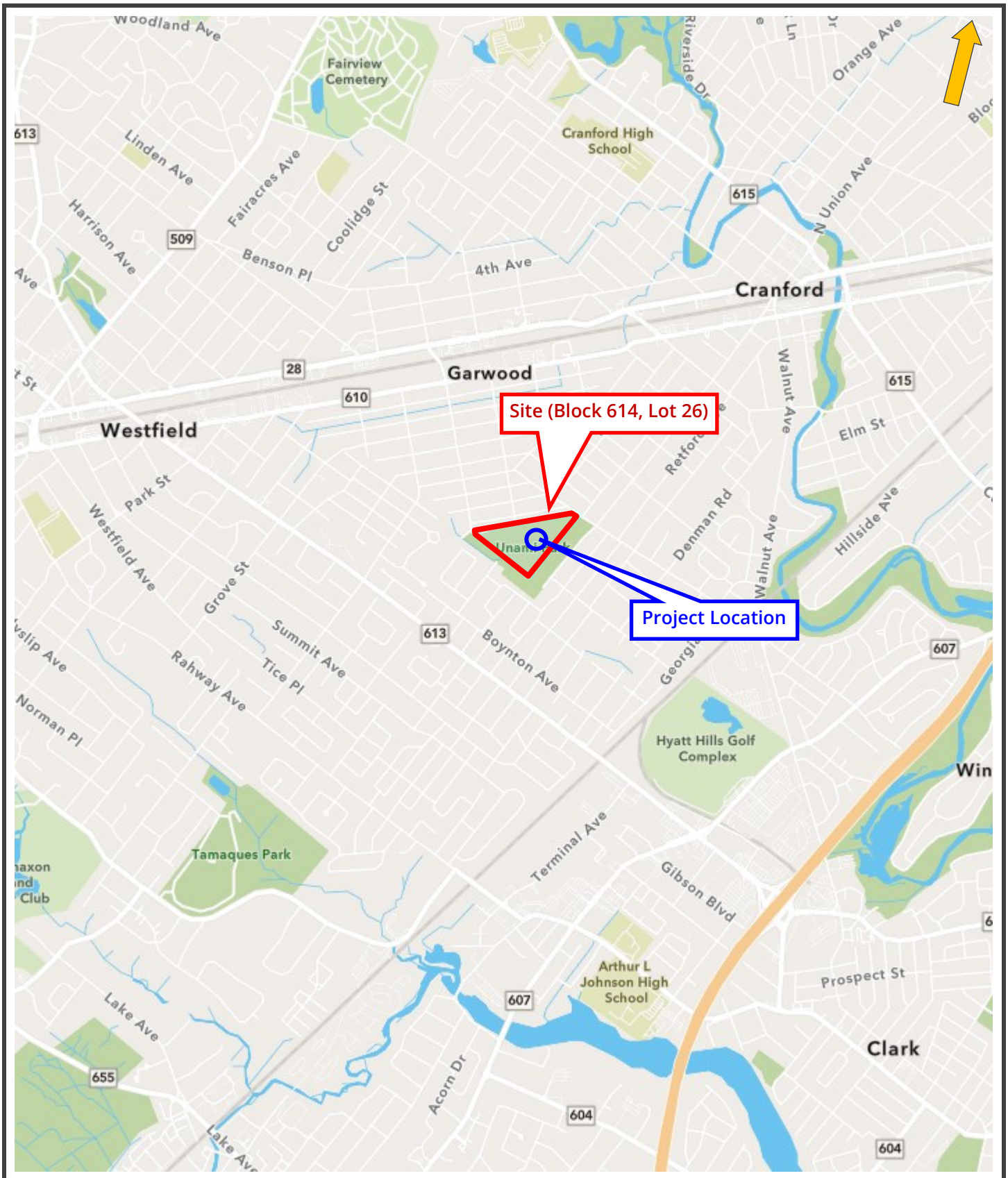
Unami Park (Block 614, Lot 26)
 Garwood Borough, Union County, NJ

Source: Garwood Tax Map

Scale: Not to Scale

Date: December 17, 2024

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Figure 2: Road Map

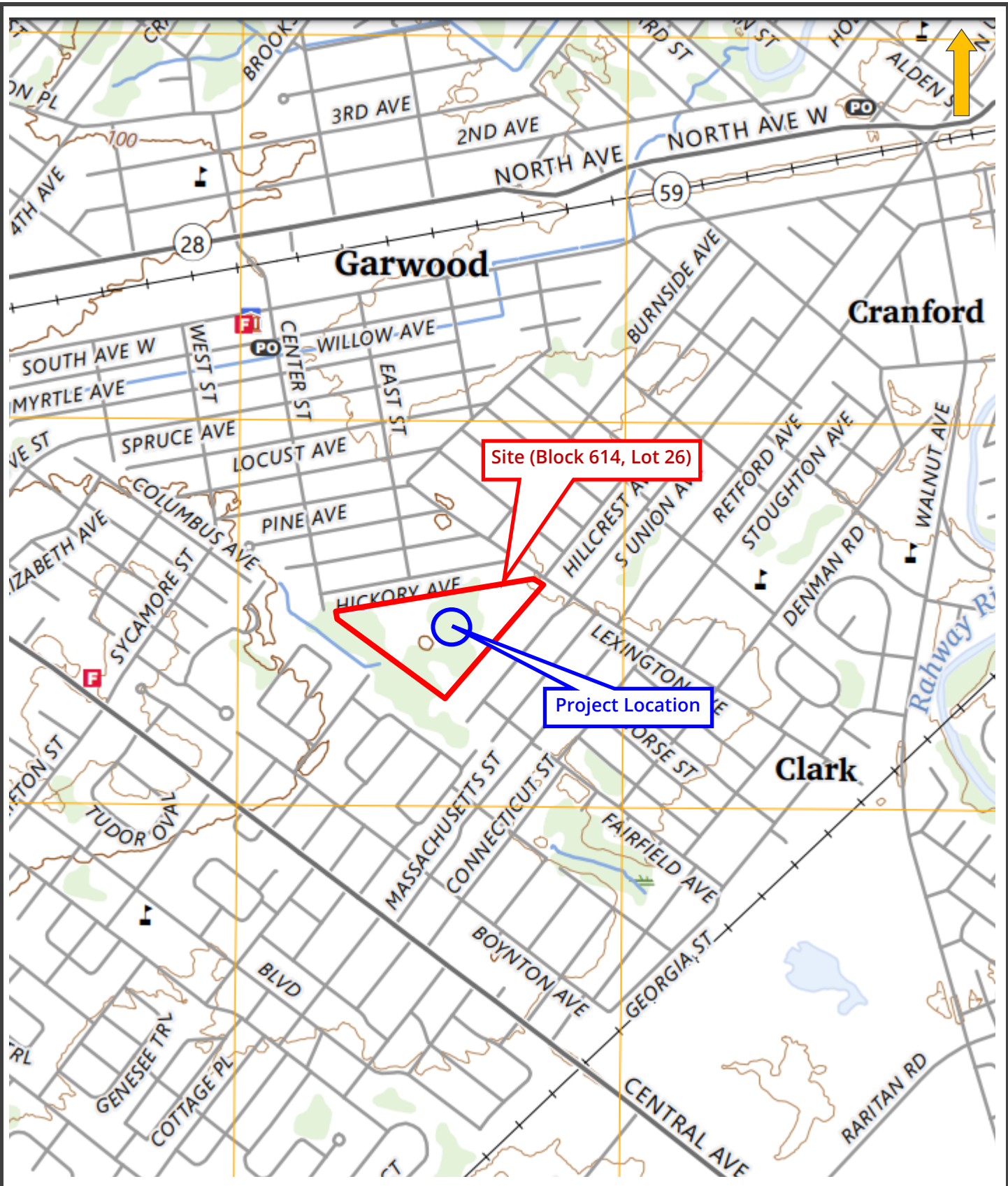
Unami Park (Block 614, Lot 26)
 Garwood Borough, Union County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: December 17, 2024

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Figure 3: USGS Map

Unami Park (Block 614, Lot 26)
 Garwood Borough, Union County, NJ

Source: USGS Roselle, NJ Quadrangle 2023

Scale: Not to Scale

Date: December 17, 2024

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Site (Block 614, Lot 26)

Project Location

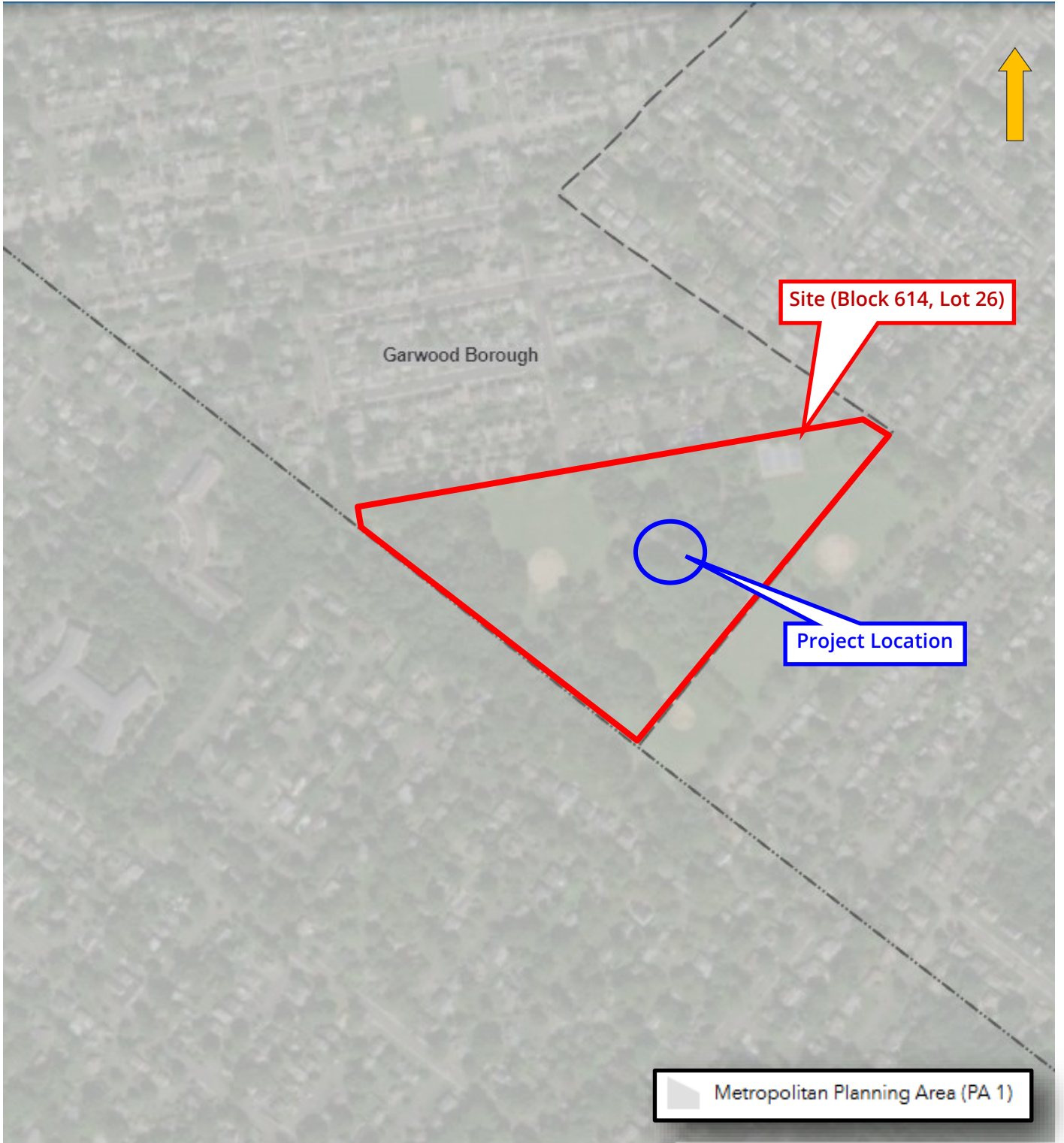
POS	PUBLIC OPEN SPACE
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Figure 4: Zoning Map
 Unami Park (Block 614, Lot 26)
 Garwood Borough, Union County, NJ
 Source: Garwood Borough Zoning Map

Scale: Not to Scale
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Figure 5: State Planning Area Map
 Unami Park (Block 614, Lot 26)
 Garwood Borough, Union County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

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Figure 6: Aerial Map

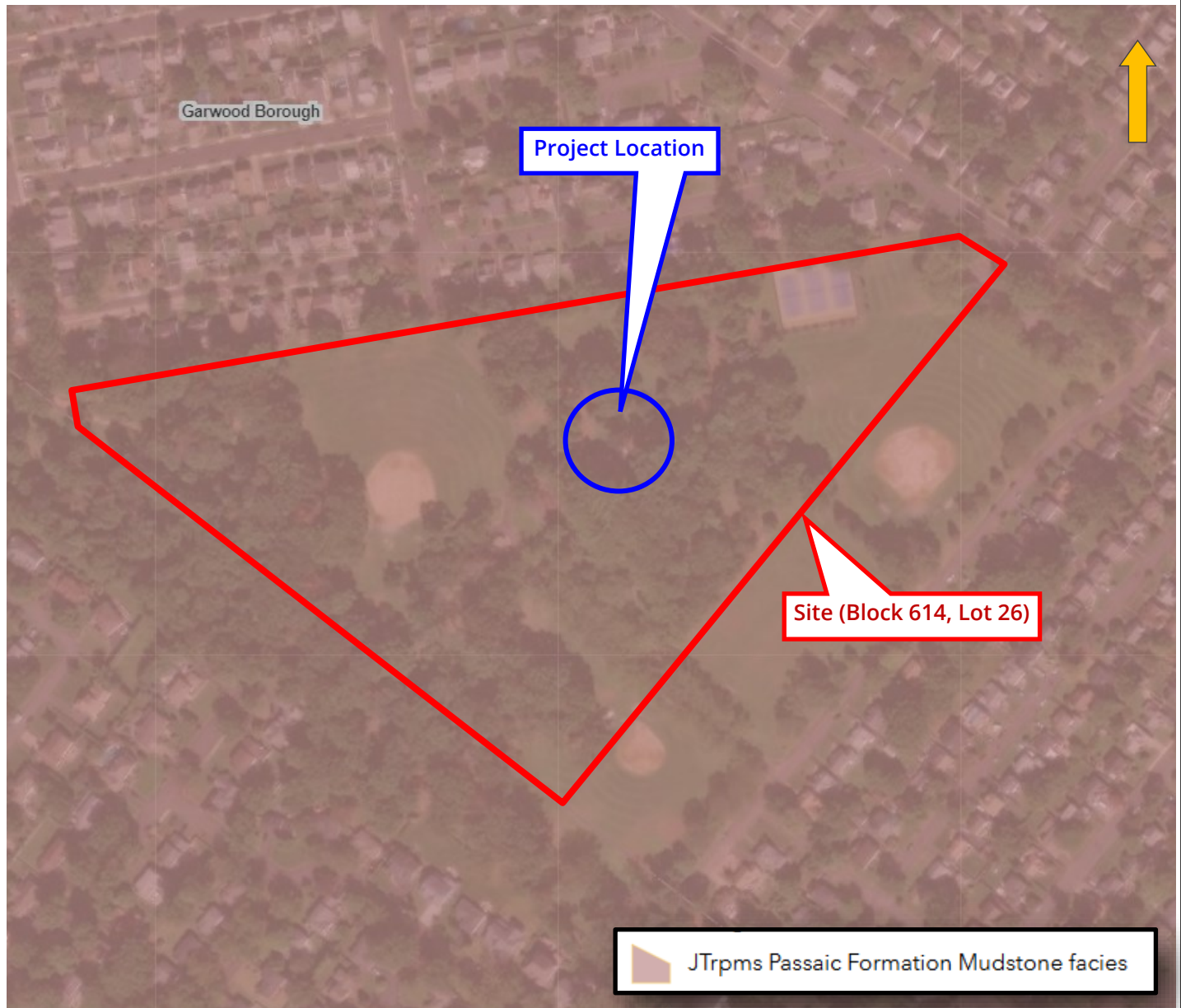
Unami Park (Block 614, Lot 26)
Garwood Borough, Union County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

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Figure 7: Bedrock Geology Map
 Unami Park (Block 614, Lot 26)
 Garwood Borough, Union County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: December 27, 2024

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Map Unit Symbol	Map Unit Name
BogB	Boonton loam, 3 to 8 percent slopes
BovB	Boonton-Urban land-Haledon complex, 0 to 8 percent slopes
HakA	Haledon loam, 0 to 3 percent slopes
HakB	Haledon loam, 3 to 8 percent slopes
HatB	Haledon-Urban land-Hasbrouck complex, 0 to 8 percent slopes
HctAr	Hasbrouck silt loam, 0 to 3 percent slopes, rarely flooded
UdkttB	Udorthents, loamy substratum, 0 to 8 percent slopes



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Figure 8: Soil Survey Map
 Unami Park (Block 614, Lot 26)
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Source: USDA NRCS Web Soil Survey

Scale: Not to Scale

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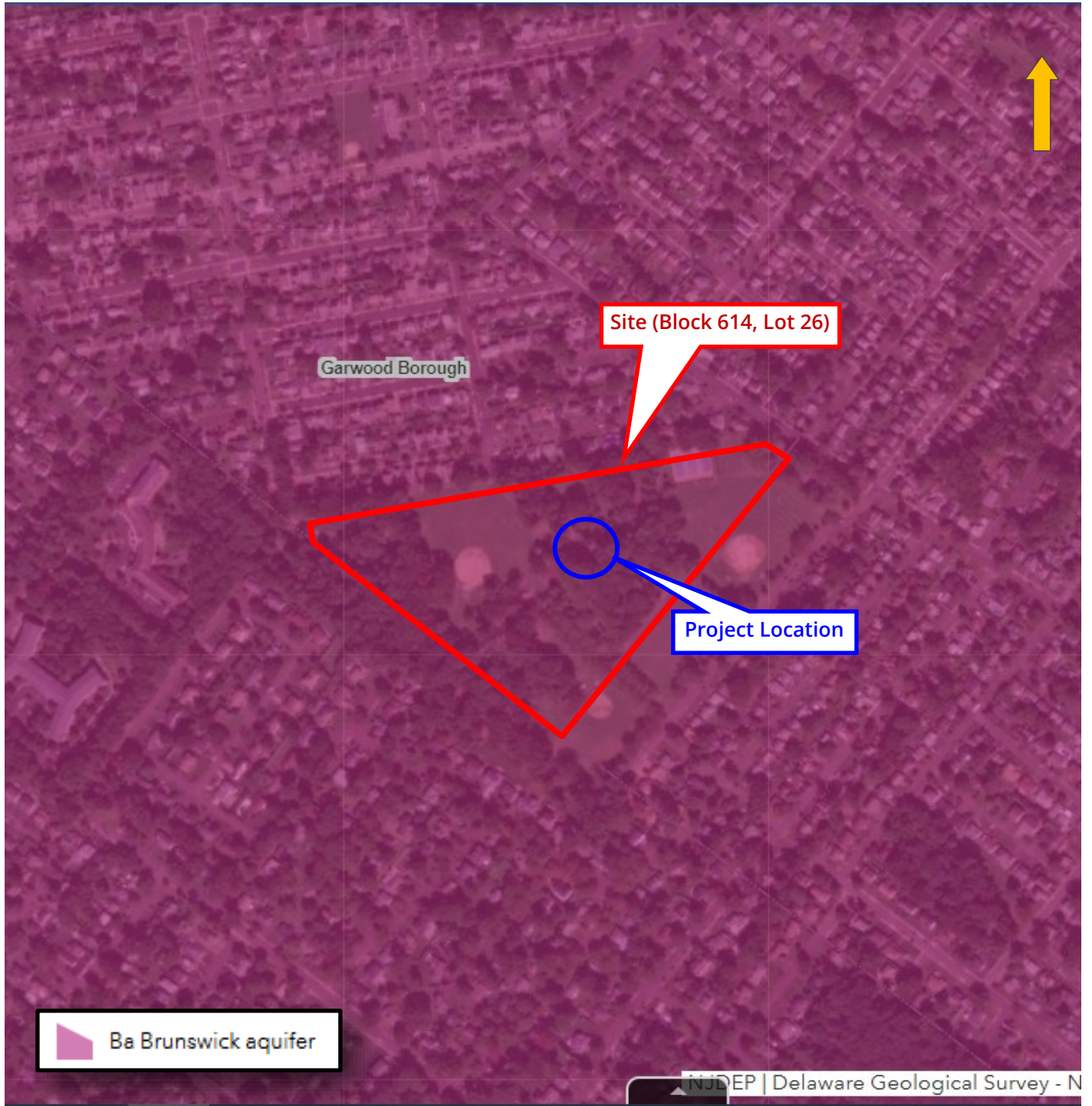
Figure 9: HUC14 & C1 Waters Map
 Unami Park (Block 614, Lot 26)
 Garwood Borough, Union County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

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Figure 10: Bedrock Aquifer Map
 Unami Park (Block 614, Lot 26)
 Garwood Borough, Union County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

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Figure 11: Groundwater Recharge Map
 Unami Park (Block 614, Lot 26)
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Source: NJ-GeoWeb

Scale: Not to Scale

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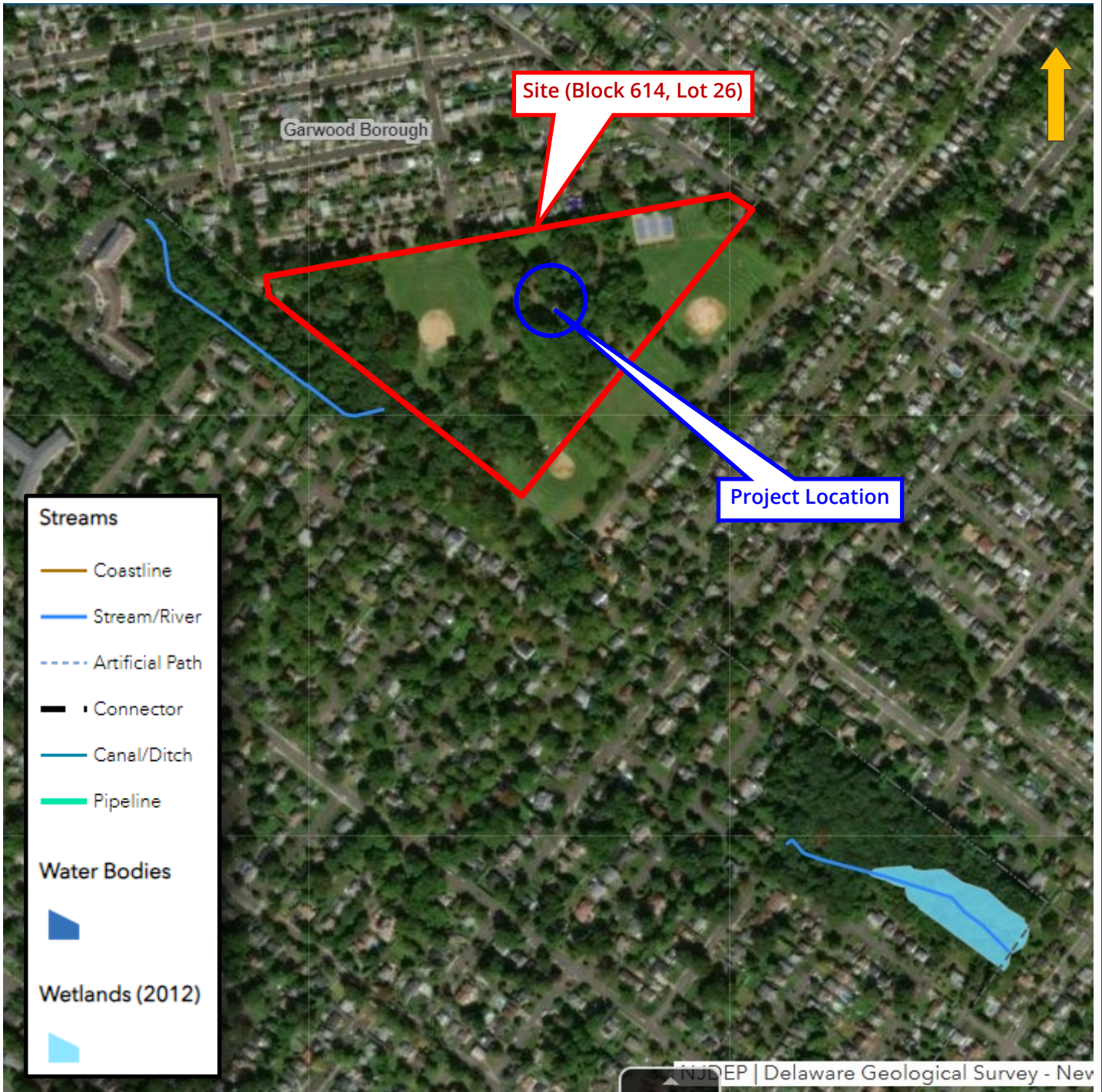
Figure 12: Landscape Project Map
 Unami Park (Block 614, Lot 26)
 Garwood Borough, Union County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: December 27, 2024

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Figure 13: State Wetlands & Waters Map

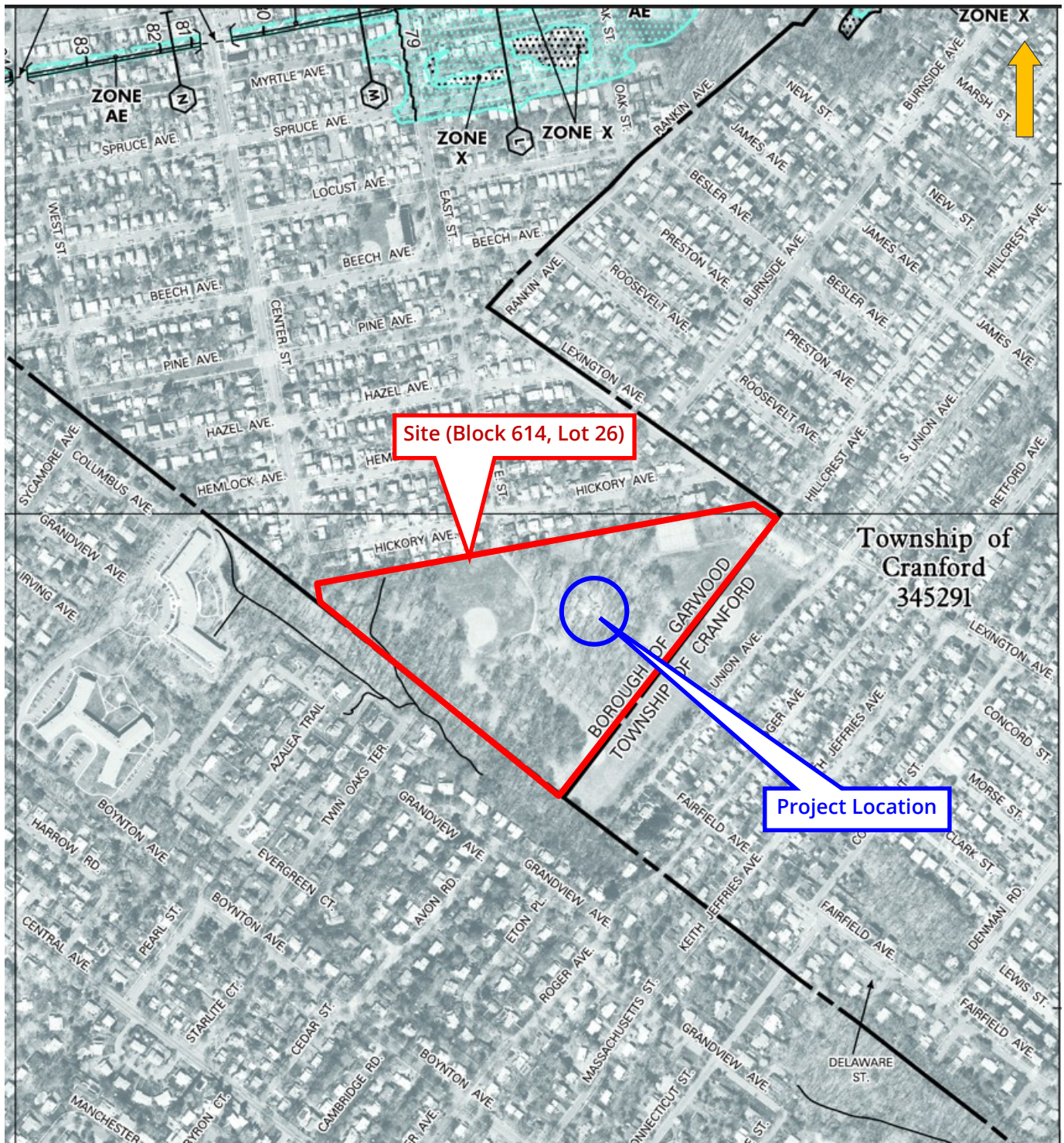
Unami Park (Block 614, Lot 26)
 Garwood Borough, Union County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: December 27, 2024

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Figure 14: FEMA Flood Map

Unami Park (Block 614, Lot 26)
 Garwood Borough, Union County, NJ

Source: FEMA Map 34039C0031F, effective on 9/20/2006

Scale: Not to Scale

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Figure 15: Historic Resources Map
 Unami Park (Block 614, Lot 26)
 Garwood Borough, Union County, NJ
 Source: NJ-GeoWeb

Scale: Not to Scale
 Date: December 27, 2024
 CED Project No. 24012642A

Appendix B

Qualifications of Preparers

Courtney Rybak

Environmental Technician | Natural Resources

Experience

Ms. Rybak is an Environmental Technician with 4 years of experience in ecological and regulatory consulting. She specializes in wetland assessment and delineation, environmental impact analyses, and environmental permitting and compliance at the local, state, and federal levels.

As an Environmental Technician, Ms. Rybak has prepared applications to secure permit authorizations for public and private residential, commercial, and industrial projects. This includes U.S. Army Corps of Engineers Permits, and New Jersey Department of Environmental Protection Freshwater Wetland Permits, Freshwater Wetland Transition Area Waivers, Individual Permits, Waterfront Development Permits and CAFRA Permits. She has hands-on ecological field experience surveying suitable bog turtle habitat and previously working as a student research assistant at Rowan University studying the effects of urbanization on aquatic turtle populations.

With the aforementioned experience and technical skills acquired, Ms. Rybak has successfully assisted clients with regulatory compliance.

Representative Projects

Wetland Investigations & Delineation Projects

Wetland Delineations, Various Clients

Locations visited in NJ include Spotswood, West Caldwell, Monroe, Vernon, Hazlet, Hamilton, Sewaren, Howell, Mansfield

Assisted in the identification and delineation of freshwater wetlands and waters throughout New Jersey to obtain general permitting compliance. The assessment of wetland value (resource classification) was involved for many of these wetlands.

Permitting & Compliance Projects

Wildwood Boardwalk Rehabilitation City of Wildwood, Cape May County, NJ

Prepared NJDEP CAFRA Individual Permit application for the proposed boardwalk rehabilitation from East Oak Avenue to East 26th Avenue.

Point Pleasant Wildlife Management Area Boat Ramp & Fishing Access Borough of Point Pleasant, Ocean County, NJ

Prepared NJDEP CAFRA Individual Permit and Waterfront Development Individual Permit application along with a U.S. Army Corps of Engineers Permit application for proposed boat ramp and fishing access improvements.

Mosquito Landing - Tuckahoe Wildlife Management Area Township of Upper, Cape May County, NJ

Education

B.S. Biological Sciences, minor in Environmental Science, Rowan University, 2019

Professional Certifications

Wetland Delineation Certification, Rutgers University, The New Jersey Agricultural Experiment Station Office of Continuing Professional Education, 2021

Internship & Volunteer Experience

Aquatic Turtle Population Structure Research, Rowan University, (2018-2019)

Manalapan Township Environmental Commission Projects (2018-2019)

Affiliations & Memberships

Member of Association of State Wetland Managers

Speaking Engagements

Rowan University's Student Scholars Symposium (RUSSS). Rowan University, Glassboro, New Jersey. *Effects of Urbanization on Aquatic Turtle Population Structure in Southern New Jersey*; 2019.

Resume

Prepared NJDEP CAFRA Individual Permit and Waterfront Development Individual Permit application and U.S. Army Corps of Engineers Permit application for the replacement of the existing boat ramp and bulkhead and construction of a new barrier free dock and fishing access improvements.

Residences at Bancroft

Borough of Haddonfield, Camden County, NJ

Prepared NJDEP Freshwater Wetlands General Permits and Transition Area Waivers application for residential redevelopment consisting of 90 townhomes including 10 affordable housing units.

White Street Bridge D4.108

Township of Mount Holly, Burlington County, NJ

Prepared NJDEP Waterfront Development Individual Permit, Freshwater Wetland General Permit and Flood Hazard Area Individual Permit application and U.S. Army Corps of Engineers Permit application for the rehabilitation of the historic bridge that has been classified as in poor condition.

Threatened & Endangered Species

Bog Turtle Surveying

2602 NY-17M - Town of Goshen, Orange County, NY

2300 NY-300 - Town of Wallkill, Ulster County, NY

Provided pre-construction surveying services for proposed commercial/industrial development within freshwater wetlands that were determined to be suitable habitat for bog turtle in accordance with freshwater wetland permit conditions.

Environmental Impact Statements and Assessments

Commercial Development

Township of Hamilton, Mercer County, NJ

Prepared Environmental Impact Assessment (EIA) and site location maps for the development of a 245,670 SF single-loaded warehouse building located on property containing approximately 35.7 acres of land.

Residential Development

Township of Jackson, Ocean County, NJ

Prepared Environmental Impact Statement (EIS) along with site location maps for the development of 465 residential townhome units located on property containing approximately 117.8 acres of land.

Commercial Development

Borough of Tinton Falls, Monmouth County, NJ

Prepared Environmental Impact Report (EIS) along with site location maps for the development of 29 buildings, consisting of 6-18 units, along with a 4,500 SF clubhouse located on approximately 47.3 acres of land.

Training/Continuing Education

Vegetation Identification for Wetland Delineation – North, Rutgers University.
Methodology for Delineating Wetlands, Rutgers University.

Joseph P. Layton

Principal Associate | Discipline Leader | Natural Resources

Engineering
& Design

Experience

Mr. Layton is an Environmental Scientist with over 24 years of experience including an extensive background and expertise in environmental sciences. His expertise includes an emphasis on wetland delineation, regulatory permitting and compliance, environmental assessment, environmental impact analysis, and soil evaluation. His diversified experience also includes natural resource evaluations, ecological research, watershed management, subsurface explorations, underground storage tank exploration and removal, soil classification systems, and environmental sampling design and protocol in accordance with State and Federal regulations. He utilizes Geographic Information Systems (GIS) and Global Positioning Systems (GPS) in environmental sampling and studies, including site remediation design and sampling, groundwater and surface water quality monitoring and management, and lake rehabilitation and restoration.

As Assistant Department Manager, Mr. Layton has utilized the aforementioned experience and technical skills to successfully assist clients with litigation support and regulatory compliance and has been deemed an expert in the field by various Planning and Zoning Boards while providing testimony regarding the same. His proven dedication to client satisfaction has resulted in long standing professional relationships. His client base includes private development and redevelopment companies, municipalities, county governments, infrastructure authorities, daycare facilities, higher education institutions, financial institutions, utility companies, and law firms.

Representative Projects

Groundwater Quality Monitoring/ Management

Responsible for designing, implementing, and preparing groundwater monitoring and management plans. A sampling of representative projects includes the following:

- **New Jersey National Golf Club Groundwater Quality Monitoring Plan**
Township of Bernards, Somerset County, NJ
Responsible for determining location and depth of monitoring wells; coordinating and supervising well installation; sampling and analyzing results; and determining groundwater flow and fate of contaminants.
- **Leisure Glen Retirement Community**
Township of Manchester, Ocean County, NJ
Responsible for determining the location, depth and sampling parameters of groundwater monitoring wells in a 2,500-unit retirement and 18-hole golf course community widening, complete

Education

B.S. Environmental Planning and Natural Resource Management, Rutgers University, Cook College, 1992

Professional Certifications

NJDEP Certified Subsurface Evaluator, License #229606

NJDEP Certified Underground Storage Tank Closure

Environmental Assessment Association - Certified Environmental Specialist

Certified Remediation Specialist

Radon Measurement Specialist #MES11066

40 Hr NJ/EPA Model Lead Inspector/Risk Assessor

OSHA 40 Hr HAZWOPER Training

8-Hour OSHA HAZWOPER Refresher Training

Affiliations & Memberships

Ecological Society of America

Society of Wetland Scientists

Resume

resurfacing of all 13 miles of existing roadway, safety improvements and implementation, as well as construction of IVHS systems in this corridor.

- **Trump National Hudson Valley Golf Club Groundwater Quality Monitoring Plan
Township of Bernards, Somerset County, NJ**

Responsible for determining location and depth of monitoring wells; coordinating and supervising well installation; sampling and analyzing results; and determining groundwater flow and fate of contaminants.

Watershed Management /Lake Restoration

Responsible for determining sources of non-point pollution using available mapping and field reconnaissance, determining watershed boundaries, and preparing best management practices manuals.

- **The Great Swamp National Wildlife Refuge Watershed Management Study, Morris & Somerset Counties, NJ**
- **Wemaconk Lake Restoration, Borough of Englishtown, Monmouth County, NJ**

Wetland Delineation

Involved in the identification and delineation of numerous freshwater and tidal wetlands (over 10,500 acres) in New Jersey and New York. The assessment of wetland value (resource classification) was involved for many of these wetlands.

- **Runyon Interceptor Trunk Sanitary Sewer Line Alignment
Township of Old Bridge, Middlesex County, NJ**
Determined alignment of two miles of sanitary sewer on a 400-acre+ site using aerial photography and site inspections minimizing impacts to numerous wetland communities.
- **Oakwood at Old Bridge
Township of Old Bridge, Middlesex County, NJ**
Delineated freshwater wetlands on a 235-acre site, half of which was wetlands.
- **Ashland/Former Hercules Plant
Parlin, Middlesex County, NJ**
Delineated freshwater wetlands on a 300-acre site formerly utilized as a munitions plant in 1930s-1960s.
- **MEC Power Generating Facility
Sayreville Borough, Middlesex County, NJ**
Delineated freshwater and tidal wetlands on a 40-acre site formerly utilized as a landfill. Site recently delisted as a Superfund site and will be developed as an electric power generating facility.
- **Gates Landfill
Jersey City, Hudson County, NJ**
Delineated freshwater and tidal wetlands on a 60-acre site formerly utilized as a fly-ash landfill of a PSEG power generating facility. Site recently delisted as a Superfund site and will be developed as an electric power generating facility.

Permit Applications

Prepared environmental permits for private residential, commercial and industrial projects. This has included U.S. Army Corps of Engineers Permits and New Jersey Department of Environmental Protection

Resume

Freshwater Wetland Permits, Freshwater Wetland Transition Area Waivers, Individual Permits, Waterfront Development Permits, and CAFRA Permits.

- **National Lead Redevelopment**
Borough of Sayreville, Middlesex County, NJ
Determined alignment of two miles of sanitary sewer on a 400-acre+ site using aerial photography and site reconnaissance minimizing impacts to numerous wetland communities.
- **Transcontinental Gas Pipeline Armoring**
Township of Hopewell, Mercer County, NJ
Prepared and obtained an Individual Permit from the NJDEP-LURP to permanently disturb a stream and its associated wetland to construct armoring to protect a Transcontinental Gas Pipeline.
- **The Hills Development**
Township of Bernards, Somerset County, NJ
Prepared and obtained majority of wetland permitting for a 5,300 residential unit, 400,000 SF of commercial and professional office space and an 18-hole golf course planned development in an environmentally sensitive ecosystem.
- **Apple Cove Development Township of Middletown, Monmouth County, NJ**
Prepared and obtained freshwater wetland and CAFRA permits for single-family, residential subdivision located along a tidally influenced watercourse.
- **Trump National Pine Hill Golf Club**
Pine Hill, Camden County, NJ
Prepared and obtained freshwater wetland Individual permits for redeveloping a former amusement park into a premier golf course. Rehabilitating/reconstructing the only remaining native Brook trout stream in southern New Jersey was required as part of permit approval.
- **Frenchtown Nishisakawick Creek Stream Bank Restoration**
Borough of Frenchtown, Hunterdon County, NJ
Through funding by the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), the Borough of Frenchtown sought to restore and stabilize eroded streambanks along Nishisakawick Creek, a highly protected water in the state of New Jersey. Mr. Layton provided oversight and management of the ecological team. The scope included delineation of wetlands and open waters, restoration design oversight, and prepared applications to the NJDEP for a Freshwater Wetlands Individual Permit and Flood Hazard Area Individual Permit.

Environmental Assessments/Regulatory Compliance

Prepared and conducted Environmental Phase I Assessments for residential, commercial, and industrial property transfers in accordance with ASTM and Fannie Mae guidelines. Also prepared and conducted Preliminary Assessments, Site Investigations, Remedial Investigations, and Remedial Action Work Plans in accordance with N.J.A.C. 7:26E.

- **Heavenly Farms**
Township of East Brunswick, Middlesex County, NJ
Prepared and performed Preliminary Remedial Investigation/Action to obtain a "Letter of No Further Action" for a 230-acre farm with contaminated soils for development of recreational fields.

Resume

- **Marlboro Psychiatric State Hospital
Marlboro Township, Monmouth County, NJ**
Consultant to the Township of Marlboro regarding the municipality purchasing a 411-acre State-owned psychiatric hospital. Responsible for identifying areas of environmental concern, review of environmental investigation and remediation reporting generated by State contractors and making recommendations to the municipality regarding environmental concerns and purchase of the property.
- **Columbian Chemicals Mapico Iron Oxide Plant
South Brunswick Township, Middlesex County, NJ**
Prepared and performed preliminary assessment/site investigation, remedial Investigation/Action and Baseline Ecological Evaluation to obtain a "Letter of No Further Action" from the NJDEP to develop an 86-acre former chemical plant in a residential land use. Extensive soil and groundwater contamination was remediated.
- **The Villas at Shoregate
City of South Amboy, Middlesex County, NJ**
Prepared and performed Preliminary Assessment/Site investigation to obtain a "Letter of No Further Action" for a 16-acre, former dredge disposal area adjacent to the Raritan Bay.
- **Rolling Acres Subdivision
Monroe Township, Middlesex County, NJ**
Prepared and performed Preliminary Assessment, Site Investigation, and Remedial Investigation/Action to obtain a "Letter of No Further Action" for a 168-acre farm with contaminated soils.
- **Stewart International Airport
Town of New Windsor, Orange County, NY**
Consultant to potential leaseholders to the Port Authority New York and New Jersey to determine potential environmental areas of concern to development. This included Phase I and Phase II investigations in accordance with ASTM standards.

Subsurface Exploration/Evaluation

Capable of evaluating soils in accordance with NJDEP's Chapter 199 for subsurface sewage disposal systems. Able to establish depth of water tables, evaluate suitability of sites for subsurface disposal systems, perform percolation tests, basin flood tests, pit bail tests and tube permeameter tests. Capable of evaluating subsurface conditions utilizing the Burmister classification system, USDA Soil Taxonomy terminology and the Unified classification system.

Environmental Impact Assessment

Prepared numerous environmental impact statements and assessments for a wide variety of projects, including residential and commercial developments for both the public and private sector.

- **Taconic Homes Site Bog Turtle Survey and Wildlife Inventory
Village of Pleasant Valley, Dutchess County, NY**
Performed survey for bog turtle on a 76± acre tract using Phase II survey methods. Also performed a limited wildlife inventory during the spring season. This work was performed to satisfy lead agency requirements under the NY SEQRA.

Resume

- **Middlesex County Educational Services Commission Special Education Facility
Borough of Sayreville, Middlesex County, NJ**

Provided environmental services to conduct a Phase I environmental assessment associated with professional engineering services for a 65,000 SF special education facility with a pool, a future building, associated parking lot, and a playground. Tasks included a historical review of project site, industrial / commercial historical review, site visit to identify obvious visual signs of contamination and use of hazardous materials, project approval status review, review of existing, local, state and federal records, review of adjacent lands, preparation of site location map, and report preparation.
- **Capodagli Property Company Phase I Assessment
North Arlington Borough, Bergen County, NJ**

Provided environmental services to delineate wetlands, prepare an application for a Letter of Interpretation to the New Jersey Department of Environmental Protection, and prepare a Phase I Environmental Assessment for the property that is between .5 to 1.0 acres and adjacent to the Passaic River, and regulatory permitting (NJDEP upland waterfront development and waterfront development, NJDEP tidelands conveyance, and US Army Corps of Engineers Section 10 – installation of outfall structure).
- **New Gregory Elementary School (NJSCC Funded)
City of Long Branch, Monmouth County, NJ**

Provided site design, civil, and environmental engineering services for a proposed three-story, 45,000 SF elementary school to accommodate children from pre-kindergarten through 5th grade located on a six-acre tract of land. Environmental services included wetlands evaluation, preliminary assessment (PA), site investigation (SI), and environmental impact statement (EIS)/ EO 215, and environmental regulatory permitting (NJDEP statewide general, and NJDEP treatment and water works). The preliminary assessment (PA) report indicated four areas of Concern (AOC). Three UST's, waste piles (plastic bottles, plastic bags, aluminum cans, etc.), one pole mounted electrical transformer and capacitor, and a former railroad easement adjacent to property with inactive rail lines with possible polynuclear aromatic hydrocarbons (PAHs). A site investigation (SI) will be performed to evaluate the presence or absence of soil and groundwater impact associated with UST's and the former railroad easement. A report will be prepared containing all lab results and recommendations for further investigation and/or remedial action as well as projected cost estimates for remedial investigation and cleanup.
- **Diversified Developers, LLC – Retail Store and Day Care Facility
Jackson Township, Ocean County, NJ**

Provided environmental services to conduct a Phase I environmental assessment associated with the site design and civil engineering services associated with the development of a 35,000 SF retail facility including a day care facility along with typical appurtenant site improvements on approximately 3.8-acres of land. Services included historical review to evaluate past conditions of sites as they relate to existing and proposed uses, industrial/commercial historical review, site visit to identify all obvious visual signs of contamination and the use of hazardous materials, review existing local, State, and federal records, review of adjacent lands, prepared site location map depicting the approximate parcel boundaries, and an area of at least one-mile radius around the site.

Resume

- **Thomas Associates – Site Assessment Proposed School Site
City of Bordentown, Burlington County, NJ**

Provided environmental services for a Phase I Environmental Assessment for a 75-acre parcel of land previously historically farmed for a proposed new school facility. Services included preliminary assessment, SI & RI historical review, industrial and commercial historical review, review of existing local, state and federal records, review of adjacent lands, preparation site location map, preliminary soil screening, delineation of wetlands and LOI and regulatory permitting (stream encroachment, land use regulations freshwater wetlands and soil erosion and sediment control), Colonial Pipeline Crossing/Encroachment and Environmental Impact Statement (EIS).

Continuing Education

Methodology for Delineating Wetlands, Cook College

Vegetation Identification for Wetland Delineation, Cook College

Hydrology of Wetlands, Cook College

Endangered & Threatened Species of New Jersey, Cook College

Lake Management, Cook College

Soils and Site Evaluation for Septic Disposal Systems & Stormwater BMP's , Cook College

Site Remediation Basics, Cook College

Remedial Decision Making, Cook College

Ecological Risk Management, Cook College

Appendix C

Site Photographs

Appendix D

Natural Heritage Database



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