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GREEN ACRES GRANT APPLICATION

ENVIRONMENTAL IMPACT REPORT

Croydon Hall Baseball Field Turf Improvements
900 Leonardville Road
Block 682, Lots 5 & 6
Middletown Township, NJ 07748

T&M PROJECT NO. MIDD-10946
JANUARY 2026

Contents

ATTACHMENTS

PROJECT DESCRIPTION

On behalf of the Middletown Township Department of Parks & Recreation ("the client"), T&M Associates ("T&M") is submitting this Environmental Impact Report pursuant to a Green Acres grant application. The client is seeking the grant to assist with funding a proposed site improvement project within the Croydon Hall recreation hub ("Croydon Hall"), located at 900 Leonardville Road (tax block 682, lots 5 & 6) within the Township of Middletown, Monmouth County, New Jersey ("the project site").

The objective of the proposed project is to conduct comprehensive site improvements at multiple locations within the park. Under this project, the client would renovate the existing, heavily used baseball diamond present within the project site to convert it into a modern multi-use synthetic turf baseball field. 46/60 and 50/70 youth configurations are proposed for the rehabilitated baseball diamond, including portable turf pitching mounds that would allow for flexible arrangement and programming for recreators from multiple age groups. In addition, the project proposes the establishment of a striped, multi-sport area in the baseball diamond's outfield section, to be used for other sports games as needed (i.e., flag football). This would maximize the year-round functionality of Croydon Hall.

Also proposed under this project is a comprehensive upgrade to the existing lighting system within the project site, replacing the lighting facilities with energy-efficient LED fixtures to improve the visibility, safety, and sustainability of the baseball diamond and its surrounding area. Broader activities include the installation of new and improved sports infrastructure (i.e., new fencing, backstop, dugouts, bleachers, a portable outfield fence, and a batting cage/bullpen), the installation of new pedestrian walking trails connecting the baseball diamond to the rest of the park, and safety improvements (i.e., road widening and curb installation) to the main drive within the park. These activities are proposed to create a permanent home for inclusive youth sports at Croydon Hall by enhancing recreational opportunities, promoting accessibility and inclusion, and ensuring the long-term, sustainable use of the project site.

Please see **Attachment A** for figures displaying the project site and **Attachment B** for a collection of color photographs taken within the project site.

DESCRIPTION OF THE ENVIRONMENT

Adjacent Land Uses

The project site is bounded by Leonardville Road/County Road 516 in the north, private low-density residential and recreational tax parcels (associated with the Beacon Hill County Club which borders the project site) to the east, a commercial tax parcel associated with the

Middletown Township Senior Center to the south, and a commercial tax parcel owned and operated by the client as part of Croydon Hall to the west.

The land comprising the project site itself is classified as recreational (urban), commercial/services, deciduous forest (10%-50% crown closure), and deciduous wooded wetlands (land use data accurate as of 2020; data derived from The New Jersey Department of Environmental Protection [NJDEP] GeoWeb [GeoWeb] natural and cultural resources mapping tool). The project site itself consists of mowed and maintained recreational lawn space, parking areas and associated roadways, paved pedestrian sidewalks and walking trails, outbuildings owned and operated by the client, sports fields (i.e., a football field and baseball diamond), and deciduous forest habitat. Croydon Hall itself is free to enter and is open to the public. Both of the tax parcels which comprise the project site are listed on the NJDEP Recreation and Open Space Inventory (ROSI) database. On June 9, 2016, a Freshwater Wetlands (FWW) Letter of Interpretation (LOI) Line Verification, Flood Hazard Area (FHA) Individual Permit (IP), and FWW Transition Area Waiver (TAW) were obtained to authorize the construction of the existing synthetic turf sports field now present within the project site (File No. 1331-15-0038.1, Activity Nos. FHA150001, FWW150001, & FWW150002). The previously approved permits are available in **Attachment C**.

Vegetation & Wildlife

Vegetation within the project site largely consists of mowed and maintained herbaceous lawnscapes and maintained recreational fields (i.e., the turf football field and baseball field currently present within the site). These areas consist primarily of turfgrasses with some tree cover. Some planted street/shade trees are present in and around the parking lot area and pedestrian walking trails within the site. A large deciduous forest area is present within the northeastern, eastern, and southeastern portions of the project site. The site is populated by both indigenous and non-indigenous vegetation. A desktop review of the project site conducted via street-level satellite imagery and photographs taken within the project site during previous permitting efforts conducted by T&M within Croydon Hall indicate that the project site contains American holly (*Ilex opaca*, FACU), American beech (*Fagus grandifolia*, FACU), red maple (*Acer rubrum*, FAC), northern red oak (*Quercus rubra*, FACU), black locust (*Robinia pseudoacacia*, FACU), black cherry (*Prunus serotina*, FACU), Norway maple (*Acer platanoides*, UPL), and callery pear (*Pryus calleryana*) in the tree stratum; grape (*Vitis* sp., N/A), poison ivy (*Toxicodendron radicans*, FAC), and English ivy (*Hedera helix*, FACU) in the woody vine stratum; Japanese knotweed (*Reynoutria japonica*, FACU), tree-of-heaven (*Ailanthus altissima*, UPL), eastern red cedar (*Juniperus virginiana*, FACU), and burning bush (*Euonymus alatus*, N/A) in the shrub stratum; and turfgrass, garlic mustard (*Alliaria petiolata*, FACU), foxtails (*Alopecurus* sp., N/A), and goldenrod (*Solidago* sp., N/A) in the herbaceous stratum.

Potential wildlife habitat within the project site is limited, as much of the site has been developed for human use and is regularly subject to manmade disturbances (i.e., pedestrian and motorist travel, recreational activities). The deciduous forest habitat present within the site is also partially mapped as wetland habitat (data accurate as of 2020). A review of the NJDEP Landscape v3.4 threatened and endangered (T&E) habitat mapping tool for the Piedmont Plains Landscape Region, which contains the project site, indicates that the project site may contain potential foraging habitat for black-crowned night heron (*Nycticorax nycticorax*, State-listed Threatened [Rank 3]). The v3.4 landscape mapper also identifies the site as Rank 1 habitat specific requirements for deciduous wooded wetlands.

Geology, Topography, & Soils

The project site is underlain by two aquifers; the Mt. Laurel-Wenonah Aquifer (Rank C) and the Coastal Plain Aquifer (Sole Source). The bedrock geology of the project site consists of the Wenonah Formation (composed of fine-grained quartz sand with silty and clayey micaceous components) and the Mt. Laurel Formation (composed of fine-to-course-grained, slightly glauconitic quartz sand).

A review of the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey (WSS) soil data mapping tool indicates that the project site is underlain by Klej loamy sand (KkgB) with 0%-5% slopes and Tinton-Urban land complex (ThhB) with 0%-5% slopes. These soil types are nonhydric. KkgB soils are classified as “farmland of statewide importance”, while ThhB soils are classified as “not prime farmland”.

Topographic conditions within the project site are largely uniform with little change in elevation throughout (approximately 20 to 50 feet above sea level). The natural topography of the broader Township of Middletown is comprised of rolling hill landscapes with elevations ranging from sea level to approximately 260 feet above sea level.

Water Resources & Hydrology

There are no streams, rivers, State open waters, ponds, lakes, or other waterbodies or watercourses present within the project site. An artificial lake, identifiable as a “water hazard” associated with the Beacon Hill Country Club golf course, is present approximately 230 feet to the south of the project site.

The nearest stream to the project site, identified as a Wagner Creek Tributary, flows from south to north approximately 50 feet to 200 feet from the eastern boundary of the project site. This stream is classified as a FW2-NT/SE1 waterway (i.e., a freshwater-saline estuarine watercourse that is insufficient to support trout maintenance and reproduction, and which is subject to man-made discharges). It should be noted that there are no Category 1 waters within the project site or the sub-watershed containing the project site. The drainage area of the subject stream is

greater than 50 acres; therefore, based upon the NJDEP Flood Hazard Area Control Act Rules (N.J.A.C. 7:13), the Wagner Creek Tributary would potentially be regulated by the Flood Hazard Rules and will likely have an associated Flood Hazard Area and Riparian Zone.

The project site falls within the Monmouth Watershed Area, the Raritan/Sandy Hook Bay Tributaries Watershed, and the Pews Creek to Shrewsbury River sub-watershed. A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) map number 34025C0066F panel containing the project site (effective date September 25, 2009) indicates that the project site falls within Flood Zone X, defined by FEMA as an area determined to be outside the 0.2% annual chance floodplain. Based on a review of the NJDEP GeoWeb mapper, no threatened and endangered species have been reported within the areas where the proposed project activities would occur. Therefore, the Riparian Zone is assumed to be 50 feet wide; however, this distance must be confirmed by NJDEP during the technical review of the completed permit application. Under the previous FHA IP obtained for the project site (File No. 1331-15-0038.1), the NJDEP attributed a 50-foot Riparian Zone to this stream and a 50 foot wetland transition area to the deciduous wooded wetlands identified within the project site.

Historic & Archaeological Resources

The project site does not fall within any historic districts or historic archaeological site grids. However, the site does contain a historic property. This property is identified as the MacLeod-Rice House (NJEMS Program Interest ID 99135884, designation status update 12/3/18).

Transportation & Site Access

The project site is most easily accessed via Leonardville Road. Motorists turn south and enter the park via its paved entry roadway near the intersection of Leonardville Road and Chamone Avenue. A pedestrian sidewalk is also present in the same location, which provides access to the park for visitors coming on foot. Multiple parking areas are present within the project site for use by the visiting public. Egress from the park is achieved via Bryant Avenue as the Leonardville Road access road is one-way only. The New Jersey Transit Bus Line #834 operates a public bus stop (Stop ID 25089) on Leonardville Road approximately 484 feet west of the project site, which provides public transportation to and from the park for travelers using the Highlands via New Monmouth Road bus route.

ENVIRONMENTAL IMPACT ANALYSIS

Due to the fact that the project site has been previously disturbed through the construction of Croydon Hall, and its status as a popular public park subject to recreation-related human presence and ongoing disturbances, no major adverse impacts to natural or cultural resources are anticipated to occur as a result of the proposed project. The proposed improvements would be

conducted in and around the existing baseball diamond area on site, which is already a developed, regularly-used recreation area that does not contain any sensitive natural or cultural resources that may be adversely impacted by the proposed project activities. The goal of the proposed project is to rehabilitate the baseball diamond and improve its condition for the benefit of the visiting public, which would benefit the local and broader community of both Middletown residents and outside recreators visiting Croydon Hall. While minor impacts to natural resources (i.e., vegetation, soils, and wetland buffers) may occur as a result of the proposed improvement project, compliance with all municipal, State, and federal regulations will be demonstrated at all phases of the project, and permanent adverse impacts will be avoided or mitigated to the greatest possible degree. Adverse impacts to off-site properties are not anticipated to occur as a result of the proposed project as all work would take place within the project site itself.

Affected Resources and the Significance of Each Impact

Croydon Hall is a popular outdoor park which provides recreational space for the visiting public. While its indoor facilities are used year-round for community and club meetings, the outdoor portions of the project site are primarily used in the spring, summer, and fall when temperatures allow for pleasant outdoor recreation. Due to the high density of the surrounding area, the increasing demand for outdoor spaces and public recreation opportunities across the State, and the existing conditions of the park, there exists demand for rehabilitated and improved facilities that would allow public recreators to use the space for practice and play. As such, the proposed improvements would provide this opportunity by improving the condition of the park for the benefit of the public.

Short-Term and Long-Term Project Impacts

No negative long-term impacts are anticipated to occur under the proposed project. The activities associated with the proposed project may generate short-term adverse impacts within the park, as the construction-related activities and the temporary restriction of the area to the visiting public would temporarily obstruct a portion of the project site. However, these short-term impacts are temporary, and all construction activities taking place within the project site would cease upon the successful rehabilitation of the park and the end of the proposed project.

Anticipated Increase in Recreation and Overall Use

New Jersey is currently trending upwards in both population and demand for outdoor recreation. Over time, Croydon Hall is expected to see increased use. It is therefore necessary that the structures and facilities present on site are safe, accessible, and updated to the fullest possible degree to ensure enhanced utilization and long-term use of Croydon Hall. The rehabilitation of the park under the proposed project would help to accommodate this projected increase in use by providing a fully restored and improved recreational site for use by the visiting public.

Adjacent Environmental Features Affected

Much of the proposed project involves impacting previously-disturbed areas of the project site and working entirely within the existing disturbance footprints of these areas (i.e., upgrading the existing lighting system within the project site, repurposing a portion of the existing baseball diamond outfield for use as a new multi-sport area, and implementing portable resources rather than permanent fixtures). Under the proposed project, impacts to the on-site vegetation, soils, and wetland buffers associated with the deciduous wooded wetlands present along the eastern border of the project site may be affected by the proposed activities.

Permits Required for Project

A Soil Erosion and Sedimentation Control (SESC) plan and permit is anticipated for the proposed project, to be obtained from the Freehold Soil Conservation District. Any project activities which are proposed to occur within the freshwater wetland buffer area present within the project site may require a Freshwater Wetlands (FWW) permit from the NJDEP. As discussed above, the wetlands and drainage ditch identified within the project site during the 2016 delineation were given fifty (50) foot wetland transition area and riparian zone buffers, respectively. NJDEP ultimately has the final authority regarding natural resource buffer sizes for any given project, and these values may be subject to change upon NJDEP review of the project site and proposed project activities. In addition, any tree removal or clearing activities proposed under the proposed project would require a local approval from the Middletown Township Zoning Officer and Township Engineer, as stipulated by the Township code Chapter 540 Article V *§ 540-534. - Tree removal and clearing on property*.

Based upon the NJDEP Flood Hazard Area Control Act Rules (N.J.A.C. 7:13), any improvements proposed within the Flood Hazard Area of the Wagner Creek Tributary will require a Flood Hazard Area Permit. The proposed project is potentially within the riparian zone of the Wagner Creek Tributary. As discussed above, the project site falls within Flood Zone X, and has not been studied in detail by FEMA. Therefore, Flood Hazard Area Verification and Individual Permits are anticipated for the proposed project.

The proposed project is expected to disturb more than one acre of land and result in an increase to impervious cover within the project site in excess of ¼ acre. Therefore, the proposed project would be classified as a "Major Development" under the Stormwater Management Rules (N.J.A.C. 7:8). The proposed project would therefore require stormwater management design calculations for Water Quantity, Water Quality and Ground Water Recharge. This determination will be confirmed during the final design phase of the project.

Natural Heritage Data Request Form

The improvement activities proposed under this project would take place entirely within a previously-developed, presently-disturbed site that is in current active operation as a public park. As discussed above, potential habitat for black-crowned night heron [Rank 3] has been documented within a portion of the project site. However, no activities are proposed to occur within the mapped habitat area, and it is not anticipated that this species would be adversely impacted by the proposed project. As such, a Natural Heritage Data Request form was not required.

If/How the Project May Be Impacted by Sea Level Rise

The proposed project is unlikely to be impacted by sea level rise. The project site falls within FEMA Zone X (i.e., outside the 0.2% annual chance floodplain) and falls entirely outside the coastal zone, with no Tidelands Claim Lines present within or immediately adjacent to the project site. The nearest coastline to the project site, the shore of Raritan Bay, is approximately 3,000 feet north of the site itself. Therefore, there are no tidally-influenced natural resources present within or nearby the project site, and it is unlikely that the proposed project would be impacted by sea level rise.

Alternatives and Mitigative Measures

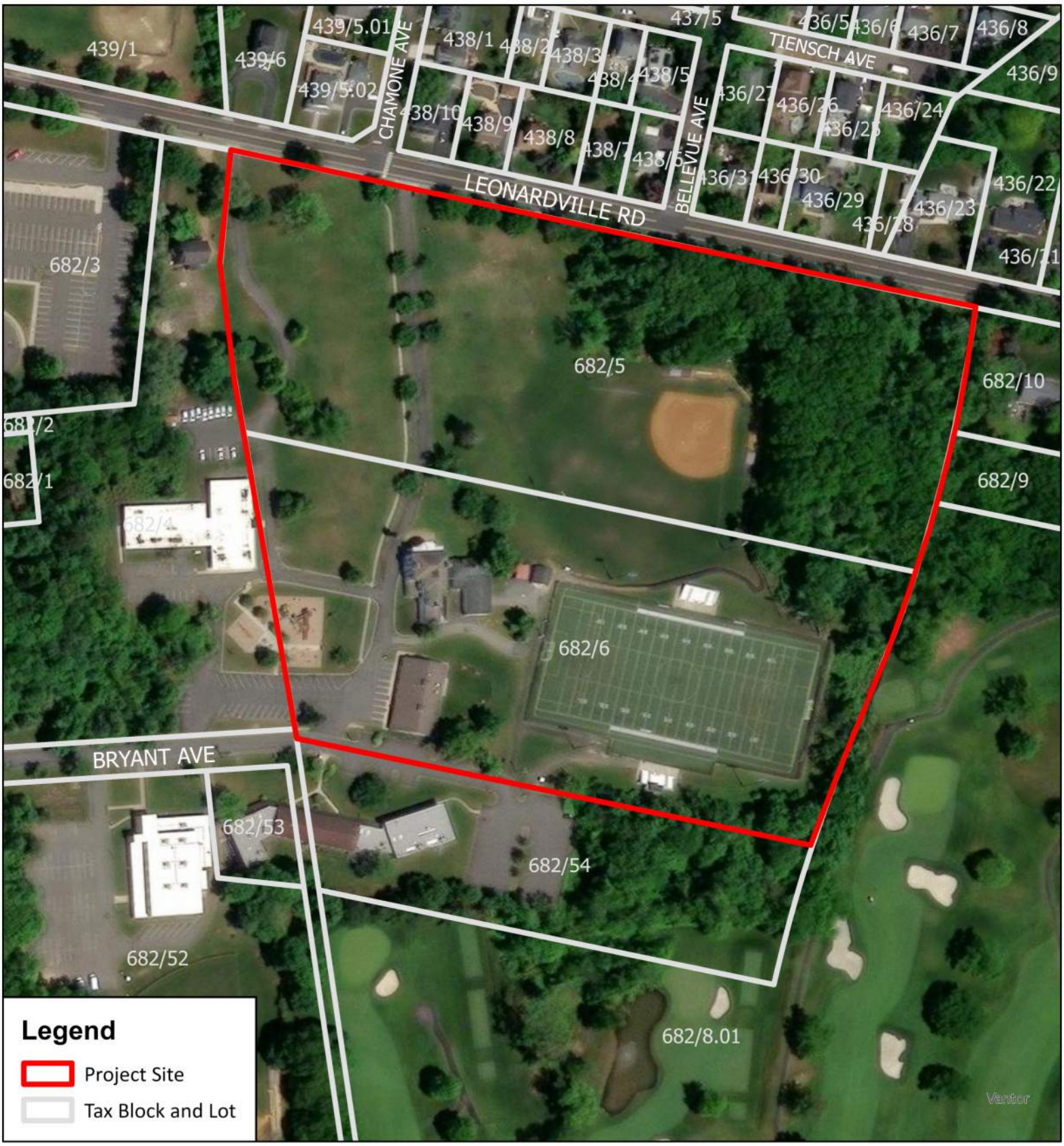
No alternatives are proposed for the proposed project. The proposed project can only take place within the project site, as the existing park is present there. The proposed improvements are necessary to increase accessibility and utilization of Croydon Hall. As such, the only alternative for this project is a “no build” option, which would not address the issue at the center of the proposed project and would leave the park in its unimproved state. The proposed project is encouraged by the Township and would represent a positive change for the visiting public that has the potential to increase patronage to the park.

CONCLUSION

Based upon a review of the Green Acres Program for Park Development grant application requirements, the proposed project complies with regulations pertaining to urban development and renovation at Croydon Hall. As with any form of development, however, certain unavoidable impacts will occur. The project team has designed the proposed project to avoid generating these impacts wherever possible, and to minimize and mitigate these unavoidable impacts whenever they may occur.

ATTACHMENTS

Attachment A - Site Figures



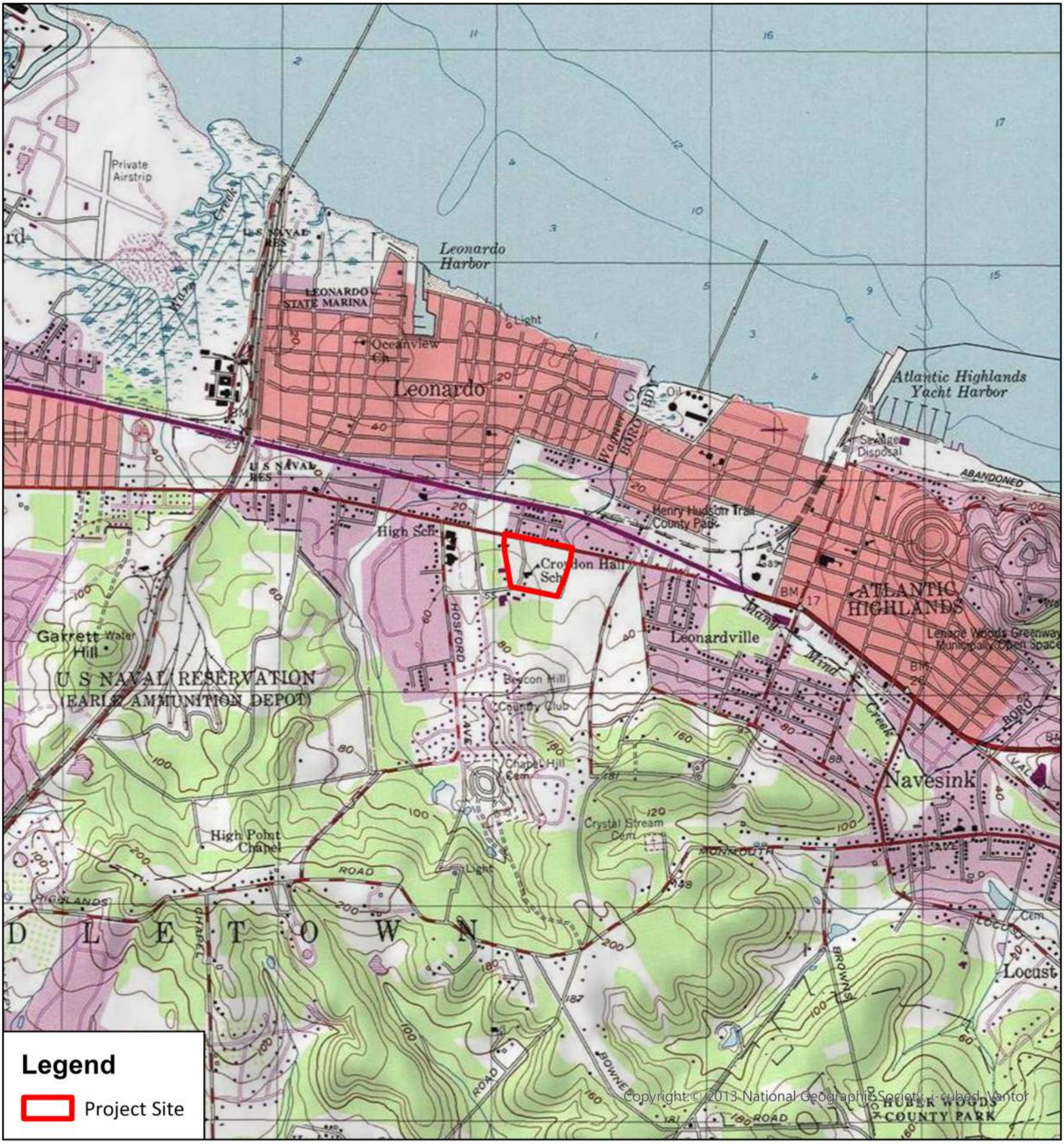
250 Century Parkway, Suite 225
Mount Laurel, NJ 08054
Phone: (856) 722-6700

0 87.5 175 350 Feet

N

Site Location Map
Croyden Hall Green Acres Grant Application
900 Leonardville Road
Block 682, Lots 5 and 6
Middletown Township
Monmouth County, New Jersey

Prepared by: CTD, 1/9/26
Source: 2026 Google Satellite Aerial Imagery
File Path: G:\Projects\MIDD\10946\GIS\Projects\Final\Aerial Site Map.aprx



250 Century Parkway, Suite 225
Mount Laurel, NJ 08054
Phone: (856) 722-6700

0 950 1,900 3,800 Feet

N

USGS Topographic Map
Croyden Hall Green Acres Grant Application
900 Leonardville Road
Block 682, Lots 5 and 6
Middletown Township
Monmouth County, New Jersey

Prepared by: CTD, 1/9/26
Source: 2026 USGS Topographic Maps
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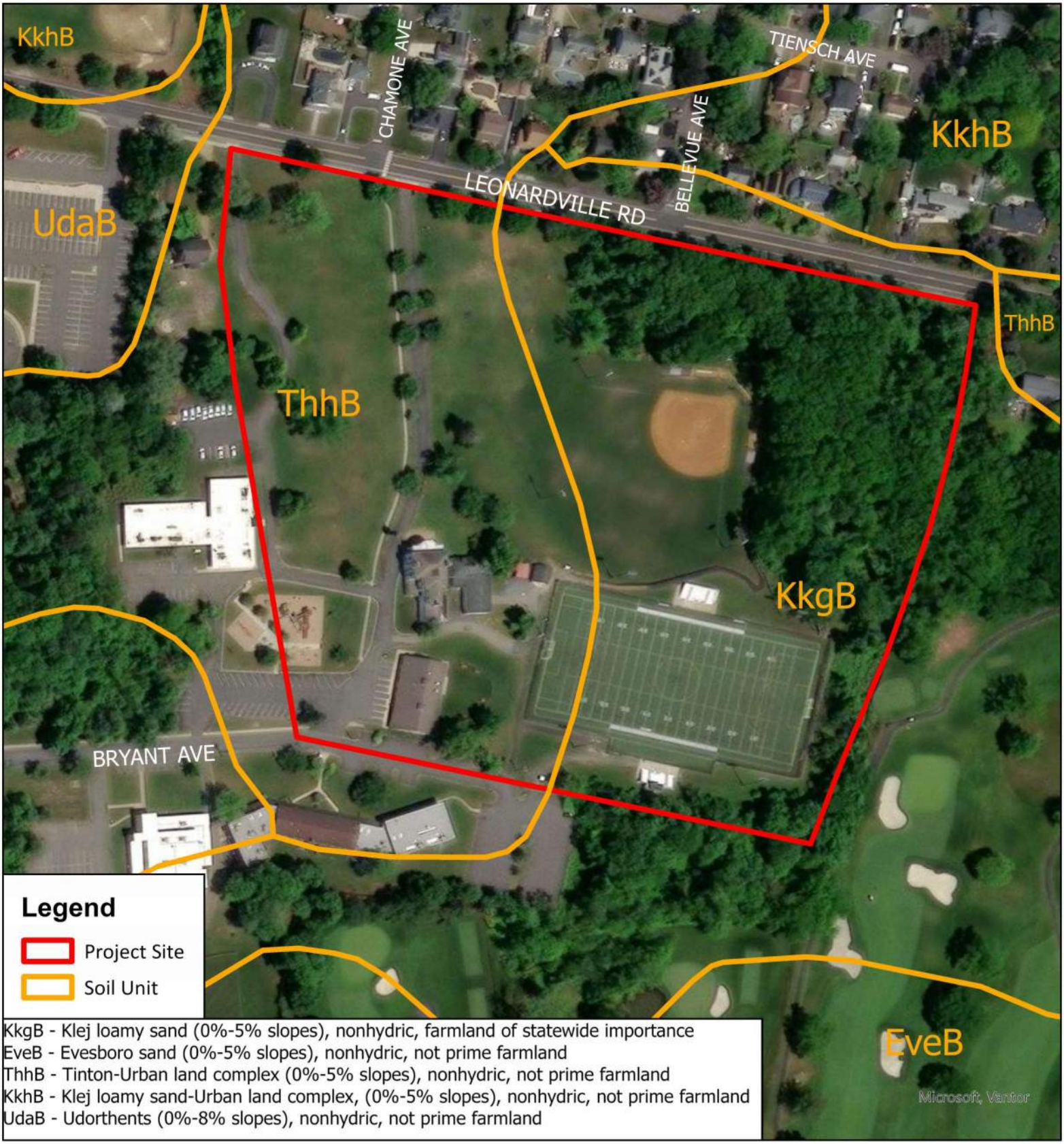

KkgB - Klej loamy sand (0%-5% slopes), nonhydric, farmland of statewide importance
EveB - Evesboro sand (0%-5% slopes), nonhydric, not prime farmland
ThhB - Tinton-Urban land complex (0%-5% slopes), nonhydric, not prime farmland
KkhB - Klej loamy sand-Urban land complex, (0%-5% slopes), nonhydric, not prime farmland
UdaB - Udorthents (0%-8% slopes), nonhydric, not prime farmland

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Phone: (856) 722-6700

0 87.5 175 350 Feet

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Soils Map
Croyden Hall Green Acres Grant Application
900 Leonardville Road
Block 682, Lots 5 and 6
Middletown Township
Monmouth County, New Jersey

Prepared by: CTD, 1/9/26
Source: 2026 Google Satellite Aerial Imagery
File Path: G:\Projects\MIDD\10946\GIS\Projects\Final\Soils Map.aprx

T&E Species documented within the project site include black-crowned night heron (Nycticorax nycticorax), State-listed Threatened Species, Foraging. Rank 1 habitat (Deciduous wooded wetlands) is also present within the project site.

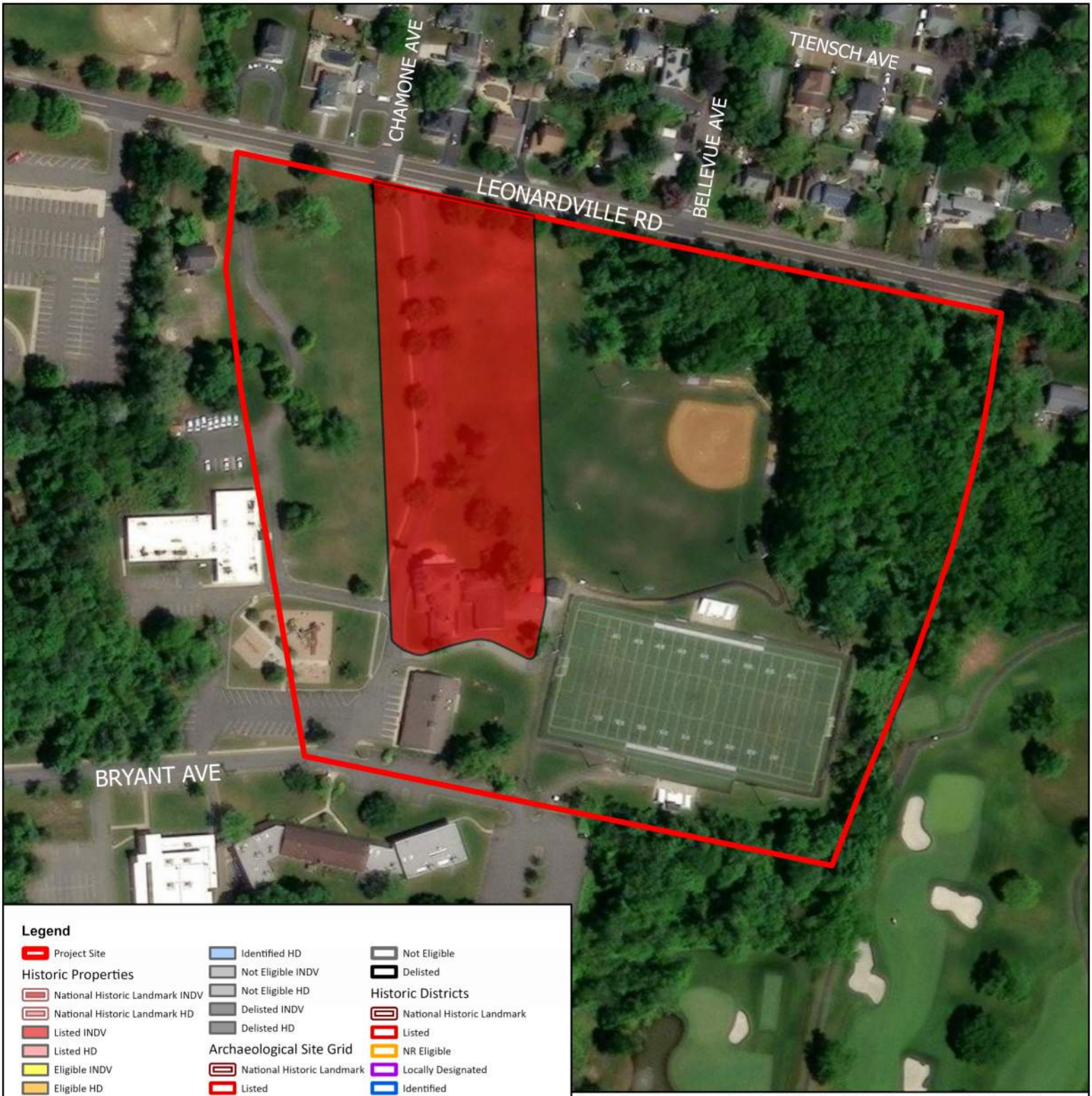
250 Century Parkway, Suite 225
Mount Laurel, NJ 08054
Phone: (856) 722-6700

0 87.5 175 350 Feet

N

Landscape v3.4 Map
Croyden Hall Green Acres Grant Application
900 Leonardville Road
Block 682, Lots 5 and 6
Middletown Township
Monmouth County, New Jersey

Prepared by: CTD, 1/9/26
Source: 2026 Google Satellite Aerial Imagery
File Path: G:\Projects\MIDD\10946\GIS\Projects\Final\Landscape Map.aprx



The historic property identified within the project site is the MacLeod-Rice House (NJEMS Program Interest ID 99135884), Listed INDV, designation status update 12/3/18.

250 Century Parkway, Suite 225
Mount Laurel, NJ 08054
Phone: (856) 722-6700

0 87.5 175 350 Feet

N

Historic Resources Map
Croyden Hall Green Acres Grant Application
900 Leonardville Road
Block 682, Lots 5 and 6
Middletown Township
Monmouth County, New Jersey

Prepared by: CTD, 1/9/26
Source: 2026 Google Satellite Aerial Imagery
File Path: G:\Projects\MIDD\10946\GIS\Projects\Final\Historic Resources Map.aprx

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was New Jersey State Plane FIPSZONE 2900. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by the State of New Jersey Office of Information Technology. This information was derived from digital orthophotos produced at a scale of 1:2400 with a 1-foot pixel resolution from photography dated April 2002.

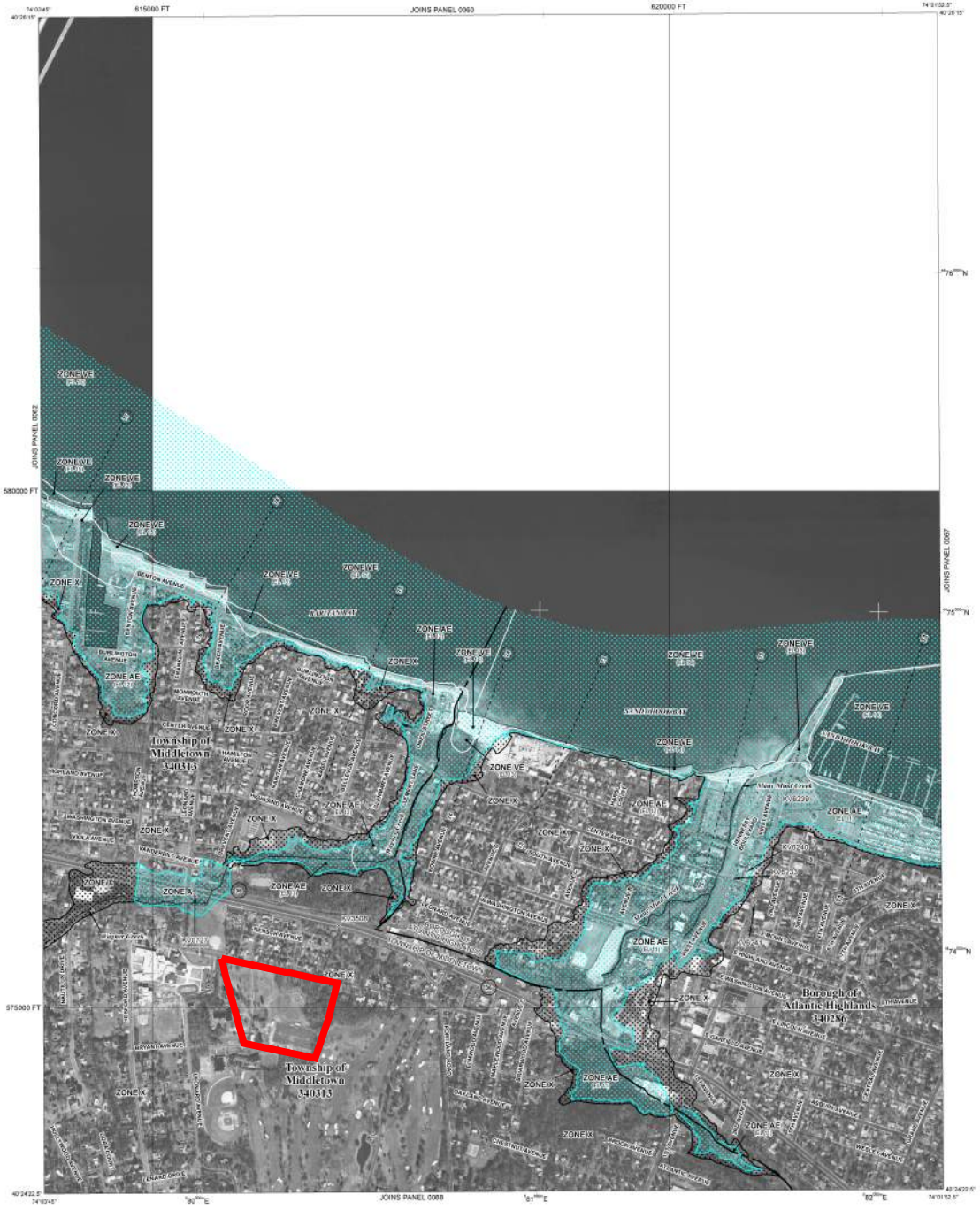
Based on updated topographic information, this map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
- 27 — 27 — Transect line
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4275000mN — 1000-meter Universal Transverse Mercator grid values, zone 18N
- 600000 FT — 5000-foot grid ticks: New Jersey State Plane coordinate system (FIPSZONE 2900), Transverse Mercator projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
September 25, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0066F

FIRM

FLOOD INSURANCE RATE MAP

MONMOUTH COUNTY, NEW JERSEY
(ALL JURISDICTIONS)

PANEL 66 OF 457
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
ATLANTIC HIGHLANDS, BOROUGH OF	340286	0066	F
MIDDLETOWN, TOWNSHIP OF	340313	0066	F

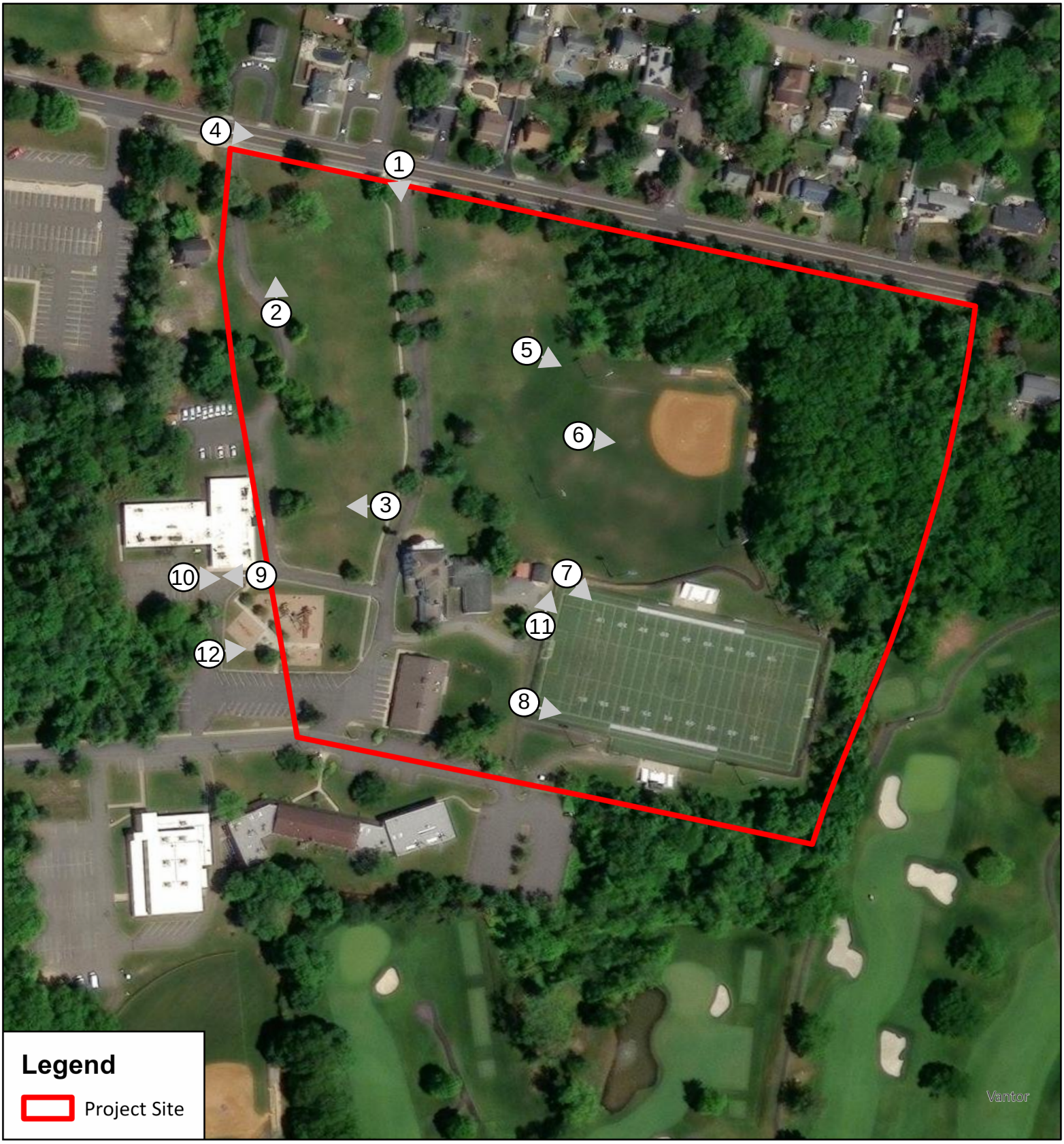
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
34025C0066F

EFFECTIVE DATE
SEPTEMBER 25, 2009

Federal Emergency Management Agency

Attachment B - Color Photographs



Legend

Project Site

250 Century Parkway, Suite 225
Mount Laurel, NJ 08054
Phone: (856) 722-6700

0 87.5 175 350 Feet

N

Photograph Location Map
Croydon Hall Green Acres Grant Application
900 Leonardville Road
Block 682, Lots 5 and 6
Middletown Township
Monmouth County, New Jersey

Prepared by: CTD, 1/9/26
Source: 2026 Google Satellite Aerial Imagery
File Path: G:\Projects\MIDD\10946\GIS\Projects\Final\Photograph Location Map.aprx

Photograph 1

Photograph 2

Photograph 3

Photograph 4

Photograph 5

Photograph 6

Photograph 7

Photograph 8

Photograph 9

Photograph 10

Photograph 11

Photograph 12

Attachment C - Previous Site Approvals

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Land Use Regulation
Mail Code 501-02A, P. O. Box 420
Trenton, New Jersey 08625-0420
www.state.nj.us/dep/landuse

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

Anthony Mercantante, Township Administrator
Middletown Township
1 Kings Highway
Middletown, NJ 07748

JUN 0 6 2016

RE: Freshwater Wetlands Letter of Interpretation: Line Verification
File No.: 1331-15-0038.1
Activity Number: FWW150002
Applicant: MIDDLETOWN TWP
Block(s) and Lot(s): [682, 6]
Middletown Twp., Monmouth County

Dear Mr. Mercantante:

This letter is in response to your request for a Letter of Interpretation to have Division of Land Use Regulation (Division) staff verify the boundary of the freshwater wetlands and/or State open waters on the referenced property.

In accordance with agreements between the State of New Jersey Department of Environmental Protection, the U.S. Army Corps of Engineers Philadelphia and New York Districts, and the U.S. Environmental Protection Agency, the NJDEP, the Division is the lead agency for establishing the extent of State and Federally regulated wetlands and waters. The USEPA and/or USACOE retain the right to reevaluate and modify the jurisdictional determination at any time should the information prove to be incomplete or inaccurate.

Based upon the information submitted, and upon a site inspection conducted by Division staff on March 16, 2016, the Division has determined that the wetlands and waters boundary line(s) as shown on the plan map entitled: "TOWNSHIP OF MIDDLETOWN, CROYDON HALL MULTI-PURPOSE SYNTHETIC TURF FIELD, BLOCK 682, LOT 6, TOWNSHIP OF MIDDLETOWN, MONMOUTH COUNTY, NEW JERSEY", consisting of 1 sheet(s), dated 1/25/2016, last revised 5/11/16, and prepared by T and M Associates, signed and sealed by Michael S. Finnegan, P.L.S., is accurate as shown.

Wetlands Resource Value Classification ("RVC")

In addition, the Division has determined that the resource value and the standard transition area or buffer required adjacent to the delineated wetlands are as follows:

Ordinary (Ditch): "A-1" to "A-6" [No wetland buffer]

Intermediate: All remaining flag numbers including "A-6". [50 foot wetland buffer]

RVC may affect requirements for wetland and/or transition area permitting. This classification may affect the requirements for an Individual Wetlands Permit (see N.J.A.C. 7:7A-7), the types of Statewide General Permits available for the property (see N.J.A.C. 7:7A-4 & 5) and any modification available through a transition area waiver (see N.J.A.C. 7:7A-6). Please refer to the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.) and implementing rules for additional information.

Wetlands resource value classification is based on the best information available to the Department. The classification is subject to reevaluation at any time if additional or updated information is made available, including, but not limited to, information supplied by the applicant.

Under N.J.S.A. 13:9B-7a(2), if the Division has classified a wetland as exceptional resource value, based on a finding that the wetland is documented habitat for threatened and endangered species that remains suitable for use for breeding, resting or feeding by such species, an applicant may request a change in this classification. Such requests for a classification change must demonstrate that the habitat is no longer suitable for the documented species because there has been a change in the suitability of this habitat. Requests for resource value classification changes and associated documentation should be submitted to the Division at the address at the top of this letter.

General Information

Pursuant to the Freshwater Wetlands Protection Act Rules, you are entitled to rely upon this jurisdictional determination for a period of five years from the date of this letter unless it is determined that the letter is based on inaccurate or incomplete information. Should additional information be disclosed or discovered, the Division reserves the right to void the original letter of interpretation and issue a revised letter of interpretation.

Regulated activities proposed within a wetland, wetland transition area or water area, as defined by N.J.A.C. 7:7A-2.2 and 2.6 of the Freshwater Wetlands Protection Act rules, require a permit from this office unless specifically exempted at N.J.A.C. 7:7A-2.8. The approved plan and supporting jurisdictional limit information are now part of the Division's public records.

This letter in no way legalizes any fill which may have been placed, or other regulated activities which may have occurred on-site. This determination of jurisdiction extent or presence does not make a finding that wetlands or water areas are "isolated" or part of a surface water tributary system unless specifically called out in this letter as such. Furthermore, obtaining this determination does not affect your responsibility to obtain any local, State, or Federal permits which may be required.

Appeal Process

In accordance with N.J.A.C. 7:7A-1.7, any person who is aggrieved by this decision may request a hearing within 30 days of the date the decision is published in the DEP Bulletin by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, P.O. Box 402, Trenton, NJ 08625-0402. This request must include a completed copy of the Administrative Hearing Request Checklist found at www.state.nj.us/dep/landuse/forms. Hearing requests received after 30 days of publication notice may be denied. The DEP Bulletin is available on the Department's website at www.state.nj.us/dep/bulletin. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see the website www.nj.gov/dep/odr for more information on this process.

Please contact Robert Kozachek of our staff by e-mail at bob.kozachek@dep.nj.gov or by phone at (609) 777-0454 should you have any questions regarding this letter. Be sure to indicate the Department's file number in all communication.

Sincerely,

Ryan Anderson, Supervisor
Division of Land Use Regulation

c: Municipal Clerk
Municipal Construction Official
Agent (original)

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF LAND USE REGULATION
Mail Code 501-02A, P.O. Box 420, Trenton, New Jersey 08625-0420
Telephone: (609) 777-0454 or Fax: (609) 777-3656
www.state.nj.us/dep/landuse

PERMIT

In accordance with the laws and regulations of the State of New Jersey, the Department of Environmental Protection hereby grants this permit to perform the activities described below. This permit is revocable with due cause and is subject to the limitations, terms and conditions listed below and on the attached pages. For the purpose of this document, "permit" means "approval, certification, registration, authorization, waiver, etc." Violation of any term, condition or limitation of this permit is a violation of the implementing rules and may subject the permittee to enforcement action.

Approval Date: JUN 09 2016

Expiration Date: JUN 08 2021

Permit Number(s):

1331-15-0038.1 FHA150001
1331-15-0038.1 FWW150001

Type of Approval(s):

Individual Permit
Transition Area Waiver

Enabling Statute(s):

N.J.S.A. 13:9B-1 et seq.
N.J.S.A. 58:11A-1 et seq.
N.J.S.A. 58:10A-1 et seq.
N.J.S.A. 58:16A-50 et seq.
N.J.S.A. 13:1D-29 et seq.
N.J.S.A. 13:1D-1 et seq.

Permittee:
Township of Middletown
c/o Anthony P. Mercantante, Township Administrator
1 Kings Highway
Middletown, NJ 07748

Site Location:
Block(s) & Lot(s): [682, 6]
Municipality: Middletown Township
County: Monmouth

Description of Authorized Activities:

This permit authorizes the construction of a new synthetic turf soccer field to replace an existing grass soccer field, along with associated amenities and an underground stormwater system, at a property located within Lot No. 6 of Block No. 682 in the Township of Middletown, Monmouth County, New Jersey.

Prepared by:

Christian Zografos FOR

THIS PERMIT IS NOT EFFECTIVE AND NO CONSTRUCTION APPROVED BY THIS PERMIT, OR OTHER REGULATED ACTIVITY, MAY BE UNDERTAKEN UNTILTHE APPLICANT HAS SATISFIED ALL PRE-CONSTRUCTION CONDITIONS AS SET FORTH HEREIN.

Received and/or Recorded by County Clerk:

This permit is not valid unless authorizing signature appears on the last page.

SPECIAL CONDITIONS:

1. The applicant shall make specific arrangements to ensure the continuous maintenance and efficient operation of all proposed stormwater management measures onsite. This includes the inspection (and cleaning where necessary) of any and all constructed swales, basins, inlets, and mechanical treatment devices at least four times per year and after every major storm totaling 1 inch of rainfall or more, the use of appropriate soil conservation practices onsite, and any other reasonable effort required to maintain the stormwater management system in good working order.

2. This project has not been reviewed for consistency with the applicable Areawide Water Quality Management Plan or the Statewide Water Quality Management Planning Rules at N.J.A.C 7:15. As such, this authorization shall not be construed as any type of consistency determination for any sewage generating structures on the project site. There shall be no development unless and until the proposed sewage generating structures have been found to be consistent with the appropriate Areawide Water Quality Management Plan. For information regarding the water quality planning process, please contact the Department's Division of Watershed Management at (609) 984-6888.

3. The Department has determined that this project meets the requirements of the Stormwater Management rules at N.J.A.C. 7:8. Any future expansion or alteration of the approved stormwater management system, which would affect water quality, increase the rate or volume of stormwater leaving the site, affect the infiltration capacity on the site, or alter the approved low impact site design, shall be reviewed and approved by the Department prior to construction. This includes any proposed changes to the discharge characteristics of any basin, the construction of new inlets or pipes that tie into the storm sewer network and/or the replacement of existing inlets or pipes with structures of different capacity.

FRESHWATER WETLANDS CONDITIONS:

1. This permit authorizes the disturbance of approximately 0.052 acres (2,281 square feet) of freshwater wetlands transition area to be compensated by the addition of 0.064 acres (2,772 square feet) as shown on the approved plans.

2. Prior to construction, and/or within 90 days of permit issuance, the property owner shall sign a Department approved conservation restriction for the modified transition area on the subject parcel(s) in accordance with N.J.A.C. 7:7A-6.1(h). The conservation restriction shall apply to all wetlands and wetland transition areas on the site (not just those areas which have been modified) and shall preclude future wetland and transition area permitting on the site without lifting the restriction. The restriction shall be included on the deed, and recorded in the office of the County Clerk (the Registrar of Deeds and Mortgages), in the county wherein the lands included in the waiver are located. Said restriction shall run with the land and be binding upon all successive owners. All individual lot surveys shall show the approved wetland and transition area boundaries. Any regulated activities undertaken on the site before a copy of this recorded restriction is submitted to the Department will be considered in violation of the Freshwater Wetlands Protection Act. The conservation restriction shall conform to the format and content of the model Conservation Restriction/Easement for Transition Area & Associated Wetlands appearing on the Division's website at www.state.nj.us/dep/landuse/forms. Send a copy of the recorded conservation restriction to this office, attention *Robert Kozachek* (bob.kozachek@dep.nj.gov) before beginning regulated activities.

3. Silt fencing shall be placed at the interface of the transition area and the upland lot areas prior to site preparation. This condition shall be printed on all applicable construction plans. In addition, the permittee shall erect a split rail fence or similar physical barrier at the limit of the approved conservation restriction area at the completion of site grading. The permittee shall erect permanent signs on the barrier that denotes the area beyond the fence as deed restricted.

4. All excavated material and dredge material shall be disposed of in a lawful manner. The material shall be placed outside of any flood hazard area, riparian zone, regulated water, freshwater/coastal wetlands and adjacent transition area, and in such a way as to not interfere with the positive drainage of the receiving area.

5. This authorization for this Transition Area Waiver is valid for a term not to exceed five years from the date of this letter. If the permittee wishes to continue an activity covered by the permit after the expiration date of the permit, the permittee must apply for and obtain a permit extension or a new permit, prior to the permit's expiration. If the term of the authorization exceeds the expiration date of the transition area waiver issued by rule, and the permit upon which the authorization is based is modified by rule to include more stringent standards or conditions, or is not reissued, the applicant must comply with the requirements of the new regulations by applying for a new transition area waiver authorization.

6. **The applicant must submit a restoration plan for the unauthorized disturbance to freshwater wetlands, freshwater wetlands transition area and FHA riparian zone. This restoration plan must receive approval from the Department prior to commencement of any construction activity within regulated areas.**

7. The permittee shall submit written notification to the Bureau of Coastal and Land Use Compliance and Enforcement, NJDEP, P.O. BOX 422, East State Street, Trenton, NJ 08625-0422, at least seven days prior to the commencement of site preparation, or of regulated activities, whichever comes first. The notification shall contain proof of recording of a conservation restriction or easement, if one was required as part of the permit.

RIPARIAN ZONE COMPENSATION CONDITIONS:

1. The permittee shall compensate for the (permanent or temporary) disturbance to 0.014 acres (606 square feet) of herbaceous (athletic field) riparian zone through 0.015 acres (652 square feet) of on-site mitigation as shown on the approved plans.

2. **The compensation project must be conducted prior to or concurrent with the construction of the approved project.** Concurrent means that at any given time, the compensation must track at the same or greater percentage of completion as the project as a whole.

3. **Prior to the initiation of regulated activities authorized by this permit,** the permittee shall sign a Department approved conservation restriction to protect the compensation area from future development that would remove the vegetation planted. (N.J.A.C. 7:13-10.2(t)3) The conservation restriction shall conform to the format and content of the Riparian Zone Compensation Area model located at http://www.nj.gov/dep/landuse/forms/index.html. The restriction shall be included on the deed and recorded in the office of the County Clerk (the Registrar of Deeds and Mortgages in some counties) in the county wherein the lands of the compensation project are located. A metes and bounds description shown on a map must be included within the recorded conservation restriction. Within 10 days of filing the conservation restriction, the permittee must send a copy of the recorded conservation restriction to the attention of the Mitigation Unit Supervisor, NJDEP, Division of Land Use Regulation at Mail Code 501-02A, P.O. Box 420, Trenton, NJ 08625-0420.

4. The permittee shall monitor the riparian project for at least 3 years beginning the year after the riparian zone compensation project has been completed (N.J.A.C. 7:13-10.2(u)5). The permittee shall submit monitoring reports to the Division of Land Use Regulation, no later than December 31st of each full monitoring year.

    a. All monitoring reports except the final one must include documentation and field data demonstrating that that the goals of the riparian zone compensation project will be achieved as stated in the approved riparian zone compensation proposal and the permit requirements will be satisfied. If the permittee is finding problems with the compensation project and does not anticipate the site will be a full success, recommendations on how to rectify the problems shall be included in the report with a time frame in which they will be completed.

    b. The final monitoring report must include documentation and data demonstrating the following:

        i. That the goals of the riparian zone compensation project as stated in the approved riparian zone compensation proposal and the permit conditions have been satisfied.

        ii. That at least 85 percent of the compensation plantings have survived and that at least 85 percent of the compensation area is established with native species similar to ones identified on the compensation planting plan. All plant species in the compensation area must be healthy and thriving. All trees must be at least 5 feet in height; and

        iii. That the site is less than 10 percent occupied by invasive or noxious species.

5. If the riparian compensation project does not meet the success criteria established above the project shall be considered a failure and the permittee shall submit a revised riparian compensation plan. The revised plan shall be submitted within 60 days of receipt of notification from the Division indicating the riparian compensation project was a failure.

6. If the Division determines that the riparian zone compensation project is not constructed in conformance with the approved plan, the permittee will be notified in writing by the Department and will have 60 days to submit a proposal to indicate how the project will be corrected.

STANDARD CONDITIONS:

1. **Responsibilities:**
    a. The permittee, its contractors and subcontractors shall comply with all conditions of this permit, authorizing and/or supporting documents and approved plans and drawings.

    b. A copy of this permit, other authorizing documents, records and information including all approved plans and drawings shall be maintained at the authorized site at all times and made available to Department representatives or their designated agents upon request.

2. **Permit modification:** Plans and specifications in the application and conditions imposed by this permit shall remain in full force and effect so long as the proposed development or any portion thereof is in existence, unless modified by the Department. No change in plans or specifications upon which this permit is issued shall be made except with the prior written permission of the

Department. The filing of a request to modify an issued permit by the permittee, or a notification of planned changes or anticipated noncompliance does not stay any condition of this permit.

3. **Duty to minimize environmental impacts:** The permittee shall take all reasonable steps to prevent, minimize or correct any adverse impact on the environment resulting from activities conducted pursuant to the permit, or from noncompliance with the permit. The permittee shall immediately inform the Department of any unanticipated adverse effects on the environment not described in the application or in the conditions of this permit. The Department may, upon discovery of such unanticipated adverse effects, and upon the failure of the permittee to submit a report thereon, notify the permittee of its intent to suspend the permit

4. **Proper site maintenance:** While the regulated activities are being undertaken, neither the permittee, its contractors nor subcontractors shall cause or permit any unreasonable interference with the free flow of a regulated feature by placing or dumping any materials, equipment, debris or structures within or adjacent to the regulated area. Upon completion or abandonment of the work, the permittee, its contractors or subcontractors shall remove and dispose of in a lawful manner all excess materials, debris, equipment, silt fences and other temporary soil erosion and sediment control devices from all regulated areas. Only clean non-toxic fill shall be used where necessary.

5. **Sediment control:** Development which requires soil disturbance, creation of drainage structures, or changes in natural contours shall conduct operations in accordance with the latest revised version of "Standards for Soil Erosion Sediment Control in New Jersey," promulgated by the New Jersey State Soil Conservation Committee, pursuant to the Soil Erosion and Sediment Control Act of 1975, N.J.S.A. 4:24-42 et seq. and N.J.A.C. 2:90-1.3-1.14.

6. **Rights of the State:**
   a. This permit does not convey any property rights of any sort, or any exclusive privilege.

   b. Upon notification and presentation of credentials, the permittee shall allow Department representatives or their designated agents, to enter upon the project site and/or where records must be kept under the conditions of this permit, inspect at reasonable times any facilities, equipment, practices or operations regulated or required under the permit, and sample or monitor for the purposes of determining compliance. Failure to allow reasonable access shall be considered a violation of this permit and subject the permittee to enforcement action.

   c. The issuance of this permit shall in no way expose the State of New Jersey or the Department to liability for the sufficiency or correctness of the design of any construction, structure or structures. Neither the State nor the Department shall, in any way, be liable for the loss of life or property which may occur by virtue of the activity of development resulting from any permit.

7. **Duty to Reapply:** If the permittee wishes to continue an activity covered by the permit after the expiration date of the permit authorization, the permittee must apply for and obtain a new permit authorization.

8. **Transfer of Permit:** This permit may not be transferable to any person unless the transfer is approved by the Department. Please refer to the applicable rules for more information.

9. **Other Approvals:** The permittee must obtain any and all other Federal, State and/or Local approvals. Authorization to undertake a regulated activity under this permit does not indicate that the activity also meets the requirements of any other rule, plan or ordinance.

10. **Noncompliance:**
    a. Any noncompliance with this permit constitutes a violation, and is grounds for enforcement action, as well as modification, suspension and/or termination of the permit.

    b. The permittee shall immediately report to the Department by telephone at (877) 927-6337 any noncompliance that may endanger health or the environment. In addition, the permittee shall report all noncompliance to Bureau of Coastal and Land Use Compliance and Enforcement, 401 E. State Street, 4th Floor, P.O. Box 420, Mail Code: 401-04C, Trenton, NJ 08625, in writing within five business days of the time the permittee becomes aware of the noncompliance. The written notice shall include: a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated length of time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the noncompliance. Such notice shall not, however, serve as a defense to enforcement action if the project is found to be in violation of this chapter.

11. **Appeal of Permit**: In accordance with the applicable regulations, any person who is aggrieved by this decision or any of the conditions of this permit may request a hearing within 30 days after notice of the decision is published in the DEP Bulletin. This request must include a completed copy of the Administrative Hearing Request Checklist. The DEP Bulletin is available through the Department's website at http://www.nj.gov/dep/bulletin and the Checklist is available through the Division's website at http://www.nj.gov/dep/landuse/download/lur_024.pdf. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see the website www.nj.gov/dep/odr for more information about this process.

APPROVED PLANS:

The drawings hereby approved are six (6) sheets, prepared by T&M Associates, dated December 3, 2015, last revised April 26, 2016, unless noted otherwise, entitled:

"TOWNSHIP OF MIDDLETOWN, CROYDON HALL MULTI-PURPOSE SYNTHETIC TURF FIELD, TOWNSHIP OF MIDDLETOWN, MONMOUTH COUNTY, NEW JERSEY",

"N.J.D.E.P. ENVIRONMENTAL PERMITTING PLAN" sheet no. 4 of 15, last revised 5/10/16,

"GRADING AND DRAINAGE PLAN" sheet no. 5 of 15,

"OUTFALL PROFILE & CROSS SECTIONS" sheet no. 6 of 15,

"CONSTRUCTION DETAILS" sheet no. 9 of 15, unrevised,

"CONSTRUCTION DETAILS" sheet no. 10 of 15, unrevised,

"CONSTRUCTION DETAILS" sheet no. 11 of 15.

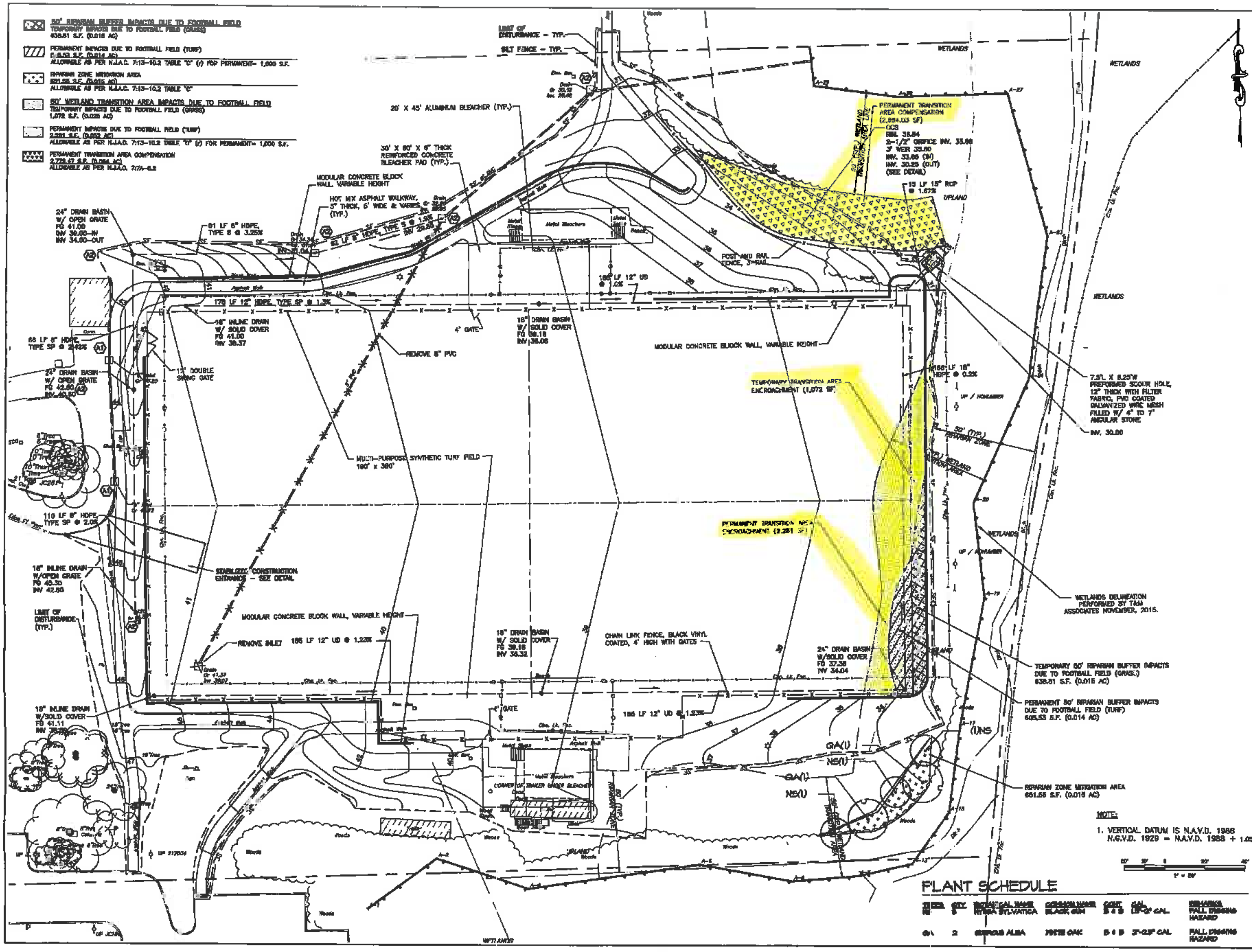
If you need clarification on any section of this permit or conditions, please contact the Division of Land Use Regulation's Technical Support Call Center at (609) 777-0454.

Approved By:

Keith P. Stampfel, P.E.
Supervisor
Division of Land Use Regulation

Date 6/9/16

Original sent to Agent
c: Permittee



NOTE:

1. VERTICAL DATUM IS N.A.V.D. 1988
N.G.V.D. 1929 = N.A.V.D. 1988 + 1.05'

1" = 20'

PLANT SCHEDULE

TREES	QTY.	BOTANICAL NAME	COMMON NAME	CONT.	CAL.	REMARKS
NS	3	NYSSA SYLVATICA	BLACK GUM	B & B	1.5"-2" CAL.	FALL DIGGING HAZARD
GA	2	QUERCUS ALBA	WHITE OAK	B & B	2"-2.5" CAL.	FALL DIGGING HAZARD

ROBERT GREGORIA, P.E.

NEW JERSEY BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS

TOWNSHIP OF MIDDLETOWN

CROYDON HALL MULTI-PURPOSE SYNTHETIC TURF FIELD

TOWNSHIP OF MIDDLETOWN, MONMOUTH COUNTY, NEW JERSEY

N.J.D.E.P. ENVIRONMENTAL PERMITTING PLAN

T&M — YOUR GOALS. OUR MISSION.

11 TINDALL ROAD, MIDDLETOWN, NJ 07748

PRMT-1

SHEET 4 OF 15

Attachment D - Qualifications of Preparers

Caroline**DAVIDSON**

Environmental Scientist 1

Education

Rutgers University, Ongoing Education, New Jersey Urban and Community Forestry Accreditation Certification, Rutgers University Wetland Delineation Certificate Series, Rutgers University Identification of Wetland Plants in Winter Course

Roger Williams University, Bachelor of Science, Biology/ Environmental Science Minor

Professional Registrations/ Affiliations

OSHA, 40-Hour HAZWOPER Training; 10-Hour Construction Safety and Health Training

Years in the Industry

4

Areas of Expertise

National Environmental Policy Act (NEPA), Environmental Impact Statements (EIS), Urban and Community Forestry, Wetlands Delineation, threatened and endangered species monitoring, field analysis, desktop analysis, Microsoft Office, AutoCAD

Summary of Qualifications

Caroline is an environmental scientist with experience in field analysis, wetland delineation, hydric soil sampling, contaminated site investigations and ecological surveys. She is proficient in vegetation and wildlife identification, with a focus on threatened and endangered species habitat surveys, and skilled in performing desktop analyses for NEPA-compliant Environmental Impact Statements; conducting technical report writing; consulting federal and state-level natural resource databases; and conducting scholarly research. Caroline is also proficient in AutoCAD and Microsoft Office Suite and GPS recording and live plant surveys, with a focus on ensuring the protection of critical habitats. As a Student Conservation Association Biological Intern with the National Park Service, she conducted threatened and endangered species monitoring, population survivorship assessments and nesting site maintenance. Her community leadership experience includes serving on the Bradley Beach Shade Tree and Environmental Commissions.

In addition to her work as an environmental scientist, Caroline is also actively working with T&M's flood hazard department, primarily assisting in stormwater and land use calculation work, as well as Soil Conservation District Permit submissions. She is passionate about environmental conservation and dedicated to utilizing scientific expertise to contribute positively to environmental protection initiatives.

Key Projects

Asbury Park Restroom Improvements Project, Asbury Park City, NJ. Staff scientist for the submission of a coastal permit authorized to remove temporary restroom buildings within the City and replace the structures with permanent facilities. Responsible for field investigation and permit application assembly/submission.

Rutgers University Marine Field Station Dock Reconstruction and Marina Dredging, Little Egg Harbor Township, NJ. Staff and field scientist for the dredging of the Rutgers University Marine Field Station boat basin. Responsible for field investigation, wetland mapping within the project site, and permit assembly/submission.

Netflix Studios Fort Monmouth – Phase 1B, Borough of Eatontown, NJ. Staff designer responsible for reviewing and providing critique on the preliminary and final major site plans for the proposed Netflix studio to be located on the Fort Monmouth Mega Parcel. Responsible for conducting a comprehensive review of the draft pipe systems and drainage calculations associated with the proposed plans.

Route 95 to New Durham Road, Township of Edison and Borough of Metuchen, NJ. Staff and field designer responsible for conducting field flood research/analysis along Rt 287 between Rt 95 and New Durham Road for use in an upcoming roadway safety improvement project. Tasks included conducting field work to assess flooding and sedimentation conditions along the roadway, compiling a memorandum of field findings, and performing drainage area and land use analyses of the project site using AutoCAD software.

John F. Kennedy Elementary School Addition, Jamesburg Borough, NJ Staff scientist for the expansion of an existing elementary school through the installation of a multi-story building addition. Responsible for preparing project EIS, site figures, and performing desktop research for the project site as necessary.

Route 9 to Denby Avenue, Township of Lakewood, NJ. Staff and field designer responsible for conducting field flood research/analysis along Rt 88 between Rt 9 and Denby Avenue for use in an upcoming roadway safety improvement project. Tasks included conducting field work to assess flooding and sedimentation conditions along the roadway and compiling a memorandum of field findings.

Vernal Habitat Enhancement Monitoring Report, Palmyra Borough, NJ. Staff and field scientist for the monitoring of a constructed mitigation pool habitat. Responsible for participating in field monitoring throughout the growing season and associated data entry tasks.

Rockaway Board of Education Site Selection Assistance, Rockaway Township, NJ. Staff and field scientist for the due diligence investigation associated proposed school expansion and improvement projects. Responsible for field investigations including wetland and top-of-bank delineations, preparing project due diligence memorandum, site figures, and desktop research for the project site as necessary.

McClees Creek Stream Cleaning Project, Middletown Township, NJ. Staff and field scientist for the investigation of McClees Creek in Middletown Township associated with a proposed stream cleaning project. Responsible for wetland delineation and top-of-bank mapping, figure assembly, and desktop research for the project site as necessary.

Reconstruction of Berlin-Cross Keys Road (CR689), Pine Hill Borough and Berlin Borough, NJ. Staff scientist for the submission of a permit extension associated with roadway improvements and construction along a stretch of Berlin-Cross Keys Road. Responsible for associated desktop research and assembly/resubmission of documents to advance submission of the permit extension.

Parker at Monroe - 4th Wing Expansion, Monroe Township, NJ. Staff scientist for the expansion of an existing care facility for adults living with dementia. Responsible for desktop research for the project site as necessary and the drafting of the project EIS.

Ocean County Parks and Recreation Utility Improvements, Toms River Township, NJ. Staff and field scientist for the submission of freshwater wetlands and a CAFRA permit associated with improvements to an existing office building and its associated utility lines. Responsible for desktop research for the project site, drafting of the permitting materials, and field re-delineation of previously delineated wetlands on the project site.

Ocean County Sheriffs Training Facility, Little Egg Harbor Township, NJ. Staff and field scientist for the acquisition of a letter of interpretation (LOI) associated with the Ocean County Sheriffs Training facility. Responsible for the assembly of the LOI application package and wetland delineation/top-of-bank mapping.

Design Permitting for Railroad Avenue North Extension, Lacey Township, NJ. Staff and field scientist for the extension of an existing roadway through a currently undeveloped walking path. Responsible for field investigation and wetland/top-of-bank delineation and mapping within the project site.

Union Beach Board of Education Wetland Delineation, Union Beach Borough, NJ. Staff and field scientist for the proposed expansion of an existing school building into a currently unused lot. Responsible for field investigation and wetland/top-of-bank delineation and mapping within the project site.

Environmental Scientist, AKRF, Inc., New York, NY. Environmental Scientist responsible for field analysis, wetland and surface water delineation, hydric soil sampling, contaminated site investigations, vegetation and wildlife ID, ecological community surveying, threatened and endangered species habitat surveys. Performed desktop analysis for National Environmental Policy Act (NEPA)-compliant Environmental Impact Statement (EIS), technical report writing, federal and state-level natural resource database consultation, scholarly research and AutoCAD work.

Student Conservation Association Biological Intern, Gateway National Recreation Area, Sandy Hook Unit, National Park Service, Atlantic Highlands, NJ. Biological intern responsible for performing threatened and Endangered Species Monitoring, population survivorship assessments, establishing protective enclosures, maintenance and GPS recording of nesting sites (piping plover); live plant surveys and GPS recording of growth sites (seabeach amaranth); field monitoring of

reproduced population survivorship (northeastern beach tiger beetle); field surveying of essential migratory staging habitat (migratory shorebirds).

Research Experience

Phycology Research, Roger Williams University, Bristol, RI. Student Researcher for research in DNA extraction and barcoding analysis of algal samples using gel electrophoresis procedures; evaluation of species richness, diversity, and invasive species presence in southern New England waters. Performed field sampling, water sampling, algal sample collection and archivist duties, herbarium digitization, analysis of species diversity among herbarium samples.

Senior Capstone Project, Marine Academy of Science and Technology, Bayshore Regional Watershed Council, Atlantic Highlands, NJ. Student Researcher and junior crew member aboard R.V. Blue Sea assisting with trawling and sampling efforts. Field research in the water and bottom trawl sampling in Sandy Hook Bay and New York Harbor on behalf of NOAA. Performed evening surveys of mating Atlantic horseshoe crabs, data analysis and the composition of a scholarly research paper detailing findings.

Coastal Geomorphology Survey, Marine Academy of Science and Technology, National Oceanic and Atmospheric Administration, Atlantic Highlands, NJ. Student Researcher responsible for performing field survey, sand sample collection, composition analysis and field measurement of changing dune heights on Sandy Hook at three discrete sites over a one-year period as well as analysis of dunegrass density and survivorship.

Community Leadership

Bradley Beach Shade Tree Commission, Bradley Beach, NJ. Active commission member. Monitored shade tree applications including the removal, replacement, restitution plantings, modification and pruning. Conducted education and outreach regarding proper tree maintenance and invasive spotted lanternfly management and was involved in community plantings.

Bradley Beach Environmental Commission, Bradley Beach, NJ. Active commission member. Attends commission meetings and arranges/participates in municipal activities such as the annual Green Fair (education and outreach), beach clean-ups, and invasive plant removal efforts.

Previous Career Experience

Ashokan Century Program, New York City Department of Environmental Protection, Ulster County, NY. Field investigator and environmental scientist. The New York City Department of Environmental Protection proposed a series of improvements and modifications to the Ashokan Reservoir, which would provide major replacements to and reconstruct the 100-year-old impounding structures and operating facilities on site. The Ashokan Reservoir was constructed between 1907 and 1915 and provides approximately 40% of all drinking water for New York City. Participated in the field work analysis efforts at the site in order to prepare an Environmental Impact Statement for the effects of the proposed project. Field responsibilities included wetland and surface water delineations, hydric soil sampling and analysis, and vegetation ID. Also participated in post-field work data analysis and the drafting of the Environmental Impact Statement for this project.

AMS Yorktown, 800 E Main Yorktown Dev AMS LLC, Westchester County, NY. Field surveyor and environmental Scientist for the renovation of a 35.53-acre property to develop an active adult residential community. Conducted a natural resource reconnaissance to identify the ecological communities located on and immediately adjacent to the proposed project site, performed a wetland boundary mapping of surface waters within the project site, and recorded incidental wildlife observations during the natural resource reconnaissance. Also performed desktop site analyses, including consultation with threatened and endangered species databases and general mapping of the ecological communities observed during the natural resource reconnaissance, and composed the DEIS writeup for the project.

Black Wall Marsh Island Restoration, Triborough Bridge and Tunnel Authority, Queens County, NY. Field surveyor, data analyst, and environmental scientist. To mitigate the unavoidable impacts to marine benthic habitat associated with the

rehabilitation of the Cross Bay Veterans Memorial Bridge, the Triborough Bridge and Tunnel Authority sponsored the restoration of the Black Wall Marsh by revegetating the site with Spartina alterniflora. Participated in the post-restoration monitoring of the Black Wall Marsh mitigation site, evaluating S. alterniflora and ribbed mussel (Geukensia demissa) survivorship at sampling sites on Black Wall Marsh in comparison to the control site at Elder's Point. Also contributed to the site monitoring reports for the 2022 and 2023 years.

White Plains Fire Department Drill School, New York State Department of Environmental Conservation Division of Environmental Remediation, Westchester County, NY. Field surveyor and environmental scientist. The City of White Plains contracted firm to compose a Fish and Wildlife Impact Analysis (FWIA) for submission to the New York State Department of Environmental Conservation Division of Environmental Remediation. The focus of the FWIA is the White Plains Fire Department Drill School (FDDS), an outdoor classroom used by the White Plains Fire Department for training sessions. These sessions have included the use of aqueous film-forming foams to extinguish fires within the FDDS area, which are identified as a source of chemical runoff and contamination documented in nearby waterbodies (i.e., White Plains Reservoir No. 2). As part of this plan Ms. Davidson conducted a natural resource reconnaissance investigation to determine the ecological communities, vegetation, wildlife and threatened and endangered species present within the project study area, as well as monitoring for any signs of stunted or stressed wildlife or vegetation stemming from chemical contamination. Also composed the FWIA based upon the results of the desktop and natural resource reconnaissance review of the project study area.

38R51 and 38R52 Feeder Replacement, Con Edison, Staten Island, NY. Data analyst and environmental scientist part of the team retained to prepare environmental documentation and permit documents for the Con Edison's 38R51 and 38R52 Feeder Replacement Project. The proposed project resulted in the replacement of two existing 138kV dielectric fluid-filled transmission feeders (Feeders 38R51 & 38R52) along a 4.5-mile corridor that currently connect Con Edison's Fresh Kills Substation in the Travis-Chelsea neighborhood with the company's Wainwright Substation in the Arden Heights neighborhood, of western Staten Island. Assisted in tree inventory desktop analysis efforts for this project which included an inventory of almost 1,000 trees following the NYC Parks Tree Valuation Protocols in support of the tree work permit for the project.

I-81 Viaduct Project, New York State Department of Transportation, City of Syracuse, Onondaga County, NY. Field surveyor and environmental scientist The New York State Department of Transportation proposed to rehabilitate, reconstruct, or replace Interstate 81 from about Van Buren Street to about Hiawatha Boulevard. Assisted in the 2022 Threatened and Endangered species surveys, as well as the preparation of the Environmental Impact Statement and the Wetland Delineation and Surface Waters Survey Report.

Replacement of the Shore Road Bridge over the Hutchinson River, New York City Department of Transportation, Bronx County, NY. Field surveyor and environmental scientist responsible to perform natural resource-related work for the preparation of an Environmental Impact Statement (EIS) for rehabilitation or replacement of the Shore Road Bridge. Assisted with preparing environmental documentation for the DR/EIS related to natural resources, including shell text (following the NYSDOT's PDM) as well as performing desktop natural resources review of the project, and the Threatened and Endangered Species field survey of the project site. Contributed to the analyses of general ecology, threatened and endangered species, water quality, wetland impact, and has contributed to the development of information needed in the Section 7 EFH and ESA consultation packages. Assisted with preparing the USCG Application.

LaGuardia Airport Mass Transit Access Summary Report of Public and Stakeholder Comments, Port Authority of New York and New Jersey, Queens County, NY. Data analyst. In early 2022, the Port Authority of New York and New Jersey reached out to key stakeholders and residents of New York City for input on the evaluation of 14 potential mass transit options to and from LaGuardia Airport. Assisted with the creation of a comment matrix to summarize over 500 comments from respondents and synthesized the community opinions regarding the proposed transit options.

North/West Battery Park City Resiliency Project, Battery Park City Authority, New York County, NY. Field surveyor and environmental scientist. The Battery Park City Authority proposed a coastal flood risk management system for lower Manhattan that would reduce vulnerability to coastal floods and integrate with a larger coastal flood risk management

system along the Manhattan shoreline. The proposed system would include passive structures (e.g., abovegrade concrete walls, below-grade concealed walls), deployable structures at vehicle and pedestrian crossings, and improvements to New York City's existing drainage infrastructure and underground sewage components. Assisted with the desktop study and field survey of the project area and the development of the Environmental Impact Statement for the site.

Battery Park City Sustainability, Battery Park City Authority, New York County, NY. Field surveyor and environmental scientist. The Battery Park City Authority retained a consultant team to support specific goals outlined in its comprehensive ten-year Battery Park City Sustainability Plan, which puts forth a holistic vision of environmental sustainability for Battery Park City, New York. Participated in a baseline plant species inventory as a member of the field ecology team, documenting plant species abundance and diversity across Battery Park City's tree pits and planted garden beds.

Ericka**NAKLICKI**, PWS

Group Manager

Education

University of Vermont, BS Environmental Studies, 2001

Rutgers University, Wetlands Delineator Certification

Rutgers University, Threatened and Endangered Species in NJ

Rutgers University, Winter Vegetation Identification

Rutgers University, NJDEP Freshwater Wetlands Regulations Short Course

Rutgers University, NJDEP Coastal Wetlands Regulations Short Course

Professional Registrations / Affiliations

Professional Wetland Scientist (PWS) Certification #2938

Society of Women Environmental Professionals, NJ/Philadelphia Chapter

Society of Wetland Scientists (SWS)

40-Hour OSHA Hazwoper Certification

8-Hour OSHA Permit Required Confined Spaces

Years in the Industry

24

Areas of Expertise

Wetland Delineations, Geographic Information Systems (GIS), NJDEP Land Use Regulations, PADEP Wetland Regulations, USACE Permit Requirements, Pinelands Regulations, Public Outreach

Summary of Qualifications

Ms. Ericka Naklicki is a highly accomplished environmental specialist with more than 24 years of experience in wetlands science and regulatory compliance. Certified as a Professional Wetland Scientist (PWS) by the Society of Wetland Scientists, she offers deep expertise in environmental permitting and natural resource management. She has a proven track record in wetland delineations and in preparing applications and final reports for regulatory agencies. Her project duties include obtaining Freshwater and Coastal Wetland Permits, Letters of Interpretation, CAFRA and Waterfront Development Permits, Pinelands approvals and US Army Corps of Engineers (USACE) permits. Ericka also has experience with the Pennsylvania Department of Environmental Protection (PADEP) wetland permits. She has authored numerous Environmental Impact Statements (EIS) and Baseline Ecological Evaluations that relate to a variety of projects. Her experience in the preparation of GIS maps for various project types, including wetlands, floodplains, threatened and endangered species, aquifer and land use maps, is extensive. She also has a solid background in using Global Positioning System (GPS) surveying equipment.

Ericka's experience is not limited to a specific type of project. She has conducted vegetation analysis, habitat assessments, and wetlands and stream analysis for a wide range of projects. Her portfolio includes numerous wetland delineations, from small to large properties up to 450 acres. She has conducted natural resource inventories and threatened and endangered species surveys for various projects. In addition, she has performed numerous tree surveys for various developments ranging from 2 to 300 acres. Ericka uses Trimble® GPS while in the field to gather data and locate the wetland flag locations. After collecting the data, she works with the project engineers to prepare permit plans to demonstrate project compliance with local, state and federal land use regulations.

Ericka has helped coordinate and attend numerous public information sessions, NJDEP and USACE Permit Application Meetings and public hearings for several large projects, including the NJTA's GSP Widening from Milepost 30 to 80 and the Carteret Ferry Terminal Project. She is also experienced with species monitoring including Bald Eagle and Osprey and vernal habitat and wetland mitigation monitoring. Ericka has led and coordinated species management plans/efforts with the DEP and USFWS and has prepared numerous nest relocation plans and approvals with the NJDEP.

As group manager, she manages and mentors her staff on various environmental and regulatory tasks and the various roles that an environmental professional has in a project. She ensures her staff has what they need to succeed and progress in their career paths. Ericka is a project manager and works with various engineers in T&M practices and outside of T&M to confirm proposed projects comply with the various state and federal agency rules and regulations.

Key Projects

Woodbridge Marina Redevelopment Project, Woodbridge, Middlesex County, NJ.

Environmental Task Leader for the Coastal and Freshwater Permits for the bulkhead replacement, Site improvements, and Tiki Bar Construction at the Sewaren Marina. Coordinated meetings with NJDEP and Project team to present the project to the NJDEP, conducted the wetland delineation, and prepared all NJDEP Permit

Application Packages. Worked with the engineers to design the project to meet the strict requirements of the Coastal Zone Management Rules and Flood Hazard Area Control Act Rules to create a more resilient project.

Headgates Dam Removal Project, Bridgewater and Bound Brook, Somerset County, NJ. Environmental Team Lead with Stantec, PS&S and Vancleef Engineering to coordinate the NJDEP permit applications and Green Acres Diversion for the removal of Headgates Dam on the Raritan River in Bridgewater and Bound Brook, Somerset County. Organized multiple interagency meetings with various departments at the NJDEP to present the project and ensure all required DEP Rules and Regulations were addressed appropriately. Worked with State Parks Department, Green Acres Program, and Somerset County to ensure all Property owner information was satisfied. Prepared all NJDEP Freshwater Wetland and Flood Hazard Area Permit Applications and coordinated with the engineers and NJDEP to ensure all technical reviews were conducted within a timely manner.

Palmyra TAC-PAL Logistics Center, Palmyra Borough, Burlington County, NJ. Task Manager for the permitting coordination for the redevelopment of the former Tac-Pal Flea Market/Drive In Movie Theater and the adjacent Fillit Sand and Gravel Landfill in Palmyra, NJ as part of the Route 73 Redevelopment Project. The proposed development includes dredge material disposal, two warehouses, parking lots, roadway infrastructure, affordable housing, stormwater management features, pedestrian trails, and gazebos in public open space along the water. Worked with client, engineers, and NJDEP to obtain, the required permits to comply with the NJDEP and ACOE Regulations. The schedule was aggressive, and the project had to be expedited in order to meet tight deadlines. Since there was an active osprey nest onsite, the project included Osprey Nest monitoring in order to address NJDEP regulations. The effort had to be coordinated with multiple T&M employees for a three-month period until the osprey fledged the nest. Since the active nest was removed, the project also included Osprey nest mitigation to construct three nests adjacent to the site. The project also included vernal habitat enhancement proposal and plan. This effort included preparing a grading plan to ensure hydrology would be sufficient and planting native vegetation that would thrive in a vernal habitat. Lastly, the project also included Bald Eagle nest research and meetings to discuss the in-active bald eagle nest on the property. Coordinated multiple meetings with NJDEP, USFWS, and NJFWS along with environmental consultants in order to ensure the project complies with the Migratory Bird Act.

Rutgers University Marine Field Station, Boat Basin Dredging, Township of Little Egg Harbor, NJ. Environmental Task Manager for organizing state and federal agencies to authorize the dredging of the boat basin at Rutgers University Marine Field Station. The project consisted of preparing plans, Sediment Sample Analysis plans, Sediment sampling coordination, and permit applications for the dredging of the boat basin channel. Our efforts included leading and directing the sediment sampling and hydrographic survey required by the Federal and State Permitting agencies, as well as the preparation of the dredge design plans and Army Corps of Engineers Individual Permit and NJDEP Waterfront Development Permit. This project required coordination with agencies to discuss dredge material disposal and address the timing restrictions associated with various protected aquatic species. Upon approvals, coordinated and oversaw the dredging of the basin.

Sylvan Lake Outfall Replacement Project, Avon-by-the-Sea and Bradley Beach, Monmouth County, NJ. Environmental Task Manager for the CAFRA Individual Permit Application for the replacement of a wooden flume associated with Sylvan Lake outfall in the Borough of Avon-by-the-Sea and Bradley Beach. A sink hole was observed on the beach that is associated with the stormwater flume. After numerous investigations it was determined that the wooden flume was in disrepair and required replacement. Worked with the engineers to design the plans to minimize impacts on the regulated areas on the beach while satisfying the goals of the project.

New Jersey Water Supply Authority, Prallsville Culvert Pit Rehabilitation Project, Stockton Brough, Hunterdon County, NJ. Environmental Task Manager for the NJDEP, DRCC and SHPO project approvals for the replacement and repair of historic structures at the Delaware and Raritan Canal State Park. T&M worked with the Authority to coordinate the permitting effort with NJDEP DLRP, DRCC, State Parks Department, and State Historic Preservation Office (SHPO). Worked with the historic subconsultant and T&M engineers to prepare a presentation for the Historic Sites Council. Served as task manager with various groups to keep the project moving along and to secure all regulatory permits to comply with the various environmental and historic rules and regulations.

FD Stonewater VA Facility, Toms River Township, Ocean County, NJ. Environmental Task Manager for the permitting coordination for the construction of a VA Facility in Toms River. Project included NJDEP CAFRA IP and offsite critical wildlife habitat mitigation. Worked with client, engineers, and NJDEP to obtain, the required permits to comply with the NJDEP Coastal Zone Management Rules. The schedule was aggressive, and the project had to be expedited in order to meet tight deadlines. Project included the construction of a 37,685 SF Community Based Outpatient Clinic Building, 480 parking spaces, stormwater management facilities, landscaping, and lighting. The existing forested area to remain onsite had to be deed restricted and T&M had to work with the Township of Toms River to deed restrict an existing forested habitat in the Township in order to satisfy the Critical Wildlife Habitat Mitigation.

Route 88 (MP .41 to 2.41) Concept Development, NJDOT, Lakewood Township, Ocean County, NJ. Environmental Lead to prepare the Environmental Screening for the CD Report. Provided management and oversight of staff working on the Environmental Screening Process that included desktop research of various environmental data sources; identification of potential permit applications; and preparation of the CD.

Cumberland County Bicycle and Pedestrian Safety Action Plan, South Jersey Transportation Planning Organization (SJTPO), NJ. Environmental lead for four projects as part of the Local Safety Program involving five separate corridors in Millville, Vineland, and Bridgeton, Cumberland County, NJ. The primary objective of these projects is to provide safety improvements through the design and implementation of multi-modal and traffic calming solutions. As a sub to Urban Engineers, served as Environmental Team Lead responsible for the preparation of the CED. Provided management and oversight of the staff working on the environmental CED process that included desktop research of various environmental data sources; site visits to confirm site conditions; wetland or stream delineation; identification of potential permit applications; and preparation of the CED.

A. Paul King Park Development Project, Stafford Township, Ocean County, NJ. Environmental Scientist for the preparation of NJDEP permit applications for combined Freshwater Wetlands, Letter of Interpretation, Flood Hazard Area and Transition Area Waiver for Redevelopment. Worked with design engineer and NJDEP staff to redevelop 9,010 SF of waterfront area along Lake Manahawkin at A. Paul King Park in Stafford Township, Ocean County, NJ. Performed wetland delineation and field assessment to develop permit application compliance on behalf of the Ocean County Department of Parks and Recreation. The park improvements span from the northern terminus of the intersection of W. Bay Ave and Beach Street to the southern terminus at Stafford Township Community Garden. Permits are currently under review by the NJDEP.

Cedar Bridge Tavern, Ocean County, NJ. Environmental Scientist responsible for leading the coordination effort to meet, prepare and organize meetings and applications to the State Historic Preservation Office (SHPO), the Pinelands Commission, and the Ocean County Soils Conservation District for approvals related to survey, site plan design and construction administration for the site/civil aspects to restore the 18th century tavern to a learning center and historic site for the Ocean County Department of Parks and Recreation.

Highlands Rail Trail, Wanaque Borough, Passaic County, NJ. Environmental Task Manager for the permitting coordination for the NJDEP Permits and wetland/stream delineation for the construction of a 9,010-foot-long and 10-foot-wide porous pavement pedestrian trail with a footbridge in the Borough of Wanaque. The majority of the trail is situated along a former railway and existing watermain easement. Coordinated efforts between the client and the NJDEP Division of Land Resource Protection (Flood Hazard Area (FHA) Engineers and Freshwater Wetlands (FWW) Environmental) to address the permit requirements and design permit plans. Conducted numerous field and office meetings with the NJDEP to approve the permit plans and permit applications. Conducted numerous field meeting and office meetings with the Borough to discuss the plans and schedule.

New Beach Pavilion, Keansburg Borough, NJ. Environmental Task Manager for the permitting coordination for the construction of a 1,296 SF concession stand and restroom building to connect to adjacent parking lot and public access to the beach in the Borough of Keansburg. Worked with the design engineers and the NJDEP to obtain the CAFRA Individual Permit and Green Acres authorization for the project activities.

Beach Replenishment and Restoration Project, Parkertown Beach and Mystic Beach, Little Egg Harbor Township, NJ. Environmental Scientist responsible for organizing the major permitting efforts for the shoreline restoration at two public beaches in the Township of Little Egg Harbor. The permit applications included NJDEP Waterfront Development Permits, Freshwater Wetland Permits, Army Corps of Engineers and Tidelands Licenses. There were numerous interagency meetings and conversations with the NJDEP, ACOE, NMFS, and USFWS to design the project to be in compliance with the strict NJDEP Coastal Zone Management Rules and Army Corps of Engineers Rules. The project entailed the design of in-water structures to help with erosion control consisting of beach replenishment, breakwaters, stone jettys, and living shorelines. T&M worked with Stevens Institute of Technology to design the stone revetments and living shoreline.

Carteret Ferry Terminal Design and Permitting, Carteret, NJ. Environmental Task Manager to work with the design team to obtain all NJDEP and ACOE Approvals, and a Wetlands Mitigation Plan for the design of the new Carteret Ferry Terminal project along the Arthur Kill in the Borough of Carteret. Design consists of a new bulkhead, loading pier, pedestrian shelters, commuter parking, pedestrian walkways, site lighting and landscaping. This plan includes improvements for a parking lot to accommodate between 350 and 400 vehicles; an access road; site for a future terminal building, shelters, benches and other amenities such as site lighting, walkways, benches, trash receptacles, shelters and landscaped areas.

Drainage Improvements to Lincoln, Harrison, Ballantine and Pelican Roads, Middletown Township, NJ. Environmental Scientist responsible for conducting the wetland and State open water delineations at each site. Once delineations were complete, coordinated with the NJDEP to obtaining all required NJDEP land use permits to implement the proposed drainage improvement projects at these locations.

Jersey City Canal Crossing Redevelopment, Jersey City Municipal Utilities Authority, Jersey City, Hudson County, NJ. Permit Task Manager for the proposed regulated activities including the pipe replacement and repair activities as part of the Jersey City Canal Crossing Redevelopment project. The primary goal of the project is to separate the antiquated combined stormwater and sewer pipes and replace with new separate pipes that have sanitary flow only and stormwater flow only. In the upland waterfront development, freshwater wetlands, and flood hazard area jurisdictions of the site, JCMUA has proposed to replace 1,000 LF of pipe and to repair 150 LF of 80" by 80" pipe within Liberty State Park and install a new 48" sanitary pipe below the basin between the NJ Transit and Conrail tracks. In the regulated Waterfront Development area, waterward of the MHWL, the applicant will replace the existing 80" X 80" outfall pipe chamber in-kind and repairing the headwall for the 96" X 84" pipes. The effort included wetland delineation and working with the design engineers to ensure the project complied with the NJDEP Regulations. The NJDEP Permits included Waterfront Development Individual Permit, Freshwater Wetlands General Permit, and Flood Hazard Area Permit. The project required coordinated effort with the NJDEP Office of Permitting & Project Navigation (OPPN), NJDEP Division of Land Resource Protection, NJ State Parks Department, and US Army Corps of Engineers since a pipe had to be replaced within Liberty State Park. Coordinated multiple meetings with the NJ State Parks Department to ensure the project complied with their requirements.

Dorbrook Park Mitigation Monitoring, County of Monmouth, Colts Neck, NJ. Environmental Task Manager worked with NJDEP Mitigation Unit and Monmouth County Department of Engineering to conduct two years of analyzing and monitoring the Riparian Zone Mitigation project at Dorbrook Park. Conducted the field analysis using NJDEP mitigation survey protocols to determine the health of the vegetation planted the mitigation site. Additionally, prepared the riparian zone monitoring report and all associated documentation. Multiple field meetings were held with the client and the consultant that planted the trees onsite. The final analysis determined that the mitigation area greatly enhanced the riparian zone and surrounding environment aesthetically. The mitigation greatly improved an underutilized habitat to function as new habitat to support the bird and mammal species that thrive in riparian environments. All data collected in the field was analyzed in the report and sent to the NJDEP for review and approval. Upon submission of the final report, the NJDEP approved and closed out the mitigation project.

Swan Creek Flood Gate and Pump Station Resiliency Project, City of Lambertville, Hunterdon County, NJ. Environmental Scientist responsible for conducting due diligence and regulatory data review for flood control mitigation in the City of Lambertville. Worked with various State agencies and government representatives to review alternatives analysis on a

future flood mitigation project. The city required an analysis of flood control alternatives to protect the City from flood hazards which have historically occurred in Swan Creek drainage basin and the City's historic district. Met several times with various agencies during the research and due diligence process to review resiliency improvements to the Swan Creek Drainage Basin.

Overpeck Park Landfill, Teaneck, Bergen County, Teaneck, NJ. Environmental Scientist responsible to prepare and submit the interagency permit applications for the closure of the Overpeck park landfill and slope stabilization along Overpeck Creek. The permit applications included Army Corps of Engineers Permit Application and the NJDEP Freshwater Wetland General Permit No. 5, Coastal General Permit 15 and Waterfront Development Permit Application. The project also included the delineation of the wetlands located on the 51-acre parcel. Coordinated efforts between the client and the NJDEP and ACOE to address the permit review comments and to revise the permit plans in accordance with the regulations.

FY 2016-2017 Local Safety Engineering Assistance Program – Contract C, Morris and Monmouth County, NJ. Environmental Scientist for the preliminary and final design of roadway improvements a Monmouth County project administered by the North Jersey Transportation Planning Authority (NJTPA). Project C2 Stage Coach Road (CR 524) Phase 2 (Millstone and Upper Freehold Townships) includes roadway safety improvements and road realignment to correct substandard horizontal geometry on a high-risk rural roadway. Project tasks for all projects include field survey and basemapping; roadway geometric designs; ADA compliance; stormwater management; traffic engineering; roadway lighting; signing and striping; and community outreach. Responsible for performing the wetland delineation. Environmental permitting of the projects includes preparation of NJDEP Flood Hazard Area and Freshwater Wetlands permits for Stage Coach Road and CED preparation and Soil Conservation District permits for all three projects.

Berkeley Island Park Improvement Project, Berkeley Township, NJ. Environmental Scientist responsible for organizing the major permitting efforts for the improvements of an existing Ocean County Park located on Barnegat Bay and Cedar Creek that was destroyed by Superstorm Sandy and closed to the public since the storm. Permit applications included CAFRA IP, Waterfront Development IP, Army Corps of Engineer and Tidelands License. There were numerous interagency meetings and conversations with the NJDEP and ACOE to design the project to be in compliance with the strict NJDEP Coastal Zone Management Rules and Army Corps of Engineers Rules. The project entailed the design of in-water structures to help with erosion control consisting of beach replenishment, two breakwaters, a stone revetment, a stone jetty, bulkhead replacement and living shoreline. T&M worked with Stevens Institute of Technology and the NJDEP Division of Coastal Engineering to design the stone revetments and living shoreline. The upland work consisted of the construction of a 1,500 SF comfort station that included restrooms, locker rooms, first aid station and storage, the replacement of two gazebos and picnic pavilion, playground and splash pad, horseshoe pits, bocce courts, site lighting, walkways, low level landscaping, benches, parking area, bike racks, split rail fencing, bait cutting stations, flag pole area and entrance gate.

Roundabout Design at CR 8A (Locust Avenue/Valley Drive), CR 8B (Navesink Avenue) & Monmouth Avenue, Middletown Township, Monmouth County, NJ. Environmental Scientist for intersection and safety improvements associated with converting an existing stop-controlled intersection to a new roundabout. Performed wetland delineation for the project area. Work performed in conformance with MUTCD, TRB's Highway Capacity Manual (including LOS analysis), and Monmouth County standards.

Monmouth County Landfill, Tinton Falls, NJ. Environmental Scientist for the delineation of 300 acres of wooded wetlands. Prepared and submitted Letter of Interpretation (LOI) application to NJDEP. Worked with the client and NJDEP case manager to review the site and overall wetland delineation.

Intersection Improvements at Bordentown Road, Mansfield, Burlington County, NJ. Environmental Scientist for the final design of roadway improvements to Bordentown Road at intersections with Georgetown Road, Chesterfield Road and Schoolhouse Road. Conducted land surveys and environmental assessments related to the road improvements. Responsible for the design and layout of a single lane roundabout at the intersection of Bordentown Road with Georgetown Road, assisted by the TORUS roundabout design software.

Cloverdale Park, Barnegat Township, NJ. Prepared the Pinelands Public Development Permit Application for the redevelopment of an existing Ocean County park and cranberry bogs. Worked with the design engineers to design the project to meet the needs of the Pinelands Commission and the Ocean County Department of Parks and Recreation. The proposed project involved the redevelopment of an existing residence to be converted to a public restroom, construction of a visitor center, parking lots and other site improvements. Ericka coordinated all pre-application meetings, field work, onsite meetings with the client, permit preparation, permit submission and regulatory agency communication.

Red Bank Library Bulkhead Replacement and North Prospect Avenue Bulkhead Replacement, Red Bank, NJ. Environmental Scientist responsible to obtain the NJDEP Coastal General Permit No 14, ACOE SPGP19 and NJDEP Tidelands License for the replacement of the bulkheads along the Navesink River. Coordinated with the Borough and structural engineers to design the bulkheads on two different properties to maintain compliance with the NJDEP Coastal Zone Management Rules.

Red Bank Bellhaven Park, Borough of Red Bank, NJ. Worked with the Borough Engineer, Landscape Architects and LSRP to prepare and submit a combined NJDEP Permit application for Coastal GP 17, Freshwater Wetlands GP 17 and 4 and a Transition Area Waiver D Clause for the improvements to an underutilized public park located on the Swimming River in Red Bank. Improvements to the park included resurfacing an existing six-foot wide, 3,755 LF long gravel trail, a tot-lot with new playground equipment, 314 SF spray pad encircled by a six-foot wide concrete sidewalk, re-grading and elevation increase by 2-3 feet to meet the existing topography. New landscaping was provided throughout the project area and removal of the existing invasive vegetation. The project remained compliant with strict Coastal Zone Management Rules and Freshwater Wetland Rules. Conference calls with the NJDEP, pre-application meetings and emails were organized to meet the Division of Land Use Regulations. Assisted the LSRP with additional permits required for the remediation activities needed for a portion of the site.

Sea Bright Beach Pavilion, Borough of Sea Bright, NJ. Organized efforts to obtain the CAFRA Individual Permit for the construction of a proposed two-story 76' by 70' beach pavilion on a portion of the public beach and parking lot. The new facility will be accessible by the boardwalk and ADA compliant ramps from both the beach and parking lot. Facility amenities will include a public library, beach office, community room, restrooms and outdoor showers, public gathering facility and lifeguard station headquarters for equipment and observation. The project will require close coordination with the NJDEP to remain in compliance with the Coastal Zone Management Rules that apply to impervious surface, parking, scenic resources and beaches.

Beach Access Plan, Monmouth Beach Borough, NJ. Worked with the Borough Engineer to design a Public Beach Access Plan to assure that the beach access was in compliance with the NJDEP Coastal Zone Management Rules. The access plan included researching the size of the beach during high tide and assessing the amount of people using the beach. In addition, the amount of parking spaces and the amount of access points to the beach had to be assessed. The report and all maps and plans had to be compiled into a report and submitted to the NJDEP for review and approval.

Teaneck Nature Preserve, Teaneck, NJ. Wetland Delineation and NJDEP Letter of Interpretation. Conducted wetland delineation at a disturbed site that is 55 acres in size. The site was a previously disturbed landfill that has been converted to a nature preserve. The site has been disturbed from past site activities which provided rough terrain and made the delineation more difficult. Subsequent to the delineation, the Freshwater Wetland Letter of Interpretation was prepared and submitted.

Geographic Information Systems (GIS). Environmental Constraints Analyses prepares Environmental Constraints Maps for a variety of projects for different departments at T&M. The GIS Maps are prepared using Arc GIS version 10.1. The GIS program contains NJDEP State GIS Data along with County and Municipal GIS Data. The data can be used when preparing proposals to get background information on a site. The data can be used for preliminary background work prior to conducting a site visit. In addition, the maps can be used in Environmental Assessment Reports and NJDEP Permit Applications.

Sanderson Parcel, Preliminary Assessment and Wetlands Delineation, Edison Township, NJ. Environmental Scientist for environmental investigation and consulting services for the Middlesex County Improvement Authority. Work included the oversite of staff which included a thorough onsite investigation and assessment of the environmental conditions in conformance with accepted ASTM Standard Practice for Environmental Site Assessment.

Tamarack Hollow Expansion, Phase I Site Assessment and Wetlands Delineation, East Brunswick/South Brunswick, NJ. Environmental Scientist for environmental investigation, wetland delineation and lot yield analysis for the Middlesex County Improvement Authority. Work included the oversite of staff which included a thorough onsite investigation and assessment of the environmental conditions in conformance with accepted ASTM Standard Practice for Environmental Site Assessment, Freshwater Wetlands Protection Act and East Brunswick and South Brunswick Land Use and Zoning Ordinances.

Ocean County Midstream Road Bridge Replacement, NJ. Prepared all of the combined interagency permits for the replacement of an Ocean County Bridge Spanning Beaverdam Creek in Brick Township. The permits included NJDEP CAFRA, Waterfront Development and Freshwater Wetlands General Permit No. 10. In addition, the project involved obtaining US Coast Guard Bridge Permit and USACE Nationwide Permit.

Noe Street Drainage Improvement Project, Carteret, NJ. Prepared NJDEP Waterfront Development Permit, Freshwater Wetlands Permit and Army Corps Nationwide Permit for the drainage improvements and proposed tide gate at Noes Creek in Carteret. Also worked with the landscape architects to prepare the Intertidal and Subtidal shallow and Riparian Buffer Mitigation and restoration plan. Worked closely with the NJDEP Division of Land Use Regulation in order to assure the project was designed in compliance with the NJDEP rules and also meet the goals of the project.

Monmouth County/County Route 3 Between County Road 527 and Kensington Drive/Woodland Circle, Manalapan, NJ. Environmental Scientist assisting with the permit applications for the concept development, preliminary engineering and roadway design alternative analyses for roadway improvements for CR3 (Main Street-Tennent Road) between CR527 (Millhurst Road) and Kensington/Woodland Circle. The project addresses traffic safety issues, capacity improvements, system linkage, geometric deficiencies, project transportation demands, environmental considerations for permitting, and traffic signal improvements and optimization along CR3. The project included environmental assessment and studies including cultural resource analysis; wetland delineation; and regulatory assessment.

Reconstruction of Readington Road (CR 637), Townships of Branchburg and Readington, NJ. Environmental Scientist for the final design efforts of approximately 5,500 feet of roadway widening and reconstruction including the replacement of two county bridge structures. Effort associated with the project includes preliminary and final roadway, structural and hydraulics and hydrology design, including an alternatives analysis. Conducted the wetland delineation and prepared the freshwater Wetlands Letter of Interpretation Application and worked with the NJDEP to obtain the approvals.

Carnegie Center West, Building 804, Boston Properties/NRG Energy, Princeton, NJ. Environmental Wetland Permitting for a project involving site plan design of a state-of-the-art office building site using a multitude of sustainable elements including 800kW solar arrays consisting of 13 solar ground-mounted parking canopies, 2 solar roof-mounted canopies, and 2 solar ground-mounted pergolas; 400kW natural-gas-fired CHP unit; Two 30,000 gallon underground rainwater storage system; 2 windmills; pedestrian sidewalks and bicycle paths; 4 bio-swales and a 0.70-acre wet pond; green roof; and electric vehicle charging stations. Scope includes surveying, General Development Plan (GPD) design, wetland delineations, Phase 1 investigations, environmental permitting, landscape architecture design, traffic engineering, site lighting design, LEED® consulting services, and construction management.

Solar Array, Southampton Township, NJ. Delineated 450 acres of agriculture wetlands. Prepared and submitted Letter of Interpretation (LOI) Application to the NJDEP. Worked with the NJDEP to obtain the LOI and conducted site meetings to discuss with the NJDEP Case Manager.

Monmouth County Landfill, Tinton Falls, NJ. Delineated 300 acres of wooded wetlands. Prepared and submitted Letter of Interpretation (LOI) Application to the NJDEP. Met with Client and NJDEP Case Manager to review the site and overall wetland delineation.

Sand Replenishment, Union Beach, NJ. Prepared NJDEP CAFRA and waterfront development permits for the placement of 6,000 CY of sand replenishment. In addition, prepared Army Corps of Engineers (ACOE) Permit Applications.

Benjamin Terry Bulkhead Replacement, Borough of Keyport, NJ. Prepared coastal general permit No.14 and ACOE permit for the replacement of 413 LF of timber bulkhead with new fiberglass bulkhead within 21-inches of the existing bulkhead.

Six Bulkhead Replacements and Pump Station, Sea Bright, NJ. Prepared the NJDEP CAFRA Individual Permit and Waterfront Development Permit for the replacement of 5 bulkheads, the construction of a new bulkhead and walkover access ramp and construction of a new pump station to aid in the restoration of a Town that was greatly impacted by flood waters during Superstorm Sandy. The project also involved obtaining an USACOE Nationwide Permit.

Beachwood Beach Groin, Beachwood Borough, NJ. Prepared the NJDEP Waterfront Development Permit and Coastal General Permit No. 6 and Army Corps of Engineers Permit. Worked with the Municipal engineers to design the project to meet the needs of the NJDEP and the Borough of Beachwood. The Borough of Beachwood proposed the construction of a groin to reduce erosion along the eastern shoreline of Beachwood Beach located along the Toms River. In addition, the project involved minor sand transfer from the lower portion of the beach to the eastern shoreline to provide additional beach area and to improve the eroded conditions of the beach. Ericka Coordinated all field work, permit preparation, permit submission and regulatory agency communication.

Little Egg Harbor Township, Ocean County, Iowa Court Living Shoreline Project. Environmental Tas Manager to work with design engineers, NJDEP, USFWS, ACOE to design a Living shoreline at the terminus of a cul-de-sac in Little Egg Harbor. Submitted NJDEP Waterfront Development Permit and Army Corps of Engineers Permit for the project. Worked with NFWF to ensure the design and schedule meets the requirements of the NFWF Funding and schedule. Numerous meetings and conference calls were required to ensure the project was designed to comply with the various regulations and NFWF funding.

Tuckerton Borough, Ocean County, Living Shoreline (breakwater design). Worked with the design engineers, NJDEP and ACOE to design a breakwater to help restore an eroded shoreline along Green Street in Tuckerton. Prepared Waterfront Development Permit applications and Army Corps of Engineers Permits.

Howell Township, Monmouth County, Lake Aldrich Dredging Project. Conduct wetland delineation and prepare Freshwater Wetlands Individual Permit and Flood Hazard Area Individual Permit for dredging 57,000 CY of sediment from Aldrich Lake in Howell Township, Monmouth County. Work with the design engineer to develop permit plans and disposal site plans for dredge material disposal. Work with DEP to approve the permit plan and permit application. Meet with the Township to discuss the plans and schedule. Work with facility that would take the material to ensure the appropriate sediment samples were taken.

Little Egg Harbor, Ocean County, Rutgers Marine Field Station Boat Basin Dredge Project. Worked with the design engineers and Rutgers University to dredge 12,000 CY of sediment from their boat basin at the research facility on Barnegat Bay/Little Egg Harbor. T&M associates worked closely with Rutgers University to ensure proper dredge and disposal was conduct to comply with State and Federal Rules. Worked with NJDEP and ACOE and NMFS to ensure the dredge project will comply with the strict timing restrictions to protect a variety of aquatic species that inhabit Barnegat Bay. Conducted the Environmental Inspections during the dredge operations to ensure the contractor was dredging during the ebb tide, visited the site daily during the dredge operations to ensure compliance with the DEP/ACOE Rules. Attended numerous meetings with Rutgers, NJDEP and ACOE on the project.

Ocean Township (Ocean County) Lagoon Dredge Project. Prepared all NJDEP and Army Corps of Engineers Permit Applications for dredging 11,2080 CY of sediment from multiple lagoon areas within Ocean Township, Ocean County. Worked with the Township Engineer to ensure proper location for disposal. Worked with the NJDEP during the permit review process to ensure the project was designed to comply with the Coastal Zone Management Rules for Dredging tidal waterbodies.

Little Egg Harbor Lagoon Dredge Project. Prepared NJDEP Waterfront Development Permit and Army Corps of Engineers Permit Applications for dredging 75,400 CY of sediment from multiple lagoon areas within Little Egg Harbor, Ocean County. Worked with the Township Engineer to ensure proper location for disposal. Worked with the NJDEP during the

permit review process to ensure the project was designed to comply with the Coastal Zone Management Rules for Dredging tidal waterbodies.

Dipi**PATEL**, PhD

Senior Staff Designer

Education

Sardar Vallabhbhai National Institute of Technology, PhD, Civil Engineering, 2015

Sardar Vallabhbhai National Institute of Technology, Master of Engineering, Environmental Engineering, 1999

Sardar Vallabhbhai National Institute of Technology, Bachelor of Engineering, Civil Engineering, 1997

Years in the Industry

5

Areas of Expertise

Hydraulic and Hydrologic Analysis, Stormwater Management Design, Drainage analysis, Regulatory Permitting, HEC-RAS, HydroCAD, AutoCAD, Hydraflow, HEC-HMS, Arc GIS

Summary of Qualifications

Dipi Patel, PhD is a hydrologic and hydraulic designer with 25 years of professional experience in Civil Engineering as a consultant and educator. Her expertise includes Green Stormwater Infrastructure (GSI) planning, design, monitoring, and compliance; hydrologic and hydraulic modeling; data analysis and management; soil erosion and sediment control design; watershed restoration; regulatory permitting; preparing engineer's estimates and technical specifications; and bridge inspection and scour analysis. Dipi has worked on various projects for the New Jersey Turnpike Authority and New Jersey Department of Transportation related to hydrologic and hydraulic modeling, field inspection, database management and GSI design.

Over her career, Dipi has conducted hydrologic analysis (using HydroCAD, AutoCAD Hydraflow or HEC-HMS), hydraulic analysis (using HEC-RAS) and delineated flood hazard area for various streams and site development projects. This has included the collection of an extensive database of hydrologic, topographic, soil and land use and its management using Geographic Information Systems (GIS) and database management tools. She has applied hydrological and hydraulic models to analyze data and predict flood behavior in stream floodplains and simulate flood scenarios and impacts. Dipi has prepared and submitted compliance documents for regulatory permits such as flood hazard areas, riparian buffers, wetlands, etc. and has been successful in obtaining permit authorization from state and local authorities. Prior to becoming a consultant, Dipi worked in academics for 19 years teaching various civil and environmental engineering subjects.

Key Projects

Flood Mitigation and Culvert Replacement over Heards Brook, New Jersey Turnpike Authority, Woodbridge, NJ. Project Engineer who worked as part of a team on stream diversion, dewatering and pumping design, engineer's estimate, soil boring plan, bid package review, shop drawing review, punch list meetings. Marked up NJTA As-Built drainage plans for drainage pipe analysis and delineated the drainage area of the stream at the downstream most point of the site. Carried out alternative analysis for flood mitigation measures.

Field Inspection of Stormwater Best Management Practices, New Jersey Turnpike Authority, NJ. Project Engineer who worked as part of a team to inspect and monitor stormwater management basins to determine the functionality of stormwater Best Management Practices (BMPs). Assisted in documenting inspection reports and preparing the maintenance recommendations for the BMPs and collaborated with a team to manage, store and organize inspection data and reports for NJTA using ArcGIS and data management platforms.

Design and Compliance of Stormwater Management System and Soil Erosion and Sediment Control Measures, Turnpike Maintenance District 5 (TMD5), New Jersey Turnpike Authority, Milltown, NJ. Project Engineer who worked on stormwater modeling and supported the team in the design and execution of stormwater BMPs for the proposed pre-engineered metal building. Improvements were proposed to increase the storage facility at the TMD5 site located in Milltown, NJ. These improvements required collecting and treating additional stormwater.

Culvert Replacement and Drainage Design for Route 57 over Lopatcong Creek, Warren County, NJ. Project Engineer responsible for developing steady flow hydraulic model in HEC-RAS, analyzing pipe flow, performing gutter spread analysis and designing storm drainage inlets and soil erosion and sediment control measures under the supervision of registered engineers. Wrote technical report to present design calculations and summary. The county proposed replacement of the culvert and associated drainage improvements.

Watershed Restoration and Protection Plan for Pohatcong Township, NJ. Lead Project Engineer responsible for performing water quality and nutrient modeling, nonpoint source pollution reduction, TMDL load reduction, Agricultural Best Management Practices, Stormwater Best Management Practices, watershed restoration, stream bank erosion control measures, documented background, existing conditions and water quality data and its analysis. Pohatcong Township intends to prepare the watershed restoration and protection plan with the goal of improving the water quality in the waterways of Pohatcong Township within Highlands region.

Design of Green Stormwater Infrastructure (GSI) System for Boxwood Hall Historical Site, Division of Property Management & Construction (DPMC), City of Elizabeth, NJ. Project Engineer responsible for performing the hydrologic analysis and design of the GSI system and preparation of the design documents for permit approval from local and state authorities for the DPMC's museum site. Project proposes some site developments to improve the functionality of the museum.

Review of Stormwater Management Design for Site Development Projects, Gloucester and Winslow Township, NJ. Project Engineer responsible for reviewing the stormwater management designs of private development projects submitted for township approval as a part of compliance with the township ordinances and stormwater management rules.

Prediction of Ambient Atmospheric Temperature using MATLAB, Fuzzy Logic Toolbox, Sardar Vallabhbhai National Institute of Technology, Surat, India. Researcher responsible for conducting research study utilizing the collection, analysis and processing of an extensive historical database of meteorological parameters using statistical methods and further developing prediction model using fuzzy logic toolbox in MATLAB. The study intends to develop a prediction model for Ambient Atmospheric Temperature.

Culvert Replacement and Downstream Impact Analysis at Sunscape Enterprises, Middlesex County, NJ. Lead Water Resources Engineer responsible for performing hydrological & hydraulic analysis of culvert replacement, level pool routing, downstream impact analysis, design and plan production and preparation of combined surfaces for existing and proposed contours. The land development project proposes construction of a new building and associated site development at the existing automotive recycling facility.

Site Redevelopment at Bear Pond Cottages, IAT Reinsurance, Sussex County, NJ. Lead Project Engineer responsible for working on flood hazard area verification by FEMA (method 3), design and plan production of flood hazard area verification and permit, writing compliance report, preparation and submission flood hazard area permit application package for NJDEP authorization. The project proposes redevelopment of the mixed-use site having single family homes and commercial boat repairing building on a parcel of land adjacent to a water body-pond.

Floodplain Delineation at Somerset Land Co. LLC, Mercer County, NJ. Lead Project Engineer responsible for performing site assessments, drainage analysis, hydrological and hydraulic analysis, floodplain delineation, floodway delineation, plan production of drainage area map, flood hazard area map and flood hazard area verification report and preparing NJDEP permit application package for regulatory compliance and authorization. The project involved delineation of flood plain and floodway limits on the undeveloped parcel of land having a passage of stream through the site along one of the boundaries for future development on the site.

Field Inspection of Bridges, New Jersey Department of Transportation, Trenton, NJ. Project Engineer responsible for working as part of a team to perform field inspection of bridges, documenting inspection reports and preparing recommendations in data management platform CombIS.

Bridge Scour Analysis, New Jersey Department of Transportation, Trenton, NJ. Project Engineer responsible for collaborating with a team to perform desktop analyses of scour-critical bridges, assessing their scoring and contributing to their overall evaluation. Coordinated with a team to manage, store and organize the data and reports for NJDOT in ProjectWise.